

**Randolph Township Schools
Randolph Middle School**

Grade Six Science Curriculum

“It is the tension between creativity and skepticism that has produced the stunning and unexpected findings of science.”

-Carl Sagan

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Randolph Township Schools
Department of Science, Technology, Engineering, & Mathematics
Grade 6 Science

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools
Department of Science, Technology, Engineering, & Mathematics
Introduction

Randolph Township Schools is committed to excellence. We believe that all children are entitled to an education that will equip them to become productive citizens of the 21st century. We believe that an education grounded in the fundamental principles of science, technology, engineering, and math (STEM) will provide students with the skills and content necessary to become future leaders and lifelong learners.

A sound STEM education is grounded in the principles of inquiry, rigor, and relevance. Students will be actively engaged in learning as they use real-world STEM skills to construct knowledge. They will have ample opportunities to manipulate materials and solve problems in ways that are developmentally appropriate to their age. They will work in an environment that encourages them to take risks, think critically, build models, observe patterns, and recognize anomalies in those patterns. Students will be encouraged to ask questions, not just the “how” and the “what” of observed phenomena, but also the “why”. They will develop the ability, confidence, and motivation to succeed academically and personally.

STEM literacy requires understandings and habits of mind that enable students to make sense of how our world works. As described in Project 2061’s *Benchmarks in Science Literacy*, *The Standards for Technological Literacy*, and *Professional Standards for Teaching Mathematics*, literacy in these subject areas enables people to think critically and independently. Scientifically and technologically literate citizens deal sensibly with problems that involve mathematics, evidence, patterns, logical arguments, uncertainty, and problem-solving.

Grade 6 Science
Introduction

The Grade 6 Science Course is the first of three middle school Science courses. We believe that all children are entitled to an education that will equip them to become productive citizens of the 21st century. We believe that an education grounded in the fundamental principles of science inquiry and rigor will provide students with the skills and content necessary to become future leaders. Students would be actively engaged in learning as they model real-world scientific behaviors to construct knowledge. This course introduces key concepts and skills that are essential for students as they prepare for the second course of Science. Students will gain an understanding of concepts pertaining to Earthy systems, reproductive success, ecosystems, forces and motion, interactions, astronomy, weather and climate, NJ ecosystems services and biodiversity, and minerals. They will have ample opportunities to manipulate materials in ways that are developmentally appropriate to their age. They will work in an environment that encourages them to take risks, think critically, build models, observe patterns, and recognize anomalies in those patterns. Students should be encouraged to ask questions, not just the “how” and the “what” of observed phenomena, but also the “why”. Scientific literacy requires understandings and habits of mind that enables students to make sense of how the natural and physical worlds work. As described in Project 2061’s *Benchmarks in Science Literacy*, scientific literacy enables people to think critically and independently. Scientifically literate citizens deal sensibly with problems that involve evidence, patterns, logical arguments, and uncertainty. The science curriculum has been developed with age appropriate activities and expectations to achieve these goals.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Grade 6 Science

SUGGESTED TIME ALLOTMENT (days)	UNIT NUMBER	CONTENT - UNIT OF STUDY
1 Week	I	Earth Systems Overview
3 Weeks	II	Reproductive Success within Ecosystems
4 Weeks	III	Ecosystems
4 Weeks	IV	Forces and Motion
3 Weeks	V	Interactions
8 Weeks	VI	Astronomy
9 Weeks	VII	Weather and Climate
3 Weeks	VIII	New Jersey Ecosystem Services and Biodiversity
1 Week	IX	Minerals

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science
Unit I: Earth Systems Overview

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales (ESS2.A: Earth’s Materials and Systems)</p>	<p>Earth’s systems have parts that work together allowing matter and energy to move through them.</p>	<ul style="list-style-type: none"> • How can matter and energy flow through systems?
	<p>Earth’s spheres are systems and these systems continually interact affecting biotic and abiotic factors in both positive and negative ways.</p>	<ul style="list-style-type: none"> • How can interactions within Earth’s systems be positive or negative?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>The geosphere is Earth’s crust, mantle, and core; the hydrosphere is water in all forms; the atmosphere is composed of gasses; and the biosphere is all living organisms.</p> <p>Biotic and abiotic components are evident in the geosphere, hydrosphere, atmosphere, and biosphere.</p> <p>Interactions occur between the four spheres that make up the earth system.</p>	<p>Students will be able to:</p> <p>Identify characteristics of each of Earth’s spheres.</p> <p>Categorize biotic and abiotic factors in each of earth’s spheres.</p> <p>Determine and illustrate how natural phenomena, such as a volcanic eruption, affect earth’s spheres.</p>

	<p>Matter flows through systems in cycles to sustain Earth's processes from energy produced from the sun and Earth's core.</p> <p>VOCABULARY: sphere, system, interaction, energy flow, solid, liquid, gas, local, global</p> <p>KEY TERMS: geosphere, hydrosphere, atmosphere, biosphere, biotic, abiotic, matter, crust, mantle, core</p>	<p>Follow the flow of energy within the earth's spheres.</p> <p>Describe how earth systems interact based on an event including matter and energy.</p>
<p>ASSESSMENT EVIDENCE: Students will show their learning by:</p> <ul style="list-style-type: none"> • Reflection including asking questions and • Collaborative discussion • Record observations • Explanatory writing • Analyzing and interpreting data • Research of primary and secondary resources • Engaging in argument from evidence <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none"> • Sphere walk: Students will identify biotic and abiotic factors. Students will categorize these factors into the four spheres. • Images: Students will view pictures of systems with or without disturbances. Students will then discuss the biotic and abiotic factors in the visible spheres, describe system interactions, and identify possible disturbances and repercussions. 		

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science
Unit I: Earth Systems Overview

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
1 week	Earth Systems Overview	<i>NEWSELA</i> <i>Pearson Interactive Textbooks</i> <i>NJ Model Curriculum Resources</i> https://www.classzone.com/books/earth_science/terc/content/investigations/es0103/es0103page01.cfm?chapter_no=investigation http://serc.carleton.edu/introgeo/earthsystem/nutshell/index.html

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science
Unit II: Reproductive Success within Ecosystems

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>NGSS:</p> <p>MS-LS1-4: Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.</p> <p>MS-LS1-5: Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.</p>	<p>Growth of organisms depends on inherited characteristics and the quality of the environment.</p>	<ul style="list-style-type: none"> • What conditions are essential for living things to have long term success in a system?
	<p>Animals and plants have specialized behaviors, reproductive parts, adaptations, and strategies that help them to successfully reproduce.</p>	<ul style="list-style-type: none"> • What factors are essential in living things for long term success in a system?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Favorable conditions for plant growth are sunlight, water, nutrients, soil, and air.</p> <p>Flowers have specialized parts for reproduction including pistil, stigma, style, ovary, petal, sepal, stamen filament and anther.</p> <p>Some plants attract pollinators by making bright flowers, smells, and providing nectar.</p> <p>Favorable conditions for animal’s reproduction include food, water, shelter, space, and mates.</p>	<p>Students will be able to:</p> <p>Design an experiment to explore plant growth conditions.</p> <p>Dissect a flower and identify specialized parts.</p> <p>Discover methods plants use to attract pollinators.</p> <p>Discover cause and effect relationships that accumulate in reproductive success.</p>

	<p>Animals attract a mate by having colorful plumage, vocalizing, and making nests.</p> <p>Animals keep young alive by choosing a safe nesting site location, time to raise young, and number of young (R and K model).</p> <p>Animal survival instincts include herding, flocking, or schooling.</p> <p>Successful reproduction of animals and plants may have more than one cause, and some cause-and-effect relationships in systems can only be described using probability.</p> <p>VOCABULARY: behavior, reproduction, specialized</p> <p>KEY TERMS: essential, biological success, seed dispersal, competition with species, pollination, vocalization, schooling, herding, flocking, fertilization, plumage, petal, sepal, female, pistil, stigma, style, ovary, ovules, male, stamens, anther, filament, pollen, dispersal</p>	<p>Collect data from video footage of animal behavior.</p> <p>Identify factors animals utilize to increase the success rate for the survival of their offspring.</p> <p>Examine the survival instincts of animals.</p> <p>Construct argument based on empirical evidence and scientific reasoning to support oral and written explanations for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Reflection including asking questions
- Collaborative discussion
- Planning and carrying out investigations
- Explanatory writing
- Developing and using models
- Analyzing and interpreting data
- Research of primary and secondary resources
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

KEY LEARNING EVENTS AND INSTRUCTION:

- Utilize science and engineering practices to design and preform an experiment on plant pollination.
- Research what plants need to grow and present findings
- Find seeds in nature and bring into school for seed dispersal activity
- Journal observations from plant experiment
- Observe Lily flower's specialized reproductive parts
- Read NEWSELA article with pollination (example: Chinese pear orchards that utilize human pollination)
- Observe and analyze animal behaviors for reproduction and survival via video clips

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science
Unit II: Reproductive Success within Ecosystems

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 weeks	Reproductive Success within Ecosystems	<i>NEWSELA</i> <i>Pearson Interactive Textbooks</i> <i>NJ Model Curriculum Resources</i> <i>Lab Aids Ecosystems</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science
Unit III: Ecosystems

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>NGSS:</p> <p>MS-LS2-1: Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.</p> <p>MS-LS2-2: Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.</p> <p>MS-LS2-3: Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.</p>	<p>Changes in matter and energy (resources) affect populations in ecosystems.</p>	<ul style="list-style-type: none"> • How do changes in the availability of resources affect populations?
	<p>Patterns of interactions among organisms across multiple ecosystems can be identified and predicted.</p>	<ul style="list-style-type: none"> • How can patterns of interactions between organisms be used to make predictions among and within systems?
	<p>The stability of an ecosystem can be evaluated by tracing the flow of matter and energy within that ecosystem.</p>	<ul style="list-style-type: none"> • What conditions determine the stability of a system?
	KNOWLEDGE	SKILLS
	<p>Students will know:</p> <p>In any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with others for limited resources which may constrain organisms’ growth and reproduction.</p> <p>Organisms and populations of organisms are dependent on their environmental interactions with other living and nonliving things.</p>	<p>Students will be able to:</p> <p>Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.</p> <p>Use cause-and-effect relationships to predict the effect of resource availability on organisms and populations in natural systems.</p>

	<p>Science assumes that objects and events in ecosystems occur in consistent patterns that are understandable through measurement and observation.</p> <p>The patterns of interactions of organisms with their environment, both its living and nonliving components, are used to make predictions about relationships among and between organisms and abiotic components of ecosystems.</p> <p>Predatory interactions may reduce the number of organisms or eliminate whole populations of organisms while mutually beneficial interactions may become so interdependent that each organism requires the other for survival.</p> <p>Food webs are models that demonstrate how matter and energy are transferred among producers, consumers, and decomposers as the three groups interact within an ecosystem.</p> <p>Transfers of matter and energy into and out of the physical environment occur at every level and are cycled repeatedly between the living and nonliving parts of the ecosystem.</p> <p>VOCABULARY: organism, stability, population, resource, energy, environment, recycle, nutrient</p> <p>KEY TERMS: matter, ecosystems, composition, adaptations, food webs, ecosystem collapse, biodiversity, invasive species, producers, consumers, decomposers,</p>	<p>Identify consistent patterns in ecosystems through measurement and observation.</p> <p>Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems (Include qualitative or quantitative relationships between variables as part of explanations about interactions within ecosystems.)</p> <p>Make predictions about the impact within and across ecosystems of competitive, predatory, or mutually beneficial relationships as abiotic (e.g., floods, habitat loss) or biotic (e.g., predation) components change.</p> <p>Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.</p> <p>Track the transfer of energy as energy flows through an ecosystem.</p>
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	mutually beneficial (symbiotic), predatory, competition, parasitic, commensalism, trophic levels	
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Reflection including asking questions and collaborative discussion
- Inquiry-based lab activities
- Planning and carrying out investigations
- Explanatory writing
- Developing and using models
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Research of primary and secondary resources
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

KEY LEARNING EVENTS AND INSTRUCTION:

- Population study that focuses on competition for resources
- Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem
- Adaptation activity (e.g., bird beaks)
- Construct an explanation about interactions within ecosystems
- Jigsaw biomes or ecosystems with the purpose of constructing an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
- Make predictions about the impact within and across ecosystems of competitive, predatory, or mutually beneficial relationships as abiotic (e.g., floods, habitat loss) or biotic (e.g., predation) components change.

RANDOLPH TOWNSHIP SCHOOL DISTRICT

**Grade Six Science
Unit III: Ecosystems**

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4 weeks	Ecosystems	<i>NEWSELA</i> <i>Pearson Interactive Textbooks</i> <i>NJ Model Curriculum Resources</i> <i>Lab Aids Ecosystems</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science Curriculum
UNIT IV: Forces and Motion

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-PS2-1: Apply Newton’s Third Law to design a solution to a problem involving the motion of two colliding objects.</p> <p>MS-PS2-2: Plan an investigation to provide evidence that the change in an object’s motion depends on the sum of the forces on the object and the mass of the object.</p> <p>MS-ETS1-1: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.</p> <p>MS-ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.</p> <p>MS-ETS1-3: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be</p>	<p>Newton’s laws of motion dictate how objects react to changes in force and mass, and how objects react to collisions.</p>	<ul style="list-style-type: none"> • What factors change an object’s motion? How do these factors alter motion?
	KNOWLEDGE	SKILLS
	<p>Students will know:</p> <p>Motion is defined as changing distance over time relative to a stationary reference point.</p> <p>For any pair of interacting objects, the force exerted by the first object on the second object is equal in strength to the force that the second object exerts on the first, but in the opposite direction (Newton’s third law).</p>	<p>Students will be able to:</p> <p>Define relative motion and reference points.</p> <p>Identify if something is in relative motion when given a particular reference point by investigation the location of the object in question over a given time period.</p> <p>Hypothesize what will happen if two objects collide.</p> <p>Define a design problem involving the motion of two colliding objects that can be solved through the development of an object, tool, process, or system and that includes multiple criteria and constraints, including scientific knowledge that may limit possible solutions.</p>

<p>combined into a new solution to better meet the criteria for success.</p> <p>MS-ETS1-4: Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.</p>	<p>Models can be used to represent the motion of objects in colliding systems and their interactions, such as inputs, processes, and outputs, as well as energy and matter flows within systems.</p> <p>The greater the mass of the object, the greater the force needed to achieve the same change in motion.</p> <p>The change in an object’s motion depends on balanced (Newton’s first law) and unbalanced forces in a system. Evidence that the change in an object’s motion depends on the sum of the forces on the object and the mass of the object includes qualitative comparisons of forces, mass, and changes in motion (Newton’s second law).</p> <p>VOCABULARY: force, motion, mass, gravity, collide, interaction, balanced, unbalanced, direction, weight, friction, air resistance, problem, brainstorm, design, invention, iteration, modify, test,</p> <p>KEY TERMS: Newton’s laws, force and motion, net forces, acceleration, engineering, design process, constraint, innovation, iteration, prototype, troubleshoot, optimize</p>	<p>Apply Newton’s third law to design a solution to a problem involving the motion of two colliding objects.</p> <p>Develop a model to generate data to test ideas about designed systems, including those representing inputs and outputs.</p> <p>Identify what factors affect the motion of an object.</p> <p>Explain how object’s motion depends on balanced, unbalanced forces, mass, and changes in motion in a system using Newton’s first and second laws as evidence.</p> <p>Plan an investigation individually and collaboratively to provide evidence that the change in an object’s motion depends on the sum of the forces on the object and the mass of the object.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Reflection including asking questions
- Collaborative discussion
- Inquiry-based lab activities or Planning and carrying out investigations
- Explanatory writing
- Developing and using models
- Analyzing and interpreting data
- Expressing concepts mathematically

KEY LEARNING EVENTS AND INSTRUCTION:

- Minute to win it activities
- Floating feather
- Force cars design experiment
- Pendulums lab design

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science
Unit IV: Forces and Motion

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4 weeks	Forces and Motion	<p><i>NEWSELA</i></p> <p><i>Pearson Interactive Textbooks</i></p> <p><i>NJ Model Curriculum Resources</i></p> <p><i>Forces and Motion: Basic</i> https://phet.colorado.edu/en/simulation/forces-and-motion-basics</p> <p>Energy Skate Park https://phet.colorado.edu/en/simulation/legacy/energy-skate-park</p> <p><i>Build the fastest sailboat (from NJDOE model curriculum)</i></p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science
Unit V: Interactions

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-PS2-3: Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.</p> <p>MS-PS2-4: Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.</p> <p>MS-PS2-5: Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.</p>	<p>Electrical, magnetic, and gravitational forces emit fields that can apply force on objects without contact.</p>	<ul style="list-style-type: none"> • Can you apply a force on something without touching it?
	<p>Magnetic and electric forces can attract and/or repel each other due to the direction of the electron flow.</p>	<ul style="list-style-type: none"> • How and why do magnetic and electric forces attract and/or repel each other?
	<p>The distance between objects and the mass of the objects are the factors that determine the strength of the gravitational pull between the objects.</p>	<ul style="list-style-type: none"> • What affects the strength of gravitational forces?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Fields exist between objects that exert forces on each other even though the objects are not in contact.</p>	<p>Students will be able to:</p> <p>Students will conduct an investigation and evaluate an experimental design to produce data that can serve as the basis for evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.</p>

	<p>Devices that use electric and magnetic forces could include electromagnets, electric motors, and generators.</p> <p>Electric and magnetic (electromagnetic) forces can be attractive or repulsive.</p> <p>The size of an electric or magnetic (electromagnetic) force depends on the magnitudes of the charges, currents, or magnetic strengths involved and on the distances between the interacting objects.</p> <p>Gravitational interactions are always attractive and depend on the masses of interacting objects, unless the mass are so small that gravity's effects are negligible when compared to larger massed objects.</p> <p>Evidence supporting the claim that gravitational interactions are attractive and depend on the masses of interacting objects could include data generated from simulations or digital tools and charts displaying mass, strength of interaction, distance from the sun, and orbital periods of objects within the solar system.</p>	<p>Investigate interactions of magnets, electrically charged strips of tape, and electrically charged pith balls are examples of fields that exist between objects exerting forces on each other, even though the objects are not in contact.</p> <p>Map the field lines produced by an electric or magnetic source.</p> <p>Students will identify the cause-and-effect relationships between fields that exist between objects and the behavior of the objects.</p> <p>Observe and conclude the effects of magnetic object interactions to understand attractive or repulsive forces.</p> <p>Perform investigations using devices that use electromagnetic forces.</p> <p>Collect and analyze data that could include the effect of the number of turns of wire on the strength of an electromagnet or the effect of increasing the number or strength of magnets on the speed of an electric motor.</p> <p>Conduct an experiment involving the Earth and objects falling towards earth in order to construct an explanation that mass and distance are the factors that affect gravitational force.</p> <p>Construct and present oral and written arguments supported by empirical evidence and scientific reasoning to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.</p>
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	<p>VOCABULARY: electricity, magnetism, magnitude, mass, distance, gravity</p> <p>KEY TERMS: force, electromagnetic, interactions, electrons, magnetic field, attraction, repulsion, current</p>	<p>Develop and use models to represent the gravitational interactions between two masses.</p>
<p>ASSESSMENT EVIDENCE: Students will show their learning by:</p> <ul style="list-style-type: none"> • Reflection including asking questions • Collaborative discussion • Inquiry-based lab activities or Planning and carrying out investigations • Explanatory writing • Developing and using models • Analyzing and interpreting data • Research of primary and secondary resources • Engaging in argument from evidence • Obtaining, evaluating, and communicating information <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none"> • Observe magnetic fields using magnetic bars and iron filings • Making an electromagnetic motor using Neodymium magnets • Vandergraaf Generator • pHet Simulations of orbiting planets around the sun 		

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Grade Six Science

Unit V: Interactions

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	Interactions	<p><i>NEWSELA</i></p> <p><i>Pearson Interactive Textbooks</i></p> <p><i>Phet Magnet and Compass</i> https://phet.colorado.edu/en/simulation/legacy/magnet-and-compassv</p> <p><i>Phet Gravity Force Lab</i> https://phet.colorado.edu/en/simulation/gravity-force-lab</p> <p><i>Phet Lunar Lander</i> https://phet.colorado.edu/en/simulation/legacy/lunar-lander</p> <p><i>Phet Pendulum Lab</i> https://phet.colorado.edu/en/simulation/legacy/pendulum-lab</p> <p><i>Static Electricity</i> https://phet.colorado.edu/en/simulation/balloons-and-static-electricity</p> <p><i>Phet Fairday’s Electromagnet Lab</i> https://phet.colorado.edu/en/simulation/legacy/faraday</p> <p><i>Impact Crater Lab to study Gravity (F=ma)</i> https://www.researchgate.net/publication/231073113 _Impact_crater_experiments_for_introduotory_physics_and_astronomy_laboratories</p>

**Grade Six Science
Unit VI: Astronomy**

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-ESS1-1: Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.</p> <p>MS-ESS1-2: Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.</p> <p>MS-ESS1-3: Analyze and interpret data to determine scale properties of objects in the solar system.</p>	<p>The solar system consists of the sun and a collection of objects including planets, their moons, and asteroids that are held in orbit around the sun by its gravitational pull on them.</p>	<ul style="list-style-type: none"> • What are the objects that are a part of our solar system and what forces act upon those objects?
	<p>Cyclic patterns such as the seasons, moon phases, and eclipses are observable, describable, and predictable.</p>	<ul style="list-style-type: none"> • How are we able to observe that objects in space move?
	<p>Time, space, and energy phenomena in the solar system can be observed at various scales, using models to study systems that are too large.</p>	<ul style="list-style-type: none"> • What are the scale properties of objects in the solar system?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>The solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids, that are held in orbit around the sun by its gravitational pull on them.</p>	<p>Students will be able to:</p> <p>Order by size objects in the solar system</p> <p>Order by size all part of the universe Milky Way galaxy, which is one of many galaxies in the universe.</p>

	<p>Stars have scale properties</p> <p>The solar system appears to have formed from a disk of dust and gas, held in orbit by the balanced forces of gravity and inertia (Newton's first law of motion).</p> <p>Gravity is the force that holds together the solar system and Milky Way galaxy and controls orbital motions within them.</p> <p>Patterns in the apparent motion of the sun, moon, and stars in the sky can be observed, described, predicted, and explained with models.</p> <p>The seasons are a result of the tilt of the Earth on its axis and are caused by the differential intensity of sunlight on different areas of Earth across the year.</p> <p>Patterns can be used to identify cause-and-effect relationships that exist in the apparent motion of the sun, moon, and stars in the sky.</p>	<p>Analyze and interpret data to determine similarities and differences among objects in the solar system.</p> <p>Construct, justify, and utilize a classification system for stars based on multiple criteria.</p> <p>Apply the concepts of gravity and Newton's First Law of inertia to the formation of the solar system</p> <p>Model the role of gravity in the motions and interactions within galaxies and the solar system.</p> <p>Develop and use a physical, graphical, or conceptual models to describe patterns in the apparent motion of the sun, moon, and stars in the sky.</p> <p>Investigate the angle of light and the area of surface illuminated on a flat and then sphered surface.</p> <p>Develop and use models to explain the relationship between the tilt of Earth's axis and seasons.</p> <p>Utilize physical and virtual models to investigate relative position of the moon orbiting the Earth causes moon phases and eclipses.</p>
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	<p>Science assumes that objects and events in the solar system occur in consistent patterns that are understandable through measurement and observation.</p> <p>Objects in the solar system have scale properties.</p> <p>Time, space, and energy phenomena in the solar system can be observed at various scales, using models to study systems that are too large.</p> <p>Data from Earth-based instruments, space-based telescopes, and spacecraft can be used to determine similarities and differences among solar system objects.</p> <p>Engineering advances have led to important discoveries in space science, and scientific discoveries have led to the development of entire industries and engineered systems.</p>	<p>Identify daily, monthly, and yearly patterns in the motion of the sun, moon, and stars.</p> <p>Create a scale model to express distances between objects within the solar system</p> <p>Observe virtual models (zoom in and out) to compare size of objects within the solar system. Construct, justify, and utilize a classification system for solar system objects based on multiple criteria.</p> <p>Determine the best measurement of distance within the solar system</p> <p>Define astronomical unit (AU)</p> <p>Define light year, light minute</p> <p>Create a time line of discovery for a planet based on the types of Earth-based instruments, space-based telescopes, and spacecraft that were used to make discoveries.</p> <p>Gather, read, and synthesize on the important discoveries and innovations in space science that are now commonly used in everyday life.</p>
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VOCABULARY: solar system, moon, planet, star, sun

KEY TERMS: astronomy, position, motion, orbit, gravity, gibbous, crescent, waning, waxing, solar eclipse, lunar eclipse, rotation, revolution, orbit, tilt, gravity, scale, phases, spring tide, neap tide, comet, asteroid, meteor, satellite, telescope, galaxy, light year, astronomical unit

ASSESSMENT EVIDENCE: Students will show their learning by:

- Reflection including asking questions and
- Collaborative discussion
- Inquiry-based lab activities or Planning and carrying out investigations
- Explanatory writing
- Developing and using models
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Research of primary and secondary resources
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

KEY LEARNING EVENTS AND INSTRUCTION:

- Light on a globe
- Moon phase DI activity with bulb
- Solar System object sorting activity
- Solar System distance activity
- Star information sorting activity
- Phet simulations
- Planet project
- Ablative Shielding (Heat shield)

RANDOLPH TOWNSHIP SCHOOL DISTRICT

**Grade Six Science
Unit VI: Astronomy**

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
8 Weeks	Astronomy	<p><i>NEWSELA</i></p> <p><i>Pearson Interactive Textbooks</i></p> <p><i>NJ Model Curriculum Resources</i></p> <p><i>Phet Gravity and Orbits</i> https://phet.colorado.edu/en/simulation/legacy/gravity-and-orbits</p> <p><i>Phet My Solar System</i> https://phet.colorado.edu/en/simulation/legacy/my-solar-system</p> <p><i>Online Resources</i> https://docs.google.com/document/d/1vREJegrIcAYuxNWme-yCJa1QyLMuP_N5EVo5jAn7ro/edit?usp=sharing</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science
Unit VII: Weather and Climate

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-ESS2-4: Develop a model to describe the cycling of water through Earth’s systems driven by energy from the sun and the force of gravity.</p> <p>MS-ESS2-5: Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.</p> <p>MS-ESS2-6: Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.</p>	<p>There are various processes involved in the cycling of water through Earth’s systems.</p>	<ul style="list-style-type: none"> • How does water cycle through the earth’s spheres?
	<p>Data of the complex interactions from air masses is used to predict weather patterns.</p>	<ul style="list-style-type: none"> • What data is necessary to make short-term and long-term weather predictions?
	<p>Models are used to display patterns that can determine regional climates.</p>	<ul style="list-style-type: none"> • How can dynamic models of weather maps be used to predict regional climates?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and crystallization, and precipitation, as well as downhill flows on land.</p> <p>Water can be stored as surface water, underground, or snowpack and cycle through Earth’s systems driven by energy from the sun and the force of gravity.</p>	<p>Students will be able to:</p> <p>Model the ways water changes its state as it moves through the multiple pathways of the hydrologic cycle.</p> <p>Identify where water can be stored and the energy source for the water cycle.</p>

	<p>The motions and complex interactions of air masses result in changes in weather conditions.</p> <p>Examples of data that can be used to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions include weather maps, diagrams, and visualizations; other examples can be obtained through laboratory experiments.</p> <p>Air masses flow from regions of high pressure to regions of low pressure, causing weather (defined by temperature, pressure, humidity, precipitation, and wind) at a fixed location to change over time.</p> <p>The complex patterns of the changes in and movement of water in the atmosphere, determined by winds, landforms, latitude, altitude, ocean temperatures, and currents, are major determinants of local weather patterns.</p> <p>Unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates that vary by latitude, altitude, and land distribution.</p> <p>Ocean circulation that, in part, determines regional climates is the result of the transfer of heat by the global ocean convection cycle, which is constrained by the Coriolis effect and the outlines of continents.</p>	<p>Collect data for evidence to show how motions and complex interactions of air masses result in changes in weather conditions.</p> <p>Analyze and interpret weather map data and diagrams to predict weather conditions.</p> <p>Examine how air masses move from high pressure to low pressure and affect the temperature, pressure, humidity, precipitation, and wind of a location over time.</p> <p>Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with information that is gained from reading text about how the complex patterns of the changes and movement of water in the atmosphere, determined by winds, landforms, and ocean temperatures and currents are major determinants of local weather patterns.</p> <p>Distinguish factors that determine regional climate such as rotation of the earth, and how they are affected by latitude, altitude, and land distribution.</p> <p>Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.</p>
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VOCABULARY: climate, weather, solid, liquid, gas, gravity

KEY TERMS: water cycle, water vapor, condensation, precipitation, evaporation, transpiration, infiltration, runoff, air pressure, air masses, maritime, continental, polar, temperate, tropical, isobar, fronts, global wind, local wind, latitude, altitude, ocean current, atmosphere, hydrosphere, meteorology, albedo, prediction, symbols

ASSESSMENT EVIDENCE: Students will show their learning by:

- Reflection including asking questions and collaborative discussion
- Inquiry-based lab activities or Planning and carrying out investigations
- Explanatory writing
- Developing and using models
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Research of primary and secondary resources
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

KEY LEARNING EVENTS AND INSTRUCTION:

- Observe evaporation and condensation in a soda bottle to prove the evaporating water didn't just disappear. Draw a diagram.
- Observe cloud formation by making a cloud in a bottle.
- Include readings on surface water and the water cycle
- Observe air pressure using smoke to "see" air. Then make high and low pressure and watch convection phenomena.
- Draw a diagram of convection.
- Define air pressure and convection.
- Perform the soil and water lab to observe soil heating and cooling quickly, while water cools slowly but holds onto the heat longer.
- Make predictions based on ocean and land scenario about wind during day and night.
- Introduce weather maps and look at fronts. Observe weather data over a period of 1 or 2 weeks to observe patterns.
- Supplement weather unit with current events on weather events. Examples: Hurricanes, El Nino, Tornadoes, Thunderstorms, Fog, Frost, Freezing Rain, Snow Storms.
- Read about air masses and fronts.
- Students observe convection in water to model ocean currents.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science
Unit VII: Weather and Climate

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
9 Weeks	Weather and Climate	<i>NEWSELA</i> <i>Pearson Interactive Textbooks</i> <i>NJ Model Curriculum Resources</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science
Unit VIII: New Jersey Ecosystem Services and Biodiversity

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-LS2-4: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.</p> <p>MS-LS2-5: Evaluate competing design solutions for maintaining biodiversity and ecosystem services.</p> <p>MS-ETS1-1: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.</p> <p>MS-ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.</p> <p>MS-ETS1-3: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.</p>	<p>Changes to physical or biological components of an ecosystem affect populations in positive and negative ways.</p>	<ul style="list-style-type: none"> • How do changes in the environment affect populations?
	<p>In order to make sustainable decision regarding ecosystems we evaluate tradeoffs.</p> <p>Ecosystem services provide humanity and biodiversity with life support like clean air and water.</p>	<ul style="list-style-type: none"> • How do we manage resources of an ecosystem in order to maintain optimal biodiversity and ecosystem services?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Ecosystems are dynamic in nature therefore changes in the physical or biological components of the system are complex.</p>	<p>Students will be able to:</p> <p>Recall wetlands store and filter water runoff.</p> <p>Recall predator prey relationships.</p> <p>Define biodiversity as the variety of species found in Earth’s terrestrial and oceanic ecosystems.</p>

	<p>Evaluating empirical evidence can be used to support arguments about changes to ecosystems.</p> <p>Sustainable decisions compare the factors of ecosystem health, economic impact, and social justice.</p> <p>Engineering solutions are costly replacements for natural ecosystem services.</p> <p>The engineering and design process is a systematic method for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.</p>	<p>Define ecosystem services (clean water, clean air, water storage, and flood reduction).</p> <p>Describe changes in one part of a system might cause large changes in another part. Gather, read, and analyze examples of population dynamics due to manmade or natural stressors.</p> <p>Recognize patterns in data and make warranted inferences about changes in populations.</p> <p>Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.</p> <p>Utilize population data to make warranted inferences about changes in populations (invasive species, loss of keystone species, loss of predator).</p> <p>Evaluate the completeness, or integrity, of an ecosystem’s biodiversity in order to measure its health.</p> <p>Perform a benefits analysis of the ecosystem with regards to human resources such as food, energy, medicines, and services (water purification, nutrient recycling, water storage, flood reduction, and/or prevention of soil erosion).</p> <p>Design a solution using the engineering design process for a local environmental concern.</p>
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	<p>The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution.</p> <p>VOCABULARY: ecosystem, problem, brainstorm, design, invention, iteration, modify, test,</p> <p>KEY TERMS: sustainability, biodiversity, engineering, design process, constraint, innovation, iteration, prototype, troubleshoot, optimize</p>	<p>Utilize a tradeoff matrix to make decisions while designing solutions for maintaining biodiversity and ecosystem services.</p> <p>Optimize the design through collaborative discussion and further data collection to gain information for the redesign process.</p> <p>Create a scale model of a design solution for a specific problem for maintaining biodiversity and ecosystem services.</p> <p>Share and evaluate the design with others in order to determine similarities and differences among several design solutions.</p> <p>Identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.</p>
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<p>ASSESSMENT EVIDENCE: Students will show their learning by:</p> <ul style="list-style-type: none">• Reflection including asking questions and• Collaborative discussion• Inquiry-based lab activities or Planning and carrying out investigations• Explanatory writing• Developing and using models• Analyzing and interpreting data• Using mathematics and computational thinking• Research of primary and secondary resources• Engaging in argument from evidence• Obtaining, evaluating, and communicating information <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none">• Collect data on ecosystem• Design and develop a solution to scenario regarding water conservation		

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science Curriculum
Unit VIII: New Jersey Ecosystem Services and Biodiversity

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	New Jersey Ecosystem Services and Biodiversity	<p><i>NEWSELA</i></p> <p><i>Pearson Interactive Textbooks</i></p> <p><i>NJ Model Curriculum Resources</i></p> <p><i>Visualizing Sustainability</i> https://computingforsustainability.com/2009/03/15/visualising-sustainability/</p> <p><i>Great Swamp</i></p> <p><i>Passaic Water Shed</i></p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science
Unit IX: Minerals

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS- PS1-3: Gather and make sense of information to describe that synthetic materials come from natural resources and impact society</p> <p>5-PS1-3: Make observations and measurements to identify materials based on their properties</p> <p>MS-ESS2-1: Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process.</p>	<p>Minerals are identified based on hardness, breakage, streak, density, luster, color, and crystal structure.</p>	<ul style="list-style-type: none"> • How can we use characteristics to identify materials?
	<p>Managing resources using the sustainability model compares three factors, social equity, environmental stewardship, and economic growth.</p>	<ul style="list-style-type: none"> • How do we manage resources available in our region?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Minerals can be identified by testing hardness, chemical reaction, breakage, streak, luster, color, crystal structure, and density.</p> <p>Minerals can be identified as natural resources</p>	<p>Students will be able to:</p> <p>Identify Students will use a dichotomous key to identify minerals.</p> <p>Gather, read, and synthesize about local historical mining (zinc and iron.)</p> <p>Students will design a method of mineral extraction from ore.</p>

	VOCABULARY: Mohs hardness scale, cleavage, fracture, streak, density, luster, glassy, metallic, dull, color, crystal structure	
	KEY TERMS: Dichotomous Key	

ASSESSMENT EVIDENCE: Students will show their learning by:

- Reflection including asking questions and
- Collaborative discussion
- Inquiry-based lab activities or Planning and carrying out investigations
- Obtaining, evaluating, and communicating information

KEY LEARNING EVENTS AND INSTRUCTION:

- Mineral identification lab
- Ore to Store: Designing a way to collect valuable minerals from ore

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Six Science
Unit IX: Minerals

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
1 week	Minerals	<i>Dichotomous Key for mineral identification</i> <i>Background information on Zinc mining in New Jersey</i> <i>NEWSELA</i> <i>Pearson Interactive Textbooks</i>

APPENDIX A

NGSS <http://www.nextgenscience.org/next-generation-science-standards>

NJ State Model Curriculum <http://www.nj.gov/education/modelcurriculum/sci/ms.shtml>

**Randolph Township Schools
Randolph Middle School**

Grade Seven Science Curriculum

“Science is a way of life. Science is a perspective. Science is the process that takes us from confusion to understanding in a manner, that’s precise, predictive and reliable-a transformation, for those lucky enough to experience it, that is empowering and emotional.”

-Brian Greene, Theoretical Physicist

Department of Science, Technology, Engineering, and Math
Anne V. Richardson, Supervisor

Curriculum Committee
Jessica Dingman
Ralph Scimeca
Katherine Reiche

Curriculum Developed:
July 2016

Date of Board Approval:

Randolph Township Schools
Department of Science, Technology, Engineering, & Mathematics
Grade 7 Science

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
 - Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools
Department of Science, Technology, Engineering, & Mathematics
Introduction

Randolph Township Schools is committed to excellence. We believe that all children are entitled to an education that will equip them to become productive citizens of the 21st century. We believe that an education grounded in the fundamental principles of science, technology, engineering, and math (STEM) will provide students with the skills and content necessary to become future leaders and lifelong learners.

A sound STEM education is grounded in the principles of inquiry, rigor, and relevance. Students will be actively engaged in learning as they use real-world STEM skills to construct knowledge. They will have ample opportunities to manipulate materials and solve problems in ways that are developmentally appropriate to their age. They will work in an environment that encourages them to take risks, think critically, build models, observe patterns, and recognize anomalies in those patterns. Students will be encouraged to ask questions, not just the “how” and the “what” of observed phenomena, but also the “why”. They will develop the ability, confidence, and motivation to succeed academically and personally.

STEM literacy requires understandings and habits of mind that enable students to make sense of how our world works. As described in Project 2061’s *Benchmarks in Science Literacy*, *The Standards for Technological Literacy*, and *Professional Standards for Teaching Mathematics*, literacy in these subject areas enables people to think critically and independently. Scientifically and technologically literate citizens deal sensibly with problems that involve mathematics, evidence, patterns, logical arguments, uncertainty, and problem-solving.

Grade 7 Science
Introduction

The Grade 7 Science Course is the second of three middle school Science courses. We believe that all children are entitled to an education that will equip them to become productive citizens of the 21st century. We believe that an education grounded in the fundamental principles of science inquiry and rigor will provide students with the skills and content necessary to become future leaders. Students would be actively engaged in learning as they model real-world scientific behaviors to construct knowledge. This course introduces key concepts and skills that are essential for students as they prepare for the third course of Science. Students will gain an understanding of concepts pertaining to earth systems, structure and properties of matter, interactions of matter, chemical reactions, structure and function of life, organization for energy flow and matter, inheritance and variation of traits, and body systems. They will have ample opportunities to manipulate materials in ways that are developmentally appropriate to their age. They will work in an environment that encourages them to take risks, think critically, build models, observe patterns, and recognize anomalies in those patterns. Students should be encouraged to ask questions, not just the “how” and the “what” of observed phenomena, but also the “why”. Scientific literacy requires understandings and habits of mind that enables students to make sense of how the natural and physical worlds work. As described in Project 2061’s *Benchmarks in Science Literacy*, scientific literacy enables people to think critically and independently. Scientifically literate citizens deal sensibly with problems that involve evidence, patterns, logical arguments, and uncertainty. The science curriculum has been developed with age appropriate activities and expectations to achieve these goals.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Grade 7 Science

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
4.5 Weeks	I	Earth Systems
5.5 Weeks	II	Structure and Properties of Matter
3.5 Weeks	III	Interactions of Matter
3.5 Weeks	IV	Chemical Reactions
4 Weeks	V	Structure and Function of Life
4.5 Weeks	VI	Organization for Matter and Energy Flow in Organisms
7 Weeks	VII	Inheritance and Variation of Traits
3.5 Weeks	VIII	Body Systems

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit I: Earth Systems

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS</u></p> <p>MS-ESS1-4: Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history</p> <p>MS-ESS2-1: Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.</p> <p>MS-ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales</p> <p>MS-ESS2-3: Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motion.</p>	<p>Earth's geosystems operate by modeling the flow of energy and cycling of matter within and among different systems.</p> <p>Plate tectonics theory explain observable patterns of earthquakes and landform locations.</p> <p>Multiple pieces of evidence for the theory of plate tectonics strengthens the argument for this theory.</p> <p>Using a combination of the order of rock layers, the fossil record, and evidence of major geologic events, the relative time ordering of events can be constructed as a model for Earth's history, even though the timescales involved are immensely vaster than the lifetimes of humans or the entire history of humanity.</p> <p>Geosystem changes are consistently occurring but appear stable to humans because they are changing on time scales much longer than human lifetimes.</p>	<ul style="list-style-type: none"> • How do constructive and destructive geoscience processes change the geosystems? • What scientific evidence supports the claim that the Earth is approximately 4.6-billion-year-old history? • How can a large scale geosystems changes be modeled to predict future and past events?

	KNOWLEDGE	SKILLS
	<p>Students will know:</p> <p>The planet’s systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years.</p> <p>The Earth’s internal heat energy drives processes that move and push rock material to the Earth’s surface where it is subject to surface processes like weathering and erosion.</p> <p>Energy flows from the sun cause matter cycling via processes that produce weathering, erosion, and sedimentation, and the formation of fossils.</p> <p>Water’s movements—both on the land and underground—cause weathering and erosion, which change the land’s surface features and create underground formations</p> <p>Energy from the sun drives the movement of wind and water that causes the erosion, movement, and sedimentation of weathered Earth materials.</p>	<p>Students will be able to:</p> <p>Review the Earth systems (Geosphere, Atmosphere, Hydrosphere, and Biosphere)</p> <p>Identify an energy source for the rock cycle as the Earth’s core.</p> <p>Identify an energy source for the rock cycle as the sun</p> <p>Describe the processes which combine to create fossils.</p> <p>Recall that the water cycle is driven by the sun’s energy</p> <p>Virtually explore landforms created by various geosystem processes.</p> <p>Connect the water cycle and sun’s energy to geoprocesses of weathering and erosion</p> <p>Recall that gravity pulls water and rocks downhill</p> <p>Recall that energy from the sun drives movement of wind and connect to weathering, erosion, and sedimentation</p>

	<p>The processes of melting, crystallization, weathering, deformation, and sedimentation act together to form minerals and rocks through the cycling of Earth's materials.</p> <p>Maps of ancient land and water patterns, based on investigations of rocks and fossils, make clear how Earth's plates have moved great distances, collided, and spread apart.</p> <p>Regions of different continents that share similar fossils and similar rocks suggest that, in the geologic past, those sections of continent were once attached and have since separated.</p> <p>The distribution of seafloor structures combined with the patterns of ages of rocks of the seafloor supports the interpretation that new crust forms at the ridges and then moves away from the ridges as new crust continues to form and that the oldest crust is being destroyed at seafloor trenches.</p>	<p>Develop a model to describe that energy from the Earth's interior and the sun drive Earth processes that together cause matter cycling through different forms of Earth materials.</p> <p>Utilizing the concept that any rock on Earth can be changed into a new type of rock by geosystem processes, synthesize a story of how one rock can become another type through multiple changes including rock type and energy source.</p> <p>Hypothesize how the shapes of continents, which roughly fit together might suggest that those land masses were once joined and have since separated.</p> <p>Define continental drift as the movement of continents as described by Alfred Wegner.</p> <p>Using claims, evidence, and reasoning argue for and against Alfred Wegner's Continental Drift Theory (the distribution of fossils and rocks, continental shapes, past glacial activity)</p> <p>Gather, read, and analyze more recent evidence for plate tectonics from sonar, satellite, earthquake plots, and GPS to strengthen the argue for plate tectonic theory.</p> <p>Observe a model that represents convection currents within the mantle as the source of motion that drives the movement of tectonic plates.</p>
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	<p>The geologic time scale interpreted from rock strata provides a way to organize Earth's history. Analyses of rock strata and the fossil record provide only relative dates, not an absolute scale</p>	<p>Model plate movements kinesthetically</p> <p>Define plate tectonics as the movement of lithospheric plates due to convection in the mantle.</p> <p>Describe how crust is recycled and formed with regards to plate tectonics.</p> <p>Map where crust is recycled and formed with regards to plate tectonics.</p> <p>Predict future events based on patterns in rates of change and other numerical relationships can provide information about past plate motions (i.e. formation of mountain chains, formation of ocean basins, volcanic eruptions, glaciations, asteroid impacts, extinctions of groups of organism).</p> <p>Compare relative and absolute age dating.</p> <p>Define the law of superposition as newer rock layers sit on top of older rock layers, allowing for a relative ordering in time of the formation of the layers</p> <p>Define the law of cross-cutting as any rocks or features that cut existing rock strata are younger than the rock strata that they cut.</p> <p>Use evidence and reasoning to construct an explanation that rock strata and fossils contained within these strata have relative ages.</p>
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	<p>Fossil layers that contain only extinct animal groups are usually older than fossil layers that contain animal groups that are still alive today, and layers with only microbial fossils are typical of the earliest evidence of life.</p> <p>The geologic time scale is used to organize Earth's 4.6-billion-year-old geologic and evolutionary history.</p> <p>Processes change Earth's surface at time and spatial scales that can be large or small; many geoscience processes usually behave gradually but are punctuated by catastrophic events</p> <p>Specific major events geologic events can be used to indicate geologic periods of time (extensive lava flows, volcanic eruptions, asteroid impacts)</p> <p>Geologic events and conditions have affected the evolution of life, but different life forms have also played important roles in altering Earth's systems.</p> <p>VOCABULARY: fossil, life, scale model, extinction, system, landform, volcano, rock cycle, crust, mantle, inner core, outer core, earthquake, energy, rocks, minerals,</p>	<p>Utilize index fossils and other evidence to identify the relative age date rocks</p> <p>Using diagrams, identify the relative age date rock layers.</p> <p>Utilize models (e.g. cosmic calendar) of geologic time to comprehend a time scale much longer than human life.</p> <p>Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales</p> <p>Correlate geologic events and their effects to major extinction events.</p> <p>Predict future effects and possible extinction events if new geologic events occur.</p> <p>Provide examples of how the behaviors of life forms have altered Earth systems.</p>
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KEY TERMS:

geosystem, weathering, erosion, sedimentation, melting, crystallization, deformation, rift valley, volcanic island arc, deep sea trench, mid-ocean ridge, plate tectonics, continental drift, sea-floor spreading, tectonic plate, subduction, convergent, divergent, lithosphere, asthenosphere, fault, focus, epicenter, seismometer, seismograph, asteroid impacts, punctuated events, relative age dating, absolute age dating, law of superposition, law of cross-cutting, index fossil, geologic time,

ASSESSMENT EVIDENCE: Students will show their learning by:

- Reflection including asking questions
- Collaborative discussion
- Inquiry-based lab activities
- Explanatory writing
- Developing and using models
- Analyzing and interpreting data
- Research of primary and secondary resources
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

KEY LEARNING EVENTS AND INSTRUCTION:

- Worldwide pattern of earthquakes activity (Plot earthquakes to observe plate boundaries)
- Worldwide pattern of Earthquakes, Volcanoes, and world elevation
- Rock cycle modeling
- Sedimentation Tubes
- Describe the rock cycle using specific examples of sedimentary, metamorphic, and volcanic rock
- Kinesthetically model plate movement using green and blue foam pads
- Simulated Sonar to discover underwater landforms that support the theory of plate tectonics
- Plate Tectonics Puzzle

- Study wave propagation
- Relative Age Dating
- Geologic Timeline

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit I: Earth Systems

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4.5 Weeks	Earth Systems	<p><i>NEWSELA</i></p> <p><i>Pearson Interactive Textbooks</i></p> <p><i><u>Rock Cycle Journey</u>: Gamification of the rock cycle Stations are set up to represent different parts of the rock cycle. Students begin at one point and roll the die. The students record on their data sheet what happens to them (the rock). The student may end up staying where they are at or going to another station</i></p> <p><i><u>Interactives-Dynamic Earth</u>: Dynamic Earth is an interactive website where students can learn about the structure of the Earth, the movements of its tectonic plates, as well as the forces that create mountains, valleys, volcanoes and earthquakes.</i></p> <p><i>pHet Simulations</i> <i>Radioactive Dating Game: <u>http://phet.colorado.edu/en/simulation/radioactive-dating-game</u></i></p> <p><i>Plate Tectonics: <u>http://phet.colorado.edu/en/simulation/legacy/plate-tectonics</u></i></p>

		<p><i>Glaciers: http://phet.colorado.edu/en/simulation/glaciers</i></p>
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<https://docs.google.com/document/d/1pF8DNbCrB9hp0R2S6ExE1f3qnkFeTKXe6-Rk7Xh7oNo/edit?usp=sharing>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit II: Structure and Properties of Matter

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS</u></p> <p>MS-PS-1-1: Develop models to describe the atomic composition of simple molecules and extended structures.</p> <p>MS-PS-1-2: Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.</p>	<p>The smallest unit of matter that still embodies the properties of that material is the atom. Atoms bond together to form larger structures, sometimes in simple molecules or repeating extended structures.</p>	<ul style="list-style-type: none"> • What is the smallest piece of matter? How do these pieces form larger items?
	<p>A chemical reaction has occurred between substances when the atomic structures of both substances have permanently changed after the interaction takes place; as evidenced through changes in chemical properties (i.e. density, melting/boiling point, solubility, flammability, odor).</p>	<ul style="list-style-type: none"> • How do we know that a chemical change has occurred?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Scientists have defined, refined, and are still working on creating a well-rounded and cohesive model of the atom through scientific discovery and collaboration.</p> <p>The smallest unit of matter that still embodies the physical and chemical properties of that substance is the atom.</p>	<p>Students will be able to:</p> <p>Gather, read, and synthesize information regarding the history of the atomic theory, in particular the research of Dalton, Thompson, Rutherford, Bohr, and the Cloud model.</p> <p>Review that matter is anything that has mass and takes up space.</p>

	<p>Based on changes to the sub-atomic composition different ‘types’ of atoms are formed, which we call elements.</p> <p>When two or more atoms, either of the same elements or combinations of different elements, interact and combine in various ways molecules are formed.</p> <p>Solids may be formed from small simple molecules (e.g. water/ice), larger more complex molecules (i.e. ammonia, caffeine, lipid, glucose), or they may be extended structures with simple repeating subunits (i.e., sodium chloride, diamonds).</p>	<p>Construct an explanation using evidence to support the claim that atoms are the basic units of matter.</p> <p>Identify the three basic parts of an atom as the proton, neutron, and electron and explain their basic properties/functions within the atom.</p> <p>Explain how atoms change to become different ‘types’ or elements based on changes to their sub-atomic structure (ex: changes in number of protons).</p> <p>Define molecules as two or more atoms joined together through chemical means.</p> <p>Given a drawing, diagram, ball/stick, or various other visual depiction of a molecule, analyze its’ atomic composition in terms of types and numbers of elements present.</p> <p>Conduct an investigation to examine how molecules can be disassembled and reassembled to form new substances using the same building blocks of atoms.</p> <p>Analyze the similarities and differences between given molecules that range in size, complexity, presence/absence of patterns.</p> <p>Develop models to describe the similarities and differences among the atomic composition of simple molecules and extended structures.</p>
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	<p>Each pure substance has characteristic physical and chemical properties (for any bulk quantity under given conditions) that can be used to identify it. Density, melting point, boiling point, solubility, flammability, and odor are some of these characteristic properties.</p> <p>Density is one of the most important physical properties of a substance because each known material has a very unique density that correlates to only that material, found using the formula $\text{density} = \text{mass}/\text{volume}$.</p> <p>Macroscopic patterns are related to the nature of the atomic-level structure of a substance.</p> <p>In a chemical process, the atoms that make up the original substances are regrouped into different molecules; these new substances have different properties from those of the reactants.</p>	<p>Explain the difference between physical and chemical properties.</p> <p>Examine everyday objects and identify the physical properties (relative density- float/sink/suspend, relative melting/boiling point, odor, color, etc.) present.</p> <p>Examine everyday objects and identify the chemical properties (flammability, solubility) present.</p> <p>Using known physical and chemical properties as evidence justify the identification of a mystery substance.</p> <p>Define density as the amount of matter contained in a specific volume.</p> <p>Calculate the density of given materials using the formula $d = m/v$.</p> <p>Gather, calculate, and analyze densities of unknown materials in order to identify them as common known materials.</p> <p>Correlate the atomic level properties of molecules to the macroscopic properties of the same material.</p> <p>Using various visual depictions (ball and stick, diagrams, student models, drawings) analyze the atomic changes in molecular structure that occurred during a given chemical reaction.</p>
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	<p>In order to tell if a chemical reaction has occurred, five indicators can be examined; color change, odor production/change, heat/light production, precipitate formation, or gas production.</p> <p>The analysis of data on the properties of products and reactants can be used to determine whether a chemical process has occurred.</p> <p>VOCABULARY: physical, chemical, properties, reaction, substance, simple, complex, mass, space, composition, volume, identification</p> <p>KEY TERMS: atom, nucleus, orbits, proton, electron, neutron, products, reactants, precipitate, chemical reaction, macroscopic, microscopic, atomic-level, molecules, matter, density, flammability, solubility, melting point, boiling point</p>	<p>Analyze the differences in physical and chemical properties between the reactants and products of a given chemical reaction in order to support the claim that entirely new substances were created during the chemical reaction.</p> <p>Develop exemplar models of chemical reactions that demonstrate each of the five chemical change indicators using common well-known reactions.</p> <p>Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred (i.e. temperature, gas production, odor, color, etc.)</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Review of scientific documents/historical lab conclusions
- Explanatory writing
- Collaborative discussions
- Inquiry-based lab activities
- Data Analysis
- Sample analysis/hands-on activities
- Development of student-created models (i.e. drawings, diagrams, 3-D models, etc.)
- Oral presentations

KEY LEARNING EVENTS AND INSTRUCTION:

- Independent study of an individual elements to explain its differences in atomic structure, basic chemical/physical properties which would be communicated out to rest of class.
- 3-D model (using molecular building kits) investigation
- Investigate and classify common everyday objects with various physical and chemical properties
- Identify a mystery object using physical/chemical property investigation
- Endothermic/exothermic reaction lab
- Chemical reaction indicator lab
- Calculating density of materials using $d=m/v$ formula. Students should be able to realistically find the mass and volume of a sample and further calculate the density of it using the found information.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit II: Structure and Properties of Matter

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5.5 Weeks	Structure and Properties of Matter	<p><i>Pearson Interactive Textbook</i></p> <p><i>pHet simulations</i> <i>Density: http://phet.colorado.edu/en/simulation/density</i></p> <p><i>Salts and Solubility:</i> <i>http://phet.colorado.edu/en/simulation/legacy/membrane-channels</i></p> <p><i>Article on physical properties:</i> <i>https://student.societyforscience.org/print/article/golds-glittery-rewards</i></p> <p><i>Solubility simulation: https://concord.org/stem-resources/solubility</i></p> <p><i>Newsela.com</i></p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit III: Interactions of Matter

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-PS1-3: Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.</p> <p>MS-PS1-4: Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.</p>	<p>As thermal energy is added or removed molecules of substance change in terms of particle speed and space; thereby affecting the entire material’s state of matter and overall temperature.</p>	<ul style="list-style-type: none"> • How does thermal energy effect the molecules of a substance?
	<p>Synthetic materials are produced from the rearrangement of atoms of natural resources through various chemical reactions.</p> <p>The synthetic material will have different physical and chemical properties due to the changes made to particle arrangement.</p>	<ul style="list-style-type: none"> • How can we trace synthetic materials back to natural ingredients?
	KNOWLEDGE	SKILLS
	<p>Students will know:</p> <p>Each state of matter (solid, liquid, gas) has unique characteristic spacing and speed qualities of the molecules or inert atoms depending on the material being studied.</p>	<p>Students will be able to:</p> <p>Explain the relative motion (spacing and speed) of the molecules or inert atoms (depending on the material studied) for each of the three main states of matter (solid, liquid, gas).</p>

	<p>The term heat as used in everyday language refers both to thermal energy and the transfer of that thermal energy from one object to another. Thermal energy is also the motion of atoms or molecules within a substance.</p> <p>The temperature of a system is proportional to the average internal kinetic energy and potential energy per atom or molecule (whichever is the appropriate building block for the system's material).</p> <p>An increase in the temperature of the system causes an increase in kinetic energy of the particles.</p> <p>Changes in particle motion, temperature, and state of a pure substance occur when thermal energy is added or removed.</p> <p>Qualitative molecular-level models of solids, liquids, and gases can be used to show that adding or removing thermal energy increases or decreases the kinetic energy of the particles until a change of state occurs.</p> <p>Cause-and-effect relationships may be used to predict and describe changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed in natural systems.</p>	<p>Identify the many definitions of thermal energy.</p> <p>Correlate thermal energy, e.g. the temperature of the substance, to the atomic-level kinetic motion of the atoms inside that material.</p> <p>Using various models (e.g. simulations) summarize how changes in temperature cause changes in the movement of the particles.</p> <p>Conduct an investigation to gather data to support that when thermal energy is added or removed a change in state of matter occurs.</p> <p>Relate the large-scale changes in state of matter to the atomic-level changes in particle movement (speed and spacing).</p> <p>Develop a model drawing or diagram, that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.</p> <p>Use cause-and-effect relationships to predict changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed in natural or designed systems.</p>
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	<p>The pressure of a substance, most notably gases, is determined through the total number of collisions occurring between the molecules or inert atoms as well as with the sides of the gas's container.</p> <p>If the motion of molecules in a gaseous state is increased, through the addition of thermal energy, the moving molecules in the gas will have greater kinetic energy, thereby colliding with molecules in surrounding materials with greater force and exerting a greater overall pressure. This same phenomenon is since with reversed conditions to result in lower gas pressure.</p> <p>With a decrease in pressure, a smaller addition of thermal energy is required for particles of a liquid to change to gas because particles in the gaseous state are colliding with the surface of the liquid less frequently and exerting less force on the particles in the liquid, thereby allowing the particles in the liquid to break away and move into the gaseous state with the addition of less energy.</p> <p>In a chemical process, the atoms that make up the original substances are regrouped into different molecules; which have different properties from those of the reactants.</p> <p>Natural resources can undergo a chemical process to form synthetic material.</p>	<p>Correlate the number of minute collisions among the atoms and between the atoms and the container to the pressure of an overall substance.</p> <p>Use cause-and-effect relationships to construct an explanation for the increase/decrease in pressure of a gas when thermal energy is added or removed.</p> <p>Using student-created models justify how liquids have a lower boiling point when heated at a lower pressure (such as different elevations).</p> <p>Recall how chemical reactions provide rearrangements of molecules from the reactants to the new products, which differ in physical/chemical properties.</p> <p>Provide molecular-level accounts of states of matter and changes between states, of how chemical reactions involve regrouping of atoms to form new substances, and of how atoms rearrange during chemical reactions.</p>
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	<p>Structures can be designed to serve particular functions by taking into account properties of different materials and how materials can be shaped and used.</p> <p>Engineering advances, using chemical reactions, have led to discoveries of important synthetic materials, and scientific discoveries have led to the development of entire industries and engineered systems using these materials.</p> <p>The uses of technologies (engineered/synthetic materials) and any limitations on their use are driven by individual or societal needs, desires, regions and values; as well as by the findings of scientific research and by difference in such factors as climate, natural resources, and economic conditions.</p>	<p>Gather, read, and synthesize research regarding actual examples of synthetic materials produced through chemical reactions of natural resources. Observe or conduct an investigation to produce a basic synthetic material using natural ingredients.</p> <p>Discuss uses of the produced synthetic material.</p> <p>Conduct an investigation to determine the best possible material to be used to serve a particular function taking into account the properties, such as shaping, of the available substances.</p> <p>Gather, read, and synthesize research regarding actual examples of new scientific discoveries and new industries that were developed based on the production of synthetic materials using natural resources.</p> <p>Correlate the optimization design process in engineering to chemical reaction systems that produce synthetic materials.</p> <p>Obtain, evaluate, and communicate information to show that synthetic materials come from natural resources and affect society.</p> <p>Hypothesize why certain technologies (engineered/synthetic materials) are/are not used based on societal needs, desires, regions, values, the findings of scientific research, differences in such factors as climate, natural resources, or economic conditions.</p>
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VOCABULARY: energy, speed, motion, space, matter, temperature, molecules, substance, physical, chemical, properties, solid, liquid, gas, collisions, increase, decrease, chemical reaction, products, reactants, melt, freeze, boil, condense, evaporation, sublimate, deposition

KEY TERMS: thermal energy, synthetic materials, natural resources, pressure, kinetic energy, phase change, states of matter, force

ASSESSMENT EVIDENCE: Students will show their learning by:

- Review of primary documents
- Explanatory writing
- Collaborative discussions
- Inquiry-based lab activities
- Data Analysis (use graphing skills)
- Development of student-created models (i.e. drawings, diagrams, 3-D models, etc.)

KEY LEARNING EVENTS AND INSTRUCTION:

- Particle movement simulations
- Investigation to observe phase change with temperature change (ice melting-water-steam)
- Gas properties simulations
- Making a basic synthetic material (slime, jello, polymer etc.) using natural ingredients. Discuss uses of this synthetic material after production.
- Molecular modeling kits to demonstrate regrouping of particles during a chemical reaction

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit III: Interactions of Matter

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3.5 Weeks	Interactions of Matter	<p><i>Pearson Interactive Textbook</i></p> <p><i>pHet simulations:</i> <i>States of Matter:</i> http://phet.colorado.edu/en/simulation/states-of-matter http://phet.colorado.edu/en/simulation/legacy/states-of-matter-basics</p> <p><i>Gas Properties:</i> http://phet.colorado.edu/en/simulation/gas-properties</p> <p><i>Phase Change Materials Technologies:</i> http://discovermagazine.com/2013/september/21-running-hot-and-cold-forever</p> <p><i>Scientific American Magazine:</i> <i>Playing with Polymers:</i> http://www.scientificamerican.com/article/bring-science-home-playing-with-polymers/</p> <p><i>Polymer Chemistry:</i> http://agsci.oregonstate.edu/sites/agsci.oregonstate.edu/files/bioenergy/polymer-chemistry-and-biofuels-activity-v1.3.pdf</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit IV: Chemical Reactions

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>NGSS:</p> <p>MS-PS1-5: Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved</p> <p>MS-PS1-6: Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes</p>	<p>Substances combine or change to make new substances through the process of chemical reactions, which regroups atoms into new arrangements.</p> <p>Baking food is a notable example of everyday chemical reactions.</p>	<ul style="list-style-type: none"> • How do substances combine or change to make new substances?
<p>MS-ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.</p> <p>MS-ETS1-3: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.</p>	<p>Chemical reactions can produce thermal energy (exothermic) or consume thermal energy (endothermic).</p> <p>Devices can utilize chemical reactions to release or absorb thermal energy.</p> <p>Engineers and scientists use the engineering design process to design, test, and optimize solutions to a challenge.</p>	<ul style="list-style-type: none"> • How can a device be designed and prototyped that either releases or absorbs thermal energy using chemical processes?
<p>MS-ETS1-4: Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.</p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>In a chemical process, the atoms that make up the original substances are regrouped into different molecules.</p>	<p>Students will be able to:</p> <p>Recall that during a chemical reaction atoms are rearranged from reactants to products.</p>

	<p>New substances created in a chemical process have different properties from those of the reactants.</p> <p>The total number of each type of atom in a chemical process is conserved, and thus the mass does not change (the law of conservation of matter).</p> <p>Some chemical reactions release energy (exothermic), while others store energy (endothermic).</p> <p>Chemical reactions, which rearrange atoms, can either be classified as constructive (synthesis), destructive (decomposition, combustion), or replacement (single or double).</p> <p>The transfer of thermal energy can be tracked as energy flows through a designed or natural system.</p> <p>The engineering and design process is a systematic method</p>	<p>Observe chemical reactions and record data to determine attributes of chemical reactions, such as temperature change.</p> <p>Define reactant and product.</p> <p>Write chemical equations to visually describe the reactants and the products.</p> <p>Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.</p> <p>Describe mathematically the law of conservation of mass in chemical reactions.</p> <p>Design an investigation to prove the law of conservation of mass.</p> <p>Observe chemical reactions and record data to determine attributes of endothermic and exothermic chemical reactions.</p> <p>Classify the type of reaction as single replacement, double replacement, synthesis, decomposition, and combustion</p> <p>Diagram the flow of energy within a designed or natural system by following the carbon bonds (Combustion, Photosynthesis, Respiration)</p> <p>Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy driven by chemical processes.</p>
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	<p>for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.</p> <p>The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution.</p> <p>VOCABULARY: problem, brainstorm, design, invention, iteration, modify, test, evaluate, energy, atoms, molecules, product, reactant</p> <p>KEY TERMS: chemical equation, chemical reaction, endothermic, exothermic, single replacement, double replacement, synthesis, decomposition, and combustion, synthetic, engineering, design process, constraint, innovation, iteration, prototype, troubleshoot, optimize, law of conservation of mass (matter)</p>	<p>Optimize the solution, prototype or model by identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.</p> <p>Share the design and design process with others</p>
<p>ASSESSMENT EVIDENCE: Students will show their learning by:</p> <ul style="list-style-type: none"> • Reflection including asking questions • Collaborative discussion • Inquiry-based lab activities • Explanatory writing • Developing and using models • Analyzing and interpreting data 		

- Research of primary and secondary resources
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

KEY LEARNING EVENTS AND INSTRUCTION:

- Endothermic/Exothermic Station Lab (calcium chloride and water, hydrogen peroxide and yeast, baking soda and vinegar, etc.)
- Alka-Seltzer and water law of conservation mass lab development
- Identify the type of reactions given chemical equations
- Design a device to emit or absorb thermal energy using chemical reaction

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit IV: Chemical Reactions

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3.5 Weeks	Chemical Reactions	<p><i>Pearson Interactive Textbook</i></p> <p><i>Newsela.com</i></p> <p><i>LabDiscs: Endo/Exothermic reactions</i></p> <p><i>ACS Middle School Chemistry:</i> http://www.middleschoolchemistry.com/lessonplans/chapter6/lesson7</p> <p><i>Hand-warmer investigation</i></p> <p><i>Engineering Design Graphic</i> http://www.jpl.nasa.gov/edu/pdfs/engineering_design_process_light.pdf</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit V: Structure and Function of Life

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-LS1-1: Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.</p> <p>MS-LS1-2: Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.</p>	<p>All living things share 7 characteristics essential for sustaining life.</p>	<ul style="list-style-type: none"> • How can we determine if something is alive?
	<p>The cell is a system that functions due to interactions between organelles.</p> <p>The cells theory states that all living things successfully function due to different levels of organization.</p>	<ul style="list-style-type: none"> • How do the processes within the cell support itself and an entire organism?
	<p>The cell membrane is constructed of a semi-permeable membrane.</p>	<ul style="list-style-type: none"> • How can the cell regulate what goes in and out? Why is this process important?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p>	<p>Students will be able to:</p>

	<p>Life is a quality that distinguishes living things—composed of living cells—from once-living things that have died or things that never lived.</p> <p>All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular).</p> <p>Cells that can be observed at one scale may not be observable at another scale.</p> <p>Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. The functioning between these organelles helps the cell operate as a whole.</p>	<p>Conduct an investigation to determine what characteristics different samples of living things have in common.</p> <p>Gather read and synthesize information regarding the 7 characteristics of living things.</p> <p>Using claims evidence and reason, argue why a given object is or is not alive (Ex. Fire)</p> <p>Define cells as the basic unit of structure and function in living things.</p> <p>Compare multicellular and unicellular organisms for their similarities and differences.</p> <p>Provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.</p> <p>Illustrate and identify the different microscope parts.</p> <p>Using a microscope, investigate the structure of different cells and determine their structure.</p> <p>Explain the individual functions of the nucleus, chloroplasts, mitochondria, cell membrane, and cell wall.</p> <p>Construct an analogy between the functions of organelles and real world situations</p>
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	<p>Engineering advances have led to important discoveries in the field of cell biology, and scientific discoveries have led to the development of entire industries and engineered systems.</p> <p>Materials can move through one another using the processes of osmosis and diffusion.</p> <p>Within cells, the cell membrane forms the boundary that controls what enters and leaves the cell.</p> <p>The structures of the cell wall and cell membrane determine how and what materials can pass through.</p> <p>VOCABULARY: Energy, wall, organism, living, non-living, active, passive, structure, function, boundary, direction, characteristics</p>	<p>Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.</p> <p>Gather, read, and synthesize information about modern advances in spectrometry and how it is leading to advances in the field.</p> <p>Compare and contrast osmosis and diffusion.</p> <p>Demonstrate an example of osmosis and which direction water would move.</p> <p>Predict what direction water will move (into, out of) when placed in different solutions (hypertonic, hypotonic, isotonic).</p> <p>Explain the structure of the cell membrane in terms of permeability.</p> <p>Predict how a given material will or will not move across the cell membrane.</p> <p>Compare and contrast active, passive transport and facilitated diffusion.</p>
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	KEY TERMS: Spectrometry, Hypotonic, hypertonic, isotonic, cell, multicellular, unicellular, cell membrane, cell wall, nucleus, chloroplast, mitochondria, diffusion, osmosis, microscope, stage, lens, magnification, semipermeable, facilitated, lipid, organelle	
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ASSESSMENT EVIDENCE: Students will show their learning in various ways, including but not limited to:

- Research of primary and secondary resources
- Reflection
- Explanatory writing
- Debate
- Collaborative discussions
- Inquiry-based lab activities
- Data Analysis
- Development of models

KEY LEARNING EVENTS AND INSTRUCTION:

- Osmotic Power Plant
- Microscope parts and sample investigations
- Real world analogies for cellular functions
- Gummy Bear Lab (Osmosis)

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit V: Structure and Function of Life

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4 weeks	Structure and Function of Life	<p><i>Iodine and Corn Starch Experiment (Diffusion)</i></p> <p><i>Sewerlice Experiment (Living/Non-living)</i></p> <p><i>Pearson Interactive Textbook</i></p> <p><i>pHet Simulations</i> <i>Membrane Channels (diffusion, transport):</i> http://phet.colorado.edu/en/simulation/legacy/membrane-channels</p> <p><i>Scientific American articles</i></p> <p><i>Newsela Articles</i></p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit VI: Organization for Matter and Energy Flow in Organisms

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>NGSS:</p> <p>MS-LS1-6: Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.</p> <p>MS-LS1-7: Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.</p>	<p>A process known as photosynthesis occurs in the chloroplasts where sunlight is converted to a useable energy source that can be stored for future use.</p>	<ul style="list-style-type: none"> • Why is sunlight necessary for plant life?
	<p>A process known as cellular respiration occurs in the mitochondria where food is converted into a useable energy source.</p>	<ul style="list-style-type: none"> • How do animals get energy from food?
	KNOWLEDGE	SKILLS
	<p>Students will know:</p> <p>Plants, algae (including phytoplankton), and many microorganisms use the energy from light to make sugars (food) from carbon dioxide from the atmosphere and water through the process of photosynthesis, which also releases oxygen. These sugars can be used immediately or stored for growth or later use.</p>	<p>Students will be able to:</p> <p>Evaluate graphs on the composition of Earth’s early atmosphere, the rise of the O₂ is due to photosynthesis of stromatolites and other early life forms.</p>

	<p>Cellular respiration in plants and animals involve chemical reactions with oxygen that release stored energy. In these processes, complex molecules containing carbon are broken down and rearranged to form new molecules; they react with oxygen to produce carbon dioxide and other materials.</p> <p>Through the process of cellular respiration, new macro molecules are formed such as carbohydrates, lipids, nucleic acids, and proteins.</p>	<p>Develop an equation which demonstrates what materials are needed and produced through photosynthesis.</p> <p>Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.</p> <p>Conduct an experiment to analyze the effect of different amounts of sunlight and CO₂ in photosynthesis.</p> <p>Demonstrate using student derived equation how sugars are broken down for energy.</p> <p>Correlate using temperature data, the breakdown of a molecule to an exothermic process where energy is produced.</p> <p>Construct a scientific explanation based on evidence for the role of both cellular respiration and photosynthesis in the cycling of matter and flow of energy into and out of organisms.</p> <p>Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.</p> <p>Explain the difference between carbohydrates, lipids, nucleic acids and proteins.</p>
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	<p>ATP is created by the breakdown of carbohydrates and is most notably used in the active transport of molecules across the lipid bilayer.</p> <p>The origin of proteins can be traced back to the nucleus. Transcription and translation dictate the conversion of DNA to RNA to protein.</p> <p>Errors made by the cell during the gene to protein process can result in large scale protein disorders.</p> <p>VOCABULARY: Air, Oxygen, CO₂, Water, organelles, energy, disorder, sugar, bilayer, equation, chemical reactions, sunlight, exothermic, endothermic, molecules, temperature, products, reactants, active transport, ribosome,</p> <p>KEY TERMS: Photosynthesis, Cellular respiration, Stoma, granum, carbohydrate, lipid, protein, nucleic acid, stromatolites, DNA, RNA, ATP, translation, transcription</p>	<p>Describe the effect of ATP on active transport, in the cellular process.</p> <p>Trace the creation of new proteins through translation and transcription of the DNA to the RNA and then to the mitochondria.</p> <p>Demonstrate the gene to protein process.</p> <p>Gather, read and analyze information on various protein disorders and the effect on individuals.</p>
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ASSESSMENT EVIDENCE: Students will show their learning in various ways, including but not limited to:

- Research of primary and secondary resources
- Reflection
- Explanatory writing
- Collaborative discussions
- Inquiry-based lab activities
- Data Analysis
- Deriving Equation/Manipulation

KEY LEARNING EVENTS AND INSTRUCTION:

- Atmospheric Graph Analysis of Early Earth
- Lab Aids Photosynthesis Investigation
- Virtual Photosynthesis Simulation Lab

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit VI: Organization for Matter and Energy Flow in Organisms

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4.5 weeks	Organization for Matter and Energy Flow in Organisms	<i>Investigating Human Respiration (Lab Aids)</i> <i>Ted Ed Cell vs Virus</i> <i>Pearson Interactive Textbook</i> <i>Newsela.com</i> <i>Scientific American</i> <i>National Geographic</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit VII: Inheritance and Variation of Traits

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-LS3-1: Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.</p> <p>MS-LS3-2: Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.</p>	<p>Through sexual reproduction, we carry chromosomes from our parents therefore gene mutation and sexual reproduction contribute to genetic variation.</p>	<ul style="list-style-type: none"> • Why do you look similar to your parents?
	<p>Any change in the genetic code of an organism changes the protein produced. Cells require specific proteins to serve particular functions.</p>	<ul style="list-style-type: none"> • How can a simple change in a gene affect an organism?
	<p>Asexual reproduction leads to less genetic variation in a species, whereas sexual reproduction leads to more.</p>	<ul style="list-style-type: none"> • How do the products of asexual and sexual reproduction compare?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Variations of inherited traits between parent and offspring arise from genetic differences that result from the subset of chromosomes (and therefore genes) inherited.</p>	<p>Students will be able to:</p> <p>Recall the gene to protein process. Each distinct gene chiefly controls the production of specific proteins, which in turn affects the traits of the individual.</p>

	<p>There is an organized process by which cells divide and ensure complete inheritance of genetic code There is an organized process by which sex cells are produced and provide the opportunity for variation of traits in offspring.</p> <p>Patterns of inheritance were most notably defined and describe by the pea plant experiments of Gregor Mendel</p> <p>Punnett squares provide a visual model of all possible outcomes of a trait expressed in the offspring of a selected breeding pair</p>	<p>Describe how genes are located in the chromosomes of cells, with each chromosome pair containing two variants of each of many distinct genes, one half inherited from our mother and the other half from our father.</p> <p>Develop a model of the cell cycle with the different phases of mitosis.</p> <p>Develop a model of the cell cycle with the different phases of meiosis.</p> <p>Compare and contrast the phases and the end results of mitosis and meiosis.</p> <p>Define the difference between dominant and recessive alleles.</p> <p>Define Genotype and Phenotype</p> <p>Gather, read and analyze data on Mendel's experiments on pea plants and the different ways traits are expressed.</p> <p>Compare the patterns of inheritance for complete dominance, co-dominance, incomplete dominance, using the pea plant experiments of Gregor Mendel.</p> <p>Utilize Punnett Squares to construct arguments regarding the genetic outcome of an offspring of two specific individuals.</p>
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	<p>Punnett squares can mathematically express the probability for inheritance of a specific trait.</p> <p>Pedigree provide visual models of inheritance patterns for a trait found in multiple generations of a specific species.</p> <p>Karyotypes provide visual models of all the chromosomes present in a specific organism.</p> <p>Changes (mutations) to genes can result in changes to proteins, which can affect the structures and functions of the organism and thereby change traits.</p>	<p>Analyze Punnett squares to express the inheritance of a specific trait in terms of both phenotypic and genotypic ratios. Extend their understanding of monohybrid crosses to construct, analyze, and mathematically represent the results of a dihybrid cross.</p> <p>Analyze and describe a given pedigree for its symbols, organization, and usage.</p> <p>Predict possible genotypes for individuals listed in a pedigree.</p> <p>Justify inheritance pattern based on the pedigree of a family with a genetic disorder.</p> <p>Analyze and describe a given karyotype for its symbols, organization, and usage.</p> <p>Construct a model karyotype using images of chromosomes.</p> <p>Predict if an organism will display a genetic disorder based on evidence from a karyotype.</p> <p>Identify the type of mutation (insertion, deletion, nonsense, replacement, duplication) present in a given replication.</p> <p>Develop and utilize a model to predict what affects, both small scale and whole organism,</p>
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	<p>Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring.</p> <p>VOCABULARY: Cell, Nucleus, Trait, offspring, parent, reproduce, Protein, RNA, DNA, Ribosome, insert, delete, duplicate, replace</p> <p>KEY TERMS: Chromosomes, Genes, Sexual reproduction, Asexual reproduction, Mitosis, Prophase, Metaphase, Anaphase, Telophase, Cytokinesis, Interphase, Cell Cycle, Mutation, F₁ generation, F₂ generation, inheritance, variation, purebred, hybrid, monohybrid, dihybrid, dominant, recessive, genotype, phenotype, incomplete dominance, co-dominance, allele, pedigree, karyotype</p>	<p>may occur when a mutation in the genetic code occurs.</p> <p>Argue why some changes to genetic material are beneficial, others harmful, and some neutral to the organism.</p> <p>Design an experiment to test whether a genetic trait comes from a mutation or from inheritance.</p> <p>Demonstrate how a variation of inherited traits can occur within several generations of an organism through sexual reproduction.</p> <p>Demonstrate how variation of inherited traits is not possible through asexual reproduction</p> <p>Develop and use a model to compare the possibility for genetic variation during both sexual and asexual reproduction.</p>
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ASSESSMENT EVIDENCE: Students will show their learning in various ways, including but not limited to:

- Research of primary and secondary resources
- Reflection
- Explanatory writing
- Collaborative discussions
- Data Analysis
- Argumentative writing
- Developing and utilizing student-created models

KEY LEARNING EVENTS AND INSTRUCTION:

- Modeling Activity with Cell Cycle
- Punnett's Square Lab
- Pedigree Activity
- Karyotyping Chromosomes
- Gene to Protein modeling

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit VII: Inheritance and Variation of Traits

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
7 weeks	Inheritance and Variation of Traits	<p><i>Creature Project</i></p> <p><i>Genetic Disorder Project</i></p> <p><i>Pearson Interactive Textbook</i></p> <p><i>pHet Simulations</i> <i>Gene Expression:</i> http://phet.colorado.edu/en/simulation/gene-expression-basics</p> <p><i>Scientific American articles</i></p> <p><i>Newsela Articles</i></p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit VIII: Body Systems

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>NGSS:</p> <p>MS-LS1-3: Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.</p> <p>MS-LS1-8: Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.</p>	<p>Body systems rely on each other to aid in the successful function of the organism.</p>	<ul style="list-style-type: none"> • How do your body systems work together to keep you moving/healthy/living?
	<p>Cells are specialized for a task based on their structure.</p>	<ul style="list-style-type: none"> • How can cells be specialized for a task?
	<p>The sensory organs such as, eyes, ears, skin, tongue, nose, have specially designed cells to pick up subtle changes in the environment.</p>	<ul style="list-style-type: none"> • How do we gather information from our environment?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Body subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions.</p> <p>In multicellular organisms, the body is a system of multiple interacting subsystems.</p>	<p>Students will be able to:</p> <p>Identify the levels of organization within an organism</p> <p>Identify the various systems of the body and their basic functions</p> <p>Model how body systems are constantly interacting with each other.</p>

	<p>Cells specialized task (muscle, eyes, stomach, neuron, fat, bone) are based on their structure.</p> <p>Each sense receptor responds to different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain, resulting in immediate behaviors or memories.</p> <p>VOCABULARY: Brain, Ears, Eyes, Skin, Breath, Blood, Movement, Waste, Multicellular, Body, Cells, Tissues, Organs, Function, Sight, Hearing, Touch, Smell, Taste, Interacting, Ear Drum, Touch receptors, Taste buds, Heart</p> <p>KEY TERMS: Excretory System, Circulatory System, Skeletal System, Muscular System, Digestive System, Nervous System, Lymph System, Integumentary System, Reproductive System, Retina, Cornea, Lens, Cochlea</p>	<p>Gather, read and analyze information on various systems and how they need each other to provide our body functions.</p> <p>Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of specialized cells.</p> <p>Predict the effects on an organism if a body system does not function properly</p> <p>Describe the structure of various cells found around our body and how it influences their function.</p> <p>List our multiple senses and the organs required for them to function.</p> <p>Describe how our eyes, ears, tongue, nose and skin responds to different inputs and the various structures that allow the organs to function.</p> <p>Conduct and analyze an experiment on sweat production of the excretory system and how it relates to homeostasis.</p>
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ASSESSMENT EVIDENCE: Students will show their learning in various ways, including but not limited to:

- Research of primary and secondary resources
- Reflection
- Explanatory writing
- Collaborative discussions
- Inquiry-based lab activities
- Data Analysis

KEY LEARNING EVENTS AND INSTRUCTION:

- Body Systems Interactions Activity
- Lab Disc Sweat Production
- Cell Body Samples

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Seven Science
Unit VIII: Body Systems

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3.5 weeks	Body Systems	<i>Lab Disc Heart Rate</i> <i>Skeletal System Joints Activity</i> <i>Pearson Interactive Textbook</i> <i>Newsela.com</i> <i>Scientific American</i> <i>National Geographic</i>

NGSS <http://www.nextgenscience.org/next-generation-science-standards>

NJ State Model Curriculum <http://www.nj.gov/education/modelcurriculum/sci/ms.shtml>

**Randolph Township Schools
Randolph Middle School**

Grade Eight Science Curriculum

“To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science.””

-Albert Einstein

Department of Science, Technology, Engineering, and Math
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Curriculum Committee
Maraline Ashley
Jessica Dingman
Cara Gilligan
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Curriculum Developed:
July 2016

Date of Board Approval:

Randolph Township Schools
Department of Science, Technology, Engineering, & Mathematics
Grade 8 Science

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
 - Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools
Department of Science, Technology, Engineering, & Mathematics
Introduction

Randolph Township Schools is committed to excellence. We believe that all children are entitled to an education that will equip them to become productive citizens of the 21st century. We believe that an education grounded in the fundamental principles of science, technology, engineering, and math (STEM) will provide students with the skills and content necessary to become future leaders and lifelong learners.

A sound STEM education is grounded in the principles of inquiry, rigor, and relevance. Students will be actively engaged in learning as they use real-world STEM skills to construct knowledge. They will have ample opportunities to manipulate materials and solve problems in ways that are developmentally appropriate to their age. They will work in an environment that encourages them to take risks, think critically, build models, observe patterns, and recognize anomalies in those patterns. Students will be encouraged to ask questions, not just the “how” and the “what” of observed phenomena, but also the “why”. They will develop the ability, confidence, and motivation to succeed academically and personally.

STEM literacy requires understandings and habits of mind that enable students to make sense of how our world works. As described in Project 2061’s *Benchmarks in Science Literacy*, *The Standards for Technological Literacy*, and *Professional Standards for Teaching Mathematics*, literacy in these subject areas enables people to think critically and independently. Scientifically and technologically literate citizens deal sensibly with problems that involve mathematics, evidence, patterns, logical arguments, uncertainty, and problem-solving.

Grade 8 Science
Introduction

The Grade 8 Science Course is the third and last middle school Science course. We believe that all children are entitled to an education that will equip them to become productive citizens of the 21st century. We believe that an education grounded in the fundamental principles of science inquiry and rigor will provide students with the skills and content necessary to become future leaders. Students would be actively engaged in learning as they model real-world scientific behaviors to construct knowledge. This course introduces key concepts and skills that are essential for students as they prepare for high school science courses. Students will gain an understanding of concepts pertaining to information processing, natural selection, adaptation, evidence of common ancestry, force and motion, introduction to forms of energy, thermal energy, the electromagnetic spectrum, natural resources, and stability and change on Earth. They will have ample opportunities to manipulate materials in ways that are developmentally appropriate to their age. They will work in an environment that encourages them to take risks, think critically, build models, observe patterns, and recognize anomalies in those patterns. Students should be encouraged to ask questions, not just the “how” and the “what” of observed phenomena, but also the “why”. Scientific literacy requires understandings and habits of mind that enables students to make sense of how the natural and physical worlds work. As described in Project 2061’s *Benchmarks in Science Literacy*, scientific literacy enables people to think critically and independently. Scientifically literate citizens deal sensibly with problems that involve evidence, patterns, logical arguments, and uncertainty. The science curriculum has been developed with age appropriate activities and expectations to achieve these goals.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Grade 8 Science

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
2.5 weeks	I	Information Processing
3 weeks	II	Natural Selection
4.5 weeks	III	Adaptation and Evidence of Common Ancestry
6.5 weeks	IV	Force and Motion and Introduction to Forms of Energy
8.5 weeks	V	Thermal Energy and The Electromagnetic Spectrum
4 weeks	VI	Natural Resources
5 weeks	VII	Stability and Change on Earth
2 weeks	VIII	Capstone Connections

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Eighth Grade Science
UNIT I: Information Processing

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-LS1-8: Gather and synthesize information that sensory receptors responds to stimuli by sending messages to the brain for immediate behavioral storage as memories.</p>	<p>Brain changes can occur in response to the environment and new learning situation.</p>	<ul style="list-style-type: none"> • How can I enrich my brain?
<p><u>Common Core-Math:</u></p> <p>HSN-Q.A.1: Reason quantitatively and use units to solve problems.</p>	<p>Our brains respond strongly to new stimuli and novel information.</p>	<ul style="list-style-type: none"> • What makes something memorable? Are memories our most precious possession?
<p>HSN-REI.A.1: Understand solving equations as a process of reasoning and explain the reasoning</p>	<p>Fossils and artifacts can aid in answering questions about early man.</p>	<ul style="list-style-type: none"> • How do we track the progression of early man?
<p>HSN-REL.B.3: Solve equations and inequalities in one variable.</p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p><u>Common Core- ELA:</u></p> <p>RI.8.1-6: Key ideas and details in information text through craft and structure of information text</p> <p>W.8.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>Students will know:</p> <p>We have 100 billion neurons in our brain that will not increase, yet the number of neural connections will.</p> <p>We are able to build neural pathways in our brain based on the experiences we have.</p> <p>Sense receptors transmit responses as signals that travel along nerve cells to the brain and are then processed.</p>	<p>Students will be able to:</p> <p>Draw a neuron and label its parts.</p> <p>Explain how neural pathways are created.</p> <p>Analyze the role of a neuron in the learning process.</p> <p>Calculate the speed of a neural impulse through the human body.</p>

	<p>Cause-and-effect relationships may be used to predict response to stimuli in natural systems.</p> <p>We are able to increase the amount of information we retain by using brain based researched strategies.</p> <p>Our brain is divided into lobes that are responsible for specific functions.</p> <p>Artifacts and fossils can help us in understanding early man and their brain development.</p> <p>VOCABULARY: Neural plasticity, learning, memory, intelligence, artifacts, fossil, evolved, independent, dependent, and controlled variables.</p>	<p>Gather, read, and synthesize information from multiple appropriate sources about sensory receptors' response to stimuli. Assess the credibility, accuracy, and possible bias of each publication and methods used.</p> <p>Define learning and memory in terms of synapses and connections.</p> <p>Hypothesize why different people remember different items in memory activities.</p> <p>Investigate the properties of human memory and suggest techniques to improve it.</p> <p>Identify the 6 main parts of the brain.</p> <p>Explain the functions and roles of each area of the brain.</p> <p>List healthy habits that will keep your brain functioning optimally.</p> <p>Explain how fossils and artifacts allow us to unravel the mysteries of early man. (Expository Writing)</p>
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	KEY TERMS: Neuron, axon, synapse, Neurotransmitter, dendrite, lobe, Parietal, Occipital, Temporal, Amygdala, Hippocampus, Brain Stem, Cerebellum, stimuli, Neanderthal, impulse, myelination.	
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Research of primary and secondary resources
- Reflection
- Explanatory writing
- Collaborative discussions
- Inquiry-based lab activities
- Data Analysis

KEY LEARNING EVENTS AND INSTRUCTION:

- Articles on sensory receptors. How do organisms receive and respond to information from their environment? (multiple articles, jigsaw groupings for article review?)
- Articles on Neanderthal tools, Ancient Teeth, Caves and Organization
- Scientific American Article “How Has the Human Brain Evolved?”
- Group inquiry to connect learning to observable phenomena
- Expository Writing Piece: Explain how fossils and artifacts allow us to unravel the mysteries of early man.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Eight Science
Unit I: Information Processing

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
2.5 Weeks	Information Processing	<i>Newsela.com- Neanderthal Tools, Teeth, And Caves</i> <i>Scientific American Article</i> http://faculty.washington.edu/chudler/chmemory.html <i>National Geographic Video Clips- Brain Games</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Eight Science
Unit II: Natural Selection

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-LS4-4: Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.</p> <p>MS-LS4-5: Gather, read, and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organism.</p>	<p>An organism's chance of survival is based on changes to the genetic code.</p>	<ul style="list-style-type: none"> • How can change impact an organism's chance of survival?
	<p>Natural selection is impacted by environmental factors.</p>	<ul style="list-style-type: none"> • How does the environment effect natural selection?
	<p>Genetically modified organisms (GMO) have both benefits and detriments to ecosystems.</p>	<ul style="list-style-type: none"> • Are genetically modified organisms (GMOs) beneficial or detrimental?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Genetic variations of traits in a population increase or decrease some individuals' probability of surviving and reproducing in a specific environment.</p>	<p>Students will be able to:</p> <p>Use evidence to argue that variations in the genetic code produce traits that increase an individuals' probability of surviving and reproducing.</p>

	<p>Natural selection leads to the predominance of certain traits in a population and the suppression of others.</p> <p>Natural selection may have more than one cause, and some cause-and-effect relationships within natural selection can only be described using probability.</p> <p>Natural selection is one important process through which species change over time in response to changes in environmental conditions.</p> <p>The abiotic and biotic features of an ecosystem impact the desirability of specific traits in a community.</p> <p>In artificial selection, humans have the capacity through advances in technology and engineering that can influence certain characteristics of organisms by selection breeding which has thereby created entire new industries.</p> <p>In artificial selection, humans choose desirable, genetically determined traits to pass on to offspring.</p> <p>Artificial selection may have more than one cause, and some cause-and-effect relationships within artificial selection can only be described using probability.</p>	<p>Construct an explanation based on evidence, examples, and data that describes how the process of natural selection creates a predominance or suppression of a specific trait in a population.</p> <p>Use probability to describe some cause and effect relationships that can be used to explain why some individuals survive and reproduce in a specific environment.</p> <p>Support the claim using evidence that environmental conditions impact natural selection.</p> <p>Identify key abiotic and biotic features of a specific ecosystem.</p> <p>Correlate a specific feature in the environment to the desirability of a specific trait.</p> <p>Investigate and analyze primary documents focused on technologies that have been engineered to assist humans to genetically enhance organisms.</p> <p>Justify why a specific trait is chosen by humans to genetically modify.</p> <p>Use probability to describe cause-and-effect relationships within artificial selection.</p>
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	<p>VOCABULARY: Population, abiotic, biotic, ecosystem, community, organism, individual, genes, DNA, traits, food chain/web, limiting factor, species, variables, probability, benefits, detriments, suppression, predominance, technologies, claim (noun), desirable, heredity, offspring, reproduction, generation, parental</p> <p>KEY TERMS: Natural Selection, genetic variation, Artificial Selection, Selective breeding, Gene Therapy, Genetically Modified Organisms (GMOs)</p>	
<p>ASSESSMENT EVIDENCE: Students will show their learning in various ways, including but not limited to:</p> <ul style="list-style-type: none"> • Research of primary and secondary resources • Reflection • Explanatory writing • Collaborative discussions • Argumentative presentation • Inquiry-based lab activities • Data Analysis <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none"> • Article reviews that focus on natural selection, GMOs, artificial selection technologies, and selective breeding. • Peppered-moth simulation • Toothpick/cloth inquiry lab 		

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Eight Science
Unit II-Natural Selection

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	Natural Selection	<p><i>Pearson Interactive Textbook</i></p> <p><i>pHet Simulations</i></p> <p><i>Color Variation over Time in Rocket Pocket Mouse Populations:</i> http://ngss.nsta.org/Resource.aspx?ResourceID=378</p> <p><i>Catch Up on Tomato Technology:</i> http://ngss.nsta.org/Resource.aspx?ResourceID=126</p> <p><i>Peppered-moth Inquiry Lab</i></p> <p><i>Newsela.com</i></p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Eight Science
Unit III: Adaptation and Evidence of Common Ancestry

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-LS4-6: Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.</p> <p>MS-LS4-1: Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.</p> <p>MS-LS4-2: Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.</p> <p>MS-LS4-3: Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.</p>	<p>Natural selection and adaptation lead to changes in populations over time.</p>	<ul style="list-style-type: none"> • How do populations change over time?
	<p>Fossils can provide evidence of an organism’s existence, diversity, extinction, and progression of life forms throughout history.</p>	<ul style="list-style-type: none"> • What do fossils tell us about the past?
	<p>Analogous structures, homologous structures, and embryology provide evidence of evolutionary relationships between species.</p>	<ul style="list-style-type: none"> • How can we infer relationships?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Natural selection, which over generations leads to adaptations, is one important process through which species change over time in response to changes in environmental conditions.</p>	<p>Students will be able to:</p> <p>Given an important environmental change hypothesize how that feature would drive natural selection and produce adaptations over time.</p>

	<p>Traits that support successful survival and reproduction in the new environment become more common; those that do not become less common.</p> <p>Mathematical representations can be used to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.</p> <p>The fossil record documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth.</p> <p>The collection of fossils and their placement in chronological order as identified through the location of sedimentary layers in which they are found is known as the fossil record.</p> <p>Relative fossil dating is achieved by examining the fossil's relative amount of radioactive elements found in the fossil sample.</p> <p>Patterns exist in the level of complexity of anatomical structures in organisms and correlates to the chronological order of fossil appearance.</p>	<p>Research the population genetics over time associated with a given environmental cause.</p> <p>Use mathematical evidence to support the claim that natural selection leads to the distribution of traits and adaptations.</p> <p>Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.</p> <p>Given location in sedimentary layer infer relative age of fossils.</p> <p>Estimate the age of fossil based on the relative amount of carbon/uranium/other radioactive element found in sample.</p> <p>Examine fossil samples relating to a similar lineage of organism (ie. Whales) and place them in chronological order based on similarities/differences in anatomical structures and other evidence.</p>
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	<p>Patterns can occur within one species of organism or across many species.</p> <p>Similarities and differences in the gross anatomical structures among modern organisms and between modern organisms and fossil organisms enable the reconstruction of evolutionary history and the inference of lines of evolutionary descent.</p> <p>General patterns of relatedness among embryos of different organisms can be inferred by comparing the macroscopic appearance of diagrams or pictures.</p> <p>Similarities in embryological development across multiple species show relationships that are not evident in the fully formed organisms.</p> <p>VOCABULARY: development, similarities, differences, existence, diversity, trait, species, organisms, variations, adapt, anatomy, correlation, structure.</p> <p>KEY TERMS: Evolution, relative dating, radioactive, macroscopic, gross anatomy, fossil layer, sedimentary rock, analogous, homologous, natural selection, index fossil.</p>	<p>Examine fossil samples relating to a different lineages of various organism (ie. Marine life) and place them in chronological order based on similarities/differences in anatomical structures and other evidence.</p> <p>Define analogous and homologous structures. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.</p> <p>Examine embryo images relating to a different lineages of various organism (ie. Marine life) and find similarities/differences in anatomical structures evident in various levels of development.</p> <p>Evaluate the credibility, effectiveness, and limitations of using embryos of multiple species to show relationships rather than using fully formed organism samples.</p>
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ASSESSMENT EVIDENCE: Students will show their learning in various ways, including but not limited to:

- Reflection
- Explanatory writing
- Collaborative discussions
- Inquiry-based lab activities
- Data Analysis (relative dating in specific)
- Sample analysis/hands-on activities

KEY LEARNING EVENTS AND INSTRUCTION:

- pHet simulations: Radioactive dating
- Exploring environmental effects on population genetics
- Fossil kits-relative dating using anatomical structures and radioactive element amounts
- Examine/compare embryo samples

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Eight Science
Unit III: Adaptation and Evidence of Common Ancestry

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4.5 Weeks	Adaptation and Evidence of Common Ancestry	<i>Pearson Interactive Textbook</i> <i>pHet Simulations</i> <i>Netlogo</i> <i>Lab Aids</i> <i>Fossil samples/kits</i> <i>Embryo images/diagrams</i> <i>Newsela.com</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Eight Science
Unit IV: Force and Motion/Introduction to Forms of Energy

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>NGSS:</p> <p>MS-PS2-1: Apply Newton’s Third Law to design a solution to a problem involving the motion of two colliding objects.</p> <p>MS-PS2-2: Plan an investigation to provide evidence that the change in an object’s motion depends on the sum of the forces on the object and the mass of the object.</p> <p>MS-PS3-1: Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.</p> <p>MS-PS3-2: Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.</p> <p>MS-PS3-5: Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.</p> <p>MS-ETS1-1: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful</p>	<p>Newton’s laws of motion can be represented mathematically in order to describe how objects react to changes in force and mass, and how objects react to collisions.</p> <p>Objects use kinetic energy due to their velocity and mass. Comparatively, objects store potential energy due to their relative distances from a reference point and the objects’ masses.</p> <p>Kinetic and potential energies are proportionally related in a defined system and can be represented mathematically using given formulas.</p> <p>When the motion of an object changes energy is transferred from potential energy (stored energy due to position) to kinetic energy (motion energy due to velocity).</p>	<ul style="list-style-type: none"> • How can force change an object’s motion? • Why and how do all objects use/store energy? • How does energy move between objects?

<p>solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.</p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>MS-ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.</p> <p>MS-ETS1-3: Analyze data form tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.</p> <p>MS-ETS1-4: Develop a model to generate data for interactive testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.</p>	<p>Students will know:</p> <p>The change in an object’s motion depends on the magnitude and directions of balanced (Newton’s first law) and unbalanced forces in a system.</p> <p>The motion of an object is determined by the sum of the forces acting on it; if the total force on the object is not zero, its motion will change.</p> <p>The greater the mass of the object, the greater the force needed to achieve the same change in motion. Alternatively, a larger force causes a larger change in motion. (Newton’s second law)</p> <p>For any pair of interacting objects, the force exerted by the first object on the second object is equal in strength to the force that the second object exerts on the first, but in the opposite direction (Newton’s third law). These phenomena can be visualized using models.</p> <p>Kinetic energy may take different forms (e.g., energy in fields, thermal energy, energy of motion).</p> <p>Kinetic energy is related to the mass of an object and separately also related to the speed of an object.</p>	<p>Students will be able to:</p> <p>Hypothesize how an object’s motion will be impacted given various forces in multiple directions/magnitudes.</p> <p>Plan an investigation to provide evidence that the change in an object’s motion depends on the sum of the forces on the object and the mass of the object.</p> <p>Predict using mathematical evidence how the motion, specifically acceleration, of an object will change given changes in force and mass by apply Newton’s second law of motion (Force=mass x acceleration).</p> <p>Apply Newton’s Third Law to design a solution, using models, to a problem involving the motion of two colliding objects.</p> <p>Evaluate the effectiveness of this solution using mathematical evidence.</p> <p>Categorize and generate real-world examples of kinetic energy in its many forms (ie. Energy fields, thermal energy, energy of motion).</p> <p>Plan and carry out an investigation that determines the factors impacting the motion of an object.</p>

	<p>Motion energy is properly called kinetic energy; and can be calculated knowing that it is proportional to the mass of the moving object and grows with the square of the object's speed ($KE=0.5mv^2$).</p> <p>A system of objects may contain stored (potential) energy, depending on the objects' relative positions.</p> <p>When the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system and can be calculated knowing that it is proportional to the mass of the non-moving object and gravity's force relative to the distance from earth ($PE=mgh$).</p> <p>When two objects interact, each one exerts a force on the other that can cause kinetic energy to be transferred to or from the objects.</p> <p>Proportional relationships among different types of quantities provide information about the magnitude of properties and processes.</p> <p>The more precisely a design task's criteria and constraints can be defined, through the consideration of scientific principles and other relevant knowledge, the more likely it is that the designed solution will be successful.</p>	<p>Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.</p> <p>Categorize and generate real-world examples of potential energy.</p> <p>Develop a model, both conceptually and mathematically, to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.</p> <p>Conduct an inventory to compare the energies, in terms of speed, present in objects before and after an interaction.</p> <p>Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object</p> <p>Evaluate the relationship between changes in types of energies, potential and kinetic, that occur over the motion of an object in a real-world application (i.e. Roller coaster/amusement park rides).</p> <p>Design, construct, test, and critique a device that maximizes potential and kinetic energy.</p>
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	<p>Models that could include representations, diagrams, pictures, and written descriptions of systems can be used to represent systems and their interactions, such as energy flow within systems.</p> <p>VOCABULARY: models, systems, interaction, motion, speed, distance, energy, balanced, unbalanced, force, stored, collision, transfer, problem, brainstorm, design, invention, iteration, modify, test</p> <p>KEY TERMS: Newton’s laws of motion, inertia, kinetic energy, potential energy, Acceleration, energy transformation, engineering, design process, constraint, innovation, iteration, prototype, troubleshoot, optimize</p>	<p>Assess the scientific principles (energy types, energy relationships, energy transfer) present in the device’s model to communicate the scientific stability of their model.</p>
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ASSESSMENT EVIDENCE: Students will show their learning in various ways, including but not limited to:

- Reflection
- Explanatory writing
- Collaborative discussions
- Inquiry-based lab activities
- Data Analysis (potential and kinetic energy in specific)
- Design/evaluate engineering solutions
- Applying and creating real-world explanations

KEY LEARNING EVENTS AND INSTRUCTION:

- Large scale demonstrations
- Discrepant event demonstration
- Investigate the motion of collision carts in various setups
- Force diagrams
- Mass car investigations
- Roller Coaster Project- constructing a scaled model of a roller coaster using foam pipe insulation, marbles, masking tape, assess the potential and kinetic energies present in the model (including calculations), critiquing and modifying the model until scientific principles are maximized.
- Roller Coaster simulations

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Eight Science
Unit IV: Forces and Motion/Introduction to Forms of Energy

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
6.5 Weeks	Force and Motion/Introduction to Forms of Energy	<p><i>Pearson Interactive Textbook</i></p> <p><i>pHet Simulations</i></p> <p><i>Amusement park physics: http://www.learner.org/interactives/parkphysics/</i></p> <p><i>Potential and Kinetic Energy in Roller Coasters simulations: http://www.pbslearningmedia.org/resource/hew06.sci.phys.maf.rollercoaster/energy-in-a-roller-coaster-ride/</i></p> <p><i>How Roller Coasters Work: http://science.howstuffworks.com/engineering/structural/roller-coaster3.htm</i></p> <p><i>Newsela.com</i></p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Eight Science
Unit V: Thermal Energy and The Electromagnetic Spectrum

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-PS3-3- Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.</p> <p>MS-PS3-4- Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.</p> <p>MS-PS4-1- Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.</p> <p>MS-PS4-2- Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.</p> <p>MS-PS4-3- Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.</p> <p>MS-ETS1-1: Define the criteria and constraints of a design problem with</p>	<p>The thermal energy in a system depends on the type, state, environment and amount of matter present.</p>	<ul style="list-style-type: none"> • How can matter influence thermal energy?
	<p>Wave properties are influenced by the medium through which it travels and its level of energy.</p>	<ul style="list-style-type: none"> • How do waves travel and interact with matter?
	<p>Electromagnetic and mechanical waves are used for communication purposes.</p>	<ul style="list-style-type: none"> • How can we use wave energy to communicate?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Temperature is a measure of the average kinetic energy of particles of matter.</p> <p>Energy is spontaneously transferred out of hotter regions or objects and into colder ones.</p>	<p>Students will be able to:</p> <p>Investigate how adding/removing heat energy affects the temperature and volume of a sample.</p> <p>Investigate how the temperature of various liquids will influence direction of liquid movement.</p>

<p>sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.</p> <p>MS-ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.</p> <p>MS-ETS1-3: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.</p> <p>MS-ETS1-4: Develop a model to generate data for interactive testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.</p>	<p>There are relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of particles as measured by the temperature of the sample.</p> <p>The type, state, and amount of matter present, and the environment can be used to influence the amount of thermal energy lost to its environment.</p> <p>A solution needs to be tested and then modified on the basis of the test results in order to improve it.</p> <p>There are systematic processes for evaluating solutions with respect to how well they meet criteria and constraints of a problem.</p> <p>A simple wave has repeating patterns with a specific wavelength, frequency, and amplitude.</p>	<p>Individually and collaboratively plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of particles as measured by the temperature of a given sample.</p> <p>Identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim.</p> <p>Communicate logical and conceptual connections between gathered evidence and explanations.</p> <p>Apply scientific ideas or principles to design, construct, and test a design of a device that either minimizes or maximizes thermal energy transfer.</p> <p>Test design solutions and modify them on the bases of the test results in order to improve them</p> <p>Use a systematic process for evaluating solutions with respect to how well they meet criteria and constraints.</p> <p>Identify the main parts of a wave.</p>
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	<p>Describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.</p> <p>When light shines on an object, it is reflected, absorbed, or transmitted through the object, depending on the object's material and the frequency (color) of the light.</p> <p>The path that light travels can be traced as straight lines, except at surfaces between different transparent materials (ex: air vs. water, and air vs. glass)</p> <p>A wave model of light is useful for explaining brightness, color, and the frequency-dependent bending of light at a surface between media.</p> <p>A sound wave needs a medium through which it is transmitted and this medium can affect the speed at which it travels whereas light waves do not need a medium to travel through.</p> <p>The structure of a wave can be modified to serve particular functions by taking into account properties of different materials and how materials can be shaped and used.</p>	<p>Create a model of transverse and longitudinal waves of various magnitudes.</p> <p>Use mathematical representation to use as evidence to support conclusions of models.</p> <p>Develop and use models to describe the movement of light waves in various materials.</p> <p>Develop and use models to describe the path of light waves in various materials.</p> <p>Develop and use models to describe the characteristics of light waves in various materials.</p> <p>Develop and use models to compare and contrast the movement of light waves to sound waves in various materials.</p> <p>Hypothesis how various materials can have an effect on a wave.</p> <p>Collect data to use as evidence of how different materials can be modified to change the structure of a wave.</p>
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	<p>Structures can be designed to use properties of waves to serve particular function.</p> <p>Waves can be used for communication purposes.</p> <p>Digitized signals (sent as wave pulses) are a more reliable way to encode and transmit information than are analog signals.</p> <p>Wave-related technologies extend the measurement, exploration modeling, and computational capacity of scientific investigations.</p> <p>VOCABULARY: kinetic, transform, conservation, solid, liquid, gas, boiling point, melting point, freezing point, problem, brainstorm, design, invention, iteration, modify, test</p> <p>KEY TERMS: Energy transformation, energy conservation, kinetic energy, thermal energy, temperature, specific heat, amplitude, wave speed, wavelength, crest, trough, reflection, compression, longitudinal, transverse, mechanical, medium, refraction, absorption, transmitted, analog, digital, electromagnetic spectrum. engineering, design process, constraint, innovation, iteration, prototype, troubleshoot, optimize</p>	<p>Integrate qualitative scientific and technical information in written text with that contained in media and visual displays to clarify claims that digitized signals are a more reliable way to encode and transmit information than analog signals are.</p>
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ASSESSMENT EVIDENCE: Students will show their learning in various ways, including but not limited to:

- Research of primary and secondary resources
- Reflection
- Explanatory writing
- Collaborative discussions
- Inquiry-based lab activities
- Data Analysis
- Design-Evaluate engineering solutions
- Large scale demonstrations
- Discrepant Event Demo

KEY LEARNING EVENTS AND INSTRUCTION:

- pHet simulation (states of matter, gas properties, waves)
- Large scale demonstrations
- Discrepant Event Demo
- Lab Discs (collect sound data from various locations)
- Information writing piece

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Eight Science
Unit V: Thermal Energy and The Electromagnetic Spectrum

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
8.5 weeks	Thermal Energy and The Electromagnetic Spectrum	<i>Pearson Interactive Textbook</i> <i>pHet Simulations</i> <i>Scientific American articles</i> <i>Newsela Articles</i> https://spaceflightsystems.grc.nasa.gov/education/rocket/moon.html

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Eight Science
Unit VI: Natural Resources

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-ESS3-1: Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.</p> <p>MS-ESS3-3: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.</p> <p>MS-ESS3-4: Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.</p>	<p>Resources including minerals, energies, groundwater, and soil are distributed unevenly on Earth due to past and current geoscience processes, as well as removal by humans.</p>	<ul style="list-style-type: none"> • Why aren't all natural resources on earth evenly distributed geographically?
	<p>Humans negatively impact the earth by redistributing and/or depleting natural resources in terms of land usage, water usage, pollution, increases in population and per-capita consumption. Alternatively, humans positively impact the earth by designing and engineering solutions to counter and prevent these impacts on Earth's resources.</p>	<ul style="list-style-type: none"> • How do humans influence the abundance of natural resources available on Earth?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Humans depend on Earth's land, ocean, atmosphere, and biosphere for many different resources.</p>	<p>Students will be able to:</p> <p>Identify the natural resources available to humans on earth and evaluate the uses that have been developed for these resources.</p>

	<p>All human activities draw on Earth’s land, ocean, atmosphere, and biosphere resources and have both short and long-term consequences, positive as well as negative, for the health of people and the natural environment.</p> <p>Minerals, fresh water, and biosphere resources (including but not limited to: petroleum, metal ores, and soil) are distributed unevenly around the planet as a result of past geologic process and can be explained using cause-and-effect relationships.</p> <p>Mineral, fresh water, ocean, biosphere, and atmosphere resources are limited and many are non-renewable or replaceable over human lifetimes.</p> <p>The distribution of some of Earth’s land, ocean, atmosphere, and biosphere resources are changing significantly due to removal by humans, and as human populations and per capita consumption increase.</p> <p>Relationships can be classified as causal or correlational, and correlation does not necessarily imply causation.</p>	<p>Gather, read, and synthesize information relating to the short-term and long-term effects of using natural resources for human usage.</p> <p>Correlate these findings with positive or negative change over time in the natural environment and health of human populations.</p> <p>Identify the location and relative quantity of natural resources (such as petroleum, metal ores, water, and soil) available to humans on earth.</p> <p>Construct an explanation to determine the past geologic processes (such as organic marine sediments, volcanoes, hydrothermal vents, and weathering) the cause of the uneven distribution of these natural resources using evidence.</p> <p>Classify various natural resources as renewable or non-renewable based on the relationship between human consumption rates and organic production rates by the Earth.</p> <p>Use data to analyze how the distribution and amount of various natural resources are changing due to removal/consumption by humans.</p> <p>Define and identify relationships as casual or correlational.</p> <p>Provide a real world example of each of type of relationship.</p>
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	<p>Changes to Earth’s environment can have different impacts (negative and positive) for different livings.</p> <p>Changes to Earth’s environment due to human activities have significantly altered the availability of natural resources in the biosphere.</p> <p>As humans deplete Earth’s non-renewable resources the effects can be negative, such as damaging or destroying natural habitats and causing the extinction of other species.</p> <p>Alternatively, as humans deplete Earth’s non-renewable resources the effects can be positive, such as the development of new technologies. These technologies alleviate the dependence of humans on Earth’s resources, provide alternative energy sources, and reverse/prevent/slow the degradation of the Earth.</p> <p>VOCABULARY: abundance, impact, resource, distribution, consumption, usage, positive, negative, relationships,</p> <p>KEY TERMS: renewable, non-renewable, causal, correlation, depletion, per-capita, examples referring to specific environmental issues (ex: Fracking)</p>	<p>Explain using evidence the type of relationship (causal/correlational) present between an environmental change and the positive/negative impacts on living organisms.</p> <p>Explain using evidence the type of relationship (causal/correlational) present between an environmental change due to human activities and the significant alteration of the availability of a natural resource.</p> <p>Review and analyze primary sources relating to the negative events that occur when humans deplete Earth’s natural resources.</p> <p>Communicate evidence-based scientific findings to peers that show a relationship (causal or correlational) between the negative events that occur when humans deplete Earth’s natural resources.</p> <p>Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment’s natural resources and argue for its effectiveness in the real-world.</p>
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ASSESSMENT EVIDENCE: Students will show their learning in various ways, including but not limited to:

- Research of primary and secondary resources
- Reflection
- Explanatory writing
- Debate
- Collaborative discussions
- Inquiry-based lab activities
- Data Analysis
- Design-Evaluate engineering solutions

KEY LEARNING EVENTS AND INSTRUCTION:

- Mapping activity to explore the distribution of natural resources on earth
- Causal and correlational relationship investigation
- Investigate the pre-existing technologies that address the depletion of natural resources
- Design, evaluate, and present an engineering solution to an environmental change that relates to the depletion of natural resources by human means.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Eight Science
Unit VI: Natural Resources

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4 weeks	Natural Resources	<i>USGS.gov- natural resource distribution mapping</i> <i>Earth Day Network</i> <i>Pearson Interactive Textbook</i> <i>Newsela.com</i> <i>Scientific American</i> <i>National Geographic</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Eight Science
Unit VII: Stability and Change on Earth

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>NGSS:</u></p> <p>MS-ESS3-2: Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.</p> <p>MS-ESS3-3: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.</p> <p>MS-ESS3-5: Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.</p>	<p>Development of technology allows for humans to predict the occurrence of natural hazards and prepare for these events.</p>	<ul style="list-style-type: none"> • How can humans predict and prepare for natural hazards?
	<p>Earth’s climate is changing as proven primarily by the rise in global temperatures; in addition, other scientific records of the planet’s qualitative and quantitative characteristics can also provide evidence to support this claim.</p>	<ul style="list-style-type: none"> • How is Earth’s climate changing?
	<p>Humans can mitigate the effects of the changing climate by developing new technologies that address these concerns.</p>	<ul style="list-style-type: none"> • What can humans do to mitigate the effects of the changing climate?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Natural hazards can be the result of interior processes, surface processes, or severe weather events.</p>	<p>Students will be able to:</p> <p>Associate the natural hazard of volcanoes, earthquakes, severe weather event with the process attributed to their cause.</p>

	<p>Some natural hazards, such as volcanic eruptions and severe weather, are preceded by phenomena that allow for reliable predictions, but others, such as earthquakes, occur suddenly and with no notice, and thus are not yet predictable.</p> <p>Mapping the history of natural hazards (data, graphs, charts, images) combined with an understanding of related geologic forces, can help forecast the locations and likelihoods of future events.</p> <p>Graphs, charts, and images identify and help us to understand patterns of natural hazards in a region in order to help forecast the locations and likelihoods of future events.</p> <p>Technology mitigates the effects of natural hazards and vary from region to region and over time.</p> <p>Stability in Earth’s surface temperature might be disturbed either by sudden events or gradual changes that accumulate over time and can have an effect on ecosystems.</p>	<p>Differentiate natural hazards as predictable and non-predictable.</p> <p>Explain for those natural hazards classified as predictable, the best early-warning systems.</p> <p>Predict and map the location and likelihood of future events using data, graphs, charts, and images.</p> <p>Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.</p> <p>Investigate the technologies and associated methodology that provides data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.</p> <p>Graphically represent data.</p> <p>Use multiple lines of evidence to generate scientific explanations of ecosystem-level changes on the Antarctic Peninsula.</p> <p>Describe ways in which climate change on the Antarctic Peninsula has led to interconnected, ecosystem-level effects.</p> <p>Participate in an interdisciplinary scientific investigation, demonstrating the collaborative nature of science.</p>
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	<p>Numerous factors, both human and natural, have caused the rise in global temperatures over the past century.</p> <p>Most notably, the human activity of burning fossil fuels has caused the increased release of greenhouse gases resulting in a rise in global temperatures.</p> <p>Studying climate science has provided the knowledge to reduce the level of climate change through the development of various engineering capabilities.</p> <p>VOCABULARY: mitigate, climate, impacts, plate tectonics, atmosphere, phenomena, catastrophic, engineering</p> <p>KEY TERMS: climate change, global warming, greenhouse gases</p>	<p>Identify factors that have contributed to the rise in global temperatures.</p> <p>Gather, interpret, and draw conclusions from tables, graphs, and maps of global and regional temperatures, atmospheric levels of gases such as carbon dioxide and methane, and the rates of human activities.</p> <p>Propose a method that involves a change in human activity to reduce the impacts of climate change.</p>
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ASSESSMENT EVIDENCE: Students will show their learning in various ways, including but not limited to:

- Research of primary and secondary resources
- Reflection
- Explanatory writing
- Collaborative discussions
- Inquiry-based lab activities
- Data Analysis
- Design-Evaluate engineering solutions

KEY LEARNING EVENTS AND INSTRUCTION:

- Interdisciplinary and collaborative scientific investigation focused on the penguin communities shift on the Antarctic Peninsula
- Capstone project in collaboration with Humanities department

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade Eight Science
Unit VII: Stability and Change on Earth

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 weeks	Stability and Change on Earth	<p><i>NASA.gov</i></p> <p><i>NOAA.gov</i></p> <p><i>Earth Day Network</i></p> <p><i>Introducing teachers and administrators to the NGSS: -Appendix 3: Model Activity <u>Chapter 5: Now you “Sea” Ice, Now You Don’t</u></i></p>

APPENDIX A

NGSS <http://www.nextgenscience.org/next-generation-science-standards>

NJ State Model Curriculum <http://www.nj.gov/education/modelcurriculum/sci/ms.shtml>

**Randolph Township Schools
Randolph Elementary Schools**

**Grade K-1 Library/ Media
Curriculum**

“Knowledge will bring you the opportunity to make a difference.” ~ Claire Fagin

Elementary Education

Kristin Mueller, Vice Principal
Michelle Telischak, Vice Principal

Curriculum Committee

Nicole Cannici
Dawn Melody
Diana Rodriguez
Michele Savvides

Curriculum Developed:

July 2016

Date of Board Approval:

TBD

Randolph Township Schools
Department of Elementary Library/ Media
Grades K-1 Library/ Media Curriculum

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools
Department of Elementary Library/Media
Grades K-1 Library/Media

Introduction

The 21st century student is expected to have an inquiry-based education that can be applied to each content area throughout their academic career. This program supports all academic areas, promotes and instructs students in research, lifelong critical thinking habits, and the love of literature. The K-1 curriculum is designed to provide a critical foundation in the areas of library and digital citizenship. Students will have opportunities to explore coding, as well as software and online tools; simultaneously developing an appreciation for print and digital resources. Throughout this program, students will engage in content-specific projects that guide them in learning and applying technological skills necessary for success as global citizens.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Grade K-1 Library/Media

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
5 weeks	I	Library Citizenship
5 weeks	II	Digital Citizenship
6 weeks	III	Literature Appreciation
6 weeks	IV	Technology Applications
6 weeks	V	Information Literacy
8 weeks	VI	Programming

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT I: Library Citizenship

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>AASL 1.1.1 Follow an inquiry-based process in seeking knowledge in curricular subjects, and make the real-world connection for using this process in own life.</p>	<p>The library/ media center is a resource for learning and discovery.</p>	<ul style="list-style-type: none"> • Why is it important to demonstrate good library citizenship?
	<p>Readers should inquire about resources in the library/ media center.</p>	<ul style="list-style-type: none"> • How do readers locate, access, and choose informational resources in the library?
<p>AASL 1.1.2 Use prior and background knowledge as context for new learning.</p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>AASL 1.1.4 Find, evaluate, and select appropriate sources to answer questions.</p>	<p>Students will know:</p> <p>Book selection is based on interest and reading ability.</p>	<p>Students will be able to:</p> <p>Independently identify a book that captures interest and reading ability.</p>
<p>AASL 2.1.2 Organize knowledge so that it is useful.</p>	<p>Destiny is an online catalog of resources.</p>	<p>Operate the Destiny online public access catalog to locate a book.</p>
<p>AASL 2.1.5 Collaborate with others to exchange ideas, develop new understandings, make decisions, and solve problems.</p>	<p>Libraries are organized in categories.</p>	<p>Recognize the various sections of the library and their purpose.</p> <p>Identify that shelves are arranged in alphabetical and numerical order.</p>
<p>CCSS RL 1.5 Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types.</p>	<p>Shelf markers keep the library organized.</p>	<p>Utilize shelf markers to aid in selecting and replacing books correctly.</p>
<p>CCSS SL 1.6 Produce complete</p>	<p>Readers establish routines in the library/ media center.</p>	<p>Employ behaviors such as time management, collaboration and sharing.</p>

<p>sentences when appropriate to task and situation.</p> <p>NJCCCS 8.1.A Students demonstrate a sound understanding of technology concepts, systems and operations.</p> <p>NJCCCS 8.1.B Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.</p> <p>NJCCCS 8.1.E Students apply digital tools to gather, evaluate, and use information.</p>	<p>Resources are borrowed from the library.</p> <p>Libraries offer a variety of print and digital resources.</p> <p>VOCABULARY: circulation, borrow, lend, return, overdue, title, author, illustrator, illustrations, publisher, non-fiction, fiction, print, digital, mouse, keyboard, monitor</p> <p>KEY TERMS: Destiny, shelf marker, e-book, spine, call number, keyword, subject, reading level, “Just Right” book, Makerspace</p>	<p>Explain the importance of caring for a book.</p> <p>Interact in a Makerspace through collaboration, creativity, and acceptance of individual thoughts and ideas.</p> <p>Apply the concept of lending, borrowing and returning print media.</p> <p>Distinguish between the different types of resources available in the library including print and digital.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by *(including but not limited to):*

- Role play appropriate library citizenship based on skills related to locating a “Just Right” book, book checkout, and proper use of a book

KEY LEARNING EVENTS AND INSTRUCTION *(including but not limited to):*

- Mini lessons for each of the following: what is a “Just Right” book, how to select a “Just Right” book, accessing Destiny and its features, Library/Media Center tour, shelf arrangement and how to use a shelf marker, behaviors, book care, borrowing procedures, library resources.
- Navigate the online catalog to locate and identify information to find a book in the library
- Model use of a shelf marker and choose an appropriate book for checkout
- Create a bookmark to encourage proper book care

- Create a book cover using the parts of a book
- Participate in creative and innovative tasks in the Makerspace.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT I: Library Citizenship

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 Weeks	Locating a “Just Right” book Book checkout Proper care and handling of a book	<p><u>Mentor Text</u> <i>Goldie Socks and the Three Libearians</i> by Jackie Mims Hopkins <i>Mr. Wiggles Book</i> by Paula M. Craig <i>The Shelf Elf</i> by Jackie Mims Hopkins <i>Inside the Books: Readers and Libraries Around the World</i> by Toni Buzzeo <i>We’re Going on a Book Hunt</i> by Pat Miller</p> <p><u>Programs/ Online Resources</u> Destiny Online Public Access Catalog Brain Pop Jr. The Library Sammy the Shelf Marker Makerspace Playbook</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT II: Digital Citizenship

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
AASL 1.1.2 Use prior and background knowledge as context for new learning.	Literature and information is available in print and digital formats.	<ul style="list-style-type: none"> • What types of resources are available in the library media center?
AASL 1.1.3 Develop and refine a range of questions to frame the search for new understanding.	Technology is a tool for creating, learning and accessing information.	<ul style="list-style-type: none"> • How can electronic devices help students?
AASL 1.1.4 Find, evaluate, and select appropriate sources to answer questions.	Digital citizens demonstrate proper care of electronic tools and appropriate behavior.	<ul style="list-style-type: none"> • What are the behavioral expectations in the library media center?
	KNOWLEDGE	SKILLS
<p>AASL 1.1.8 Demonstrate mastery of technology tools for accessing information and pursuing inquiry.</p> <p>AASL 1.1.9 Collaborate with others to broaden and deepen understanding.</p> <p>AASL 1.2.2 Demonstrate confidence and self-direction by making independent choices in the selection of resources and information.</p> <p>AASL 1.2.3 Demonstrate creativity by using multiple resources and formats.</p>	<p>Students will know:</p> <p>Print and digital resources are available based on the user’s purpose.</p> <p>Technology provides access to online educational content.</p> <p>Computer programs provide digital resources to be productive and creative.</p>	<p>Students will be able to:</p> <p>Select print or digital resources and use them effectively.</p> <p>Recognize and select a desktop icon by using the mouse or touchscreen to access a website.</p> <p>Create and save a document using a word processing program.</p> <p>Manipulate text by changing font and color.</p> <p>Insert graphics into a document.</p> <p>Use a paint program to illustrate a story.</p>

<p>AASL 1.2.6 Display emotional resilience by persisting in information searching despite challenges.</p> <p>AASL 1.4.1 Monitor own information-seeking processes for effectiveness and progress, and adapt as necessary.</p> <p>AASL 1.4.2 Use interaction with and feedback from teachers and peers to guide own inquiry process.</p> <p>AASL 1.4.4 Seek appropriate help when it is needed.</p> <p>CCSS SL.1. Ask questions to clear up any confusion about the topics and texts under discussion.</p> <p>CCSS SL.1.2 Ask and answer questions about key details in a text read aloud or information presented orally or through other media.</p> <p>CCSS SL 1.3 Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.</p> <p>NJCCCS 8.1.A Students demonstrate a sound understanding of technology concepts, systems</p>	<p>Digital citizens communicate using specific technological language and skills.</p> <p>Digital devices require proper handling.</p> <p>VOCABULARY: mouse, keyboard, monitor/screen, font, link, website, touchscreen, clip art, graphic, icon, Internet, password, cursor/pointer, computer, laptop, printer, print, login, logout, scroll, double click, audio, close programs, resizing, delete, window</p> <p>KEY TERMS: Electronic books (e -books), digital stories, digital storytelling, netiquette, Makerspace</p>	<p>Use appropriate vocabulary to identify parts of a computer.</p> <p>Explain how parts of the computer are essential to its operation.</p> <p>Demonstrate functions of digital technology by independently operating a device.</p> <p>Practice proper computer operations by handling device appropriately.</p> <p>Practice netiquette by listening to and following directions.</p> <p>Interact in a Makerspace through collaboration, creativity and acceptance of original thoughts and ideas.</p>
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<p>and operations.</p> <p>NJCCCS 8.1.B Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.</p> <p>NJCCCS 8.1.C Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others</p>		
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ASSESSMENT EVIDENCE: Students will show their learning by (including but not limited to):

- Design and build a digital device from recycled objects, describing its unique function in a document with a legible font and relevant graphic
- Create a “how to” multimedia presentation to teach others about the process of caring for and operating computers. Then share the multimedia presentation

KEY LEARNING EVENTS AND INSTRUCTION: (including but not limited to):

- Mini lessons for each of the following: word processing, use of recycled building materials, paint programs, public speaking, communication, active listening, time management
- Verbalize and illustrate computer rules and netiquette
- Record an interview of a classmate on proper computer operations and computer care
- Locate digital tools and symbols and identify their uses through participation in a resources scavenger hunt
- Participate in creative and innovative tasks in the Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT II: Digital Citizenship

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 Weeks	Introduction to Technology Foundations of Multimedia	<p><u>Mentor Text</u> <i>What Do You Do with an Idea?</i> by Kobi Yamada <i>I Am a Good Citizen</i> by Sharon Coan <i>How Can I Be a Good Digital Citizen?</i> By Christine Zuchora-Walske <i>Llama Llama and the Bully Goat</i> by Laura Dewdney</p> <p><u>Programs/ Online Resources</u> MS Paint Program MS Word Video reading of “The Most Magnificent Thing” by Ashley Spires https://youtu.be/GgECc3gKuTo Makerspace Playbook</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT III: Literature Appreciation

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
AASL 4.1.1 Read, view, and listen for pleasure and personal growth.	Reading goes beyond decoding and comprehension to interpretation and development of new understandings.	<ul style="list-style-type: none"> • How do readers understand new information?
AASL 4.1.2 Read widely and fluently to make connections with self, the world, and previous reading.	Written and oral expression is a component of human communication.	<ul style="list-style-type: none"> • Why do authors write?
AASL 4.1.5 Connect ideas to own interests and previous knowledge and experience.	Literature is a vehicle to promote personal and aesthetic growth.	<ul style="list-style-type: none"> • How does literature enrich your life?
	KNOWLEDGE	SKILLS
<p>AASL 4.2.4 Show an appreciation for literature by electing to read for pleasure and expressing an interest in various literary genres.</p> <p>AASL 4.4.1 Identify own areas of interest.</p> <p>AASL 4.4.6 Evaluate own ability to select resources that are engaging and appropriate for personal interests and needs.</p> <p>CCSS SL.1.1 Participate in collaborative conversations with diverse partners about <i>grade 1 topics and texts</i> with peers and</p>	<p>Students will know:</p> <p>Features within a work of literature aid in developing new understandings.</p> <p>Literature is written in diverse forms and for a range of reasons.</p> <p>Reading is an activity that can facilitate personal growth and enjoyment.</p> <p>Awards are given for exceptional literature.</p> <p>Listening enhances understanding and appreciation of</p>	<p>Students will be able to:</p> <p>Identify and employ story elements within a work of fiction.</p> <p>Identify and employ text features within a work of nonfiction.</p> <p>Differentiate and distinguish between different forms of literature and their purpose.</p> <p>Select literature that meets an academic and/or personal interest.</p> <p>Appreciate award winning books.</p> <p>Demonstrate active listening skills by participating</p>

<p>adults in small and larger groups.</p> <p>CCSS SL.1.2 Ask and answer questions about key details in a text read aloud or information presented orally or through other media.</p> <p>CCSS RL.1.1 Ask and answer questions about key details in a text.</p> <p>CCSS RL.1.2 Retell stories, including key details, and demonstrate understanding of their central message or lesson.</p> <p>CCSS RL.1.3 Describe characters, settings, and major events in a story, using key details.</p> <p>NJCCCS 8.1.B Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.</p>	<p>literature.</p> <p>Makerspaces are locations for students to create, tinker, make, and explore their own thoughts and interests.</p> <p>VOCABULARY: author, illustrator, table of contents, italics, captions, glossary, index, bold words, setting, character, predict, story elements,</p> <p>KEY TERMS: text features, fiction, nonfiction, Caldecott Award, Makerspace</p>	<p>in a read aloud.</p> <p>Makers utilize tools and resources while interacting in a Makerspace.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by (including but not limited to):

- Design a poster to identify author’s purpose and story elements

KEY LEARNING EVENTS AND INSTRUCTION (including but not limited to):

- Mini lessons: fiction/nonfiction, story elements, text features, author study, award winning books, choosing appropriate literature, read aloud strategies
- Share an opinion of a previously read book and create a book award
- Participate in creative and innovative tasks in a Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT III: Literature Appreciation

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
6 weeks	Understanding fiction and non-fiction	<p><u>Mentor Text</u> <i>Click, Clack Moo: Cows That Type</i> by Doreen Cronin <i>Frog and Toad Are Friends</i> by Arnold Lobel <i>Owl Moon</i> by Jane Yolen <i>The Stray Dog</i> by Marc Simont <i>Swimmy</i> by Leo Lionni <i>What Do You Do with a Tail Like This?</i> by Robin Page <i>The Snowy Day</i> by Ezra Jack Keats</p> <p><u>Programs/ Online Resources</u> FollettShelf nonfiction ebooks Get Epic ebooks SmartBoard Fiction/Nonfiction lesson BrainPop - Reading Nonfiction, Story Elements, Character Caldecott – Three Books a Night Makerspace Playbook</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT IV: Technology Applications

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
AASL 1.1.8 Demonstrate mastery of technology tools for accessing information and pursuing inquiry.	Technology applications help people communicate, create and be productive.	<ul style="list-style-type: none"> • How can technology applications help people?
AASL 1.1.9 Collaborate with others to broaden and deepen understanding.	Applications are essential to computer operation because without them the computer cannot be used.	<ul style="list-style-type: none"> • What is an application and how is it used?
AASL 2.3.1 Connect understanding to the real world.	Applications perform different tasks.	<ul style="list-style-type: none"> • How do the purposes of applications differ?
NJCCCS 8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.	KNOWLEDGE	SKILLS
NJCCCS 8.1.2.A.2 Create a document using a word processing application.	<p>Students will know:</p> <p>Digital devices are used to help people learn and connect to others.</p>	<p>Students will be able to:</p> <p>List multiple ways applications can impact or improve life.</p>
NJCCCS 8.1.2.A.3 Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of using each.	Applications have specific purposes which are integral to the operation of a digital device.	Recall a time when an application helped them.
NJCCCS 8.1.2.A.5 Enter information into a spreadsheet and sort the information.	Users make informed decisions when selecting an application to use.	Identify the basic features of an application.
		Discuss the concept of an application and its role in computer function.
		Compare and contrast applications by listing their characteristics.
		Categorize applications by matching the name of the application to its corresponding purpose.

<p>NJCCCS 8.1.2.B.1 Illustrate and communicate original ideas and stories using multiple digital tools and resources.</p> <p>NJCCCS 8.1.2. E.1 Use digital tools and online resources to explore a problem or issue.</p>	<p>Applications are developed by writing specific instructions (code).</p> <p>Applications vary in efficacy.</p> <p>Makerspaces are locations for students to create, tinker, make, and explore their own thoughts and interests.</p> <p>VOCABULARY: icon, application, program, characteristics, website, link, cursor, desktop, Internet, menu bar, touchscreen, loading, mouse</p> <p>KEY TERMS: shift key, click and drag, compare and contrast, digital art, click and double click, logging on and off, mouse skills, Makerspace</p>	<p>Demonstrate navigation skills using digital devices.</p> <p>Create algorithms (coding) using a set of commands.</p> <p>Rate the application’s performance according to specific criteria.</p> <p>Evaluate the strengths and weaknesses of an application.</p> <p>Makers utilize tools and resources while interacting in a Makerspace.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by (including but not limited to):

- Create a commercial or advertisement to present advantages and disadvantages of an application

KEY LEARNING EVENTS AND INSTRUCTION (including but not limited to):

- Mini lessons for each of the following: Application function, locating icons to open applications, computer operations, writing for a specific purpose (coding)
- Use a digital device to perform interactive activities
- Problem solving using algorithms

- Participate in creative and innovative tasks in a Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Library/ Media

UNIT IV: Technology Applications

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
6 weeks	Purposes and uses of applications	<p><u>Mentor Text</u> <i>Hello Ruby: Adventures in coding</i> by Linda Liukas Peppa Pig uses the computer video Parts of a computer video Parts of a computer Brainpop</p> <p><u>Programs/ Online Resources</u> BrainPop Jr Mouse skills Mouse skills Scratch Jr Kodable Makerspace Playbook</p> <p>DK Find Out Think Like a Computer What is Coding? How do I Start Coding?</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT V: Information Literacy

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>AASL 2.1.1 Continue an inquiry-based research process by applying critical-thinking skills to information and knowledge in order to construct new understandings, draw conclusions, and create new knowledge.</p>	Nonfiction books provide information	<ul style="list-style-type: none"> • What can I learn from a nonfiction book?
	Informational text features aid in gathering information	<ul style="list-style-type: none"> • How do I find the information in the book? • How do text features help me?
	Reading for information has lifelong applications.	<ul style="list-style-type: none"> • How can informational text help me understand the world around me?
<p>AASL 2.1.2 Organize knowledge so that it is useful.</p>	KNOWLEDGE	SKILLS
<p>ASSL 2.1.5 Collaborate with others to exchange ideas, develop new understandings, make decisions, and solve problems.</p> <p>CCSS RI.1.1 Ask and answer questions about key details in a text.</p> <p>CCSS RI.1.2 Identify the main topic and retell key details of a text.</p> <p>CCSS RI.1.5 Know and use various text features (e.g., headings, tables of contents,</p>	Students will know:	Students will be able to:
	Informational text provides different information than fictional text.	Determine the differences between fiction and nonfiction.
	Text layout is specific to different types of text.	Locate text features in an informational text.
	Nonfiction books can be used to locate facts and information.	Illustrations provide different information than photographs.
Nonfiction books can be used to gain information about a topic.	Use text features to identify facts.	
Readers draw conclusions from information.	Distinguish between informational and “how to” books.	
Readers draw conclusions from information.	Select and investigate a research topic.	
	Understand the main topic and details of a text.	

<p>glossaries, electronic menus, icons) to locate key facts or information in a text.</p> <p>CCSS RI.1.6 Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.</p> <p>CCSS RI.1.7 Use the illustrations and details in a text to describe its key ideas.</p> <p>NJCCCS 8.1.B Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.</p>	<p>Makerspaces are locations for students to create, tinker, make, and explore their own thoughts and interests.</p> <p>VOCABULARY: Nonfiction, text features, fiction, conclusions, topic, facts, details, compare and contrast, main idea, illustrations</p> <p>KEY TERMS: Informational, How To, Makerspace</p>	<p>Makers utilize tools and resources while interacting in a Makerspace.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by *(Including but not limited to):*

- Create a visual representation of something that you learned from an informational text
- Text feature scavenger hunt game to locate headings, tables of contents, glossaries, electronic menus, icons, and illustrations

KEY LEARNING EVENTS AND INSTRUCTION *(Including but not limited to):*

- Mini lessons: review fiction and nonfiction, text features (heading, diagram, bold words, captions, table of contents, index, glossary), How to/All About books
- Independently select a nonfiction book on a topic
- Identify the main topic and retell key details of a text
- Participate in creative and innovative tasks in a Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Library/ Media

UNIT V: Information Literacy

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
6 weeks	<p>Understand text features Locate main idea and details Compare and contrast illustrations and photographs</p>	<p><u>Mentor Text</u> <i>Surprising Sharks</i> by Nicola Davies <i>Actual Size, Dogs and Cats, Big and Little</i> by Steve Jenkins <i>The Reasons for Seasons</i> by Gail Gibbons. <i>It's Raining</i> by Gail Gibbons <i>Weather</i> by Kristin Baird Rattini <i>Thunder and Lighting</i> by Wendy Pfeffer <i>Down Comes the Rain</i> by Franklyn M. Branley</p> <p><u>Programs/ Online Resources</u> Safari Montage – Reading Fiction & Nonfiction Smart Exchange – Reading Nonfiction Follett Shelf ebooks Get Epic! ebooks</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT VI: Programming

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
AASL 1.1.2- Use prior and background knowledge as context for new learning.	Programmers write instructions, called code, for computers to perform tasks.	<ul style="list-style-type: none"> • Why are programmers important?
AASL 2.1.5 Collaborate with others to exchange ideas, develop new understandings, make decisions, and solve problems.	Computers accept instructions and perform a series of tasks to produce something new.	<ul style="list-style-type: none"> • How do programs work?
AASL 3.3.4 Create products that apply to authentic, real-world contexts.	Programmers must give clear instructions.	<ul style="list-style-type: none"> • Why are specific instructions important?
	KNOWLEDGE	SKILLS
AASL 3.3.5 Contribute to the exchange of ideas within and beyond the learning community.	Students will know:	Students will be able to:
	Programmers are essential because they provide directions for digital devices to operate.	Explain a programmer’s role in digital society.
	Code must be explicit to achieve the desired outcome.	Describe how a computer processes code.
CCSS SL.1.5 Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.	Digital devices need the programmer to tell it exactly what to do.	Demonstrate basic programming skills such as moving a figure left, right, up and down.
	Like writers, programmers revise their work.	Solve simple problems by rewriting directions.
NJCCCS 8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).	Programmers build onto their pre- existing knowledge to write more efficient code.	Transfer knowledge of computer operations to perform tasks such as click and drag, point and click, double click and finding keys on keyboard.
	Makerspaces are locations for students to create, tinker,	Makers utilize tools and resources while

<p>NJCCCS 8.1.2.B.1 Illustrate and communicate original ideas and stories using multiple digital tools and resources.</p> <p>NJCCCS 8.1.2.C.1 Engage in a variety of developmentally appropriate learning activities with students in other classes, schools, or countries using various media formats such as online collaborative tools, and social media.</p> <p>NJCCCS 8.1.2. E.1 Use digital tools and online resources to explore a problem or issue.</p> <p>NJCCCS 8.1.2. E.1 Use digital tools and online resources to explore a problem or issue.</p>	<p>make, and explore their own thoughts, and interests.</p> <p>VOCABULARY: Program, instructions, code, directions, programmer, Logo, text box, start, finish, map, algorithm, left, right, up, down, computer, task, keyboard.</p> <p>KEY TERMS: click and drag, point and click, double click, keys on keyboard, step by step instructions, Makerspace</p>	<p>interacting in a Makerspace.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by (including but not limited to):

- From the perspective of a computer, follow a set of directions through movement
- Construct a step by step algorithm designed to direct someone to your classroom

KEY LEARNING EVENTS AND INSTRUCTION (including but not limited to):

- Discuss the role of the programmer and their impact on digital devices
- Demonstrate directionality by playing a version of Simon Says using coding language
- Use online resources to perform simple programming tasks
- Compare and contrast previously used application such MS Office to program using a graphic organizer
- Participate in creative and innovative tasks in a Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT VI: Programming

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
8 weeks	Understanding library/ media resources and tools	<p><u>Mentor Text</u> <i>How to Talk to a Computer</i> by Seymour Simon <i>Me on the Map</i> by Joan Sweeney <i>Strega Nona</i> by Tomie DePaola</p> <p><u>Programs/ Online Resources</u> Kodable.com Turtle Academy Code.org Tynker Makerspace Playbook</p>

Appendix A

Library/ Media Crosswalk

Grades K-1

	September	October	November	December	January	February	March	April	May	June
Media	Digital Citizenship (5 weeks)		Technology Applications (6 weeks)			Programming (8 weeks)				
Makerspace (Sept.-June)										
Library	Library Citizenship (5 weeks)		Literature Appreciation (6 weeks)			Information Literacy (6 weeks)				

Grades
2-3

	September	October	November	December	January	February	March	April	May	June
Media	Digital Citizenship (5 weeks)		Technology Applications (6 weeks)			Programming (8 weeks)				
Makerspace (Sept.-June)										
Library	Library Citizenship (5 weeks)		Literature Appreciation (6 weeks)			Information Literacy (6 weeks)				

Grades
4-5

	September	October	November	December	January	February	March	April	May	June
Media	Digital Citizenship		Technology Applications			Programming				

	(5 weeks)	(6 weeks)	(8 weeks)
Makerspace (Sept.-June)			
Library	Library Citizenship (5 weeks)	Literature Appreciation (6 weeks)	Information Literacy (6 weeks)

**Randolph Township Schools
Randolph Elementary Schools**

**Grade 2-3 Library/ Media
Curriculum**

“Knowledge will bring you the opportunity to make a difference.” ~ Claire Fagin

Elementary Education

Kristin Mueller, Vice Principal
Michelle Telischak, Vice Principal

Curriculum Committee

Nicole Cannici
Dawn Melody
Diana Rodriguez
Michele Savvides

Curriculum Developed:

July 2016

Date of Board Approval:

TBD

Randolph Township Schools
Department of Elementary Library/ Media
Grades 2-3 Library/ Media Curriculum

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools
Department of Elementary Library/ Media
Grades 2-3 Library/ Media Curriculum

Introduction

The 21st century student is expected to have an inquiry-based education that can be applied to each content area throughout their academic career. This program supports all academic areas, promotes and instructs students in research, lifelong critical thinking habits, and the love of literature. Throughout this program, students will engage in content-specific projects that guide them in learning and applying technological skills necessary for success as global citizens.

The grade 2-3 curriculum is designed to enhance student understanding of literature concepts related to fiction and nonfiction text, character development, story elements, and author's purpose. In addition, students will be exposed to programming, application development, and coding. Throughout all aspects of the curriculum students, will learn the key characteristics of successful library and digital citizenship.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Grade 2-3 Library/Media

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
5 weeks	I	Library Citizenship
5 weeks	II	Digital Citizenship
6 weeks	III	Literature Appreciation
6 weeks	IV	Technology Applications
6 weeks	V	Information Literacy
8 weeks	VI	Programming

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT I: Library Citizenship

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>AASL 1.1.1 Follow an inquiry-based process in seeking knowledge in curricular subjects, and make the real-world connection for using this process in own life.</p>	<p>The purpose of the online catalog is to locate resources.</p>	<ul style="list-style-type: none"> • How do readers locate, access and choose informational resources from the online catalog?
<p>AASL 1.1.2- Use prior and background knowledge as context for new learning.</p>	<p>The library/ media center is organized using a systematic method.</p>	<ul style="list-style-type: none"> • How does this catalog system help to locate a book?
<p>AASL 1.1.8 Demonstrate mastery of technology tools for accessing information and pursuing inquiry.</p> <p>AASL 1.1.9 Collaborate with others to broaden and deepen understanding.</p> <p>AASL 1.4.1 Monitor own information-seeking processes for effectiveness and progress, and adapt as necessary.</p> <p>AASL 1.4.2 Use interaction with and feedback from teachers and peers to guide own inquiry process.</p> <p>AASL 1.4.3 Monitor gathered information, and assess for gaps or</p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Resources are accessed through an online catalog.</p> <p>Key words are important in searching for information.</p> <p>Collections within a library are systemically organized.</p>	<p>Students will be able to:</p> <p>Access the online catalog and navigate the options in a basic search.</p> <p>Interpret and record call number, author, and title from an online catalog record to locate a book.</p> <p>Identify and formulate key words for searching.</p> <p>Select appropriate search parameters including keyword, title, subject, series, and author.</p> <p>Apply standard shelf order practices related to left to right, top to bottom, while searching for a book.</p> <p>Recognize and locate a book based on alphabetical order or by Dewey Decimal number.</p> <p>Examine the ten categories within the Dewey</p>

<p>weaknesses.</p> <p>AASL 1.4.4 Seek appropriate help when it is needed.</p> <p>CCSS SL.3.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.</p> <p>CCSS SL.3.3 Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.</p> <p>CCSS SL.3.4 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.</p> <p>8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.</p> <p>8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual environments.</p>	<p>Readers establish routines in a Makerspace.</p> <p>VOCABULARY: relevant, parameter, shelf order</p> <p>KEY TERMS: Dewey Decimal, call number, categories, basic search, keywords, catalog record, Makerspace</p>	<p>Decimal system.</p> <p>Interact in a Makerspace through collaboration, creativity, and acceptance of individual thoughts and ideas.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by *(including but not limited to):*

- Create and conduct an interactive task for students to demonstrate their understanding of the various sections of the library
- Construct a model of an ideal library/media center based on previous lessons related to library set-up and key terms

KEY LEARNING EVENTS AND INSTRUCTION *(including but not limited to):*

- Mini lessons for each of the following: accessing Destiny, identify search options, interpreting catalog records, narrowing search criteria, formulating key words, modeling shelf order, and Dewey Decimal basics
- Students will generate a floor plan highlighting the various sections of the library
- Independently locate a given book by searching Destiny and recording the call number
- Dewey Decimal Spinner to explore the ten categories of the Dewey Decimal system
- Participate in creative and innovative tasks in a Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT I: Library Citizenship

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 Weeks	Locating books using an online catalog Understanding the systematic organization of the library	<p><u>Mentor Text</u> <i>The Librarian from the Black Lagoon</i> by Mike Thaler <i>The Library Dragon</i> by Carmen Agra Deedy <i>What Marion Taught Willis</i> by Brook Berg <i>The Great Dewey Hunt</i> by Toni Buzzeo</p> <p><u>Programs/ Online Resources</u> Destiny Online Public Access Catalog Brain Pop Jr. (Choosing a Book) Mrs. Lodges Library Order in the Library Call Number Order Alpha Fishing The Great Dewey Hunt – Smart Exchange Dewey Decimal Spinner Makerspace Playbook</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT II: Digital Citizenship

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
AASL 1.1.2- Use prior and background knowledge as context for new learning.	Digital citizens use and manage technology to become innovative problem solvers.	<ul style="list-style-type: none"> • Why is it important to be a technological problem solver?
AASL 1.1.3- Develop and refine a range of questions to frame the search for new understanding.	Technology allows learners the opportunity to collaborate, communicate and connect to the world.	<ul style="list-style-type: none"> • How does technology impact the way people learn?
AASL 1.1.4- Find, evaluate, and select appropriate sources to answer questions.	Digital citizens navigate the Internet safely by making informed choices.	<ul style="list-style-type: none"> • How do you use the Internet safely?
	KNOWLEDGE	SKILLS
<p>AASL 1.1.8 Demonstrate mastery of technology tools for accessing information and pursuing inquiry.</p> <p>AASL 1.1.9 Collaborate with others to broaden and deepen understanding.</p> <p>AASL 1.2.2 Demonstrate confidence and self-direction by making independent choices in the selection of resources and information.</p> <p>AASL 1.2.3 Demonstrate creativity by using multiple resources and</p>	<p>Students will know:</p> <p>Using technology efficiently means choosing the correct technological resource.</p> <p>Digital citizenship requires organizational skills.</p>	<p>Students will be able to:</p> <p>Select the appropriate application or program for a specific purpose.</p> <p>Understand capabilities and limitations of a program and find solutions to accomplish task.</p> <p>Use a coding application to solve puzzles.</p> <p>Organize documents for retrieval and collaboration by creating folders and uploading to the cloud.</p> <p>Set up and organize bookmarks for educational websites.</p> <p>Modify documents by electronically sharing with</p>

<p>formats.</p> <p>AASL 1.4.1 Monitor own information-seeking processes for effectiveness and progress, and adapt as necessary.</p> <p>AASL 1.4.2 Use interaction with and feedback from teachers and peers to guide own inquiry process.</p> <p>AASL 1.4.4 Seek appropriate help when it is needed.</p> <p>CCSS SL.3.4- Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.</p> <p>NJCCCS 8.1.2.A.3 Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of using each.</p> <p>NJCCCS 8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual environments.</p>	<p>Responsible Internet users are aware of a digital footprint’s impact.</p> <p>Makerspaces are locations for students to create, tinker, make, and explore their own thoughts and interests.</p> <p>VOCABULARY: Cyberbully, browser, bookmark, favorites, database, shortcut, spam, chat room, user name, comments, likes, followers, sharing, application, Internet safety.</p> <p>KEY TERMS: technology literacy, social networking, personal responsibility, digital footprint, Makerspace.</p>	<p>classmates and teachers.</p> <p>Understand the potential impact of cyber-bullying and demonstrate good character online.</p> <p>Recognize the implications of a digital footprint.</p> <p>Makers utilize tools and resources while interacting in a Makerspace.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by: *(including but not limited to):*

- Compose a document describing how to use the cloud to publish work
- Collaboratively create a presentation or document demonstrating Internet safety and acceptable use

KEY LEARNING EVENTS AND INSTRUCTION: *(including but not limited to):*

- Mini-lessons for each of the following: use a word processor, saving a document, creating folders, sharing documents, editing, web bookmarks/ favorites, Internet safety
- Internet safety web quest
- Use a coding platform, such as Scratch, to solve puzzles and write programs
- Participate in creative and innovative tasks in a Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT II: Digital Citizenship

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 Weeks	Locating books using an online catalog Understanding the systematic organization of the library	<p><u>Mentor Text</u> <i>Piano and Laylee</i> series by Carmela Curatola Knowles Bully online story book Digital Citizenship <i>My Secret Bully</i> by Trudy Ludwig</p> <p><u>Programs/ Online Resources</u> Scratch SNAP Welcome to the Web Internet Safety Common Sense Makerspace Playbook Brain Pop (Copyright, Cyber-bullying, Digital Etiquette, Media Literacy, Online Safety, Online Sources, Social Networking) MS Office 365/ Cloud Based System</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT III: Literature Appreciation

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
AASL 1.1.6 Read, view, and listen for information presented in any format (e.g., textual, visual, media, digital) in order to make inferences and gather meaning.	Readers inference to understand text.	<ul style="list-style-type: none"> • In what ways can inferencing help you to understand a story?
AASL 2.1.6 Use the writing process, media and visual literacy, and technology skills to create products that express new understandings.	Readers use text features to deepen their understanding of the text.	<ul style="list-style-type: none"> • How can text features expand knowledge?
AASL 3.1.3 Use writing and speaking skills to communicate new understandings effectively.	Readers use their prior knowledge to support understanding of the text.	<ul style="list-style-type: none"> • How do life experiences help readers understand a text?
AASL 4.3.1 Participate in the social exchange of ideas, both electronically and in person.	Comprehension strategies contribute to a reader’s understanding of literature.	<ul style="list-style-type: none"> • Which strategies can be used to interpret different genres?
AASL 4.3.2 Recognize that resources are created for a variety of purposes.	KNOWLEDGE	SKILLS
AASL 4.3.3 Seek opportunities for pursuing personal and aesthetic growth.	Students will know:	Students will be able to:
CCSS RI.3.1 Ask and answer	Central ideas assist the reader in comprehending the text.	Summarize a story using central ideas.
	Text features provide additional information.	Identify a central theme using text evidence.
	Reader’s responses to literature are based upon connections to their own experiences.	Apply text features during reading to facilitate understanding.
	Textual components in different genres support readers in gaining meaning.	Explain text in terms of personal experience and prior knowledge.
		Compare and contrast different genres.

<p>questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.</p> <p>CCSS RI.3.2 Determine the main idea of a text; recount the key details and explain how they support the main idea.</p> <p>CCSS RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.</p> <p>CCSS SL.3.2 Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</p> <p>CCSS SL.3.3 Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.</p>	<p>Makerspaces are locations for students to create, tinker, make, and explore their own thoughts and interests.</p> <p>VOCABULARY: schema, theme, text evidence, text features, fiction, nonfiction, genre, summarizing, table of contents, italics, captions, glossary, index, bold words</p> <p>KEY TERMS: literature, Makerspace</p>	<p>Makers utilize tools and resources while interacting in a Makerspace.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by (including but not limited to):

- Synthesize understanding of literature through digital representation
- Demonstrate understanding of a character through kinesthetic demonstration

KEY LEARNING EVENTS AND INSTRUCTION (including but not limited to):

- Mini lessons: fiction/nonfiction, story elements, text features, author study, award winning books, choosing appropriate literature, reading strategies, genre, theme
- Present a book talk
- Participate in creative and innovative tasks in a Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT III: Literature Appreciation

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
6 weeks	Understanding fiction and nonfiction Identifying the importance of text features	<p><u>Mentor Text</u> <i>Joe Bright and the Seven Genre Dudes</i> by Jackie Mims Hopkins <i>What Do Authors Do?</i> by Eileen Christelow <i>Aunt Isabel Tells a Good One</i> by Kate Duke</p> <p><u>Programs/ Online Resources</u> Safari Montage - Reading Fiction and Nonfiction Safari Montage – Case of the Missing Ending Safari Montage – Myths, Legends, Fables & Fairy Tales Brainpop – Literary Genres FollettShelf nonfiction ebooks Get Epic ebooks Makerspace Playbook</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT IV: Technology Applications

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
AASL 2.1.4 Use technology and other information tools to analyze and organize information.	Proficient users of technology demonstrate stamina and focus.	<ul style="list-style-type: none"> • How can people use digital devices most efficiently?
AASL 2.1.5 Collaborate with others to exchange ideas, develop new understandings, make decisions, and solve problems.	Knowledge of word processing/ desktop publishing operations are required for the 21 st century learner.	<ul style="list-style-type: none"> • In a world of constant change, what skills should people learn?
AASL 2.1.6 Use the writing process, media and visual literacy, and technology skills to create products that express new understandings.	Programmers can invent or improve engaging products.	<ul style="list-style-type: none"> • How can people use coding to innovate?
	KNOWLEDGE	SKILLS
<p>CCSS SL.3.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.</p> <p>CCSS SL.3.5 Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or</p>	<p>Students will know:</p> <p>Choosing the best program and tools for the desired outcome is an essential skill.</p> <p>Writing is a form of self- expression.</p> <p>Programmers create video games by writing algorithms (code).</p>	<p>Students will be able to:</p> <p>Select and use digital tools and resources to solve various problems and explore issues.</p> <p>Apply desktop publishing strategies.</p> <p>Format a document to modify and include graphics.</p> <p>Distinguish between formal and informal language when writing.</p> <p>Produce an original composition.</p> <p>Use a simple programming language to create a game.</p>

<p>enhance certain facts or details.</p> <p>CCSS SL.3.6 Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.</p> <p>NJCCCS 8.1.2.A.1 Identify the basic features of a digital device and explain its purpose. Select and use applications effectively and productively.</p> <p>NJCCCS 8.1.2.A.2 Create a document using a word processing application.</p> <p>NJCCCS 8.1.2.A.3 Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of using each.</p>	<p>Problem solving is critical to coding success.</p> <p>Programmers share common language.</p> <p>Makerspaces are locations for students to create, tinker, make, and explore their own thoughts and interests.</p> <p>VOCABULARY: Highlight, select, format, save, insert, tab, margin, indent, document, character, text, command, debug, loop, algorithm, design, program, programmer, designer, code, application, font, alignment, print, print preview, efficiency, spellcheck.</p> <p>KEY TERMS: Right click, block oriented programming, graphic organizers, interactive program, visually pleasing, readability, iterations, Makerspace.</p>	<p>Inspect an algorithm to correct errors.</p> <p>Use programming terminology in discussions.</p> <p>Makers utilize tools and resources while interacting in a Makerspace.</p>
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ASSESSMENT EVIDENCE: *(including but not limited to)*

Students will show their learning by:

- Create the code for a game using desktop publishing

KEY LEARNING EVENTS AND INSTRUCTION: *(including but not limited to):*

- Mini lessons for each of the following; design, desktop publishing, coding strategies (loops)
- Compare and contrast formal and informal writing using a graphic organizer
- Debate whether using texting language (emoticons, abbreviations, etc.) should be acceptable in today's school setting
- Create an original composition using MS Office 365/ Cloud based system

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT IV: Technology Applications

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
6 weeks	Understanding resources and tools in publishing Print or digital writing is a form of expression	<p><u>Mentor Text</u> <i>Coding Games in Scratch</i> by John Woodcock <i>Arthur's Computer Disaster</i> by Marc Brown <i>Desperate Dog Writes Again</i> by Eileen Christelow</p> <p><u>Programs/ Online Resources</u> Glogster Wordle Blocky Scratch Jr. Scratch Khan Academy Brain Pop Jr - Blogs Makerspace Playbook</p> <p><u>DK Find Out</u> What is Scratch Scratch Window Scratch Sprites Programming Languages</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT V: Information Literacy

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
AASL 1.1.1 Follow an inquiry-based process in seeking knowledge in curricular subjects, and make the real-world connection for using this process in own life.	Inquiry guides research.	<ul style="list-style-type: none"> • What do readers need to start researching?
AASL 1.1.3 Develop and refine a range of questions to frame the search for new understanding.	A variety of skills and strategies facilitate research.	<ul style="list-style-type: none"> • What skills and strategies are needed to gather information effectively, solve problems and conduct research?
AASL 1.1.4 Find, evaluate, and select appropriate sources to answer questions.	Information must be evaluated and processed to determine accuracy, relevance and validity.	<ul style="list-style-type: none"> • How do readers evaluate information?
AASL 1.1.5 Evaluate information found in selected sources on the basis of accuracy, validity, appropriateness for needs, importance, and social and cultural context.	KNOWLEDGE	SKILLS
AASL 2.1.1 Continue an inquiry-based research process by applying critical-thinking skills (analysis, synthesis, evaluation, organization) to information and knowledge in order to construct new	<p>Students will know:</p> <p>Research is driven by an understanding of what you want to learn.</p> <p>Effective research requires the use of varied resources to gain or expand knowledge.</p> <p>Some information will be useful, whereas other information will not be relevant or helpful.</p> <p>In nonfiction texts, information is organized in</p>	<p>Students will be able to:</p> <p>Develop and answer a question.</p> <p>Recognize that a variety of sources offer different information.</p> <p>Identify and extract relevant information in print and electronic resources.</p> <p>Interpret information critically through reading, listening to and viewing primary sources.</p> <p>Collect information from unique features of various</p>

<p>understandings, draw conclusions, and create new knowledge.</p> <p>AASL 3.1.6 Use information and technology ethically and responsibly.</p> <p>CCSS RI. 3.1 Ask and answer such questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.</p> <p>CCSS RI.3.2 Determine the main idea of a text; recount the key details and explain how they support the main idea.</p> <p>CCSS RI.3.4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a <i>grade 3 topic or subject area</i>.</p> <p>CCSS RI.3.5 Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.</p> <p>CCSS SL.3.1 Participate in collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 3 topics and texts</i>,</p>	<p>various ways.</p> <p>Resources can be distinguished by need and validity.</p> <p>Acknowledging an author’s contribution is an important aspect of the responsible use of information.</p> <p>Makerspaces are locations for students to create, tinker, make, and explore their own thoughts and interests.</p> <p>VOCABULARY: Inquiry, research, relevance, evaluate, accuracy, validity, resources, key words, extract</p> <p>KEY TERMS: Work cited, bibliography, Makerspace</p>	<p>sources (captions, sidebars, illustrations).</p> <p>Evaluate the relevance of a resource based on research topic.</p> <p>Understand that sources need to be cited.</p> <p>Makers utilize tools and resources while interacting in a Makerspace.</p>
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<p>building on others' ideas and expressing their own clearly.</p> <p>CCSS SL.3.2 Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</p>		
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ASSESSMENT EVIDENCE: Students will show their learning by *(Including but not limited to):*

- Create a “How to” explaining the research process.
- Identify the elements of a citation

KEY LEARNING EVENTS AND INSTRUCTION *(Including but not limited to):*

- Mini lessons: Inquiry, Research, Evaluating Accuracy and Validity, Citing Sources, Key Words
- Navigating the library to locate resources
- Participate in creative and innovative tasks in a Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT V: Information Literacy

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
6 weeks	Evaluate information for research Understand information related to research	<p><u>Mentor Text</u> <i>Pirates of Plagiarism</i> by Kathleen Fox and Lisa Downey <i>When Marion Copied</i> by Brook Berg</p> <p><u>Programs/ Online Resources</u> Smart Exchange – Beginning Research Safari Montage – Baffling Bibliography Researching for Information - PowerPoint How to Cite Sources – Learning Engineer website Building Research Skills – Gr.2/3 Scholastic website</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT VI: Programming

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>AASL 4.2.1 Display curiosity by pursuing interests through multiple resources.</p>	<p>Programmers write algorithms (detailed step-by-step instruction) that tell the computer how to perform a task.</p>	<ul style="list-style-type: none"> • How are algorithms used in programming?
<p>AASL 4.2.2 Demonstrate motivation by seeking information to answer personal questions and interests, trying a variety of formats and genres, and displaying a willingness to go beyond academic requirements.</p>	<p>Programs can quickly and accurately perform calculations or display results.</p>	<ul style="list-style-type: none"> • How can coding be used to complete a task or solve a problem?
	<p>Programming is a form of literacy in the digital age.</p>	<ul style="list-style-type: none"> • How is computer programming useful in real life?
	KNOWLEDGE	SKILLS
<p>CCSS R.I.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or step in technical procedures, using language that pertains to time, sequence and cause/effect.</p> <p>CCSS.SL.3.6 Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.</p> <p>CCSS.L.3.6 Acquire and use accurately grade-appropriate conversational, general academic</p>	<p>Students will know:</p> <p>Algorithms are detailed step-by-step directions used to solve a problem.</p> <p>Before planning, programmers decide on the objective. Beginning with the end in mind is an important part of coding.</p> <p>Before writing code, it is important to fully understand the problem.</p> <p>Program output is decided by the programmer, who understands cause and effect.</p>	<p>Students will be able to:</p> <p>Describe algorithms and explain how they impact an outcome.</p> <p>Articulate the end goal by re-reading and verbalizing the problem.</p> <p>Sketch a graphic organizer to show the different directions a program can take to solve a problem.</p> <p>Illustrate the concept of cause and effect by using “if-then” statements.</p>

<p>and domain-specific words and phrases.</p> <p>NJCCCS 8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual Environments.</p> <p>NJCCCS 8.1.5.A.3 Use a graphic organizer to organize information about problem or issue.</p> <p>NJCCCS 8.1.2.F.1 Use geographic mapping tools to plan and solve problems.</p>	<p>Cause refers to the why, and effect refers to the what.</p> <p>Critical decision making is a life skill.</p> <p>Coding allows learners to grasp programming concepts and computational thinking skills and understand the logic and science behind digital devices.</p> <p>Makerspaces are locations for students to create, tinker, make, and explore their own thoughts and interests.</p> <p>VOCABULARY: algorithms, as a result, consequently, because of, consequent, feedback, result, instruction, direction, therefore, since, symbols</p> <p>KEY TERMS: cause and effect, flowchart, Makerspace</p>	<p>Express the relationship between cause and effect by creating visual examples.</p> <p>Evaluate and compare algorithms to select the most efficient path.</p> <p>Design and create an algorithm by writing code using Scratch or another coding platform.</p> <p>Makers utilize tools and resources while interacting in a Makerspace.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Compose an algorithm using cause and effect for an everyday activity, such as steps for a morning routine
- Create a comic strip or other creative representation depicting a cause and effect relationship
- Use Scratch or similar platform to write a program demonstrating cause and effect

KEY LEARNING EVENTS AND INSTRUCTION:

- Follow a teacher-provided flowchart to explore different paths
- Build a flowchart by composing questions on objects (magnetic strips, Lego pieces or puzzle pieces) that lead to outcomes
- Use coding website (Code Monkey) to develop coding skills
- Create a flowchart using creatly.com
- Use sentence strips to connect “if” statements to “then” statements
- Participate in creative and innovative tasks in a Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT VI: Programming

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
6 weeks	Using algorithms to solve problems Understanding basic coding principles	<p><u>Mentor Text</u> <i>Hello Ruby : Adventures In Coding</i> by Linda Liukas <i>If you Give a Mouse a Cookie</i> by Laura Numeroff <i>Lily’s Purple Plastic Purse</i> by Kevin Henkes <i>The Day Jimmy’s Boa Ate the Wash</i> by Steven Kellog <i>Strega Nona</i> by Tomie DePaola <i>Me on the Map</i> by Joan Sweeney Follow directions brain break video</p> <p><u>Programs/ Online Resources</u> Code.org Codemonkey.org Scratch Creatly flowchart maker Cause and effect creation checklist</p>

Appendix A

Library/ Media Crosswalk

Grades K-1

	September	October	November	December	January	February	March	April	May	June
Media	Digital Citizenship (5 weeks)		Technology Applications (6 weeks)			Programming (8 weeks)				
Makerspace (Sept.-June)										
Library	Library Citizenship (5 weeks)		Literature Appreciation (6 weeks)			Information Literacy (6 weeks)				

Grades 2-3

	September	October	November	December	January	February	March	April	May	June
Media	Digital Citizenship (5 weeks)		Technology Applications (6 weeks)			Programming (8 weeks)				
Makerspace (Sept.-June)										
Library	Library Citizenship (5 weeks)		Literature Appreciation (6 weeks)			Information Literacy (6 weeks)				

Grades 4-5

	September	October	November	December	January	February	March	April	May	June
Media	Digital Citizenship (5 weeks)		Technology Applications (6 weeks)			Programming (8 weeks)				
Makerspace (Sept.-June)										
Library	Library Citizenship (5 weeks)		Literature Appreciation (6 weeks)			Information Literacy (6 weeks)				

**Randolph Township Schools
Randolph Elementary Schools**

**Grade 4-5 Library/ Media
Curriculum**

“Knowledge will bring you the opportunity to make a difference.” ~ Claire Fagin

Elementary Education

Kristin Mueller, Vice Principal
Michelle Telischak, Vice Principal

Curriculum Committee

Nicole Cannici
Dawn Melody
Diana Rodriguez
Michele Savvides

Curriculum Developed:

July 2016

Date of Board Approval:

TBD

Randolph Township Schools
Department of Elementary Library/ Media
Grades 4-5 Library/ Media Curriculum

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools
Department of Elementary Library/ Media
Grades 4-5 Library/ Media Curriculum

Introduction

The 21st century student is expected to have an inquiry-based education that can be applied to each content area throughout their academic career. This program supports all academic areas, promotes and instructs students in research, lifelong critical thinking habits, and the love of literature. Throughout this program, students will engage in content-specific projects that guide them in learning and applying technological skills necessary for success as global citizens.

The grade 4-5 curriculum fosters the development of a greater appreciation for the diversity of literature and individual differences. Additionally, students are encouraged to explore the impact of technology on all aspects of society. Throughout the curriculum, students will communicate through programming, digital presentations, and applications to convey thoughts and ideas in a global society.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Grade 4-5 Library/Media

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
5 weeks	I	Library Citizenship
5 weeks	II	Digital Citizenship
6 weeks	III	Literature Appreciation
6 weeks	IV	Technology Applications
6 weeks	V	Information Literacy
8 weeks	VI	Programming

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT I: Library Citizenship

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>AASL 1.1.1 Follow an inquiry-based process in seeking knowledge in curricular subjects, and make the real-world connection for using this process in own life.</p>	<p>Knowledge is gained by seeking information from diverse sources, contexts, disciplines and cultures.</p>	<ul style="list-style-type: none"> • How can we show respect for age, gender, position, or culture of a wide variety of literature and library materials?
<p>AASL 1.1.2- Use prior and background knowledge as context for new learning.</p>	<p>The Library/ Media Center is a place to inquire and access a variety of resources while creating new knowledge.</p>	<ul style="list-style-type: none"> • What print and digital resources are available in the Library/ Media Center?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>AASL 1.1.8 Demonstrate mastery of technology tools for accessing information and pursuing inquiry.</p> <p>AASL 1.1.9 Collaborate with others to broaden and deepen understanding.</p> <p>AASL 1.4.1 Monitor own information-seeking processes for effectiveness and progress, and adapt as necessary.</p> <p>CCSS SL.5.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 5 topics and texts</i>, building on</p>	<p>Students will know:</p> <p>Resources are written for a variety of purposes and audiences.</p> <p>Inquiry provides opportunities for readers to identify appropriate resources.</p> <p>Readers establish routines in the Library/ Media Center.</p>	<p>Students will be able to:</p> <p>Understand that readers read for various reasons.</p> <p>Develop an appreciation for the individual differences of each reader’s selections.</p> <p>Recognize applicable resources for seeking information.</p> <p>Choose a relevant resource based on the topic of inquiry.</p> <p>Locate and access icons and resources.</p> <p>Interact in a Makerspace through collaboration, creativity, and acceptance of individual thoughts and ideas.</p>

<p>others' ideas and expressing their own clearly.</p> <p>CCSS SL.5.4 Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.</p> <p>CCSS SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.</p> <p>NJCCCS 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.</p>	<p>VOCABULARY: gender, culture, diversity, disability, inquiry, resources</p> <p>KEY TERMS: context, discipline, online subscription, Makerspace</p>	
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ASSESSMENT EVIDENCE: Students will show their learning by (including but not limited to):

- Create a desktop screen to highlight the online resources available
- Design a poster or multimedia presentation that demonstrates a book choice based on diversity

KEY LEARNING EVENTS AND INSTRUCTION (including but not limited to):

- Mini lessons for each of the following: readers read for various reasons, diversity in literature and student choice, identifying appropriate resources, locate and retrieve resources
- Independently access online resources to support lesson tasks
- Participate in creative and innovative tasks in a Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT I: Library Citizenship

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 Weeks	Appreciation of literature diversity Understanding online resources support learning	<p><u>Mentor Text</u> <i>The Dewey Deception</i> by Ralph Raab <i>Book Fair Day</i> by Lynn Plourde <i>The Junkyard Wonders</i> by Patricia Polacco. <i>The London Eye Mystery</i> by Siobhan Dowd <i>Rain Reign</i> by Ann M. Martin <i>Rules</i> by Cynthia Lord <i>El Deafo</i> by Cece Bell <i>My Librarian is a Camel</i> by Margriet Ruurs <i>Biblioburro</i> by Jeanette Winter</p> <p><u>Programs/ Online Resources</u> Wordle ABCya Word Clouds Makerspace Playbook</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT II: Digital Citizenship

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
AASL 1.2.7 Display persistence by continuing to pursue information to gain a broad perspective.	Technology allows people to think critically, make informed decisions and actively participate in society.	<ul style="list-style-type: none"> • How can technology influence the way people think?
AASL 2.1.6 Use the writing process, media and visual literacy, and technology skills to create products that express new understandings.	Technology enables people to make advancements in medicine, science and the arts.	<ul style="list-style-type: none"> • How do technological advancements affect the way people live?
AASL 2.3.1 Connect understanding to the real world.	Digital citizens recognize their responsibilities in global interactions.	<ul style="list-style-type: none"> • What are the characteristics of a digital citizen?
	KNOWLEDGE	SKILLS
<p>AASL 3.1.6 Use information and technology ethically and responsibly.</p> <p>AASL 3.3.7 Respect the principles of intellectual freedom.</p> <p>CCSS SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.</p> <p>NJCCCS 8.1.5.D.1 Understand the need for and use of copyrights.</p>	<p>Students will know:</p> <p>The media presents information to persuade, inform and entertain the public.</p> <p>New technology is designed to improve everyday life of people and continues to create career opportunities internationally.</p> <p>Digital citizens understand an individual’s rights of ownership.</p>	<p>Students will be able to:</p> <p>Identify how the media influences public attitudes by analyzing content for author’s purpose.</p> <p>Explore examples of cutting-edge technology and describe how these inventions impact future applications.</p> <p>Use a coding application to simplify a task.</p> <p>Define plagiarism and recognize the consequences of copying published work.</p> <p>Practice correct citation to avoid copyright infringement.</p>

<p>NJCCCS 8.1.5.D.2 Analyze the resource citations in online materials for proper use.</p> <p>NJCCCS 8.1.5.D.3 Demonstrate an understanding of the need to practice cyber safety, cyber security, and cyber ethics when using technologies and social media.</p> <p>NJCCCS 8.1.5.D.4 Understand digital citizenship and demonstrate an understanding of the personal consequences of inappropriate use of technology and social media.</p>	<p>Responsible Internet users are aware of a digital footprint’s impact.</p> <p>Readers establish routines in the Library/ Media Center.</p> <p>VOCABULARY: plagiarism, credit, paraphrase, works cited, resource list, bibliography, piracy, originality, coding.</p> <p>KEY TERMS: Creative Commons, 3-D printing, work cited, copyright infringement, author’s purpose, intellectual property, laser printing, copy and paste, social impact, Makerspace.</p>	<p>Explain the concept of intellectual property by demonstrating appropriate responsible, legal and ethical use of information resources.</p> <p>Choose educational internet websites.</p> <p>Demonstrate good character by resisting cyberbullying.</p> <p>Understand the implications of a digital footprint.</p> <p>Makers utilize tools and resources while interacting in a Makerspace.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by *(including but not limited to)*

- Collaboratively create a video to demonstrate media bias and slant on a shared topic. Use print and digital sources to support perspective, then accurately create a works cited document to list sources

KEY LEARNING EVENTS AND INSTRUCTION: *(including but not limited to)*

- Mini lessons for each of the following: author’s purpose, effects of media bias on the public, 3-D printing and its potential, career opportunities in coding, citing sources, Creative Commons, plagiarism, web design, Internet safety
- Utilize coding to demonstrate how technology can be applied in the workplace
- Participate in creative and innovative tasks in a Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT II: Digital Citizenship

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 Weeks	Internet safety and digital footprint Impact of coding on society	<p><u>Mentor Text</u> <i>Bully</i> by Patrica Polacco Your digital footprint Digital safety</p> <p><u>Programs/ Online Resources</u> Code.org Tynker Scratch SNAP Credible Sources Tutorial Socrative Plagiarism Kahoot Plagiarism Game Easybib Weebly Animoto What is 3-d Printing 3-D printing video Project Ignite Brain Pop (Copyright, Cyber-bullying, Digital Etiquette, Media Literacy, Online Safety, Online Sources, Social Networking) Makerspace Playbook</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT III: Literature Appreciation

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>AASL 1.1.6- Read, view, and listen for information presented in any format (e.g., textual, visual, media, digital) in order to make inferences and gather meaning.</p>	<p>Readers must differentiate between fiction and factual events while reading a text.</p>	<ul style="list-style-type: none"> • Why should readers distinguish between fact and fiction?
	<p>Identify how various literary elements influence/inform the reader’s experience of literature.</p>	<ul style="list-style-type: none"> • How do literary elements aid in comprehension?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>AASL 2.1.6 Use the writing process, media and visual literacy, and technology skills to create products that express new understandings.</p> <p>AASL 3.1.3 Use writing and speaking skills to communicate new understandings effectively.</p> <p>AASL 4.1.3 Respond to literature and creative expressions of ideas in various formats and genres.</p> <p>AASL 4.2.4 Show an appreciation for literature by electing to read for pleasure and expressing an interest in various literary genres.</p>	<p>Students will know:</p> <p>Factual events can be included in a work of fiction to enhance understanding and enjoyment.</p> <p>Readers need to consider how interpretation of facts expands their understanding.</p> <p>When interpreting texts, literary elements are helpful.</p> <p>Makerspaces are locations for students to create, tinker, make, and explore their own thoughts and interests.</p>	<p>Students will be able to:</p> <p>Utilize factual events to understand a work of fiction.</p> <p>Identify strategies to find information to support their understanding.</p> <p>Recognize and examine literary elements.</p> <p>Apply knowledge of literary elements to deepen understanding of a text.</p> <p>Makers utilize tools and resources while interacting in a Makerspace.</p>

<p>CCSS RL.5.5 Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.</p> <p>CCSS RL.5.6 Describe how a narrator's or speaker's point of view influences how events are described.</p> <p>CCSS SL.5.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 5 topics and texts</i>, building on others' ideas and expressing their own clearly.</p>	<p>VOCABULARY: Fact, fiction, literary elements, character, setting, tone, plot, subplot, foreshadow, imagery, genre, symbolism, perspective, setting, point of view, external and internal conflict.</p> <p>KEY TERMS: Makerspace</p>	
<p>ASSESSMENT EVIDENCE: Students will show their learning by (including but not limited to):</p> <ul style="list-style-type: none"> • Utilizing a text identify how facts contribute to the story and present their findings • Modify a literary element of a text and present the change in the medium of choice <p>KEY LEARNING EVENTS AND INSTRUCTION (including but not limited to):</p> <ul style="list-style-type: none"> • Mini lessons: literary elements, genres, fact/fiction • Distinguish between fiction and historical fiction using search strategies on Destiny • Participate in creative and innovative tasks in a Makerspace 		

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT III: Literature Appreciation

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
6 weeks	Distinguish between fact and fiction Demonstrate understanding of genres	<p><u>Mentor Text</u> <i>Number the Stars</i> by Lois Lowry <i>Terrible Things</i> by Eve Bunting <i>Pink and Say</i> by Patricia Pollaco</p> <p><u>Programs/ Online Resources</u> Five Elements of a Story - YouTube video Smart Exchange – Literary Elements Part 1 Safari Montage – “Saving Zasha” Safari Montage – “I Survived the Shark Attacks of 1916” Destiny.rtnj.org Makerspace Playbook</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Library/ Media

UNIT IV: Technology Applications

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>AASL 4.4.6 Evaluate own ability to select resources that are engaging and appropriate for personal interests and needs.</p>	<p>Computers need data, humans need information. Data is quantitative, whereas information generated from data can be evaluated.</p>	<ul style="list-style-type: none"> • How does data differ from information?
<p>CCSS SL.5.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 5 topics and texts</i>, building on others' ideas and expressing their own clearly.</p>	<p>Learners require valid and timely information, which is generated and represented from data in the form of charts and graphs.</p>	<ul style="list-style-type: none"> • How can data be managed and shared?
<p>CCSS SL.5.4 Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.</p>	<p>Applications vary in their ability to perform complex tasks.</p>	<ul style="list-style-type: none"> • How can applications be used to store, organize and present data?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>CCSS SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.</p>	<p>Students will know:</p> <p>Data is accurate, organized, measurable, valid, relevant and complete.</p> <p>Knowledge evolves from information. Information is derived from data.</p> <p>Databases help learners gather information.</p> <p>Data can be organized for evaluation and results can be graphically displayed.</p>	<p>Students will be able to:</p> <p>Describe characteristics of data.</p> <p>Compare and contrast data, information and knowledge by using a graphic organizer.</p> <p>Use online databases to research a real world problem.</p> <p>Chart data using a spreadsheet.</p>

<p>CCSS SL.5.6 Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation.</p> <p>NJCCCS 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.</p> <p>NJCCCS 8.1.5.A.3 Use a graphic organizer to organize information about problem or issue.</p> <p>NJCCCS 8.1.5.A.4 Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data.</p> <p>NJCCCS 8.1.5.A.5 Create and use a database to answer basic questions.</p> <p>NJCCCS 8.1.5.A.6 Export data from a database into a spreadsheet; analyze and produce a report that explains the analysis of the data.</p>	<p>Applications have various functions to help learners manage data.</p> <p>Data can be used to present possible solutions to real world issues.</p> <p>Data needs to be qualitative to be valuable.</p> <p>Databases can be created to generate new content.</p> <p>Makerspaces are locations for students to create, tinker, make, and explore their own thoughts and interests.</p> <p>VOCABULARY: Data, output, database, information, knowledge, average, sum, sort, filter, format, cell, column, row, tab, table, query, import, heading, formula, fill, pie chart, bar chart, shading.</p> <p>KEY TERMS: Problem solving, real world problems, data results, MS Excel, toolbar, Makerspace</p>	<p>Demonstrate features of MS Excel spreadsheet (fill, average, sum, sort, filter, format).</p> <p>Analyze data findings and present concluding statements.</p> <p>Rate validity of data by using specific criteria.</p> <p>Evaluate a database with tables, queries and reports.</p> <p>Makers utilize tools and resources while interacting in a Makerspace.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by (including but not limited to):

- Improve the design of a spreadsheet by using a software program
- Use online databases to collect information on a real world issue and participate in a debate

KEY LEARNING EVENTS AND INSTRUCTION *(including but not limited to):*

- Identify digital databases *(online dictionaries and encyclopedias, National Geographic)*
- Use MS Excel to design spreadsheets and graphs
- Combine data to create new findings
- Participate in creative and innovative tasks in a Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT IV: Technology Applications

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
6 weeks	Understanding real world applications of technology Presenting ideas through the use of technology applications	<p><u>Mentor Text</u> <i>It's a Book</i> by Lane Smith</p> <p><u>Programs/ Online Resources</u> Online Dictionary Fact Monster Internet Public Library National Geographic Kiddle DK Findout MS Excel tutorial From Education World Excel Lesson plans MS Access tutorials MS Access help – from Lynda Makerspace Playbook</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT V: Information Literacy

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>AASL 4.4.6 Evaluate own ability to select resources that are engaging and appropriate for personal interests and needs.</p>	<p>Effective researchers determine a purpose when asking a question.</p>	<ul style="list-style-type: none"> • What is the purpose of a question?
<p>CCSS RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.</p>	<p>The research process requires using a variety of resources to ensure validity.</p>	<ul style="list-style-type: none"> • How do researchers know information is reliable and accurate?
<p>CCSS RI.5.2 Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.</p>	<p>Critical readers judge, compare and analyze information from multiple sources.</p>	<ul style="list-style-type: none"> • How does the writer's perspective affect how the reader evaluates information?
<p>CCSS RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.</p>	<p>Technology is a tool that can be used for collecting, organizing, and sharing information.</p>	<ul style="list-style-type: none"> • How does technology impact research and communication?
<p>NJCCCS 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.</p> <p>NJCCCS 8.1.5.D.1 Understand the need for and use of copyrights.</p>	<p style="text-align: center;">KNOWLEDGE</p> <p>Students will know:</p> <p>Information literacy refers to a set of skills that enable people to recognize when information is needed, then locate, evaluate and effectively use that information.</p> <p>The first step in the information literacy process is to clarify and understand the problem for which information is needed.</p> <p>Primary sources can include books, interviews,</p>	<p style="text-align: center;">SKILLS</p> <p>Students will be able to:</p> <p>Define and explain information literacy.</p> <p>Identify and describe a need for information.</p> <p>Formulate several questions to refine informational need.</p> <p>Develop an effective search strategy using multiple</p>

<p>NJCCCS 8.1.5.D.4 Understand digital citizenship and demonstrate an understanding of the personal consequences of inappropriate use of technology.</p> <p>NJCCCS 8.1.8.D.2 Demonstrate the application of appropriate citations to digital content.</p> <p>NJCCCS 8.1.8.D.4 Assess the credibility and accuracy of digital content.</p> <p>NJCCCS 8.1.5.E.1 Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.</p> <p>NJCCSC 8.1.8.E.1 Effectively use a variety of search tools and filters in professional public databases to find information to solve a real world problem.</p>	<p>letters, surveys, maps, photos, articles and more.</p> <p>Students who are information literate access information efficiently and effectively.</p> <p>Critical thinkers discriminate between fact and opinion.</p> <p>Students who are information literate evaluate information critically and thoughtfully.</p> <p>An author’s favorable or unfavorable bias can influence presentation of information.</p> <p>Useful resources should be selected and irrelevant information can be dismissed.</p> <p>Responsible scholars give credit to other researchers by acknowledging their ideas.</p> <p>New information can be presented through illustration, a written composition, a 3D model, a video or other formats.</p> <p>Makerspaces are locations for students to create, tinker, make, and explore their own thoughts and interests.</p> <p>VOCABULARY: compile, evaluate, research, organize, information, cite, plagiarism, database, query, URL, keywords, perspective</p>	<p>print and digital resources to successfully fulfill informational need.</p> <p>Practice using specific keywords in a search.</p> <p>Evaluate the reliability of print and digital resources.</p> <p>Compare information within multiple print and digital sources.</p> <p>Evaluate information for trustworthiness by reflecting on author's perspective and potential bias.</p> <p>Apply evaluative criteria to determine the relevance of the information.</p> <p>Synthesize strategies to record results of information searching by paraphrasing and note-taking.</p> <p>Compose a citation document.</p> <p>Create a presentation of new information using multimedia techniques.</p> <p>Communicate new information to peers and adults.</p> <p>Makers utilize tools and resources while interacting in a Makerspace.</p>
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	KEY TERMS: online sources, Works Cited, Evaluation of Information, subject terms, resource-based learning, Makerspace	
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Creating a presentation of new findings using video, Prezi, PowerPoint, or other media
- Determine a research topic of interest, locate resources, evaluate usefulness of resources, and compose a citation document

KEY LEARNING EVENTS AND INSTRUCTION:

- Record “What I need to know” statements to outline informational needs
- Form open-ended, relevant questions on a topic
- Identify keywords and search terms
- Independently locate multiple resources in the Library/ Media Center
- Assess resources for quality and relevance to topic
- Independently evaluate resources for bias, discrepancies, and reliability
- Record information using note taking strategies
- Organize information from several print and digital resources and cite sources used
- Communicate new information effectively to an audience
- Actively reflect on and individually improve end product(s)
- Participate in creative and innovative tasks in a Makerspace

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT V: Information Literacy

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
8 Weeks	Evaluate informational resources Locate relevant sources Develop multimedia presentations	<p><u>Mentor Text</u> <i>But I Read It on the Internet!</i> by Toni Buzzeo <i>The Pirates of Plagiarism</i> by Lisa Downey</p> <p><u>Programs/ Online Resources</u> BrainPOP video "Citing Sources" Citing Sources for Kids BrainPOP video "Critical Reasoning" BrainPOP video "Note-taking Skills" BrainPOP video "Paraphrasing" BrainPOP video "Plagarism" Citing Sources from ReadWriteThink.org Teaching Information Literacy Skills Prezi True Flix Freedom Flix National Geographic</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT VI: Programming

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
CT.L1:6-01. Understand and use the basic steps in algorithmic problem-solving.	As in all writing, there are conventions to writing code.	<ul style="list-style-type: none"> • Why is structure important in writing?
CT.L2-01. Use the basic steps in algorithmic problem solving to design solutions.	Code should be written for efficiency and readability.	<ul style="list-style-type: none"> • How does editing improve writing?
CT.L2-06. Describe and analyze a sequence of instructions being followed.	Solving problems requires perseverance and communication skills.	<ul style="list-style-type: none"> • Why is developing a strong work ethic essential to success?
CT.L2-08. Use visual representations of problem states, structures, and data.	KNOWLEDGE	SKILLS
CT.L2-12. Use abstraction to decompose a problem into sub-problems.	<p>Students will know:</p> <p>Syntax refers to the spelling and grammar of a programming language.</p> <p>Computers only understand instructions if the programmer uses the correct syntax.</p> <p>Programmers use looping to execute multiple instructions up to a desired number of times.</p> <p>Programmers make decisions using “if-then-else” statements to improve a programs’ efficiency.</p> <p>Programmers locate errors and revise code continually.</p>	<p>Students will be able to:</p> <p>List commonly used syntax (<i>ex: commas, proper sentence structure</i>) and understand its relationship to programming language.</p> <p>Identify and edit incorrect syntax in a program.</p> <p>Demonstrate looping techniques in a coding program.</p> <p>Apply higher level coding skills by using loops/iterations and “if-then-else” statements to improve the program’s efficiency.</p> <p>Find errors in written examples of code and revise.</p>
CPP.L1:6-05. Construct a program as a set of step-by-step instructions to be acted out.		
CT.L3A-03. Explain how sequence,		

<p>selection, iteration, and recursion are building blocks of algorithms</p>	<p>Makerspaces provide opportunities to explore coding.</p> <p>VOCABULARY: iteration, blocks, execute, loop, initialize, looping, repetition, debug, syntax, efficient, elegant, comments, decision, readability, persistence, programming, coding, navigate, language, revise, re-write, software, hardware, revision</p> <p>KEY TERMS: If-then-else statements, conditional statements, problem solving, Makerspace</p>	<p>Makers utilize tools and resource to code in a Makerspace.</p>
<p>ASSESSMENT EVIDENCE: Students will show their learning by <i>(including but not limited to):</i></p> <ul style="list-style-type: none"> • Design an interactive program for others to navigate (Scratch, Tynker, or Code.org) including iterations and conditional statements <p>KEY LEARNING EVENTS AND INSTRUCTION <i>(including but not limited to):</i></p> <ul style="list-style-type: none"> • Write clear objectives for a program’s completion • Plan the program by defining the problem • Begin with the end in mind by planning the solution • Code the program (Scratch, Tynker or Code.org) • Test the program, evaluate results, and revise as needed • Revise a peer’s program by rewriting code • Participate in creative and innovative coding tasks in a Makerspace 		

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Library/ Media
UNIT VI: Programming

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
8 weeks	Understand basic coding principles Analyze coding programs Create code for unique programs	<p><u>Mentor Text</u> <i>Nick and Tesla</i> series by Bob Pflugfelder <i>Coding games in Scratch</i> by John Woodcock <i>Learn to Program with Scratch: A Visual Introduction to Programming with Games, Art, Science, and Math</i> by Majed Marji <i>DK Workbooks: Coding in Scratch: Games Workbook</i> by John Woodcock</p> <p><u>Programs/ Online Resources</u> Code.org (<i>Flappy birds</i>) Khan Academy Debugging activity Scratch CodeMonkey Hopscotch iPad app Brain Pop “computer programming”</p>

Appendix A

Library/ Media Crosswalk

Grades K-1

	September	October	November	December	January	February	March	April	May	June
Media	Digital Citizenship (5 weeks)		Technology Applications (6 weeks)			Programming (8 weeks)				
Makerspace (Sept.-June)										
Library	Library Citizenship (5 weeks)		Literature Appreciation (6 weeks)			Information Literacy (6 weeks)				

Grades 2-3

	September	October	November	December	January	February	March	April	May	June
Media	Digital Citizenship (5 weeks)		Technology Applications (6 weeks)			Introduction to Programming (8 weeks)				
Makerspace (Sept.-June)										
Library	Library Citizenship (5 weeks)		Literature Appreciation (6 weeks)			Information Literacy (6 weeks)				

Grades 4-5

	September	October	November	December	January	February	March	April	May	June
Media	Digital Citizenship (5 weeks)		Technology Applications (6 weeks)			Programming (8 weeks)				
Makerspace (Sept.-June)										
Library	Library Citizenship (5 weeks)		Literature Appreciation (6 weeks)			Information Literacy (6 weeks)				

Randolph Township Schools
Randolph Middle School

Grade 6 Mathematics Curriculum

“A mind is a fire to be kindled, not a vessel to be filled.”
- Plutarch

Department of Science, Technology, Engineering & Math
Anne V. Richardson, STEM Supervisor

Curriculum Committee

Tracey Silverschotz
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Revision Committee

Triona Hoover
Tracey Silverschotz
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Curriculum Developed

July 2014

Curriculum Revised

July 2016

Board APPROVAL Date

September 2015

**Randolph Township Schools
Department of Mathematics
Grade 6 Mathematics**

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools
Department of Science, Technology, Engineering, and Mathematics
Introduction

Randolph Township Schools is committed to excellence. We believe that all children are entitled to an education that will equip them to become productive citizens of the 21st century. We believe that an education grounded in the fundamental principles of science, technology, engineering, and math (STEM) will provide students with the skills and content necessary to become future leaders and lifelong learners.

A sound STEM education is grounded in the principles of inquiry, rigor, and relevance. Students will be actively engaged in learning as they use real-world STEM skills to construct knowledge. They will have ample opportunities to manipulate materials and solve problems in ways that are developmentally appropriate to their age. They will work in an environment that encourages them to take risks, think critically, build models, observe patterns, and recognize anomalies in those patterns. Students will be encouraged to ask questions, not just the “how” and the “what” of observed phenomena, but also the “why”. They will develop the ability, confidence, and motivation to succeed academically and personally.

STEM literacy requires understandings and habits of mind that enable students to make sense of how our world works. As described in Project 2061’s *Benchmarks in Science Literacy*, *The Standards for Technological Literacy*, and *Professional Standards for Teaching Mathematics*, literacy in these subject areas enables people to think critically and independently. Scientifically and technologically literate citizens deal sensibly with problems that involve mathematics, evidence, patterns, logical arguments, uncertainty, and problem-solving.

Grade 6 Mathematics
Introduction

In Grade 6, the focus of instruction is on four critical areas. One is the study of ratios and rates and their use in problem solving in the real-world. An emphasis is also made to connect proportional reasoning to whole number multiplication and division. Making sense of the procedures for dividing fractions by understanding and explaining the relationship between multiplication and division is also an area of focus. Students will also extend their understanding of the rational number system by exploring negative rational numbers, in particular negative integers. The location of points in all four quadrants of the coordinate plane is included here. Another important area is writing, interpreting, and using expressions and equations. The use of properties of operations in simplifying expressions and solving equations is stressed. Students are mindful of the idea of maintaining equality on both sides of an equation as they solve one-step equations. The construction and analysis of tables are employed to solve real-world problems. The last area of study is that of statistics. Building upon their work in elementary school, sixth grade students determine which measure of center is most appropriate to use to describe a particular set of data by understanding the differences among them. Measures of variability – interquartile range and mean absolute deviation – are introduced and understood to be useful in comparing two sets of data with similar or equal measures of center. Students will learn to describe and summarize numerical data sets by their shape and to consider the context in which the data were collected.

These four core topics are accompanied by work with all operations with whole numbers, decimals and fractions as well as extending their knowledge of finding the area of two-dimensional figures to finding the surface area and volume of three-dimensional figures.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Grade 6 Mathematics

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
3 weeks	I	Positive Numbers and the Number Line
2 weeks	II	Negative Numbers and the Number Line
3 weeks	III	Multiplying and Dividing Fractions and Decimals
6 weeks	IV	Ratio and Rates
3 weeks	V	Percent
3 weeks	VI	Algebraic Expressions
3 weeks	VII	Equations and Inequalities
2 weeks	VIII	The Coordinate Plane
3 weeks	IX	Area of Polygons
3 weeks	X	Surface Area and Volume of Solids
5 weeks	XI	Statistics and Measures of Central Tendency

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
UNIT I: Positive Numbers and the Number Line

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.NS.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express the sum of two whole numbers 1-100 with a common factor as a multiple of the sum of two whole numbers with no common factor.</p> <p>6.NS.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.</p> <p>6.NS.7 Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.</p> <p>6.EE.1 Write and evaluate numerical expressions involving whole number exponents.</p> <p>6.EE.2 Write, read, and evaluate expressions in which letters stand for numbers.</p> <p><u>Mathematical Practices</u></p>	<p>Computational fluency includes understanding the meaning and the appropriate and precise use of numerical operations.</p>	<ul style="list-style-type: none"> • What makes a computational strategy both effective and efficient? How can precision affect an outcome?
	<p>A positive rational number can be represented on a number line.</p>	<ul style="list-style-type: none"> • How do positive numbers relate to the real-world?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>A positive rational number can be represented as a point on a number line.</p> <p>An inequality can be used to order and compare positive rational numbers on a number line.</p> <p>The greatest common factor is the largest factor that two or more counting numbers have in common.</p> <p>The least common multiple is the smallest multiple of two or more numbers.</p>	<p>Students will be able to:</p> <p>Find and position positive rational numbers on a number line.</p> <p>Interpret statements of inequalities about the position of two numbers on a number line ($3.5 < 5$ and 5 is to the right of 3.5).</p> <p>Find the greatest common factor of two whole numbers less than or equal to 100.</p> <p>Find the least common multiple of two whole numbers less than or equal to 12.</p>

<p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>ELA-Literacy</u> WHST.6-8.1 WHST.6-8.2 WHST.6-8.4 WHST.6-8.9 RST.6-8.2 RST.6-8.3 RST.6-8.4 RST.6-8.5 RST.6-8.8 .</p> <p><u>Tech Literacy</u> 8.1.8.A.3 8.1.8.A.4 8.1.8.A.5</p>	<p>The exponent of a whole number indicates how many times the base is used as a factor.</p> <p>When evaluating numerical expressions, the order of operations is necessary to ensure the correct value.</p> <p>VOCABULARY: base (of an exponent), common factor, common multiple, composite number, cube (of a number), cube root, exponent, factor (of a number) greatest common factor, inequality, least common multiple, multiple, number line, numerical expression, perfect cube, perfect square, positive number, prime factor, prime number, square (of a number), square root, whole number</p> <p>KEY TERMS: plot, rational numbers</p>	<p>Write and evaluate numerical expressions involving whole-numbered exponents.</p> <p>Evaluate expressions, including those involving whole number exponents using the order of operations when there are no parentheses.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Quizzes
- Brain Scan/Exit Ticket

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain@Work

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
Unit I: Positive Numbers and the Number Line

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	<p>Unit I: Positive Numbers and the Number Line</p> <ul style="list-style-type: none"> • Number Line • Prime Factorization • Greatest Common Factor • Least Common Multiple • Exponents 	<p>Math in Focus Singapore Math: Course 1A (online @ my.hrw.com) National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/grade_g_3.html www.khanacademy.com www.aplusmath.com www.math-play.com/6th-grade-math-games.html www.aaamath.com http://guest.portaportal.com/math6th (Math Baseball- Good for reviewing all operation whole #s) www.funbrain.com “The Venn Factor” http://illuminations.nctm.org/LessonDetail.aspx</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
UNIT II: Negative Numbers and the Number Line

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.NS.6 Understand that positive and negative numbers are used to describe quantities having opposite directions or values; use positive and negative numbers in real-world contexts, explaining the meaning of zero in each situation.</p> <p>6.NS.7 Understand ordering and absolute value of rational numbers.</p>	<p>Absolute value is a number’s distance from zero, determined using the appropriate tool: a number line.</p>	<ul style="list-style-type: none"> • What makes a computational strategy both effective and efficient? How can precision affect an outcome?
	<p>A rational number can be represented on a number line.</p>	<ul style="list-style-type: none"> • How do positive numbers relate to the real-world?
<p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p>	<p style="text-align: center;">KNOWLEDGE</p> <p>Students will know:</p> <p>Positive and negative numbers and zero are used to describe quantities.</p> <p>A rational number can be represented as a point on a number line.</p> <p>An inequality can be used to order and compare rational numbers on a number line.</p>	<p style="text-align: center;">SKILLS</p> <p>Students will be able to:</p> <p>Use positive and negative numbers in real-world contexts.</p> <p>Explain the meaning of 0 in given situations.</p> <p>Find and position rational numbers on a number line.</p> <p>Interpret statements of inequalities about the position of two numbers on a number line ($-3.5 <$</p>

<p><u>ELA-Literacy</u> WHST.6-8.1 WHST.6-8.2 WHST.6-8.4 WHST.6-8.9 RST.6-8.2 RST.6-8.3 RST.6-8.4 RST.6-8.5 RST.6-8.8</p> <p><u>Tech Literacy</u> 8.1.8.A.3</p>	<p>The absolute value of a rational number is its distance from 0 on a number line.</p> <p>When two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.</p> <p>VOCABULARY: absolute value, negative number, opposite</p> <p>KEY TERMS: rational numbers</p>	<p>5 and 5 is to the right of -3.5).</p> <p>Interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.</p> <p>Demonstrate that the opposite of the opposite of a number is the number itself, e.g. $-(-3) = 3$, and that 0 is its own opposite.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Quizzes
- Brain Scan/Exit Ticket

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain@Work

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
Unit II: Negative Numbers and the Number Line

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
2 Weeks	<p>Unit II: Negative Numbers and the Number Line</p> <ul style="list-style-type: none"> • Negative Numbers and the Number Line • Rational Numbers • Opposite Values • Absolute Value 	<p>Math in Focus Singapore Math: Course 1A (online @ my.hrw.com) National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/grade_g_3.html www.ixl.com/math/grade6 www.funbrain.com/ www.aplusmath.com/ www.math-play.com/6th-grade-math-games.html www.aaamath.com www.brainingcamp.com www.khanacademy.com Various activities and games on a variety of math topics http://guest.portaportal.com/math6th Lesson to familiarize students with the Coordinate Plane http://www.shodor.org/interactivate/lessons/CartesianCoordinate/ Positive and Negative Numbers on a Volt Meter http://illuminations.nctm.org/ActivityDetail.aspx?ID=152</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
UNIT III: Multiplying and Dividing Fractions and Decimals

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.</p> <p>6.NS.2 Fluently divide multi-digit numbers using the standard algorithm.</p> <p>6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p>	<p>Physical models are an authentic way to solve and explain real-world mathematical situations.</p>	<ul style="list-style-type: none"> • How can we use physical models to explain mathematical relationships?
	<p>Division by fractions will result in a quotient larger than the dividend.</p>	<ul style="list-style-type: none"> • Why are patterns important to use to make generalizations?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p>	<p>Students will know:</p> <p>The standard algorithms of all four operations with multi-digit whole numbers and decimals are the most efficient and reliable methods for computation.</p> <p>Division of fractions by fractions is an extension of division of fractions by whole numbers and whole numbers by fractions.</p>	<p>Students will be able to:</p> <p>Divide fluently with multi-digit whole numbers using the standard algorithm.</p> <p>Add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p> <p>Interpret and compute quotients of fractions.</p> <p>Solve multi-step word problems involving</p>

<p>MP8 Look for and express regularity in repeated reasoning.</p> <p>ELA-Literacy WHST.6-8.1 WHST.6-8.2 WHST.6-8.4 WHST.6-8.9 RST.6-8.2 RST.6-8.3 RST.6-8.4 RST.6-8.5 RST.6-8.8</p> <p>Tech Literacy 8.1.8.A.3</p>	<p>Decomposing a number into equal groups is represented by division.</p> <p>The exact quotient does not always answer the proposed question.</p> <p>VOCABULARY: reciprocals</p> <p>KEY TERMS: simplest form, vertical form</p>	<p>division of fractions by fractions.</p> <p>Create and manipulate a model to represent division of fractions.</p> <p>Interpret the quotient by checking for reasonableness within real-world problems.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Quizzes
- Number System Project
- Brain Scan/Exit Ticket

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain@Work
- Number System Assignment: Perfect 10
- Graphic organizer for algorithms of decimal and fraction operations

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
Unit III: Computation of Fractions and Decimals

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	<p>Unit III: Computation of Fractions and Decimals</p> <ul style="list-style-type: none"> • Division of Multi-Digit Whole Numbers • Dividing Fractions • Operations with Decimals • Interpret Quotients • Fractions and Decimals - Word Problems • Models to Represent Division of Fractions 	<p>Math in Focus Singapore Math: Course 1A (online @ my.hrw.com) National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/grade_g_3.html www.ixl.com/math/grade6 www.funbrain.com/ www.aplusmath.com/ www.math-play.com/6th-grade-math-games.html www.aaamath.com www.brainingcamp.com www.khanacademy.com http://guest.portaportal.com/math6th</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
UNIT IV: Ratios and Rates

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.</p> <p>6.NS.2 Fluently divide multi-digit numbers using the standard algorithm.</p> <p>6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p> <p>6.RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.</p> <p>6.RP.2 Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.</p> <p>6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and</p>	<p>Ratios and proportional relationships are used to express how quantities are related and how quantities change in relation to each other.</p>	<ul style="list-style-type: none"> • When would it be important to find regularity or repeated reasoning between two quantities?
	<p>Proportional reasoning is used to solve real-world and mathematical problems.</p>	<ul style="list-style-type: none"> • When it is appropriate to apply proportional thinking to solve real-world problems?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Ratios and rates are a comparison between two quantities.</p> <p>A proportion is two equal ratios.</p>	<p>Students will be able to:</p> <p>Formulate and justify a ratio from two quantities.</p> <p>Make tables of equivalent ratios relating quantities with whole number measurements.</p> <p>Find missing values in tables.</p> <p>Use tables to compare ratios.</p> <p>Solve proportions using cross-products.</p>

<p>persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>ELA-Literacy</u> WHST.6-8.1 WHST.6-8.2 WHST.6-8.4 WHST.6-8.9 RST.6-8.2 RST.6-8.3 RST.6-8.4 RST.6-8.5 RST.6-8.8</p> <p><u>Tech Literacy</u> 8.1.8.A.3</p>	<p>Unit measures may be converted into different units</p> <p>A unit rate a/b is associated with the ratio $a:b$ with b not equal to 0.</p> <p>VOCABULARY: ratio, term, equivalent ratios, simplest form, rate, unit rate, speed, average speed</p> <p>KEY TERMS: proportions, cross product, unitary method, common factors</p>	<p>Use ratio reasoning to convert measurement units.</p> <p>Manipulate and transform units appropriately when multiplying or dividing quantities.</p> <p>Find and explain a unit rate.</p> <p>Solve unit rate problems including those involving unit pricing and constant speed.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Quizzes
- Brain Scan/Exit Ticket

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain@Work
- Group Work Task Cards

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
Unit IV: Ratio and Rates

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
<p>6 Weeks</p>	<p>Unit II: Negative Numbers and the Number Line</p> <ul style="list-style-type: none"> • Negative Numbers and the Number Line • Rational Numbers • Opposite Values • Absolute Value 	<p>Math in Focus Singapore Math: Course 1A (online @ my.hrw.com) National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/grade_g_3.html www.ixl.com/math/grade6 www.funbrain.com/ www.aplusmath.com/ www.math-play.com/6th-grade-math-games.html www.aaamath.com www.brainingcamp.com www.khanacademy.com Various activities and games on a variety of math topics http://guest.portaportal.com/math6th “Understanding Rational Numbers and Proportions” http://illuminations.nctm.org/LessonDetail.aspx?ID=L64 Ratios and Proportions http://www.homeschoolmath.net/teaching/proportions.php</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
UNIT V: Percent

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.</p>	<p>Percent is a concept used to compare quantities expressed per hundred.</p>	<ul style="list-style-type: none"> • How can models be used to represent situations? How can tools be used to model situations?
<p><u>Mathematical Practices</u></p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>ELA-Literacy</u> WHST.6-8.1 WHST.6-8.2 WHST.6-8.4</p>	<p>Students will know:</p> <p>Percent is a ratio that compares a number to 100.</p> <p>Rational numbers can be written in different forms while maintaining equivalent values.</p> <p>Proportional reasoning can be used to solve percent problems.</p> <p>A rational number is any real number that can be written as a fraction, where the denominator is not 0.</p> <p>VOCABULARY: percent, base (of a percent), sales tax, commission, interest, interest rate</p> <p>KEY TERMS: percent notation</p>	<p>Students will be able to:</p> <p>Find a percent of a quantity as a rate per 100.</p> <p>Write equivalent fractions, decimals, and percents.</p> <p>Solve problems involving finding the whole, given a part and a percent.</p> <p>Express a rational number written as a fraction and as a decimal that repeats or terminates.</p>

WHST.6-8.9 RST.6-8.2 RST.6-8.3 RST.6-8.4 RST.6-8.5 RST.6-8.8 <u>Tech Literacy</u> 8.1.8.A.3		
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Quizzes
- Ratios and Proportional Reasoning Project
- Brain Scan/Exit Ticket

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain@Work
- Ratios and Proportional Reasoning Assignment: Math Menu
- Graphic organizer for convert fractions, decimals, and percents

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
Unit V: Percent

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	<p>Unit V: Percent</p> <ul style="list-style-type: none"> • Fractions, Decimals, and Percents • Percent of Quantity • Real-World Problems: Percent 	<p>Math in Focus Singapore Math: Course 1A (online @ my.hrw.com)</p> <p>www.ixl.com/math/grade6</p> <p>www.funbrain.com/</p> <p>www.aplusmath.com/</p> <p>www.math-play.com/6th-grade-math-games.html</p> <p>www.aaamath.com</p> <p>www.brainingcamp.com</p> <p>www.khanacademy.com</p> <p>Students investigate the percent of each letter of the alphabet found in a box of Alphabets cereal.</p> <p>http://www.pbs.org/teachers/mathline/lessonplans/msmp/alphabits/...</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
UNIT VI: Algebraic Expressions

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.EE.2 Write, read, and evaluate expressions in which letters stand for numbers.</p> <p>6.EE.3 Apply the properties of operations to generate equivalent expressions.</p> <p>6.EE.4 Identify when two expressions are equivalent (i.e., when two expressions name the same number regardless of which value is substituted into them).</p> <p>6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p>	<p>Expressions can be written to include an unknown quantity.</p>	<ul style="list-style-type: none"> • How can algebraic expressions be used to model, analyze, and solve mathematical situations?
	<p>The order in which operations are performed will impact your final outcome.</p>	<ul style="list-style-type: none"> • What are the implications if the Order of Operations is not properly followed?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Variables, represented by letters, are used in place of unknown numbers.</p> <p>There are two types of expressions: numerical and algebraic.</p> <p>Evaluating an expression means to use the order of operations to find the value of the expression.</p> <p>There are key words that indicate specific operations.</p>	<p>Students will be able to:</p> <p>Understand that a variable represents an unknown number.</p> <p>Write expressions corresponding to a real-world or mathematical problem.</p> <p>Evaluate expressions given specific values for variables.</p> <p>Translate between written language phrases and mathematical symbolic expressions. Use the distributive property to express the sum of two whole numbers 1-100 with a common factor as a</p>

<p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>ELA-Literacy</u> WHST.6-8.1 WHST.6-8.2 WHST.6-8.4 WHST.6-8.9 RST.6-8.2 RST.6-8.3 RST.6-8.4 RST.6-8.5 RST.6-8.8</p> <p><u>Tech Literacy</u> 8.1.8.A.3</p>	<p>The Distributive Property is a property that relates multiplication to addition or subtraction.</p> <p>Mathematical properties are used to identify, simplify, and rewrite equivalent expressions.</p> <p>VOCABULARY: algebraic expression, coefficient, equivalent expressions, evaluate, expand, factor, simplify, substitute, like terms (of an expression), variable</p> <p>KEY TERMS: evaluate the expression, simplify the expression</p>	<p>multiple of a sum of two whole numbers with no common factor.</p> <p>Identify and label parts of an expression using mathematical terms (coefficient, variable, constant).</p> <p>Write one or more parts of an expression as a single entity by simplifying.</p> <p>Apply the properties of operations, specifically the distributive property, to generate equivalent expressions.</p> <p>Identify when two expressions are equivalent.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Quizzes
- Brain Scan/Exit Ticket

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain@Work

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
Unit VI: Algebraic Expressions

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	<p>Unit VI: Algebraic Expressions</p> <ul style="list-style-type: none"> • Writing Algebraic Expressions • Evaluating Algebraic Expressions • Simplifying Algebraic Expressions • Expanding and Factoring Algebraic Expressions • Variables • Order of Operations • Properties • Translate Between Words and Math • Real-World Problems 	<p>Math in Focus Singapore Math: Course 1A (online @ my.hrw.com) National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/grade_g_3.html www.ixl.com/math/grade6 www.funbrain.com/ www.aplusmath.com/ www.math-play.com/6th-grade-math-games.html www.aaamath.com www.brainingcamp.com www.khanacademy.com Various activities and games on a variety of math topics http://guest.portaportal.com/math6th Algebraic Expressions Millionaire http://www.math-play.com/Algebraic-Expressions-Millionaire/algebraic-expressionsmillionaire.html Order of operations Bingo http://illuminations.nctm.org/LessonDetail.aspx?id=L730 Using Pan Balance for Numerical Expressions http://illuminations.nctm.org/ActivityDetail.aspx?ID=26 Interactive website where students can take a test and review concepts on LCM and other numerical expressions http://www.henryanker.com/Math/General_Math/6_Grade_Math/6_Math_1.swf</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
UNIT VII: Equations and Inequalities

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.EE.2 Write and evaluate numerical expression involving whole-number exponents.</p> <p>6.EE.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the question or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.</p> <p>6.EE.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.</p> <p>6.EE.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$, or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.</p> <p>6.EE.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in</p>	<p>Algebraic equations and inequalities are used to model real-world problems and represent quantitative relationships.</p>	<ul style="list-style-type: none"> • How can we develop and use mathematical models to describe real-world relationships?
	<p>The quantitative relationships between two quantities that change can be illustrated and analyzed through algebraic equations and modeling.</p>	<ul style="list-style-type: none"> • How can we create and use mathematical models when there is more than one solution?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Solving an equation involves applying the properties of operations and substituting values for the variable to check the validity of the solution(s).</p>	<p>Students will be able to:</p> <p>Use substitution to determine whether given values for the variable are solutions by making an equation or inequality true.</p> <p>Solve equations and inequalities and check the solution(s).</p> <p>Use variables to represent numbers and write equations when solving a real-world or mathematical problems.</p>

<p>terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>ELA-Literacy</u> WHST.6-8.1 WHST.6-8.2 WHST.6-8.4 WHST.6-8.9 RST.6-8.2 RST.6-8.3 RST.6-8.4 RST.6-8.5 RST.6-8.8</p> <p><u>Tech Literacy</u> 8.1.8.A.3</p>	<p>An inequality is a comparison of two expressions which has an infinite solution set.</p> <p>That dependent variables change in direct relation to the independent variables.</p> <p>VOCABULARY: equation, solution, linear equation, independent variable, dependent variable, inequality</p> <p>KEY TERMS: evaluate the expression, simplify the expression, solve the expression, inverse operations, algebraic equation, greater than or equal to notation, less than or equal to notation</p>	<p>Write an inequality to represent a constraint or condition in a mathematical problem.</p> <p>Graph solutions of inequalities using number line diagrams.</p> <p>Use variables to represent numbers and write inequalities when solving a real-world problem.</p> <p>Use variables to represent two quantities in a real-world problem that change in relationship to one another.</p> <p>Write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity thought of as the independent variable.</p> <p>Relate dependent and independent variables to the equation.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Quizzes
- Expressions and Equations Project
- Brain Scan/Exit Ticket

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain@Work
- Expressions and Equations Assignment: Tic-Tac-Toe

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
Unit VII: Equations and Inequalities

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	<p>Unit VII: Equations and Inequalities</p> <ul style="list-style-type: none"> • Writing Equations with One Variable • Solving Equations with One Variable • Writing and Graphing Inequalities • Solving Inequalities • Independent and Dependent Relationships 	<p>Math in Focus Singapore Math: Course 1A (online @ my.hrw.com)</p> <p>National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/grade_g_3.html</p> <p>www.ixl.com/math/grade6</p> <p>www.funbrain.com/</p> <p>www.aplusmath.com/cgi-bin/games/geomatho</p> <p>www.math-play.com/6th-grade-math-games.html</p> <p>www.aaamath.com</p> <p>www.brainingcamp.com</p> <p>www.khanacademy.com</p> <p>Various activities and games on a variety of math topics http://guest.portaportal.com/math6th</p> <p>Using Algebra Tiles to solve, substitute, expand, or factor http://illuminations.nctm.org/ActivityDetail.aspx?ID=216</p> <p>Using Pan Balance to compare numerical and algebraic expressions http://illuminations.nctm.org/ActivityDetail.aspx?ID=10</p> <p>Practice with balancing one step equations http://www.ixl.com/math/grade-6/solve-one-step-equations-with-whole-numbers</p> <p>Math Basketball (Solving one step equations including negatives) http://www.math-play.com/One-Step-Equation-Game.html</p>

		Planet Blaster (solving one and two step equations) http://www.aplusmath.com/games/PlanetBlast/index.html
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
UNIT VIII: The Coordinate Plane

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.EE.2 Write, read, and evaluate expressions in which letters stand for numbers.</p>	<p>Ordered pairs on a coordinate plane can be used to visualize situations in everyday life.</p>	<ul style="list-style-type: none"> • How does the use of structure affect situations?
<p>6.NS.6 Understand that positive and negative numbers are used to describe quantities having opposite directions or values; use positive and negative numbers in real-world contexts, explaining the meaning of zero in each situation.</p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>6.NS.7 Understand ordering and absolute value of rational numbers.</p> <p>6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.</p> <p>6.G.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.</p>	<p>Students will know:</p> <p>An ordered pair can be represented as a point on a coordinate plane where the values of the numbers indicate the locations in the quadrants of the coordinate plane.</p> <p>Coordinate planes can model relationships between numbers.</p> <p>Absolute value can be used to find distance between two points on a coordinate plane.</p>	<p>Students will be able to:</p> <p>Find and position pairs of integers on a coordinate plane.</p> <p>Draw and identify polygons on the coordinate plane.</p> <p>Solve real-world and mathematical problems using the coordinate plane.</p> <p>Find lengths of horizontal and vertical line segments on the coordinate plane.</p>

6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

Mathematical Practices

MP1 Make sense of problems and persevere in solving them.

MP2 Reason abstractly and quantitatively.

MP3 Construct viable arguments and critique the reasoning of others.

MP4 Model with mathematics.

MP5 Use appropriate tools strategically.

MP6 Attend to precision.

MP7 Look for and make use of structure.

MP8 Look for and express regularity in repeated reasoning.

ELA-Literacy

WHST.6-8.1

WHST.6-8.2

WHST.6-8.4

WHST.6-8.9

RST.6-8.2

RST.6-8.3

RST.6-8.4

RST.6-8.5

RST.6-8.8

Tech Literacy

8.1.8.A.3

VOCABULARY: coordinates, coordinate plane, x-axis, y-axis, quadrants, linear graph

KEY TERMS: plot, scale, line segment, tape models

ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Quizzes
- Brain Scan/Exit Ticket

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain@Work
- Whole-Group Coordinate Plane People Search

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
Unit VIII: The Coordinate Plane

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
2 Weeks	<p>Unit VIII: The Coordinate Plane</p> <ul style="list-style-type: none"> • Points on the Coordinate Plane • Length of Line Segments • Real-World Problems: Graphing 	<p>Math in Focus Singapore Math: Course 1A (online @ my.hrw.com)</p> <p>National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/grade_g_3.html www.ixl.com/math/grade6 www.funbrain.com/ www.aplusmath.com/ www.math-play.com/6th-grade-math-games.html www.aaamath.com www.brainingcamp.com www.khanacademy.com</p> <p>Various activities and games on a variety of math topics http://guest.portaportal.com/math6th</p> <p>Lesson designed to familiarize students with the Coordinate Plane http://www.shodor.org/interactivate/lessons/CartesianCoordinate/</p> <p>Positive and Negative Numbers on a Volt Meter http://illuminations.nctm.org/ActivityDetail.aspx?ID=152</p> <p>Movie Clip on Absolute Value http://player.discoveryeducation.com/</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
UNIT IX: Area of Polygons

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.EE.2 Write, read, and evaluate expressions in which letters stand for numbers.</p> <p>6.G.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.</p> <p>6.G.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p>	<p>Geometric attributes provide descriptive information about an object’s properties and position in space and support visualization and problem solving.</p>	<ul style="list-style-type: none"> • How does geometry help us describe and support our arguments relating to objects in the real-world?
	<p>Complex shapes can be broken down into simpler shapes to find the area of the whole figure.</p>	<ul style="list-style-type: none"> • How can you determine the validity of a response?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Two-dimensional figures can be composed or decomposed into other shapes.</p> <p>Values of numbers in ordered pairs indicate locations in quadrants of the coordinate plane.</p>	<p>Students will be able to:</p> <p>Find the area of triangles.</p> <p>Find the area of special quadrilaterals and polygons by composing into rectangles or decomposing into triangles and other shapes to solve real world or mathematical problems.</p> <p>Draw polygons in a coordinate plane given coordinates for the vertices.</p> <p>Use coordinates to find the horizontal or vertical length between two points on a coordinate plane.</p>

<p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>ELA-Literacy</u> WHST.6-8.1 WHST.6-8.2 WHST.6-8.4 WHST.6-8.9 RST.6-8.2 RST.6-8.3 RST.6-8.4 RST.6-8.5 RST.6-8.8</p> <p><u>Tech Literacy</u> 8.1.8.A.3</p>	<p>VOCABULARY: formula, height, base, regular polygon</p> <p>KEY TERMS: decomposing, perpendicular, vertex</p>	
<p>ASSESSMENT EVIDENCE: Students will show their learning by:</p> <ul style="list-style-type: none"> • Pre-assessments • Math in Focus Chapter Assessments • Quizzes • Brain Scan/Exit Ticket <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none"> • Brain@Work 		

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
Unit IX: Area of Polygons

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
<p>3 Weeks</p>	<p>Unit IX: Area of Polygons</p> <ul style="list-style-type: none"> • Area of Triangles • Area of Parallelograms • Area of Trapezoids and Other Polygons • Area of Composite Figures 	<p>Math in Focus Singapore Math: Course 1A (online @ my.hrw.com)</p> <p>National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/grade_g_3.html www.ixl.com/math/grade6 www.funbrain.com/ www.aplusmath.com www.math-play.com/6th-grade-math-games.html www.aaamath.com www.brainingcamp.com www.khanacademy.com</p> <p>Various activities and games on a variety of math topics http://guest.portaportal.com/math6th</p> <p>Lesson designed to familiarize students with the Coordinate Plane http://www.shodor.org/interactivate/lessons/CartesianCoordinate/ “Decomposing and Composing 2D Shapes” http://illuminations.nctm.org/ActivityDetail.aspx?ID=35</p> <p>Classifying 2D and 3D Shapes http://www.math-play.com/geometric-figures-game/geometric-figures-game.html</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
UNIT X: Surface Area and Volume

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.G.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.</p> <p>6.G.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.</p> <p>6.EE.1 Write and evaluate numerical expressions involving whole-number exponents.</p> <p>6.EE.2 Write, read, and evaluate expressions in which letters stand for numbers.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p>	<p>Geometric attributes provide descriptive information about an object’s properties and position in space and support visualization and problem solving.</p>	<ul style="list-style-type: none"> • How does geometry help us describe objects in the real-world? Why is it important to persevere in solving problems?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Volume is the measure of how much space is occupied by a three-dimensional object and can be found using formulas and investigations.</p> <p>A missing dimension can be determined by substituting known quantities into the formula and solving the equation.</p> <p>A net is a two-dimension representation that can be folded to make a three-dimensional figure. The surface area of a solid is equal to the area of its net.</p>	<p>Students will be able to:</p> <p>Find the volume of a rectangular prism with fractional edge lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths of the prism.</p> <p>Apply formulas $V = lwh$ and $V = Bh$ to find the volumes of rectangular prisms with fractional edge lengths.</p> <p>Find the height of the prism given the volume and the area of its base.</p> <p>Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures.</p>

<p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>ELA-Literacy</u> WHST.6-8.1 WHST.6-8.2 WHST.6-8.4 WHST.6-8.9 RST.6-8.2 RST.6-8.3 RST.6-8.4 RST.6-8.5 RST.6-8.8</p> <p><u>Tech Literacy</u> 8.1.8.A.3</p>	<p>VOCABULARY: net, pyramid, surface area, cross section</p> <p>KEY TERMS: formula, solids, prisms, perpendicular, height</p>	
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Quizzes
- Geometry Project
- Brain Scan/Exit Ticket

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain@Work

- Geometry Assignment: Area Puzzle

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
Unit X: Surface Area and Volume of Solids

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	<p>Unit X: Surface Area and Volume of Solids</p> <ul style="list-style-type: none"> • Nets of Solids • Surface Area • Volume of Prisms • Real-World Problems: Surface Area and Volume 	<p>Math in Focus Singapore Math: Course 1A (online @ my.hrw.com)</p> <p>National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/grade_g_3.html www.ixl.com/math/grade6 www.funbrain.com/ www.aplusmath.com/cgi-bin/games/geomatho www.math-play.com/6th-grade-math-games.html www.aaamath.com www.brainingcamp.com www.khanacademy.com</p> <p>Various activities and games on a variety of math topics http://guest.portaportal.com/math6th “Decomposing and Composing 2D Shapes” http://illuminations.nctm.org/ActivityDetail.aspx?ID=35</p> <p>Classifying 2D and 3D Shapes http://www.math-play.com/geometric-figures-game/geometric-figures-game.html</p> <p>Exploring and Playing with Nets http://www.learner.org/interactives/geometry/3d_prisms.html</p> <p>Exploring with Volume of Rectangular Prisms Using Sugar Cubes http://www.learner.org/interactives/geometry/area_volume.html</p> <p>Surface Area of Rectangular Prisms http://www.learner.org/interactives/geometry/area_surface.html</p>

		Cubes, a Volume Investigation http://illuminations.nctm.org/ActivityDetail.aspx?ID=6
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
UNIT XI: Statistics and Measure of Central Tendency

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.SP.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.</p> <p>6.SP.2 Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.</p> <p>6.SP.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.</p> <p>6.SP.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.</p> <p>6.SP.5 Summarize numerical data sets in relation to their context.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and</p>	<p>Statistical data needs to be represented in an appropriate form to be useful.</p>	<ul style="list-style-type: none"> • How can appropriate tools help organize and display data?
	<p>Interpret and draw conclusions from multiple data representations.</p>	<ul style="list-style-type: none"> • How can data be biased?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>A statistical question is one that anticipates variability in the data related to the question and accounts for it in the answers.</p> <p>Box-and-whisker plots, dot plots, and histograms are ways to represent data and should be utilized when most appropriate for the given data set.</p> <p>Numerical data sets can be analyzed to describe data in relation to its context (spread and overall shape of the distribution).</p>	<p>Students will be able to:</p> <p>Recognize the difference between a statistical question and one that is not.</p> <p>Construct a histogram and dot plot, displaying the frequency of the data.</p> <p>Construct a box and whisker plot using 5-number summary (minimum, Q1, Q2, Q3, maximum).</p> <p>Use strategies to calculate the measures of variation (inter-quartile range and/or mean absolute deviation).</p>

<p>critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>ELA-Literacy</u> WHST.6-8.1 WHST.6-8.2 WHST.6-8.4 WHST.6-8.9 RST.6-8.2 RST.6-8.3 RST.6-8.4 RST.6-8.5 RST.6-8.8</p> <p><u>Tech Literacy</u> 8.1.8.A.3 8.1.8.F.1</p>	<p>To skew data means to distort the overall pattern.</p> <p>A set of data collected to answer a statistical question has a distribution, which can be described by its center (mean, median, mode).</p> <p>VOCABULARY: frequency, dot plots, skewed, symmetrical, range, histogram, outlier, box plots</p> <p>KEY TERMS: data table, uniform, tally marks</p>	<p>Identify any outliers that skew/misrepresent the data.</p> <p>Find the mean, median and mode of a data set.</p> <p>Use measures of central tendency to solve real-world mathematical problems.</p> <p>Determine the best measure of center for the data set.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Quizzes
- Statistics and Probability Project
- Brain Scan/Exit Ticket

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain@Work
- Statistics and Probability Assignment: Math Menu

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 6 Mathematics
Unit XI: Statistics and Measure of Central Tendency

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 Weeks	<p>Unit XI: Statistics and Measure of Central Tendency</p> <ul style="list-style-type: none"> • Collecting and Tabulating Data • Dot Plots • Histograms • Measures of Center (Mean, Median, Mode) • Measures of Variation • Mean Absolute Deviation • Stem and Leaf Plots • Shape of Distribution • Box and Whisker Plot 	<p>Math in Focus Singapore Math: Course 1A (online @ my.hrw.com) National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/grade_g_3.html www.ixl.com/math/grade6 www.funbrain.com/ www.aplusmath.com/ www.math-play.com/6th-grade-math-games.html www.khanacademy.com www.aaamath.com www.brainingcamp.com Various activities and games on a variety of math topics http://guest.portaportal.com/math6th</p>

Appendix A

SAMPLE LESSON PLAN

Lesson 4.3 Real-World Problems: Ratios

Objective: *solve real-world problems involving ratios.*

Standards: 6.RP.3, MP1, MP2, MP6

Warm Up: The number of free throws Lee made was $\frac{2}{3}$ the number of free throws Brian made. What is the ratio of Lee's free throws to Brian's free throws? If Brian made 15 free throws, how many did Lee make?

Procedure:

Day 1

1. Students will draw models to solve problems involving ratios
 - a. Teacher will model two examples (pg. 140), students will complete guided notes
 - b. Students will work collaboratively with partner/group to complete Guided Practice problems (pg. 141)
 - i. Teacher will circulate to assist struggling learners
2. Students will draw models to solve problems involving ratios of three quantities
 - a. Teacher will model example (pg. 142), students will complete guided notes
 - b. Students will work independently to complete Guided Practice problems (pg. 142-143)
 - i. Teacher will circulate to check for understanding
3. Assign homework: page 148 #'s 1 – 3

Day 2

4. Students will draw models to solve problems involving two sets of ratios
 - a. Teacher will model example (pg. 144), students will complete guided notes
 - b. Students will work with partner/group to complete Guided Practice problems (pg. 145)
5. Students will draw models to solve before-and-after problems
 - a. Teacher will model example (pg. 146), students will complete guided notes

- b. Students will work independently to complete Guided Practice problems (pg. 147)
 - i. Teacher will circulate to check for understanding
- 6. Assign homework: page 148 #'s 4 – 10 (11 – 15* challenge problems)

Brain Scan: A number of baseball cards were shared among Ray, Serge, and Tony in the ratio 2 : 4 : 9, respectively. If Serge got 55 fewer cards than Tony, how many cards did Tony get? Explain how to solve this problem.

Assessments: Observe/question students, Brain Scan, homework

Extensions: Challenge problems, homogeneous groupings

Modifications: Guided questioning, homogeneous groupings, paper strips, blocks, or post-its for bar modeling

SAMPLE LESSON PLAN

(Handout)


Name: _____ Date: _____ Period: _____

Lesson 4.3 Guided Notes, Day 1

Lesson Objectives

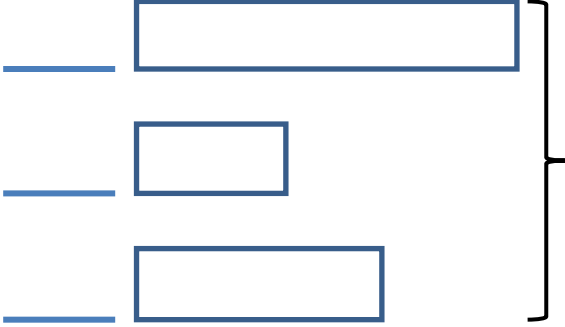
- Draw models to solve problems using ratios
- Draw models to solve real-world problems with ratios involving 3 quantities
- Solve real-world problems involving ratios

Draw models to solve problems using ratios

<p>Megan prepares a fruit punch using apple juice and orange juice in the ratio of 4 : 3.</p> <p>a) If the total volume of the fruit punch is 630 milliliters, find the volume of the apple juice Megan uses.</p> 	<p>Total number of units = ____ + ____ = ____</p> <p>Total amount _____ ÷ unit _____</p> <p>One Unit = _____</p> <p>Apple Juice = ____ Units x ____ mL</p> <p>Volume of the apple juice _____</p> <p>Orange juice = ____ Units x ____ mL</p> <p>Volume of the orange juice _____</p>
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1. A box contains baseball and football cards. The number of baseball cards to the number of football cards is 5 : 1. If the total number of cards is 1,380, find the number of each type of cards.

Draw models to solve problems involving ratios of three quantities.

<p>Jenny prepares a ceramic glaze mixture of feldspar, red iron and silica in the ratio 5 : 2 : 3. The mass of the mixture is 1 kg 200g. Find the mass of each ingredient used to prepare the mixture.</p> 	<ol style="list-style-type: none"> 1. Convert mass to grams 1 kg 200g = _____ 2. Find the total number of units _____ + _____ + _____ = _____ 3. Divide mass into each unit _____ ÷ _____ = _____ per unit 4. Find the mass of each ingredient Feldspar _____ x _____ = _____ Iron Oxide _____ x _____ = _____ Silica _____ x _____ = _____
--	---

Practice

A school raised 18,000 at a charity event. The money raised was shared among three charities, A, B, and C, in the ratio 1 : 2 : 3. How much money did each charity receive?

Name: _____ Date: _____ Period: _____

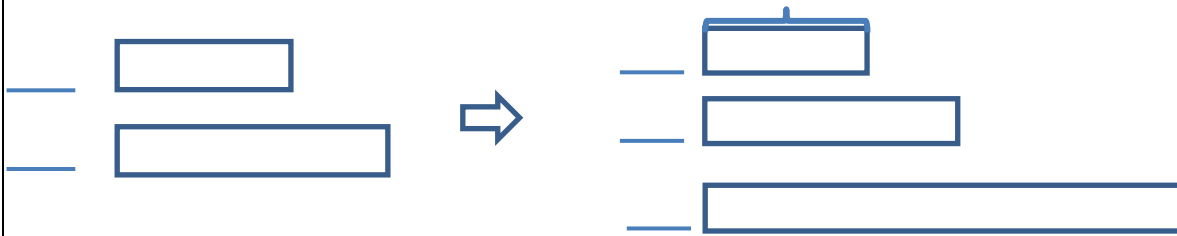
Lesson 4.3 Guided Notes, Day 2

Lesson Objectives

- Draw models to solve problems involving 2 sets of ratios.
- Draw models to solve before-and-after problems

Draw models to solve problems involving 2 sets of ratios.

The ratio of the number of CDs Brad has to the number of CDs Keith has is 2 : 3. The ratio of the number of CDs Keith has to the number of CDs Simone has is 6 : 11. Brad has 24 CDs. How many CDs do Keith and Simone have together?



Brad to Keith _____

Keith to Simone _____

Brad : Keith : Simone _____

Multiply Brad to Keith by _____ Now Keith is the same number in both ratios. (Use the _____)

_____ CDs ÷ _____ Units

1 Unit = _____ CDs


Keith = _____ Units x _____ CDs per unit = _____ CDs

Simone = _____ Units x _____ CDs per unit = _____ CDs

Keith + Simone = _____ + _____ = _____ CDs

At Stacey’s middle school, students either ride bikes to school, walk, or take the bus. The ratio of the number of students who ride bikes to the number who walk is 3 : 4. The ratio of the number of students who walk to the number who take the bus is 12 : 7. There are 560 students in all. Find the number of students who ride bikes to school.

Draw models to solve before and after problems.

<p>Sam had some U.S. and foreign stamps. The ratio of the number of U.S. stamps to the number of foreign stamps was 3 : 4. He bought 21 more U.S. stamps and the ratio became 9 : 8. How many foreign stamps did Sam have?</p>  <p>What term in ratio did not increase? _____</p> <p>The _____ of the _____ did not increase but the number of _____.</p> <p>Now _____ units to the U.S. stamps.</p> <p>_____ units = _____ stamps, so 1 Unit = _____ stamps.</p> <p>Foreign stamps = _____ units x _____ per unit = _____ stamps</p>	<p>Step 1: Mark important information of word problem</p> <p>Step 2: Write labels for bar model</p> <p>Step 3: Model “before” ratio.</p> <p>Step 4 : Check to see which term in the ratio did not increase and change all the units to match this number.</p> <p>Step 5: Add the “after” units to the model.</p> <p>Step 6: Find the quantity for each unit.</p> <p>Step 6: Answer question.</p> <p>Step 7: Reflect on answer.</p>
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Claire keeps some green and red plates in a cabinet. The ratio of the number of green plates to red plates in 2 : 1. She adds 18 more plates in the cabinet and the ratio becomes 4 : 5. How many green plates are there in the cabinet?

Appendix B - Resources:

Math in Focus Singapore Math Course 1A, ISBN: 978-0-547-56100-4 Marshall Cavendish 2014
Math in Focus Singapore Math Course 1B, ISBN: 978-0-547-56096-0 Marshall Cavendish 2014
Math in Focus Singapore Math Course 1 Transition Guide, ISBN: 978-0-547-57909-2 Marshall Cavendish 2014
Math in Focus Singapore Online Resources
Math in Focus Singapore Exam View
Math in Focus Singapore Activity Book
Math in Focus Singapore Brain @ Work
Math in Focus Singapore Enrichment
Math in Focus Singapore Activity Book
Math in Focus Singapore Vocabulary Review
Math in Focus Singapore Reteach
Math in Focus Singapore Spanish Edition
Holt Mathematics Course 1, ISBN: 0-03-092896-6 Holt, Rinehart and Winston 2007
Holt Mathematics Course 2, ISBN: 0-03-092921-0 Holt, Rinehart and Winston 2007
Study Island
Holt Reteach Supplements
Holt Reading Strategies Supplements
Holt Problem Solving Supplements
Holt Power Point Presentations
Holt IDEA Works
Holt Challenge Supplements
Holt – Questioning Strategies
Connected Math Resources

**Randolph Township Schools
Randolph Middle School**

Grade 7 Accelerated Mathematics Curriculum

“In mathematics the art of posing a question must be held of higher value than solving it.”

- Georg Cantor

Department of Science, Technology, Engineering, and Math
Anne V. Richardson, STEM Supervisor

Curriculum Committee

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Randolph Township Schools
Department of Science, Technology, Engineering, and Mathematics
Grade 7 Accelerated Mathematics

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools
Department of Science, Technology, Engineering, and Mathematics
Introduction

Randolph Township Schools is committed to excellence. We believe that all children are entitled to an education that will equip them to become productive citizens of the 21st century. We believe that an education grounded in the fundamental principles of science, technology, engineering, and math (STEM) will provide students with the skills and content necessary to become future leaders and lifelong learners.

A sound STEM education is grounded in the principles of inquiry, rigor, and relevance. Students will be actively engaged in learning as they use real-world STEM skills to construct knowledge. They will have ample opportunities to manipulate materials and solve problems in ways that are developmentally appropriate to their age. They will work in an environment that encourages them to take risks, think critically, build models, observe patterns, and recognize anomalies in those patterns. Students will be encouraged to ask questions, not just the “how” and the “what” of observed phenomena, but also the “why”. They will develop the ability, confidence, and motivation to succeed academically and personally.

STEM literacy requires understandings and habits of mind that enable students to make sense of how our world works. As described in Project 2061’s *Benchmarks in Science Literacy*, *The Standards for Technological Literacy*, and *Professional Standards for Teaching Mathematics*, literacy in these subject areas enables people to think critically and independently. Scientifically and technologically literate citizens deal sensibly with problems that involve mathematics, evidence, patterns, logical arguments, uncertainty, and problem-solving.

Grade 7 Accelerated Mathematics
Introduction

The purpose of Grade 7 Accelerated Math is to provide students with a solid foundation in the concepts necessary for the building of a strong mathematical understanding. Students will be shown the essential components including, but not limited to, operations with rational numbers and complex problem solving grounded in pre-algebra topics such as exponents, multi-step equations, linear representations and the discovery and application of the Pythagorean Theorem. Further topics include the study and application of two- and three-dimensional geometry as well as statistics and probability analysis.

In Grade 7 Accelerated Math, students will produce, analyze, model and draw conclusions from data. In addition, students are encouraged to not only develop skills required to persevere in problem solving but also to apply those skills in real-world settings. They will produce convincing oral and written mathematical arguments, using appropriate terminology in a variety of settings.

Students enrolled in the accelerated course must solidly evidence conceptual understanding, knowledge of procedural skills, fluency, and ability to apply mathematics. Content at this level is fast paced and rigorous with a focus on greater problem complexity. As such, mastery of prerequisite material must be present for success at this level.

Upon completion of this course, students will be prepared with the proper skills and understanding for the transition into Algebra I.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Grade 7 Accelerated Mathematics

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
8 weeks	I	The Number System
14 weeks	II	Algebraic Expressions and Equations
5 weeks	III	Angles, Lines, and Two-Dimensional Geometry
4 weeks	IV	Three-Dimensional Geometry
5 weeks	V	Statistics and Probability

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Accelerated Mathematics
UNIT I: The Number System

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Mathematics</p> <p>7.NS.A.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers.</p> <p>7.NS.A.1.A Describe situations where opposite quantities combine to make 0.</p> <p>7.NS.A.1.C Show that the distance between two rational numbers on the number line is the absolute value of their difference.</p> <p>7.NS.A.1.D Apply properties of operations as strategies to add and subtract rational numbers.</p> <p>7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.</p> <p>7.NS.A.2.A Understand the rules for multiplying signed numbers and the distributive property.</p> <p>7.NS.A.2.B Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers is a rational number.</p> <p>7.NS.A.2.C Apply properties of operations as strategies to multiply and</p>	<p>Real numbers are represented as points on an infinite line and are used to count measure, estimate, or approximate quantities.</p>	<ul style="list-style-type: none"> • How can I represent and solve problems involving the multiplication and division of rational numbers using a variety of models?
	<p>Real life word problems can be solved using mathematical operations and applied to rational numbers, including negative numbers.</p>	<ul style="list-style-type: none"> • How can a mathematical model aide in persevering when solving a real-world problem?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Rational numbers can be identified and represented on a horizontal number line.</p> <p>Rational numbers can be written as fractions with integers as the numerator and the denominator (excluding zero in the denominator).</p> <p>Absolute value is the measure of the distance from any rational or irrational number to zero on the number line.</p>	<p>Students will be able to:</p> <p>Plot rational numbers on the real number line between two integers.</p> <p>Express all rational numbers as fractions.</p> <p>Use the number line to model the absolute value of two rational numbers to determine which has a greater distance.</p>

<p>divide rational numbers.</p> <p>7.NS.A.2.D Convert a rational number to a decimal using long division and know that the decimal form terminates or repeats.</p> <p>7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u> WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4 RST.6-8.7 RST.6-8.9 RST.6-8.10</p> <p><u>Speaking and Listening</u> SL.7.1 SL.7.1.C</p>	<p>Rational numbers can be written as decimals that either terminate or repeat.</p> <p>The number line can be used to compare rational numbers.</p> <p>Mathematical operations can be performed on rational numbers.</p> <p>The distance between two integers can be modeled on the number line.</p> <p>Multiple operations can be performed on rational numbers.</p> <p>VOCABULARY: Integers, Rational Number, Irrational Number, Real Number, Terminating Decimal, Repeating Decimal, Complex Fraction, Additive Inverse, Bar Notation, Associative Property</p> <p>KEY TERMS: Opposites, Number Line, Fraction, Least Common Denominator, Zero Pair, Approximate, Absolute Value</p>	<p>Re-write any rational number into its decimal equivalent using the division algorithm.</p> <p>Illustrate the locations of rational numbers on the number line to indicate which is larger.</p> <p>Apply the rules of the four basic mathematical operations (addition, subtraction, multiplication, and division) on rational numbers.</p> <p>Construct a number line to illustrate the distance between two integers.</p> <p>Employ the order of operations to perform multiple operations on rational numbers.</p>
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<p>SL.7.1.D SL.7.3 SL.7.4</p> <p><u>Technology Literacy</u> 8.1.8.A.5 8.1.8.E.1</p> <p><u>Science</u> MS-PS1 MS-PS2 MS-ESS2</p>		
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Math in Focus Chapter Assessments
- Teacher Created mid-chapter assessments
- Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain @ Work
- Unit Project – “Career Project”

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Accelerated Mathematics
Unit I: The Number System

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
8 Weeks	Unit I – The Number System <ul style="list-style-type: none"> • Operations with Integers • Rational Numbers on the Number line • Rational Numbers as Decimals • Operations with Rational Numbers • Application of Real-World Scenarios 	Math in Focus Chapter Projects Math in Focus – Singapore Math Textbook Number Line Creator http://theworksheetsonline.com/numline.html Worksheets http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Brain Pop Videos http://www.brainpop.com/math/ Positive and Negative Integers in Golf video www.nbclearn.com/science-of-golf Interactive math practice www.ixl.com Absolute Value http://www.sheppardsoftware.com/mathgames/Numberballs_absolute_value/numberballsAS2_abs.htm Math Goodies Interactive Practice www.mathgoodies.com

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Accelerated Mathematics
UNIT II: Algebraic Expressions and Equations

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</p> <p>7.EE.A.2 Understand that re-writing an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.</p> <p>7.EE.B.3 Solve multi-step, real-life, and mathematical problems posed with positive and negative rational numbers in any form, using tools strategically.</p> <p>7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.</p> <p>7.EE.B.4.A Solve word-problems by comparing an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.</p> <p>7.EE.B.4.B Graph the solution set of an inequality and interpret it in the context of a problem.</p> <p>7.RP.A.2 Recognize and represent</p>	<p>Algebraic expressions containing rational numbers and multiple variables can be simplified, expanded, or factored to write equivalent expressions.</p>	<ul style="list-style-type: none"> Do mathematical symbols model verbal expressions abstractly? Construct a viable argument.
	<p>Algebraic equations and inequalities can be used to model mathematical or real-world situations, and to find values of variables.</p>	<ul style="list-style-type: none"> How can algebraic equations and inequalities be used to model, analyze, and solve real world problems?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Exponential notation can be used to represent repeated multiplication of a factor.</p> <p>Exponential notation can be used to write the prime factorization of a number.</p> <p>Mathematical operations can be performed on expressions written in exponential notation.</p>	<p>Students will be able to:</p> <p>Expand and evaluate expressions in exponential notation.</p> <p>Write the prime factorization of a number using exponential notation.</p> <p>Apply the mathematical operations of multiplication and division to simplify expressions in exponential notation.</p>

<p>proportional relationships between quantities.</p> <p>7.RP.A.2.B Identify the constant of proportionality in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.</p> <p>7.RP.A.2.C Represent proportional relationships by equations.</p> <p>8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions</p> <p>8.EE.B.5 Graph proportional relationships, interpreting the unit rate as the slope of a graph.</p> <p>8.EE.B.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a vertical line in the coordinate plane.</p> <p>8.EE.C.7 Solve linear equations in one variable.</p> <p>8.EE.C.7.A Give examples of linear equations in one variable with one solution, no solution, or infinitely many solutions.</p> <p>8.EE.C.7.B Solve linear equations including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p>	<p>Mathematical operations can be performed on expressions involving zero and negative exponents.</p> <p>Unit rates can be represented as a constant of proportionality (e.g. $\frac{y}{x} = k$ or $y = kx$).</p> <p>Direct proportions can be interpreted using a graph.</p> <p>Direct proportions can be used to solve real-world problems.</p> <p>Inverse proportions can be represented as a constant of proportionality (e.g. $xy = k$).</p> <p>Inverse proportions can be interpreted using a graph.</p> <p>Inverse proportions can be used to solve real-world problems.</p> <p>Algebraic expressions with fractional and decimal coefficients can be simplified.</p> <p>Algebraic expressions with fractional, decimal, and negative factors can be expanded.</p> <p>Algebraic expressions with two variables and negative terms can be factored.</p>	<p>Simplify expressions involving zero and negative exponents.</p> <p>Identify unit rates as direct proportions.</p> <p>Utilize a graph in order to interpret direct proportions.</p> <p>Create direct proportional relationships to solve real-world problems.</p> <p>Identify inverse proportions using the constant of proportionality.</p> <p>Utilize a graph in order to interpret inverse proportions.</p> <p>Create inverse proportional relationships to solve real- world problems.</p> <p>Simplify algebraic expressions with multiple terms and variables by combining like terms.</p> <p>Utilize the distributive property to create equivalent expressions.</p> <p>Identify and apply the greatest common factor to create equivalent expressions.</p>
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<p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u> WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4 RST.6-8.7 RST.6-8.9 RST.6-8.10</p> <p><u>Speaking and Listening</u> SL.7.1 SL.7.1.C SL.7.1.D SL.7.3 SL.7.4</p> <p><u>Technology Literacy</u> 8.1.8.A.5 8.1.8.E.1</p> <p><u>Science</u> MS-PS1 MS-PS2 MS-LS1 MS-LS2 MS-LS4 MS-ESS1</p>	<p>Verbal descriptions can be translated into algebraic expressions with multiple variables and parenthesis and simplified.</p> <p>Algebraic reasoning can be utilized to solve real world problems.</p> <p>Real-world problems can be solved algebraically with equations or inequalities.</p> <p>Algebraic inequalities can be solved using the concept of balancing.</p> <p>Solution sets of algebraic inequalities can be graphed on a number line.</p> <p>Real-world problems can be solved algebraically with equations or inequalities.</p> <p>Algebraic inequalities can be solved by balancing.</p> <p>A variable in a two-variable equation can be solved in terms of the other variable.</p> <p>Linear equations can be used to solve mathematical and real-world problems.</p> <p>A linear equation with one variable can have one solution, no solution, or infinitely many solutions.</p>	<p>Convert verbal descriptions into algebraic expressions with one or more variables.</p> <p>Demonstrate multiple methods (models, diagrams, tables, and expressions) in order to solve real-world problems.</p> <p>Solve multi-step algebraic equations or inequalities with variables on one side or both sides.</p> <p>Write and solve algebraic equations and inequalities to represent real-world problems.</p> <p>Graph solution sets of algebraic inequalities using empty or shaded circles and arrows.</p> <p>Create algebraic equations and inequalities in order to solve a real-world problem.</p> <p>Solve multi-step algebraic inequalities with variables on one or both sides.</p> <p>Solve for a variable in a two-variable equation.</p> <p>Identify linear equations with no solution and infinitely many solutions.</p>
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<p>MS-ESS2 MS-ESS3 MS-ETS1</p>	<p>The relationship between two variables can be represented using a linear equation.</p> <p>A table of values can be used to represent a linear relationship.</p> <p>Algebraic equations with one or more variables can be solved using the concept of balancing.</p> <p>The slope of a line can be determined by finding the ratio of the rise to the run.</p> <p>Linear equations can be written in slope-intercept form ($y = mx + b$).</p> <p>Parallel lines have the same slope and different y-intercepts.</p> <p>Linear equations can be graphed using the slope and the y-intercept.</p> <p>Slope and y-intercept can be interpreted in the context of real-world problems.</p> <p>VOCABULARY: Equivalent Inequalities, Inconsistent Equation, Consistent Equation, Identity, Slope, Rise, Run, y-Intercept, x-Intercept, Slope-Intercept Form, Linear relationship, Direct Proportion, Proportion, Constant of Proportionality, Cross Products, Inverse Proportion, Consistent Equation, Identity, Inconsistent Equation, Slope, Rise, Run, Slope-Intercept Form, Linear Relationship.</p>	<p>Express a linear relationship using equations and tables.</p> <p>Utilize multiple methods to calculate the slope of a line.</p> <p>Describe and compare graphs of linear equations based on their equations.</p> <p>Write an equation of a line that is parallel to a given line.</p> <p>Sketch a graph of a line using the slope and the y-intercept or the slope and a given point.</p> <p>Explain the meaning of the slope and y-intercept in real-world problems.</p>
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	KEY TERMS: Coefficient, Expression, Like Terms, Factors, Greatest Common Factors, Distributive Property, Commutative Property, Equivalent Equations, Solution Set	
ASSESSMENT EVIDENCE: Students will show their learning by: <ul style="list-style-type: none">• Chapter Assessments• Teacher created mid-chapter assessments• Benchmark Assessments KEY LEARNING EVENTS AND INSTRUCTION: <ul style="list-style-type: none">• Brain @ Work• Unit Project – “Pythagorean Theorem” project		

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Accelerated Mathematics
Unit II: Algebraic Expressions and Equations

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
14 weeks	<p>Unit II – Algebraic Expressions and Equations</p> <ul style="list-style-type: none"> • Exponential Notation • The Product and Quotient of Powers • The Power of a Power • The Power of a Product and the Power of a Quotient • Zero and Negative Exponents • Understanding Direct Proportion • Representing Direct Proportion Graphically • Solving Direct Proportion Problems • Understanding Inverse Proportion • Adding and Subtracting Algebraic Terms • Simplifying and Expanding Algebraic Expressions • Factoring Algebraic Expressions • Writing Algebraic Expressions • Real-World Problems: Algebraic Reasoning • Understanding and Solving Algebraic Equations • Solving Algebraic Inequalities • Real-World Problems: Algebraic 	<p>Math in Focus Chapter Projects Worksheets http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Brain Pop Videos http://www.brainpop.com/math/ Math in Focus – Singapore Math Textbook Interactive math practice www.ixl.com STEM Worksheets www.superteacherworksheets.com Interactive math practice www.ixl.com Electronic Flashcards on solving inequalities http://www.quia.com/jfc/906428.htm Inequality game involving word problems http://www.math-play.com/Inequality-Game.html Tic –Tac- Toe inequalities and equations http://www.education.com/activity/article/tic-tac-equations/ Students must solve equations and find pairs of equations that "match" http://www.bbc.co.uk/education/mathsfife/shockwave/games/equationmatch.html Solving Equations: How Sweet It Is! – hand-on approach to solving equations http://www.lpb.org/education/classroom/itv/algebra/sweet.pdf</p>

	<p>Equations and Inequalities</p> <ul style="list-style-type: none">• Solving Linear Equations with One Variable• Identifying the Number of Solutions to a Linear Equation• Understanding Linear Equations with Two Variables• Solving for a Variable in a Two-Variable Linear Equation• Finding and Interpreting Slopes of Lines• Understanding Slope-Intercept Form• Writing Linear Equations• Sketching Graphs of Linear Equations• Real-World Problems: Linear Equations	
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Accelerated Mathematics
UNIT III: Angles, Lines, and Two-Dimensional Geometry

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.</p> <p>7.G.A.3 Describe the two dimensional figures that result from slicing three dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.</p> <p>7.G.B.4 Know the formulas for the area and circumference of a circle and use them to solve problems.</p> <p>7.G.B.5 Use facts about supplementary, complimentary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.</p> <p>8.G.A.2 Given two congruent (or similar) two-dimensional figures, describe a sequence that exhibits the congruence (or similarity) between them.</p> <p>8.G.A.3 Describe the effects of dilations, translations, rotations, and reflections on</p>	<p>Angles formed on a straight line, and by parallel lines and a transversal, have specific properties that are useful in solving problems.</p> <p>A circle is a geometric figure that has many useful applications in the real world.</p>	<ul style="list-style-type: none"> • How can properties be used to prove relationships between lines and angles? • How is everyday life impacted by circles?
	KNOWLEDGE	SKILLS
	<p>Students will know:</p> <p>The Pythagorean Theorem is used to find a missing side length of a right triangle, given two sides.</p> <p>The converse of the Pythagorean Theorem determines whether a triangle is a right triangle.</p> <p>Angle relationships can be identified as complementary, supplementary, or adjacent angles.</p>	<p>Students will be able to:</p> <p>Use the Pythagorean Theorem to find unknown side lengths in real-world problems.</p> <p>Use the converse of the Pythagorean Theorem to determine if a triangle is a right triangle.</p> <p>Identify angle relationships as complementary, supplementary, or adjacent angles.</p>

<p>two-dimensional figures using coordinates.</p> <p>8.G.B.6 Explain a proof of the Pythagorean Theorem and its converse.</p> <p>8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u> WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4 RST.6-8.7 RST.6-8.9 RST.6-8.10</p> <p><u>Speaking and Listening</u> SL.7.1 SL.7.1.C SL.7.1.D SL.7.3</p>	<p>Angle relationships can be used to find unknown angle measurements.</p> <p>Properties of angles at point can be used to find unknown angle measurements.</p> <p>Properties of vertical angles can be used to find unknown angle measurements.</p> <p>Angle bisectors divide angles into two equal parts.</p> <p>Perpendicular bisectors of a line segment always pass through the midpoint of the segment at a right angle.</p> <p>Triangles can be constructed when three of its measures are given.</p> <p>A given set of measurements can be used to determine whether a unique triangle, more than one triangle, or no triangle can be drawn.</p> <p>Quadrilaterals can be constructed using a compass, ruler, and a protractor.</p> <p>Scale factor is the ratio of the length in a drawing to the corresponding length in the actual figure.</p> <p>Scale drawings can be used to solve problems involving scale drawings of geometric figures.</p> <p>Characteristics of basic geometric shapes can be used to find the area of composite figures.</p> <p>Circumference is the measurement of the distance around the circle.</p>	<p>Calculate the value of an unknown angle using angle relationships.</p> <p>Calculate the value of unknown angles using angles at a point.</p> <p>Calculate the value of unknown angles using vertical angles.</p> <p>Identify and construct an angle bisector using appropriate tools.</p> <p>Define and construct perpendicular bisectors.</p> <p>Construct triangles with three given measurements.</p> <p>Conclude whether a unique triangle, more than one triangle, or no triangle can be drawn from a given set of measurements.</p> <p>Recognize and use the appropriate tools to construct quadrilaterals.</p> <p>Calculate the scale factor using corresponding lengths in drawings and actual figures.</p> <p>Utilize the scale factor to relate the length in a drawing to the length of the actual figure.</p> <p>Subdivide composite figures into basic geometric shapes in order to find the total area.</p> <p>Calculate the circumference of circles, semicircles, and quarter circles using different</p>
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<p>SL.7.4</p> <p>Technology Literacy</p> <p>8.1.8.A.5</p> <p>8.2.8.B.1</p>	<p>The area of a circle can be found using the formula $A = \pi r^2$</p> <p>Properties of circles and composite figures can be used to solve real-world problems.</p> <p>Geometric transformations move figures on a plane. Each transformation changes some properties of a figure, but leaves others unchanged.</p> <p>VOCABULARY: Complementary Angles, Supplementary Angles, Adjacent Angles, Vertical Angles, Congruent Angles, Vertex, Alternate interior, Alternate exterior, Corresponding, Transversal, Interior Angles, Exterior Angles, Bisector, Bisect, Equidistant, Straight Edge, Perpendicular Bisector, Midpoint, Included Side, Included Angle, Scale, Scale Factor, Dilation, Center of Dilation, Transformation, Translation, Reflection, Rotation, Pythagorean Theorem, Hypotenuse, Leg</p> <p>KEY TERMS: Circle, Circumference, Area, Radius, Radii, Diameter, Pi, Chord</p>	<p>values of pi.</p> <p>Calculate the area of circles, semicircles, and quarter circles using different values of pi.</p> <p>Apply properties of circles and composite figures to solve real-world problems.</p> <p>Describe the effects of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.</p> <p>Compare translations, reflections, rotations and dilations.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Chapter Assessments

- Teacher created mid-chapter assessments
- Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain @ Work
- Unit Project – “Home Renovation” Project

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Accelerated Mathematics
Unit III: Angles, Lines, and Two-Dimensional Geometry

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 weeks	<p>Unit III – Angles, Lines, and Two-Dimensional Geometry</p> <ul style="list-style-type: none"> • Complimentary, Supplementary, and Adjacent Angles • Alternate Interior, Alternate Exterior, and Corresponding Angles • Angles That Share a Vertex • Constructing Angle Bisectors • Constructing Perpendicular Bisectors • Constructing Triangles • Constructing Quadrilaterals • Understanding Scale Drawings • Understanding the Pythagorean Theorem • Transformations on the Coordinate Plane • Comparing Transformations • Area of Composite Figures • Radius, Diameter, and Circumference of Circles • Area of a Circle • Real-World Problems: Circles 	<p>Worksheets www.mathmix.com http://www.kutasoftware.com/ www.mathblaster.com</p> <p>Illuminations Activities http://illuminations.nctm.org</p> <p>Brain Pop Videos http://www.brainpop.com/math/</p> <p>Math in Focus – Singapore Math Textbook</p> <p>Interactive math practice www.ixl.com</p> <p>STEM Worksheets www.superteacherworksheets.com</p> <p>3-D Geometry shapes and nets</p> <p>Math in Focus Chapter Projects</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Accelerated Mathematics
UNIT IV: Three-Dimensional Geometry

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism.</p>	<p>Geometry and spatial sense offer ways to interpret and reflect on our physical environment.</p>	<ul style="list-style-type: none"> • How do geometric models describe spatial relationships?
<p>7.G.B.6 Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.</p>	<p>Analyzing geometric relationships develops reasoning and justification.</p>	<ul style="list-style-type: none"> • How are geometric shapes and objects classified?
<p>8.G.A.5 Establish facts...about the angle-angle criterion for similarity in triangles.</p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>8.G.C.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p>	<p>Students will know:</p> <p>Properties of prisms can be used to find volume and surface area.</p> <p>A cross section is the intersections of a solid and a plane.</p> <p>Both congruent figures and similar figures can be related by geometric transformations.</p>	<p>Students will be able to:</p> <p>Apply properties of prisms to solve real-world problems.</p> <p>Identify the basic geometric shape created by a cross section of a solid.</p> <p>Relate congruent or similar figures using geometric transformations.</p>

<p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u> WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4 RST.6-8.7 RST.6-8.9 RST.6-8.10</p> <p><u>Speaking and Listening</u> SL.7.1 SL.7.1.C SL.7.1.D SL.7.3 SL.7.4</p> <p><u>Technology Literacy</u> 8.1.8.A.5 8.2.8.B.1</p>	<p>Concept of congruence and tests used to determine congruence in triangles.</p> <p>VOCABULARY: Cylinder, Cone, Lateral Surface, Slant Height, Sphere, Hemisphere, Cross Section, Statement of Congruence, Similarity, Corresponding Angles, Corresponding Sides</p> <p>KEY TERMS: Composite Figure, Sphere, Plane, Congruence</p>	<p>Perform and identify a sequence of transformations.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Chapter Assessments
- Teacher created mid-chapter assessments
- Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain @ Work

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Accelerated Mathematics
Unit IV: Three-Dimensional Geometry

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4 weeks	<p>Unit IV – Three-Dimensional Geometry</p> <ul style="list-style-type: none"> • Real-World Problems: Surface Area and Volume • Recognizing Cylinders, Cones, Spheres, and Pyramids • Understanding and Applying Congruent Figures • Understanding and Applying Similar Figures 	<p>Worksheets www.mathmix.com http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Brain Pop Videos http://www.brainpop.com/math/ Math in Focus – Singapore Math Textbook Interactive math practice www.ixl.com STEM Worksheets www.superteacherworksheets.com 3-D Geometry shapes and nets “Moving day” activity http://www.learningresources.com/text/pdf/8521book.pdf Finding surface area and volume activity http://illuminations.nctm.org/LessonDetail.aspx?ID=U166 Slicing Three-Dimensional Figures – interactive website http://www.learner.org/courses/learningmath/geometry/session9/part_c/index.html</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Accelerated Mathematics
UNIT V: Statistics and Probability

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.</p> <p>6.SP.B.4 Display numerical data in box plots.</p> <p>6.SP.B.5 Summarize and describe the shape of data distributions.</p> <p>7.SP.A.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population.</p> <p>7.SP.A.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest.</p> <p>7.SP.B.3 Informally assess the degree of visual overlap of two numerical data distributions with similar variability, measuring the difference between the centers by expressing it as a multiple of a measure of variability.</p> <p>7.SP.B.4 Use measures of center and</p>	<p>Measures of central tendency and measures of variation are used to draw conclusions about populations.</p>	<ul style="list-style-type: none"> • How can statistics be used to reason quantitatively and make decisions about populations?
	<p>Events happen around you every day, some more likely than others. You can use probability to describe how likely an event is to occur.</p>	<ul style="list-style-type: none"> • How does the study of probability integrate the study of statistics?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Box plots are used to show the distribution of data.</p> <p>Stem-and-leaf plots can be used to collect and organize large amounts of data for analyzing.</p>	<p>Students will be able to:</p> <p>Draw and interpret box plots.</p> <p>Solve problems involving box plots and mean absolute deviation.</p> <p>Create a stem-and-leaf plot to represent data.</p> <p>Draw conclusions and solve problems involving stem-and-leaf plots.</p>

<p>measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.</p> <p>7.SP.C.5 Understand that the probability of a chance event is a number between zero and one that expresses the likely hood of an event occurring.</p> <p>7.SP.C.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long run relative frequency, and predict the approximate relative frequency given the probability.</p> <p>7.SP.C.7 Develop a probability model and use it to find probabilities of events.</p> <p>7.SP.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.</p> <p>7.SP.C.8.A Understand that the probability of a compound event is the fraction for outcomes in the sample space for which the compound event occurs.</p> <p>7.SP.C.8.B Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams.</p> <p>7.SP.C.8.C Design and use a simulation to generate frequencies for compound events.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p>	<p>The probability of simple events can be used to compute the probability of compound events, either dependent or independent.</p> <p>Samples can be used to study or analyze the members of a larger population.</p> <p>The concepts of outcomes, events, and sample space can be applied to everyday life.</p> <p>Probability can be used to determine the likelihood of an event.</p> <p>Statistics from a sample can be used to make inferences about a population.</p> <p>Comparative inferences can be made about two populations using two sets of sample statistics.</p> <p>Venn diagrams can be used to illustrate events and their relationships.</p> <p>Probability can be used to solve real-world problems.</p> <p>Relative frequencies as probabilities can be interpreted to make predictions.</p> <p>In a long-run chance process, relative frequency resembles theoretical probability more closely.</p> <p>Probability of outcomes of events can be written as a uniform or a non-uniform probability model.</p>	<p>Describe and apply the concepts of outcomes, events, and sample space.</p> <p>Calculate the probability of an event.</p> <p>Draw conclusions about a population based on the statistics of a sample.</p> <p>Compare inferences about two populations using the same measure of variation.</p> <p>Construct and interpret Venn diagrams.</p> <p>Solve real-world problems involving probability using multiple methods.</p> <p>Predict probability of an event from relative frequencies.</p> <p>Compare long-run relative frequencies to related theoretical probabilities.</p> <p>Illustrate outcomes of events of uniform or non-uniform probability models through multiple representations.</p>
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<p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u> WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4 RST.6-8.7 RST.6-8.9 RST.6-8.10</p> <p><u>Speaking and Listening</u> SL.7.1 SL.7.1.C SL.7.1.D SL.7.3 SL.7.4</p> <p><u>Technology Literacy</u> 8.1.8.A.5 8.1.8.D.3 8.2.8.D.1</p> <p><u>Science</u> MS-PS1 MS-PS3 MS-LS1 MS-LS2 MS-LS3 MS-LS4</p>	<p>Probability models can be used to predict outcomes in real life.</p> <p>A compound event consists of two or more simple events occurring together or one after another.</p> <p>Diagrams can be used to find the probability of compound events.</p> <p>The multiplication and addition rules of probability can be used to solve problems involving independent events.</p> <p>For dependent events, the occurrence of one event will affect the probabilities of one event.</p> <p>VOCABULARY: Stem-and-Leaf Plot, Inference, Outcome, Sample Space, Event, Probability, Fair, Biased, Venn Diagram, Mutually Exclusive, Complementary Events, Compliment, Relative Frequency, Observed Frequency, Experimental Probability, Theoretical Probability, Probability Model, Probability Distribution, Uniform Probability Model, Non-uniform Probability Model, Compound Event, Simple Event, Possibility Diagram, Tree Diagram, Independent</p>	<p>Predict outcomes of real life events using probability models.</p> <p>Understand and represent compound events using multiple representations.</p> <p>Construct and utilize diagrams to find the probability of compound events.</p> <p>Differentiate between the multiplication and addition rules of probability to calculate the probability of independent events.</p> <p>Implement the rules of probability to solve problems with dependent events.</p> <p>Understand and represent compound events.</p> <p>Apply the rules of probability to solve problems with dependent events.</p> <p>Apply the multiplication rule of probability to solve problems with independent events.</p>
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MS-ETS1	<p>Events, Multiplication Rule of Probability, Addition rule of Probability, Dependent Events, Compound Events, Independent Events, Dependent Events, Measure of Variation, First Quartile, Second Quartile, Upper Quartile, Range, Lower Quartile, Third Quartile, Interquartile Range, Box Plot, Box-and-Whisker Plot, 5-Point Summary, Mean Absolute Deviation</p> <p>KEY TERMS: Mean, Median, Mode, Range, Distribution, Minimum, Maximum</p>	
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Chapter Assessments
- Teacher created mid-chapter assessments
- Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain @ Work
- Unit Project – In-class “Calorie Content Box Plot” Project

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Accelerated Mathematics
Unit V: Statistics and Probability

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
<p style="text-align: center;">5 weeks</p>	<p>Unit V– Statistics and Probability</p> <ul style="list-style-type: none"> • Interpreting Quartiles and Interquartile Range • Understanding Box Plots and Mean Absolute Deviation • Stem-and-Leaf Plots • Understanding Random Sampling Methods • Making Inferences About Populations • Defining Outcomes, Events, and Sample Space • Finding Probability of Events • Approximating Probability and Relative Frequency • Developing Probability Models • Compound Events • Probability of Compound Events • Independent Events • Dependent Events 	<p>Worksheets http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Math in Focus – Singapore Math Textbook Choice Vs. Chance Activity http://illuminations.nctm.org/LessonDetail.aspx?id=L248 Interactive Spinners http://www.shodor.org/interactivate/activities/AdjustableSpinner/ Comparing Probabilities (good visual) http://www.shodor.org/interactivate/activities/CrazyChoicesGame/ Probability of Simple events http://www.math-play.com/Probability-Game.html Probability Games http://classroom.jc-schools.net/basic/math-prob.html Probability Activities http://www.math.wichita.edu/history/activities/prob-act.html#prob1 Spin the virtual spinner and watch the graph grow. http://www.mathsonline.co.uk/nonmembers/resource/prob/spinners.html</p>

Appendix A – Resources:

Math in Focus: Singapore Math by Marshall Cavendish ISBN: 978-0-547-56098-4
Math in Focus Activity Book ISBN: 978-0-547-57898-9
Math in Focus Singapore Online Resources
Math in Focus Singapore Exam View
Math in Focus Singapore Activity Book
Math in Focus Singapore Brain @ Work
Math in Focus Singapore Enrichment
Math in Focus Singapore Activity Book
Math in Focus Singapore Vocabulary Review
Math in Focus Singapore Reteach
Math in Focus Singapore Spanish Edition
Big Ideas Math Textbook ISBN: 978-1-60840-231-1
Explorations in Core Math for Common Core Grade 7 ISBN: 978-0-547-87643-6
Holt Mathematics Course 2 Textbook ISBN: 0-03-092946-6
Holt Mathematics Grade 7 Textbook for Common Core ISBN: 978-0-547-64727-2
Mastering the Common Core in Mathematics Grade 7 Textbook ISBN: 978-1-59807-339-3
Glencoe Math Course 7 Textbook ISBN: 978-0-07661-929-0
Clarifying Expectations for Teachers & Students by McGraw Hill for Grade 8 Common Core ISBN: 978-007-662900-8
Partnership for Assessment of Readiness for College and Careers - <http://www.parcconline.org/>
Common Core State Standards Initiative - <http://www.corestandards.org/>
Study Island www.studyisland.com
Khan Academy Videos www.khanacademy.org
OneDrive Shared Document www.onedrive.com

Randolph Township Schools
Randolph Middle School

Grade 7 Mathematics Curriculum

“In mathematics the art of posing a question must be held of higher value than solving it.”
- Georg Cantor

Department of Science, Technology, Engineering, and Math
Anne V. Richardson, Supervisor

Curriculum Committee

Bryan Mate, Tasha Delp

Revision Committee

Tasha Delp, Emily Milde

Jennifer Piascik, Kelly Hart

Krysta Hyziak, Triona Hoover

Curriculum Developed

July 2014

Curriculum Revised

July 2016

Board APPROVAL Date

Randolph Township Schools
Department of Science, Technology, Engineering, & Mathematics
Grade 7 Mathematics

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools
Department of Science, Technology, Engineering, & Mathematics
Introduction

Randolph Township Schools is committed to excellence. We believe that all children are entitled to an education that will equip them to become productive citizens of the 21st century. We believe that an education grounded in the fundamental principles of science, technology, engineering, and math (STEM) will provide students with the skills and content necessary to become future leaders and lifelong learners.

A sound STEM education is grounded in the principles of inquiry, rigor, and relevance. Students will be actively engaged in learning as they use real-world STEM skills to construct knowledge. They will have ample opportunities to manipulate materials and solve problems in ways that are developmentally appropriate to their age. They will work in an environment that encourages them to take risks, think critically, build models, observe patterns, and recognize anomalies in those patterns. Students will be encouraged to ask questions, not just the “how” and the “what” of observed phenomena, but also the “why”. They will develop the ability, confidence, and motivation to succeed academically and personally.

STEM literacy requires understandings and habits of mind that enable students to make sense of how our world works. As described in Project 2061’s *Benchmarks in Science Literacy*, *The Standards for Technological Literacy*, and *Professional Standards for Teaching Mathematics*, literacy in these subject areas enables people to think critically and independently. Scientifically and technologically literate citizens deal sensibly with problems that involve mathematics, evidence, patterns, logical arguments, uncertainty, and problem-solving.

Grade 7 Mathematics
Introduction

The Grade 7 Mathematics Course 2, advanced and standard levels, is the second middle school math course. This course introduces key concepts and tools that will be essential for students as they prepare for the third course. Students will become familiar with pre-algebra topics such as equations, geometry, and proportional relationships. It is not assumed that all prior knowledge skills are secure; therefore, all prior knowledge skills will be assessed and reinforced as needed to ensure understanding of those foundational skills. Through this course, students will be prepared for Grade 8 Mathematics Course 3 with the proper vocabulary, methods, and meanings. This course provides a strong foundation for students to continue the study of mathematics throughout high school.

Both the standard and advanced courses make use of technology to analyze and present real data. Students are encouraged to incorporate their knowledge and interest in other disciplines into project work. In addition to gaining skills necessary to produce, analyze, model and draw conclusions from data, students are encouraged to develop skills required to persevere in problem solving, produce convincing oral and written mathematical arguments, using appropriate terminology in a variety of settings.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Grade 7 Mathematics

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
9 weeks	I	The Number System
9 weeks	II	Expressions, Equations, & Inequalities
4 weeks	III	Rate, Ratios, & Proportional Relationships
5 weeks	IV	Angles, Lines, & 2 Dimensional Geometry
5 weeks	V	Area, Volume, & Surface Area
4 weeks	IV	Statistics & Probability

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Mathematics
UNIT I: The Number System

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>7.NS.A.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers.</p> <p>7.NS.A.1.A Describe situations where opposite quantities combine to make 0.</p> <p>7.NS.A.1.C Show that the distance between two rational numbers on the number line is the absolute value of their difference.</p> <p>7.NS.A.1.D Apply properties of operations as strategies to add and subtract rational numbers.</p> <p>7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.</p> <p>7.NS.A.2.A Understand the rules for multiplying signed numbers and the distributive property.</p> <p>7.NS.A.2.B Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers is a rational number.</p> <p>7.NS.A.2.C Apply properties of</p>	<p>Real numbers are represented as points on an infinite line and are used to count measure, estimate, or approximate quantities.</p>	<ul style="list-style-type: none"> • How are numbers used in everyday life?
	<p>Real life word problems can be solved using mathematical operations and applied to rational numbers, including negative numbers</p>	<ul style="list-style-type: none"> • How can a mathematical model aide in persevering when solving a real-world problem?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Rational numbers can be identified and represented on a horizontal number line.</p> <p>Rational numbers can be written as fractions with integers as the numerator and the denominator (excluding zero in the denominator).</p> <p>Absolute value is the measure of the distance from any rational or irrational number to zero on the number line.</p>	<p>Students will be able to:</p> <p>Plot rational numbers on the real number line between two integers.</p> <p>Express all rational numbers as fractions.</p> <p>Use the number line to model the absolute value of two rational numbers to determine which has a greater distance.</p>

<p>operations as strategies to multiply and divide rational numbers.</p> <p>7.NS.A.2.D Convert a rational number to a decimal using long division and know that the decimal form terminates or repeats.</p> <p>7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u> WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4 RST.6-8.7 RST.6-8.9 RST.6-8.10</p> <p><u>Speaking and Listening</u> SL.7.1</p>	<p>Rational numbers can be written as decimals that either terminate or repeat.</p> <p>The number line can be used to compare rational numbers.</p> <p>Mathematical operations can be performed on rational numbers.</p> <p>The distance between two integers can be modeled on the number line.</p> <p>Multiple operations can be performed on rational numbers.</p> <p>VOCABULARY: Integers, Rational Number, Irrational Number, Real Number, Terminating Decimals, Repeating Decimals, Complex Fractions, Additive Inverse, Zero Pair, Bar Notation, Approximate.</p> <p>KEY TERMS: Opposites, Number Line, Positive Numbers, Negative Numbers, Fractions, Least Common Denominator, Absolute Value, Decimal, Whole Numbers, Order of Operations, Mixed Number, Improper Fraction, Simplest Form, Percent.</p>	<p>Re-write any rational number into its decimal equivalent using the division algorithm.</p> <p>Illustrate the locations of rational numbers on the number line to indicate which is larger.</p> <p>Apply the rules of the four basic mathematical operations (addition, subtraction, multiplication, and division) on rational numbers.</p> <p>Construct a number line to illustrate the distance between two integers.</p> <p>Employ the order of operations to perform multiple operations on rational numbers.</p>
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<p>SL.7.1.C SL.7.1.D SL.7.3 SL.7.4</p> <p><u>Technology Literacy</u> 8.1.8.A.5 8.1.8.E.1</p> <p><u>Science</u> MS-PS1 MS-PS2 MS-ESS2</p>		
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Teacher Created Quizzes
- Math in Focus Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

- Unit Project – “Career Project”
- Brain @ Work
- Flipping for Integers

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Mathematics
Unit I: The Number System

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
9 Weeks	<p>Unit I – The Number System</p> <ul style="list-style-type: none"> • Rational Numbers on the Number line • Rational Numbers as Decimals • Operations with Integers • Operations with Rational Numbers • Operations with Decimals • Word Based Applications 	<p>Math in Focus Chapter Projects Math in Focus – Singapore Math Textbook Number Line Creator http://theworksheetsonline.com/numline.html Worksheets http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Brain Pop Videos http://www.brainpop.com/math/ Positive and Negative Integers in Golf video www.nbclearn.com/science-of-golf Interactive math practice www.ixl.com Absolute Value http://www.sheppardsoftware.com/mathgames/Numberballs_absolute_value/numberballsAS2_abs.htm Math Goodies Interactive Practice www.mathgoodies.com</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Mathematics
UNIT II: Expressions, Equations, & Inequalities

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</p> <p>7.EE.A.2 Understand that re-writing an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.</p>	<p>Algebraic expressions containing rational numbers and multiple variables can be simplified, expanded, or factored to write equivalent expressions.</p>	<ul style="list-style-type: none"> Do mathematical symbols model verbal expressions abstractly? Construct a viable argument.
<p>7.EE.B.3 Solve multi-step, real-life, and mathematical problems posed with positive and negative rational numbers in any form, using tools strategically.</p>	<p>Algebraic equations and inequalities can be used to model mathematical or real-world situations, and to find values of variables.</p>	<ul style="list-style-type: none"> How can algebraic equations and inequalities be used to model, analyze, and solve real world problems?
<p>7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.</p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>7.EE.B.4.A Solve word-problems by comparing an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.</p> <p>7.EE.B.4.B Graph the solution set of an inequality and interpret it in the context of a problem.</p>	<p>Students will know:</p> <p>Algebraic expressions with fractional and decimal coefficients can be simplified.</p> <p>Algebraic expressions with fractional, decimal, and negative factors can be expanded.</p> <p>Algebraic expressions with two variables and negative</p>	<p>Students will be able to:</p> <p>Simplify algebraic expressions with multiple terms and variables by adding and subtracting like terms.</p> <p>Utilize the distributive property to create equivalent expressions.</p> <p>Identify and apply the greatest common factor to</p>

<p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u> WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4 RST.6-8.7 RST.6-8.9 RST.6-8.10</p> <p><u>Speaking and Listening</u> SL.7.1 SL.7.1.C SL.7.1.D SL.7.3 SL.7.4</p> <p><u>Technology Literacy</u> 8.1.8.A.5 8.1.8.E.1</p> <p><u>Science</u> MS-PS1</p>	<p>terms can be factored.</p> <p>Verbal descriptions can be translated into algebraic expressions with multiple variables and parenthesis.</p> <p>Algebraic reasoning can be utilized to solve real world problems.</p> <p>Equivalent equations are equations that have the same solution.</p> <p>Algebraic equations with one or more variables can be solved by balancing.</p> <p>Real-world problems can be solved algebraically with equations or inequalities.</p> <p>Algebraic inequalities can be solved by balancing.</p> <p>Solution sets of algebraic inequalities can be graphed on a number line.</p> <p>Multiple representations can be used to illustrate a linear relationship.</p> <p>Real-world problems can be solved algebraically with equations or inequalities.</p> <p>VOCABULARY: Constant, Numerical Term, Algebraic Term, Like Terms, Factors, Equivalent Equations, Solution Set, Equivalent Inequalities, Simplify, Translate, Balancing, Shaded Circle, Open Circle.</p>	<p>create equivalent expressions.</p> <p>Convert verbal descriptions into algebraic expressions with one or more variables.</p> <p>Demonstrate multiple methods (models, diagrams, tables, and expressions) in order to solve real-world problems.</p> <p>Recognize whether a pair of equations is equivalent.</p> <p>Solve multi-step algebraic equations with variables on one side or both sides.</p> <p>Create algebraic equations and inequalities in order to solve a real-world problem.</p> <p>Solve multi-step algebraic inequalities with variables on one or both sides.</p> <p>Graph solution sets of algebraic inequalities using empty or shaded circles and arrows.</p>
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MS-PS2 MS-LS1 MS-LS2 MS-LS4 MS-ESS1 MS-ESS2 MS-ESS3 MS-ETS1	KEY TERMS: Coefficient, Variable, Expression, Bar Model, Greatest Common Factor, Operation Symbol, Commutative Property, Distributive Property, Factor, Expand, Substitution, Equation, Inequality, Isolate.	
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Teacher Created Quizzes
- Math in Focus Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

- Unit Project – “Bronx Zoo Project”

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Mathematics
Unit II: Expressions, Equations, & Inequalities

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
9 weeks	<p>Unit II – Expressions, Equations, & Inequalities</p> <ul style="list-style-type: none"> • Adding and Subtracting Algebraic Terms • Simplifying and Expanding Algebraic Expressions • Factoring Algebraic Expressions • Writing Algebraic Expressions • Real-World Problems: Algebraic Reasoning • Understanding and Solving Algebraic Equations • Solving Algebraic Inequalities • Real-World Problems: Algebraic Equations and Inequalities 	<p>Math in Focus Chapter Projects Worksheets http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Brain Pop Videos http://www.brainpop.com/math/ Math in Focus – Singapore Math Textbook Interactive math practice www.ixl.com STEM Worksheets www.superteacherworksheets.com Interactive math practice www.ixl.com Electronic Flashcards on solving inequalities http://www.quia.com/jfc/906428.htm Inequality game involving word problems http://www.math-play.com/Inequality-Game.html Tic –Tac- Toe inequalities and equations http://www.education.com/activity/article/tic-tac-equations/ Students must solve equations and find pairs of equations that "match" http://www.bbc.co.uk/education/mathsfile/shockwave/games/equationmatch.html Solving Equations: How Sweet It Is! – hand-on approach to solving equations http://www.lpb.org/education/classroom/itv/algebra/sweet.pdf</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Mathematics
UNIT III: Rates, Ratios, & Proportional Relationships

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Mathematics</p> <p>6.RP.A.2 Understand the concept of a unit rate and use rate language in the context of a ratio relationship.</p> <p>6.RP.A.3 Use ratio and rate reasoning to solve real-world mathematical problems.</p> <p>6.RP.A.3.B Solve unit rate problems including those involving unit pricing and constant speed.</p> <p>6.RP.A.3.C Find a percent of a quantity as a rate per 100; solve problems involving finding the whole, given the part and the percent.</p>	<p>Two quantities that are in a proportional relationship can be used to solve real-world and mathematical problems.</p>	<ul style="list-style-type: none"> • When is it appropriate to use proportional reasoning to solve real-world problems?
	<p>Ratios and proportional relationships are used to express how quantities are related and how quantities change in relation to each other.</p>	<ul style="list-style-type: none"> • How does recognizing patterns and structure between quantities help describe the relationship between them?
	KNOWLEDGE	SKILLS
<p>7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units.</p> <p>7.RP.A.2 Recognize and represent proportional relationships between quantities.</p> <p>7.RP.A.2.A Decide whether two quantities are in a proportional relationship.</p> <p>7.RP.A.2.B Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal</p>	<p>Students will know:</p> <p>Unit rates can be used to compare two quantities with two different units.</p> <p>Unit rates can be used to solve real-world problems.</p> <p>Sales tax, interest, and commission are real-world applications of percent.</p> <p>Percent of change can be expressed as percent increase or percent decrease.</p>	<p>Students will be able to:</p> <p>Examine unit rates to solve problems including unit pricing and constant speed.</p> <p>Calculate unit rates in order to determine speed, distance, or time.</p> <p>Apply percent and problem solving skills to solve real-world problems.</p> <p>Calculate the percent of increase or decrease to solve real-world problems.</p>

<p>descriptions of proportional relationships.</p> <p>7.RP.A.2.C Represent proportional relationships by equations.</p> <p>7.RP.A.2.D Explain what a point (x,y) on the graph of a proportional relationship means in terms of the situation.</p> <p>7.RP.A.3 Use proportional relationships to solve multi-step ratio and percent problems.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u></p> <p>WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4 RST.6-8.7 RST.6-8.9 RST.6-8.10</p>	<p>Unit rates can be represented as a constant of proportionality (e.g. $\frac{y}{x} = k$).</p> <p>Direct proportions can be interpreted using a graph.</p> <p>Direct proportions can be used to solve real-world problems.</p> <p>Inverse proportions can be represented as a constant of proportionality (e.g. $xy = k$).</p> <p>Inverse proportions can be interpreted using a graph.</p> <p>Inverse proportions can be used to solve real-world problems.</p> <p>VOCABULARY: Rate, Speed, Average Speed, Sales Tax, Commission, Interest, Interest Rate, Markup, Discount, Direct Proportion, Constant of Proportionality, Inverse Proportion</p> <p>KEY TERMS: Ratio, Unit Rate, Proportion, Cross Products, Coordinates, Graph</p>	<p>Identify unit rates as direct proportions.</p> <p>Utilize a graph in order to interpret direct proportions.</p> <p>Create direct proportional relationships to solve real-world problems.</p> <p>Identify inverse proportions using the constant of proportionality.</p> <p>Utilize a graph in order to interpret inverse proportions.</p> <p>Create inverse proportional relationships to solve real-world problems.</p>
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<p><u>Speaking and Listening</u> SL.7.1 SL.7.1.C SL.7.1.D SL.7.3 SL.7.4</p> <p><u>Technology Literacy</u> 8.1.8.A.5 8.1.8.E.1</p> <p><u>Science</u> MS-PS1 MS-PS2 MS-LS1 MS-LS2 MS-LS4 MS-ESS1 MS-ESS2 MS-ESS3 MS-ETS1</p>		
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Teacher Created Quizzes
- Math in Focus Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

- Unit Project – “Grocery Store Math Ratios”
- Brain @ Work

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Mathematics
Unit III: Rates, Ratios, & Proportional Relationships

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
<p style="text-align: center;">4 weeks</p>	<p>Unit III – Rates, Ratios, & Proportional Relationships</p> <ul style="list-style-type: none"> • Rates and Unit Rates • Real-World Problems: Rates and Unit Rates • Real World Problems: Percent • Percent of Change • Understanding Direct Proportion • Representing Direct Proportion Graphically • Solving Direct Proportion Problems • Understanding Inverse Proportion 	<p>Math in Focus Chapter Projects Comparing Ratios http://www.figurethis.org/challenges/c25/challenge.htm Worksheets http://www.kutasoftware.com/ www.mathblaster.com Brain Pop Videos http://www.brainpop.com/math/ Rational Numbers and Proportions Activity http://illuminations.nctm.org/LessonDetail.aspx?id=L284 Proportion Game http://www.arcademicskillbuilders.com/games/dirt-bike-proportions/dirt-bikeproportions.html Power point downloads Ratios, Proportions, Units rates http://math.pppst.com/ratio-proportion-percent.html my.hrw.com Math in Focus – Singapore Math Textbook Interactive math practice www.ixl.com STEM Worksheets www.superteacherworksheets.com</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Mathematics
UNIT IV: Angles, Lines, & 2 Dimensional Geometry

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.</p> <p>7.G.A.2 Draw (freehand, with a ruler and protractor, and with technology) geometric shapes with given conditions.</p> <p>7.G.B.5 Use facts about supplementary, complimentary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.</p>	<p>Angles formed on a straight line, and by parallel lines and a transversal, have specific properties that are useful in solving problems.</p>	<ul style="list-style-type: none"> • How can properties be used to prove relationships between lines and angles?
	<p>Triangles and quadrilaterals can be constructed using a compass, a protractor, and a straight edge.</p>	<ul style="list-style-type: none"> • How can you determine what tools are appropriate for geometric constructions?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p>	<p>Students will know:</p> <p>Angle relationships can be identified as complementary, supplementary, or adjacent angles.</p> <p>Angle relationships can be used to find unknown angle measurements.</p> <p>Properties of angles at point can be used to find unknown angle measurements.</p>	<p>Students will be able to:</p> <p>Identify angle relationships as complementary, supplementary, or adjacent angles.</p> <p>Calculate the value of an unknown angle using angle relationships.</p> <p>Calculate the value of unknown angles using angles at a point.</p>

<p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u> WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4 RST.6-8.7 RST.6-8.9 RST.6-8.10</p> <p><u>Speaking and Listening</u> SL.7.1 SL.7.1.C SL.7.1.D SL.7.3 SL.7.4</p> <p><u>Technology Literacy</u> 8.1.8.A.5 8.2.8.B.1</p>	<p>Properties of vertical angles can be used to find unknown angle measurements.</p> <p>Angle bisectors divide angles into two equal parts.</p> <p>Perpendicular bisectors of a line segment always pass through the midpoint of the segment at a right angle.</p> <p>Triangles can be constructed when three of its measures are given.</p> <p>A given set of measurements can be used to determine whether a unique triangle, more than one triangle, or no triangle can be drawn.</p> <p>Quadrilaterals can be constructed using a compass, ruler, and a protractor.</p> <p>Scale factor is the ratio of the length in a drawing to the corresponding length in the actual figure.</p> <p>Scale drawings can be used to solve problems involving scale drawings of geometric figures.</p> <p>VOCABULARY: Complementary Angles, Supplementary Angles, Adjacent Angles, Vertical Angles, Transversal, Alternate Exterior Angles, Alternate Interior Angles, Corresponding Angles, Bisector, Bisect, Equidistant, Perpendicular Bisector, Midpoint, Included Side, Included Angle, Interior Angle, Exterior Angle, Scale, Scale Factor</p> <p>KEY TERMS: Vertex, Congruent Angles, Straight Line, Parallel Lines, Perpendicular Lines, Ratio, Isosceles</p>	<p>Calculate the value of unknown angles using vertical angles.</p> <p>Identify and construct an angle bisector using appropriate tools.</p> <p>Define and construct perpendicular bisectors.</p> <p>Construct triangles with three given measurements.</p> <p>Conclude whether a unique triangle, more than one triangle, or no triangle can be drawn from a given set of measurements.</p> <p>Recognize and use the appropriate tools to construct quadrilaterals.</p> <p>Calculate the scale factor using corresponding lengths in drawings and actual figures.</p> <p>Utilize the scale factor to relate the length in a drawing to the length of the actual figure.</p>
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	Triangle, Equilateral Triangle, Quadrilaterals, Compass, Ruler, Protractor, Diagonal	
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Teacher Created Quizzes
- Math in Focus Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

- Brain @ Work

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Mathematics
Unit IV: Angles, Lines, & 2 Dimensional Geometry

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 weeks	<p>Unit IV – Angles, Lines, & 2 Dimensional Geometry</p> <ul style="list-style-type: none"> • Complimentary, Supplementary, and Adjacent Angles • Angles That Share a Vertex • Constructing Angle Bisectors • Constructing Perpendicular Bisectors • Constructing Triangles • Constructing Quadrilaterals • Understanding Scale Drawings 	<p>Worksheets www.mathmix.com http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Brain Pop Videos http://www.brainpop.com/math/ Math in Focus – Singapore Math Textbook Interactive math practice www.ixl.com STEM Worksheets www.superteacherworksheets.com 3-D Geometry shapes and nets Math in Focus Chapter Projects</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Mathematics
UNIT V: Area, Surface Area, & Volume

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.</p> <p>6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism.</p>	<p>The area of a polygon can be found by dividing it into smaller shapes, and then adding the area of those shapes</p>	<ul style="list-style-type: none"> • What methods could be used most efficiently to simplify finding the area of a composite figure?
<p>6.EE.A.1 Write and evaluate numerical expressions involving whole number exponents.</p>	<p>A circle is a geometric figure that has many useful applications in the real world.</p>	<ul style="list-style-type: none"> • How is everyday life impacted by circles?
	KNOWLEDGE	SKILLS
<p>6.EE.A.2.C Evaluate expressions at specific values of their variables.</p> <p>7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.</p> <p>7.G.A.3 Describe the two dimensional figures that result from slicing three dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.</p>	<p>Students will know:</p> <p>Characteristics of basic geometric shapes can be used to find the area of composite figures.</p> <p>Circumference is the measurement of the distance around the circle.</p> <p>The area of a circle can be found using the formula $A = \pi r^2$</p>	<p>Students will be able to:</p> <p>Subdivide composite figures into basic geometric shapes in order to find the total area.</p> <p>Calculate the circumference of circles, semicircles, and quarter circles using different values of pi.</p> <p>Calculate the area of circles, semicircles, and quarter circles using different values of pi.</p>

<p>7.G.B.4 Know the formulas for the area and circumference of a circle and use them to solve problems.</p> <p>7.G.B.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.</p> <p>7.G.B.6 Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u> WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4</p>	<p>Properties of circles and composite figures can be used to solve real-world problems.</p> <p>Properties of prisms can be used to find volume and surface area.</p> <p>A cross section is the intersections of a solid and a plane.</p> <p>VOCABULARY: Composite Solids, Center, Diameter, Arc, Quadrant, Radius, Radii, Circumference, Semicircle, Pi, Surface Area, Volume, Cylinder, Cone, Square Pyramid, Triangular Pyramid, Triangular Prism, Nets, Lateral Surface, Slant Height, Sphere, Hemisphere, Plane, Cross Section</p> <p>KEY TERMS: Area, Height, Base</p>	<p>Apply properties of circles and composite figures to solve real-world problems.</p> <p>Apply properties of prisms to solve real-world problems.</p> <p>Identify the basic geometric shape created by a cross section of a solid.</p>
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<p>RST.6-8.7 RST.6-8.9 RST.6-8.10</p> <p><u>Speaking and Listening</u> SL.7.1 SL.7.1.C SL.7.1.D SL.7.3 SL.7.4</p> <p><u>Technology Literacy</u> 8.1.8.A.5 8.2.8.B.1</p>		
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Teacher Created Quizzes
- Math in Focus Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

- Unit Project – “Bedroom Remodel Project”
- Brain @ Work

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Mathematics
Unit V: Area, Surface Area, & Volume

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 weeks	<p>Unit V - Area, Surface Area, & Volume</p> <ul style="list-style-type: none"> • Area of Composite Figures • Radius, Diameter, and Circumference of Circles (Course 1) • Area of a Circle • Real-World Problems: Circles (Course 1) • Real-World Problems: Surface Area and Volume • Recognizing Cylinders, Cones, Spheres, and Pyramids 	<p>Worksheets www.mathmix.com http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Brain Pop Videos http://www.brainpop.com/math/ Math in Focus – Singapore Math Textbook Interactive math practice www.ixl.com STEM Worksheets www.superteacherworksheets.com 3-D Geometry shapes and nets “Moving day” activity http://www.learningresources.com/text/pdf/8521book.pdf Finding surface area and volume activity http://illuminations.nctm.org/LessonDetail.aspx?ID=U166 Slicing Three-Dimensional Figures – interactive website http://www.learner.org/courses/learningmath/geometry/session9/part_c/index.html</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Mathematics
UNIT VI: Statistics & Probability

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>6.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.</p> <p>6.SP.B.5.C Summarize numerical data sets in relation to their context by giving quantitative measures of variability (interquartile range).</p> <p>7.SP.A.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population.</p>	<p>Measures of central tendency and measures of variation are used to draw conclusions about populations.</p>	<ul style="list-style-type: none"> • How can statistics be used to reason quantitatively and make decisions about populations?
	<p>Events happen around you every day, some more likely than others. You can use probability to describe how likely an event is to occur.</p>	<ul style="list-style-type: none"> • How does the study of probability integrate the study of statistics?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>7.SP.A.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest.</p> <p>7.SP.B.3 Informally assess the degree of visual overlap of two numerical data distributions with similar variability, measuring the difference between the centers by expressing it as a multiple of a measure of variability.</p> <p>7.SP.B.4 Use measures of center and measures of variability for numerical data</p>	<p>Students will know:</p> <p>Stem-and-leaf plots can be used to collect and organize large amounts of data for analyzing.</p> <p>Box plots can be used to indicate quartiles and interquartile ranges.</p> <p>Samples can be used to study or analyze the members of a larger population.</p>	<p>Students will be able to:</p> <p>Create a stem-and-leaf plot to represent data.</p> <p>Draw conclusions and solve problems involving stem-and-leaf plots</p> <p>Create box plot to represent data.</p> <p>Understand and apply random sampling methods and simulate a random sampling process.</p>

<p>from random samples to draw informal comparative inferences about two populations.</p> <p>7.SP.C.5 Understand that the probability of a chance event is a number between zero and one that expresses the likely hood of an event occurring.</p> <p>7.SP.C.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long run relative frequency, and predict the approximate relative frequency given the probability.</p> <p>7.SP.C.7 Develop a probability model and use it to find probabilities of events.</p> <p>7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.</p> <p>7.SP.C.8.A Understand that the probability of a compound event is the fraction for outcomes in the sample space for which the compound event occurs.</p> <p>7.SP.C.8.B Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams.</p> <p>7.SP.C.8.C Design and use a simulation to generate frequencies for compound events.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and</p>	<p>Statistics from a sample can be used to make inferences about a population.</p> <p>Comparative inferences can be made about two populations using two sets of sample statistics.</p> <p>The concepts of outcomes, events, and sample space can be applied to everyday life.</p> <p>Probability can be used to determine the likelihood of an event.</p> <p>Venn diagrams can be used to illustrate events and their relationships.</p> <p>Probability can be used to solve real-world problems.</p> <p>Relative frequencies as probabilities can be interpreted to make predictions.</p> <p>In a long-run chance process, relative frequency resembles theoretical probability more closely.</p> <p>Probability of outcomes of events can be written as a uniform or a nonuniform probability model.</p> <p>Probability models can be used to predict outcomes in real life.</p> <p>A compound event consists of two or more simple events occurring together or one after another.</p>	<p>Draw conclusions about a population based on the statistics of a sample.</p> <p>Compare inferences about two populations using the same measure of variation.</p> <p>Describe and apply the concepts of outcomes, events, and sample space.</p> <p>Calculate the probability of an event.</p> <p>Construct and interpret Venn diagrams.</p> <p>Solve real-world problems involving probability using multiple methods.</p> <p>Predict probability of an event from relative frequencies.</p> <p>Compare long-run relative frequencies to related theoretical probabilities.</p> <p>Illustrate outcomes of events of uniform or nonuniform probability models through multiple representations.</p> <p>Predict outcomes of real life events using probability models.</p> <p>Understand and represent compound events using multiple representations.</p>
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<p>critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u> WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4 RST.6-8.7 RST.6-8.9 RST.6-8.10</p> <p><u>Speaking and Listening</u> SL.7.1 SL.7.1.C SL.7.1.D SL.7.3 SL.7.4</p> <p><u>Technology Literacy</u> 8.1.8.A.5 8.1.8.D.3 8.2.8.D.1</p> <p><u>Science</u> MS-PS1 MS-PS3 MS-LS1 MS-LS2 MS-LS3 MS-LS4 MS-ETS1</p>	<p>Possibility diagrams can be used to find the probability of compound events.</p> <p>The multiplication and addition rules of probability can be used to solve problems involving independent events.</p> <p>For dependent events, the occurrence of one event will affect the probabilities of one event.</p> <p>VOCABULARY: Stems, Leaves, Outlier, Stem-and-Leaf Plot, Population, Sample, Sample Size, Random Sample, Unbiased Sample, Biased Sample, Simple Random Sampling, Stratified Sampling, Systematic Sampling, Inference, Sample Space, Event, Probability, Fair, Mutually Exclusive, Complementary Events, Compliment, Relative Frequency, Observed Frequency, Experimental Probability, Theoretical Probability, Probability Model, Probability Distribution, Uniform Probability Model, Nonuniform Probability Model, Compound Event, Simple Event, Possibility Diagram, Tree Diagram, Independent Events, Multiplication Rule of Probability, Addition Rule of Probability, Dependent Events, Measure of Variation, Quartiles, Interquartile Range, Box Plot, Mean Absolute Deviation</p> <p>KEY TERMS: Outcome, Venn Diagram, Mean, Median, Mode, Range, Frequency Table, Dot Plot</p>	<p>Construct and utilize possibility diagrams to find the probability of compound events.</p> <p>Differentiate between the multiplication and addition rules of probability to calculate the probability of independent events.</p> <p>Implement the rules of probability to solve problems with dependent events.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments
- Math in Focus Chapter Assessments
- Teacher Created Quizzes
- Math in Focus Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

- Unit Project – “Calorie Content Project”
- Brain @ Work

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 7 Mathematics
Unit VI: Statistics & Probability

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
<p style="text-align: center;">4 weeks</p>	<p>Unit VI – Statistics & Probability</p> <ul style="list-style-type: none"> • Stem-and-Leaf Plots • Understanding Random Sampling Methods • Making Inferences About Populations • Defining Outcomes, Events, and Sample Space • Finding Probability of Events • Approximating Probability and Relative Frequency • Developing Probability Models • Compound Events • Probability of Compound Events • Independent Events • Dependent Events 	<p>Worksheets http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Math in Focus – Singapore Math Textbook Choice Vs. Chance Activity http://illuminations.nctm.org/LessonDetail.aspx?id=L248 Interactive Spinners http://www.shodor.org/interactivate/activities/AdjustableSpinner/ Comparing Probabilities (good visual) http://www.shodor.org/interactivate/activities/CrazyChoicesGame/ Probability of Simple events http://www.math-play.com/Probability-Game.html Probability Games http://classroom.jc-schools.net/basic/math-prob.html Probability Activities http://www.math.wichita.edu/history/activities/prob-act.html#prob1 Spin the virtual spinner and watch the graph grow. http://www.mathsonline.co.uk/nonmembers/resource/prob/spinners.html</p>

APPENDIX A

Math in Focus: Singapore Math by Marshall Cavendish ISBN: 978-0-547-56098-4
Math in Focus Activity Book ISBN: 978-0-547-57898-9
Math in Focus Singapore Online Resources
Math in Focus Singapore Exam View
Math in Focus Singapore Activity Book
Math in Focus Singapore Brain @ Work
Math in Focus Singapore Enrichment
Math in Focus Singapore Activity Book
Math in Focus Singapore Vocabulary Review
Math in Focus Singapore Reteach
Math in Focus Singapore Spanish Edition
Big Ideas Math Textbook ISBN: 978-1-60840-231-1
Explorations in Core Math for Common Core Grade 7 ISBN: 978-0-547-87643-6
Holt Mathematics Course 2 Textbook ISBN: 0-03-092946-6
Holt Mathematics Grade 7 Textbook for Common Core ISBN: 978-0-547-64727-2
Mastering the Common Core in Mathematics Grade 7 Textbook ISBN: 978-1-59807-339-3
Glencoe Math Course 7 Textbook ISBN: 978-0-07661-929-0
Clarifying Expectations for Teachers & Students by McGraw Hill for Grade 8 Common Core ISBN: 978-007-662900-8
Partnership for Assessment of Readiness for College and Careers - <http://www.parcconline.org/>
Common Core State Standards Initiative - <http://www.corestandards.org/>
Study Island www.studyisland.com
Khan Academy Videos www.khanacademy.org
OneDrive Shared Document www.onedrive.com

**Randolph Township Schools
Randolph Middle School**

Grade 8 Mathematics Curriculum

“Mathematics is the door and key to the sciences.”

- Roger Bacon

Department of Science, Technology, Engineering, and Math
Anne V. Richardson, STEM Supervisor

Curriculum Committee

Ryan Hallock

Bryan Mate

Lara Hirshensen

Revision Committee

Tasha Delp, Susan Wolff

Ryan Hallock, Bryan Mate

Curriculum Developed

July 2014

Curriculum Revised

July 2016

Date of Board Approval:

**Randolph Township Schools
Department of Mathematics
Grade 8 Mathematics**

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools
Department of Science, Technology, Engineering, & Mathematics

Introduction

Randolph Township Schools is committed to excellence. We believe that all children are entitled to an education that will equip them to become productive citizens of the 21st century. We believe that an education grounded in the fundamental principles of science, technology, engineering, and math (STEM) will provide students with the skills and content necessary to become future leaders and lifelong learners.

A sound STEM education is grounded in the principles of inquiry, rigor, and relevance. Students will be actively engaged in learning as they use real-world STEM skills to construct knowledge. They will have ample opportunities to manipulate materials and solve problems in ways that are developmentally appropriate to their age. They will work in an environment that encourages them to take risks, think critically, build models, observe patterns, and recognize anomalies in those patterns. Students will be encouraged to ask questions, not just the “how” and the “what” of observed phenomena, but also the “why”. They will develop the ability, confidence, and motivation to succeed academically and personally.

STEM literacy requires understandings and habits of mind that enable students to make sense of how our world works. As described in Project 2061’s *Benchmarks in Science Literacy*, *The Standards for Technological Literacy*, and *Professional Standards for Teaching Mathematics*, literacy in these subject areas enables people to think critically and independently. Scientifically and technologically literate citizens deal sensibly with problems that involve mathematics, evidence, patterns, logical arguments, uncertainty, and problem-solving.

Grade 8 Mathematics

Introduction

Mathematics Grade 8 is the third middle school math course, advanced and standard levels, that is given for eighth grade students. This course introduces key concepts and tools that will be essential for students as they prepare for Algebra. Students will become familiar with pre-algebra topics such as exponents, equations, and the Pythagorean Theorem. Students will also be introduced to functional relationships which include linear, exponential, and quadratic functions. Through this course, students will be prepared for Algebra with the proper vocabulary, methods, and meanings. This course provides a strong foundation for students to continue the study of Algebra throughout high school.

The course makes use of technology to analyze and present real data. Students are encouraged to incorporate their knowledge and interest in other disciplines into project work. In addition to gaining skills necessary to produce, analyze, model and draw conclusions from data, students are encouraged to develop skills required to persevere in problem solving, produce convincing oral and written mathematical arguments, using appropriate terminology in a variety of settings.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Grade 8 Mathematics

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
7 weeks	I	Exponents
10 weeks	II	Equations
4 weeks	III	Relationships and Functions
4 weeks	IV	Pythagorean Theorem and Volume of Geometric Solids
7 weeks	V	Geometry
4 weeks	VI	Data Analysis

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 8 Mathematics
UNIT I: Exponents

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>8.NS.A.1 Know that numbers that are not rational are called irrational and has a decimal expansion.</p> <p>8.NS.A.2 Use rational approximations to compare the size of irrational numbers and locate them on a number line.</p> <p>8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.</p> <p>8.EE.A.2 Use square root and cube root symbols to represent solutions to equations.</p> <p>8.EE.A.3 Use numbers expressed in the form of a single digit times an integer power of 10.</p> <p>8.EE.A.4 Perform operations with numbers expressed in scientific notation.</p>	<p>You can use exponential notation to represent repeated multiplication of the same factor.</p>	<ul style="list-style-type: none"> • Why is it beneficial to be able to express a number in multiple forms?
	<p>The rules of exponents allow us to represent and simplify complicated expressions.</p>	<ul style="list-style-type: none"> • What do we notice about the value of any exponential term with an integer or fractional base?
	<p>Scientific notation is a way of writing numbers that makes it easier to work with very large or very small numbers.</p>	<ul style="list-style-type: none"> • How can we use our knowledge of prefixes and exponents to determine the magnitude of a number expressed in scientific notation?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and</p>	<p>Students will know:</p> <p>Exponents with equivalent bases can be combined as one term.</p> <p>Negative exponents represent values that are found through the use of reciprocals.</p> <p>The meaning of a zero and fractional exponents.</p>	<p>Students will be able to:</p> <p>Evaluate expressions with exponents.</p> <p>Evaluate expressions with negative exponents - evaluate expressions with zero exponents.</p> <p>Use properties of exponents to convert powers with fractional bases to square and cube roots.</p>

<p>critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u></p> <p>WHST.6-8.1.B</p> <p>WHST.6-8.1.C</p> <p>RST.6-8.3</p> <p>RST.6-8.4</p> <p>RST.6-8.7</p> <p>RST.6-8.9</p> <p>RST.6-8.10</p> <p><u>Speaking and Listening</u></p> <p>SL.8.1.C</p> <p>SL.8.1.D</p> <p>SL.8.3</p> <p>SL.8.4</p> <p><u>Technology Literacy</u></p> <p>8.1.8.A.5</p> <p><u>Science</u></p> <p>5.2.12.A.6</p>	<p>Exponent properties.</p> <p>Proper format for scientific notation.</p> <p>Convert into and out of scientific notation.</p> <p>Perfect squares from 1 to 25 and perfect cubes from 1 to 8.</p> <p>Perfect squares can be used to help estimate values of non-perfect squares.</p> <p>Scientific notation as generated on various calculators or other technology.</p> <p>In scientific notation, an increase of 1 in the exponent, results in the value increasing 10 times.</p>	<p>Simplify expressions involving bases with a zero power.</p> <p>Apply the product and quotient of powers.</p> <p>Apply power of a power.</p> <p>Apply power of a product and power of a quotient.</p> <p>Express large and small numbers in scientific notation and compare two numbers in scientific notation.</p> <p>Compare and interpret scientific notation quantities in the context of the situation.</p> <p>Use laws of exponents to perform operations with numbers written in scientific notation.</p> <p>Solve equations with mathematical operations using numbers in scientific notation.</p> <p>Evaluate the square root and cube root of perfect squares and perfect cubes.</p> <p>Estimate square roots of non-perfect squares to the nearest integer.</p> <p>Use technology to assist in solving real-world problems involving scientific notation.</p> <p>Apply the pattern of increasing exponents.</p> <p>Science Interdisciplinary: Use powers of 10 to calculate and compare the pH levels of various solutions.</p>
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	<p>VOCABULARY: base, exponent, exponential notation, power, prime factorization, coefficient, scientific notation, standard form</p> <p>KEY TERMS: power to a power, power of a product, power of a quotient, prefix system</p>	
<p>ASSESSMENT EVIDENCE: Students will show their learning by:</p> <ul style="list-style-type: none">• Pre-Assessments, Quizzes• Math in Focus Chapter & Benchmark Assessments <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none">•		

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 8 Mathematics
UNIT I: Exponents

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
7 Weeks	<p>Unit I: Exponents</p> <ul style="list-style-type: none"> • Real Numbers • Rational Approximations • Exponential Notation • The Product and the Quotient of Powers • The Power of a Power • The Power of a Product and the Power of a Quotient • Zero and Negative Exponents • Square & Cube Roots • Scientific Notation • Adding and Subtracting in 	<p>Number Line Creator http://theworksheetsonline.com/numline.html Worksheets http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Brain Pop Videos http://www.brainpop.com/math/ Holt Mathematics Course 3 Textbook Positive and Negative Integers in Golf video www.nbclearn.com/science-of-golf Math in Focus – Singapore Math Textbook Interactive math practice www.ixl.com Absolute Value http://www.sheppardsoftware.com/mathgames/Numberballs_absolute_value/numberballsAS2_abs.htm Math Goodies Interactive Practice www.mathgoodies.com</p>

	<p>Scientific Notation</p> <ul style="list-style-type: none">• Multiplying and Dividing in Scientific Notation	
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 8 Mathematics
UNIT II: Equations

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Mathematics</p> <p>8.EE.B.5 Compare two different proportional relationships represented in different ways.</p> <p>8.EE.B.6 Derive the equation $y=mx$ for a line through the origin and the equation $y=mx+b$ for a line intercepting the vertical axis at b.</p> <p>8.EE.C.7.A Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions.</p> <p>8.EE.C.7.B Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</p> <p>8.EE.C.8.A Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs.</p> <p>8.EE.C.8.B Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations.</p>	<p>A linear equation with one variable can have one solution, no solution, or infinitely many solutions.</p>	<ul style="list-style-type: none"> • How do you verify that your solution to a linear equation is correct?
	<p>The graph of a linear equation in two variables is a line, and you can write the equation of the line in slope intercept form.</p>	<ul style="list-style-type: none"> • What information can we infer from the relationship between two variables based on the slope and y-intercept of the graph or equation?
	<p>Several representations of linear equations and systems are used to model and solve real-world problems.</p>	<ul style="list-style-type: none"> • What characteristics determine which method should be used to solve a system of equations?
	KNOWLEDGE	SKILLS
	<p>Students will know:</p> <p>Number properties and properties of equality can be used to justify equation solving.</p>	<p>Students will be able to:</p> <p>Solve equations with a variable on one side and variables on both sides.</p> <p>Apply the appropriate properties to combine like terms in order to isolate the variable while solving equations.</p>

<p>8.EE.C.8.C Solve real world and mathematical problems leading to two linear equations in two variables.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u></p> <p>WHST.6-8.1.B</p> <p>WHST.6-8.1.C</p> <p>RST.6-8.3</p> <p>RST.6-8.4</p> <p>RST.6-8.7</p> <p>RST.6-8.9</p> <p>RST.6-8.10</p> <p><u>Speaking and Listening</u></p> <p>SL.8.1.C</p> <p>SL.8.1.D</p> <p>SL.8.4</p> <p>SL.8.6</p> <p><u>Technology Literacy</u></p> <p>8.1.8.A.5</p> <p>8.1.8.E.1</p>	<p>Linear equations may have one solution, no solution, or infinitely many solutions.</p> <p>A proportional relationship can be shown as a graph on a coordinate plane.</p> <p>There are three forms of linear equations.</p> <p>Graphs, tables, and equations can be used to determine the unit rate of a proportional relationship.</p> <p>The significance of slope and intercepts of linear equations in relation to real-world situations.</p> <p>Systems of linear equations can be solved by the elimination method, the substitution method, or by graphing.</p>	<p>Solve two step and multi-step equations.</p> <p>Solve equations that have one solution, no solution, or infinitely many solutions, and explain why.</p> <p>Identify special cases, such as no solution or infinitely many solutions and understand their meaning.</p> <p>Graph linear equations on a coordinate plane from given data (i.e. tables, different forms of equations, word problems) to demonstrate a proportional relationship.</p> <p>Convert any two variable real-world problems or mathematical problems into the most appropriate form of a linear equation (i.e. standard form, slope-intercept, point-slope, etc.).</p> <p>Represent functions and relations numerically, graphically, and algebraically.</p> <p>Analyze a graphical representation of a situation and create the corresponding linear equation shown.</p> <p>Develop a real world application from a given graph or equation.</p> <p>Determine the most efficient method for solving a linear system based on the information given.</p> <p>When solving graphically, students will recall upon prior knowledge of graphing linear equations.</p> <p>Create equivalent linear equations in order to facilitate the use of the elimination method.</p> <p>Recognize and use the technique of isolating a</p>
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	<p>Systems of linear equations may have one solution, no solution, or infinitely many solutions.</p> <p>VOCABULARY: inconsistent equations, consistent equations, identity, slope, rise, run, y-intercept, x-intercept, slope-intercept form, linear relationship, system of linear equations, unique solution, common term, elimination method, substitution method, standard form, graphical method, point of intersection, inconsistent system of equations, dependent system of equations</p> <p>KEY TERMS: substitute, solve, identify, $y=mx+b$, parallel lines</p>	<p>variable in order to use the substitution method.</p> <p>Determine whether a system of linear equations has no, one, or infinitely many solutions</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments, Quizzes
- Math in Focus Chapter & Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

- Systems of Equations project—reference Appendix B

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 8 Mathematics
Unit II: Equations

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
10 Weeks	<p>Unit II: Equations</p> <ul style="list-style-type: none"> • Solving Linear Equations in One Variable • Identifying the Number of Solutions • Understanding Linear Equations with Two Variables • Solving for a Two Variable Linear Equation • Find and Interpret Slopes of Lines • Understanding Slope-Intercept Form • Writing Linear Equations • Sketching Graphs of Linear Equations. • Introduction to Systems of Linear Equations • Solving Systems of Linear Equations using Algebraic Methods • Solving Systems of Linear Equations by Graphing • Inconsistent and Dependent Systems of Linear Equations 	<p>Worksheets http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Brain Pop Videos http://www.brainpop.com/math/ Holt Mathematics Course 3 Textbook STEM Worksheets www.superteacherworksheets.com Interactive math practice www.ixl.com Electronic Flashcards on solving inequalities http://www.quia.com/jfc/906428.htm Students must solve equations and find pairs of equations that "match" http://www.bbc.co.uk/education/mathsfile/shockwave/games/equationmatch.html Solving Equations: How Sweet It Is! – hand-on approach to solving equations http://www.lpb.org/education/classroom/itv/algebra/sweet.pdf System of Equations Activities http://www.ilovemath.org/index.php?option=com_docman&task=cat_view&gid=53 More Systems Activities http://player.discoveryeducation.com/index.cfm?guidAssetId=41BD9CF7-7138-46E9-A81B-BB0E01B7526A&blnFromSearch=1&productcode=US Systems Jeopardy</p>

		<p>http://www.quia.com/cb/79607.html Solving systems of equations basketball game http://www.crclessions.com/systems-of-equations-game.html</p>
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 8 Mathematics
UNIT III: Relationships and Functions

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>8.F.A.1 Understand that a function is a rule that assigns to each input exactly one output.</p> <p>8.F.A.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).</p> <p>8.F.A.3 Interpret the equation $y=mx+b$ as defining a linear function, whose graph is a straight line and give examples of functions that are not linear.</p> <p>8.F.B.4 Construct a function to model a linear relationship between two quantities. Determine and interpret rate of change and initial value of the function.</p> <p>8.F.B.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph and sketch a graph of a function that has been described verbally.</p> <p><u>Mathematical Practices</u></p> <p>MPI Make sense of problems and persevere in solving them.</p>	<p>Functional relationships between two quantities can be expressed using ordered pairs of numbers.</p>	<ul style="list-style-type: none"> • In what ways can the relationship between two variables be displayed?
	<p>The value of one variable may be uniquely determined by the value of another variable.</p>	<ul style="list-style-type: none"> • Why can some situations be represented as functions, while others cannot?
	<p>A function is a relation between a set of inputs and a set of outputs, in which every input has exactly one output.</p>	<ul style="list-style-type: none"> • What are various ways you can model a relation? What is the best way to display the relationship?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>A function is a relationship between variables in which each value of the input variable is associated with a unique value of the output variable.</p> <p>The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.</p> <p>Functions can be represented as rules, tables, and graphs.</p>	<p>Students will be able to:</p> <p>Use functions to model real-world phenomena and solve problems.</p> <p>Identify when a set of ordered pairs, graph, or table represents a function.</p> <p>Graph a relation from a table of values.</p>

<p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u> WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4 RST.6-8.7 RST.6-8.9 RST.6-8.10</p> <p><u>Speaking and Listening</u> SL.8.1.C SL.8.1.D SL.8.4 SL.8.6</p> <p><u>Technology Literacy</u> 8.1.8.A.5 8.1.8.E.1</p> <p><u>Science</u> 5.2.12.E.1 5.2.8.E.2</p>	<p>Function maps.</p> <p>The unit rate is the change in the y value per 1 unit change in the x value.</p> <p>Undefined slope is defined as a vertical line.</p> <p>Parent linear, exponential, and quadratic functions.</p> <p>The vertical motion model.</p> <p>A linear function is defined by an equation in slope-intercept, standard, or point-slope form whose graph is a straight line.</p> <p>The rate of change is the ratio that compares the change in the y values to the change in the x values between two points.</p> <p>VOCABULARY: relation, input, output, function, vertical line test, linear function, rate of change, nonlinear function</p> <p>KEY TERMS: mapping, types of relations, increasing function, decreasing function</p>	<p>Write a function representing a given graph or table of values.</p> <p>Using the unit rate (slope), compare properties of two functions each represented algebraically, graphically, numerically, or by verbal descriptions.</p> <p>Use the vertical line test to identify if a relation is a function.</p> <p>Identify and compare linear, exponential and quadratic models.</p> <p>Solve for an unknown quantity using the vertical motion model.</p> <p>Science Interdisciplinary: Students will assess the changes in variables based on experiments conducted in Science lab utilizing vertical motion model in various scenarios.</p> <p>Graph functions to show the relationship represented by a set of ordered pairs.</p> <p>Determine the rate of change and initial value of a function from a description of a relationship or from two ordered pairs, algebraically, numerically, or graphically.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments, Quizzes
- Math in Focus Chapter & Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

- Systems of Equations project—reference Appendix B (Project could be used during Unit III to illustrate relationships between functions)

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 8 Mathematics
Unit III: Relationships and Functions

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4 Weeks	<p>Unit III: Relationships and Functions</p> <ul style="list-style-type: none"> • Understanding Relations and Functions • Representing Functions • Understanding Linear and Non-Linear Functions • Comparing Two Functions 	<p>Worksheets www.mathmix.com http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Brain Pop Videos http://www.brainpop.com/math/ Holt Mathematics Course 3 Textbook Math in Focus – Singapore Math Textbook Function Jeopardy game http://www.mathwarehouse.com/games/jeopardy/math-function-relation-jeopardygame.php Clarifying activities: Linear Functions http://www.utdanacenter.org/mathtoolkit/downloads/activities/alg1/alg1_linear.pdf Function Rule Practice: http://www.studyzone.org/mtestprep/math8/g/7functionrulep.cfm Video: Determining whether a relation is a function http://www.brightstorm.com/math/algebra/graphs-and-functions/relations-anddetermining-whether-a-relation-is-a-function</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 8 Mathematics
UNIT IV: Pythagorean Theorem and Volume of Geometric Solids

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>8.G.B.6 Explain a proof of the Pythagorean Theorem and its converse.</p> <p>8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.</p> <p>8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.</p> <p>8.G.C.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</p> <p>8.EE.A.2 Use square root and cube root symbols to represent solutions to equations of the form $x^2=p$ and $x^3=p$, where p is a positive rational number.</p>	<p>The Pythagorean Theorem describes the relationship among the three sides of a right triangle.</p>	<ul style="list-style-type: none"> • What are real world applications of the Pythagorean theorem?
	<p>The distance formula is used to find the distance between any two points on a plane.</p>	<ul style="list-style-type: none"> • How are formulas developed from mathematical theorems?
	<p>The Pythagorean Theorem can be used to find volume of composite solids.</p>	<ul style="list-style-type: none"> • Why do we need to apply the Pythagorean Theorem when solving for volume of composite solids?
	KNOWLEDGE	SKILLS
<p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p>	<p>Students will know:</p> <p>The Pythagorean Theorem applies to right triangles.</p> <p>The converse of the Pythagorean Theorem.</p> <p>There are many proofs of the Pythagorean Theorem.</p> <p>The distance formula can be used to find the distance</p>	<p>Students will be able to:</p> <p>Use the Pythagorean Theorem to find unknown side lengths in real world problems.</p> <p>Use the converse of the Pythagorean Theorem to determine if a triangle is a right triangle.</p> <p>Explain a proof of the Pythagorean Theorem and its converse.</p> <p>Find the distance between two points on a graph</p>

<p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u> WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4 RST.6-8.7 RST.6-8.9 RST.6-8.10</p> <p><u>Speaking and Listening</u> SL.8.1.C SL.8.1.D SL.8.4 SL.8.6</p> <p><u>Technology Literacy</u> 8.1.8.A.5 8.2.8.B.1</p>	<p>between two points on a coordinate plane.</p> <p>Formulas for the volumes of cones, cylinders, and spheres</p> <p>The relationship between formulas for volume of geometric solids.</p> <p>Triangles can be used to find unknown lengths in geometric solids.</p> <p>VOCABULARY: Pythagorean Theorem, hypotenuse, leg, cylinder, cone, sphere, volume</p> <p>KEY TERMS: right triangle, three-dimensional figures, base, side, slant height, height, central diagonal, dimensions, lateral area, surface area</p>	<p>using the distance formula.</p> <p>Use the volume formulas to solve real-world and mathematical problems.</p> <p>Describe the similarities between the volumes of mathematical solids.</p> <p>Apply the Pythagorean Theorem to find the slant height of pyramids and cones or the length of diagonals in prisms.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments, Quizzes
- Math in Focus Chapter & Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 8 Mathematics
Unit IV: Pythagorean Theorem and Volume of Geometric Solids

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4 Weeks	<p>Unit IV: Pythagorean Theorem & Volume of Geometric Solids</p> <ul style="list-style-type: none"> • Understanding the Pythagorean Theorem and Plane Figures • Understanding the distance Formula • Understand the Pythagorean Theorem and Solids • Identifying Volumes of Composite Solids 	<p>Worksheets www.mathmix.com http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Brain Pop Videos http://www.brainpop.com/math/ Holt Mathematics Course 3 Textbook Math in Focus – Singapore Math Textbook Interactive math practice www.ixl.com STEM Worksheets www.superteacherworksheets.com 3-D Geometry shapes and nets “Moving day” activity http://www.learningresources.com/text/pdf/8521book.pdf Finding surface area and volume activity http://illuminations.nctm.org/LessonDetail.aspx?ID=U166 Pythagorean Theorem Calculator http://www.algebra.com/calculators/geometry/pythagorean.mpl</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 8 Mathematics
UNIT V: Geometry

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>8.G.A.1.A Lines are taken to lines, and line segments to line segments of the same length.</p> <p>8.G.A.1.B Angles are taken to taken to angles of the same measure.</p> <p>8.G.A.1.C Parallel lines are taken to parallel lines.</p> <p>8.G.A.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections and translations.</p> <p>8.G.A.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.</p> <p>8.G.A.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations and dilations.</p> <p>8.G.A.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion</p>	Geometry is the study of shapes and their relationships.	<ul style="list-style-type: none"> • How do shapes define our world?
	Transformations can be performed on any geometric figure.	<ul style="list-style-type: none"> • How can you verify that certain transformations maintain the size and shape of the original figure?
	Both congruent figures and similar figures can be related by geometric transformations.	<ul style="list-style-type: none"> • What are the similarities and differences between congruent and similar figures?
	KNOWLEDGE	SKILLS
	<p>Students will know:</p> <p>Congruent figures have the same size and shape.</p> <p>Similar figures have the same shape and may have different sizes.</p> <p>Similar figures are proportionally related using a scale factor.</p>	<p>Students will be able to:</p> <p>Use a series of one or more transformations to map one congruent figure to another.</p> <p>Use a series of one or more dilations to map one figure to another.</p> <p>Describe a sequence of transformations to prove or disprove that two given figures are similar.</p> <p>Apply a given scale factor in order to create similar figures.</p>

<p>for similarity of triangles.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u></p> <p>WHST.6-8.1.B</p> <p>WHST.6-8.1.C</p> <p>RST.6-8.3</p> <p>RST.6-8.4</p> <p>RST.6-8.7</p> <p>RST.6-8.9</p> <p>RST.6-8.10</p> <p><u>Speaking and Listening</u></p> <p>SL.8.1.C</p> <p>SL.8.1.D</p> <p>SL.8.4</p> <p>SL.8.6</p> <p><u>Technology Literacy</u></p> <p>8.1.8.A.5</p> <p>8.2.8.B.1</p>	<p>There is a relationship between scale factors and the areas of similar figures.</p> <p>When writing a statement of congruence or similarity for two figures, the corresponding vertices must be matched in the same order.</p> <p>Transformations and dilations on a coordinate plane can be done without the use of a visual aid.</p> <p>Properties of exterior angles in polygons.</p> <p>Geometric transformations can be applied to angles, lines, and two-dimensional figures.</p> <p>VOCABULARY: translation, map, image, transformation, invariant point, reflection, line of reflection, rotation, center of rotation, clockwise, counterclockwise, angle of rotation, half turn, dilation, scale factor, center of dilation, isometry, congruence, corresponding angles, corresponding sides, statement of congruence, similarity</p> <p>KEY TERMS: vertical, horizontal, enlarged, reduced</p>	<p>Find a scale factor given similar figures.</p> <p>Explain the effect of the scale factor on the area of similar figures.</p> <p>Write congruency statements that display the proper order of corresponding vertices.</p> <p>Describe the changes occurring to the x- and y-coordinates of a figure after a transformation or dilation.</p> <p>Find unknown exterior angles of polygons from given information.</p> <p>Find the images of lines, angles, and parallel lines under rotations, reflections, translations, and dilations.</p> <p>Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments, Quizzes
- Math in Focus Chapter & Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

- Geometric Transformations Project—reference Appendix C
- MATH Financial Literacy Project—reference folder on Shared Drive

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 8 Mathematics
Unit V: Geometry

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
7 weeks	<p>Unit IV: Geometry</p> <ul style="list-style-type: none"> • Translations • Reflections • Rotations • Dilations • Comparing Transformations • Understanding and Applying Congruent Figures • Understanding and Applying Similar Figures • Congruent and Similar Figures to Geometric Transformations • Angles & Lines 	<p>Worksheets www.mathmix.com http://www.kutasoftware.com/ www.mathblaster.com Illuminations Activities http://illuminations.nctm.org Brain Pop Videos http://www.brainpop.com/math/ Holt Mathematics Course 3 Textbook Math in Focus – Singapore Math Textbook Interactive math practice www.ixl.com STEM Worksheets www.superteacherworksheets.com Blow'em up Cartoon http://connect.discoveryeducation.com/index.cfm</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 8 Mathematics
UNIT VI: Data Analysis

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p><u>Mathematics</u></p> <p>8.SP.A.1 Construct and interpret scatter plots for bivariate measurement data to investigate patters on association between two quantities.</p> <p>8.SP.A.2 Know that straight lines are widely used to model relationships between two quantitative variables. Informally fit a straight line on a scatter plot and assess the model fit by judging the closeness of the data.</p> <p>8.SP.A.3 Use the equation of linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.</p> <p>8.SP.A.4 Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies to describe possible association between the two variables.</p> <p><u>Mathematical Practices</u></p> <p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p>	Data analysis often reveals patterns and enables prediction.	<ul style="list-style-type: none"> • How can predictions be made from data?
	Choices in data collection and representation affect their interpretation and use.	<ul style="list-style-type: none"> • How is data analysis used to make informed decisions about uncertain events?
	A line of best fit can be used to model the linear association of bivariate quantitative data.	<ul style="list-style-type: none"> • How can a line of best fit model the relationship between variables?
	KNOWLEDGE	SKILLS
	<p>Students will know:</p> <p>Scatter plots can be used to show and investigate the patterns of association between bivariate data.</p>	<p>Students will be able to:</p> <p>Construct a scatter plot given two sets of quantitative data.</p> <p>Identify patterns of association between two sets of quantitative data.</p> <p>Science Interdisciplinary: Using data gathered during science lab such as International Boiling Point Project, students will construct and analyze a scatter plot for a real-world situation.</p>

<p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p> <p><u>CCSS.ELA-Science & Technical</u> WHST.6-8.1.B WHST.6-8.1.C RST.6-8.3 RST.6-8.4 RST.6-8.7 RST.6-8.9 RST.6-8.10</p> <p><u>Speaking and Listening</u> SL.8.1.C SL.8.1.D SL.8.4 SL.8.6</p> <p><u>Technology Literacy</u> 8.1.8.A.5 8.2.8.D.1</p> <p><u>Science</u> 5.2.6.A.3 5.2.8.A.3</p>	<p>An outlier is a data point that is numerically distant from the rest of the data points in the data set.</p> <p>The line of best fit can be used to interpret the association between bivariate data represented in a scatter plot.</p> <p>An equation for the line of best fit can help to estimate unknown values in a situation or make predictions.</p> <p>There are two different methods for making predictions called interpolation and extrapolation.</p> <p>A two-way table can be used to represent data and study the association between two categorical data sets of a population.</p> <p>VOCABULARY: scatter plot, quantitative data, association, bivariate data, clustering, line of best fit, interpolate, extrapolate, two-way table, categorical data, qualitative data</p> <p>KEY TERMS: horizontal axis, vertical axis, data points, strong association, weak association, no association, bivariate data</p>	<p>Identify outliers in a scatter plot.</p> <p>Draw a line of best fit that best represents the data set, if applicable.</p> <p>Write a linear equation for the line of best fit.</p> <p>Use the line of best fit to make estimates or predictions.</p> <p>Make predictions within a data set as well as outside a data set.</p> <p>Create a two-way table to record the frequencies of bivariate categorical values.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Pre-assessments, Quizzes
- Math in Focus Chapter & Benchmark Assessments

KEY LEARNING EVENTS AND INSTRUCTION:

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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Grade 8 Mathematics
Unit VI: Data Analysis

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
<p>3 Weeks</p>	<p>Unit VI: Data Analysis</p> <ul style="list-style-type: none"> • Scatter Plots • Modeling Linear Associations • Best-Fit Linear Models • Two-Way Models 	<p>Worksheets www.mathmix.com http://www.kutasoftware.com/ www.mathblaster.com Brain Pop Videos http://www.brainpop.com/math/ Holt Mathematics Course 3 Textbook Math in Focus – Singapore Math Textbook Evaluate Linear Functions http://www.ixl.com/math/grade-8/evaluate-a-linear-function Satisfying a linear equation http://www.ixl.com/math/grade-8/does-x-y-satisfy-the-linear-equation Students will plot points on a coordinate grid to represent ships before playing a graphing equations game with a partner. http://illuminations.nctm.org/LessonDetail.aspx?id=L782 Videos, worksheets, stories and songs to help Grade 8 students learn about scatter Plots, Line of Best Fit and Correlation. http://www.onlinemathlearning.com/scatter-plot.html Interactive activity on line of best fit http://illuminations.nctm.org/ActivityDetail.aspx?ID=146</p>

APPENDIX A

Math in Focus: Singapore Math by Marshall Cavendish ISBN: 978-0-547-56098-4
Math in Focus Activity Book ISBN: 978-0-547-57898-9
Math in Focus Singapore Online Resources
Math in Focus Singapore Exam View
Math in Focus Singapore Activity Book
Math in Focus Singapore Brain @ Work
Math in Focus Singapore Enrichment
Math in Focus Singapore Activity Book
Math in Focus Singapore Vocabulary Review
Math in Focus Singapore Reteach
Math in Focus Singapore Spanish Edition
Big Ideas Math Textbook ISBN: 978-1-60840-231-1
Explorations in Core Math for Common Core Grade 8 ISBN: 978-0-547-87643-6
Holt Mathematics Course 3 Textbook ISBN: 0-03-092946-6
Holt Mathematics Grade 8 Textbook for Common Core ISBN: 978-0-547-64727-2
Mastering the Common Core in Mathematics Grade 8 Textbook ISBN: 978-1-59807-339-3
Glencoe Math Course 8 Textbook ISBN: 978-0-07661-929-0
Clarifying Expectations for Teachers & Students by McGraw Hill for Grade 8 Common Core ISBN: 978-007-662900-8
Partnership for Assessment of Readiness for College and Careers - <http://www.parcconline.org/>
Common Core State Standards Initiative - <http://www.corestandards.org/>
Khan Academy Videos www.khanacademy.org

APPENDIX B

Resource: Systems of Equations (Unit II Project)

Name: _____ Date: _____ Per: _____

Systems of Equations

21 Points

Directions: *The following real world problem relates to your classwork on linear equations and solving systems of linear equations. In your group, you will have 20 minutes to read through, discuss each question, and determine which strategies to use. After discussing with your group, you will have the rest of the hour today and tomorrow to complete the performance task. The rubric for grading is provided on the back.*

You are working as a representative for a cell phone company. Part of your job requires you to visually display the available cell phone plans. This way you can easily point out the advantages of each plan to the customers.

Part A:

There are three cell phone plans. All plans include unlimited calling, free nights and weekends, and free long distance. Write an equation for each cell phone plan.

Plan A costs \$40 a month and \$0.10 per text message. _____

Plan B costs \$100 a month and has unlimited text messaging. _____

Plan C costs \$50 a month and \$0.05 per text message. _____

Part B:

On the paper provided, graph the three cell phone plans. Each cell phone plan should be clearly labeled with an equation. The graph should be labeled and neat.

Part C:

APPENDIX B - Continued

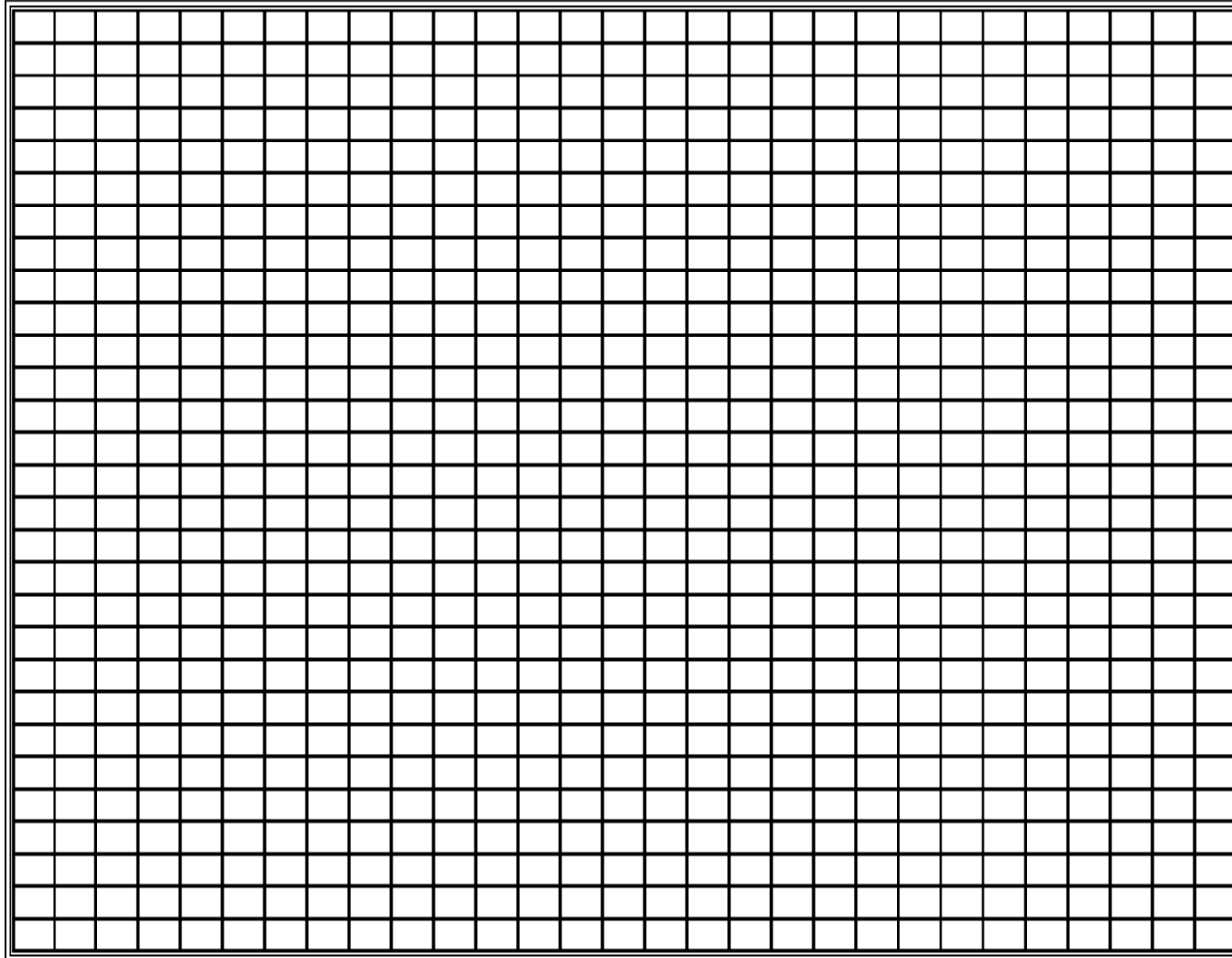
A customer would like to know which cell phone plan will be the cheapest choice. Show your math work below. Then, in 4 – 5 Sentences, explain which phone plan would be the cheapest choice for the customer and why.

Part D:

A customer explains that she typically sends an average of 400 text messages per month. Which cell phone plan would be the best choice for the customer? Show your math work below. Then, in 4 – 5 sentences, explain which cell phone plan would be the best choice for the customer.

APPENDIX B - Continued

Part B: Title: _____



APPENDIX B - Continued

Rubric:

Equations (Part A):

- 3 - 3/3 equations are correctly written in $y=mx+b$ form.
- 2 - 2/3 equations are correctly written in $y=mx+b$ form.
- 1 - 1/3 equations are correctly written in $y=mx+b$ form.
- 0 - 0/3 equations are correctly written in $y=mx+b$ form.

Graphing (Part B) Equations:

- 3 - Equations are correctly graphed and labeled.
- 2 - Equations are correctly graphed and labeled with minor errors.
- 1 - Equations are correctly graphed but not labeled, or equations are incorrectly graphed but labeled.
- 0 - Equations are incorrectly graphed and not labeled.

Graph (Part B):

- 3 - The graph is neat and all parts are labeled.
- 2 - The graph is neat and most parts are labeled.
- 1 - The graph is neat and not labeled, or the graph is not legible and labeled.
- 0 - The graph is not legible and not labeled.

Solving Systems (Part C):

- 3 - Shows understanding of the problems mathematical understandings and principles.
- 2 - Shows understanding of the problems mathematical understanding and principles with minor errors.
- 1 - Show little understanding of the problems mathematical understanding and principles.
- 0 - Shows no understanding of the problems mathematical understanding and principles.

Written Explanation for Customer (Part C):

- 3 - Shows understanding of the problems mathematical understandings and principles.
- 2 - Shows understanding of the problems mathematical understanding and principles with minor errors.
- 1 - Show little understanding of the problems mathematical understanding and principles.
- 0 - Shows no understanding of the problems mathematical understanding and principles.

APPENDIX B – Continued

Solve Equations (Part D):

- 3 – Shows understanding of the problems mathematical understandings and principles.
- 2 – Shows understanding of the problems mathematical understanding and principles with minor errors.
- 1 – Show little understanding of the problems mathematical understanding and principles.
- 0 – Shows no understanding of the problems mathematical understanding and principles.

Written Explanation for Customer (Part D):

- 3 – Shows understanding of the problems mathematical understandings and principles.
- 2 – Shows understanding of the problems mathematical understanding and principles with minor errors.
- 1 – Show little understanding of the problems mathematical understanding and principles.
- 0 – Shows no understanding of the problems mathematical understanding and principles.

APPENDIX C

Resource: Geometric Transformations (Unit V Project)

Name: _____ Date: _____ Per: _____

Describing Geometric Transformations

24 Points

Directions: The figure drawn on the coordinate plane on Page 91 is made up of a circle, four parallelograms, one rectangle and a square. In this project, you will form the figure in the same position by applying transformations to the shapes given on Page 92.

- On the Student Recording Sheet, describe in detail the geometric transformation(s) need to transform Shapes A to F into the figure drawn on Page 91.
- Each shape can undergo more than one geometric transformation.
- The geometric transformations you can use are translations, reflections, rotations, and dilations.

http://my.hrw.com/mif_6/mif_2012/assets/grade8_volB/data/chap08/activity_project.pdf

This link contains the Student Recording Sheet and Materials sheets Page 91 & 92.

This project is available in the Math In Focus Activity Book—Chapter 8.

APPENDIX C - Continued

Rubric:

Shape A:

- 4 – Explanation shows complete understanding of the mathematical concepts used to solve the problem(s).
- 3 – Explanation shows substantial understanding of the mathematical concepts used to solve the problem(s).
- 2 – Explanation shows some understanding of the mathematical concepts needed to solve the problem(s).
- 1 – Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.

Shape B:

- 4 – Explanation shows complete understanding of the mathematical concepts used to solve the problem(s).
- 3 – Explanation shows substantial understanding of the mathematical concepts used to solve the problem(s).
- 2 – Explanation shows some understanding of the mathematical concepts needed to solve the problem(s).
- 1 – Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.

Shape C:

- 4 – Explanation shows complete understanding of the mathematical concepts used to solve the problem(s).
- 3 – Explanation shows substantial understanding of the mathematical concepts used to solve the problem(s).
- 2 – Explanation shows some understanding of the mathematical concepts needed to solve the problem(s).
- 1 – Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.

Shape D:

- 4 – Explanation shows complete understanding of the mathematical concepts used to solve the problem(s).
- 3 – Explanation shows substantial understanding of the mathematical concepts used to solve the problem(s).
- 2 – Explanation shows some understanding of the mathematical concepts needed to solve the problem(s).
- 1 – Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.

Shape E:

- 4 – Explanation shows complete understanding of the mathematical concepts used to solve the problem(s).
- 3 – Explanation shows substantial understanding of the mathematical concepts used to solve the problem(s).
- 2 – Explanation shows some understanding of the mathematical concepts needed to solve the problem(s).
- 1 – Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.

APPENDIX C - Continued

Shape F:

- 4 – Explanation shows complete understanding of the mathematical concepts used to solve the problem(s).
- 3 – Explanation shows substantial understanding of the mathematical concepts used to solve the problem(s).
- 2 – Explanation shows some understanding of the mathematical concepts needed to solve the problem(s).
- 1 – Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.

**Randolph Township Schools
Randolph High School**

Journalism I

“Journalism is the first rough draft of history.”

—Philip L. Graham

**Humanities Department
Benjamin Horwitz, Supervisor**

**Curriculum Committee
Janice Finnell
Rivka Miller
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**Curriculum Developed:
July 2016**

**Date of Board Approval:
TBA**

Randolph Township Schools
Department of Humanities
Journalism I

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first.
- Mutual respect and trust are the cornerstones of a learning community.
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members.
- A successful learning community communicates honestly and openly in a non-threatening environment.
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways.
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences.
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth.

Randolph Township Schools
Department of Humanities Studies
Journalism I

Introduction

Journalism I is the first year of the two-year journalism program. It provides a general introduction to the field of journalism and helps students acquire basic journalism skills. This class focuses on the process of newsgathering and writing in four core forms of journalism—news, sports, features, and editorials—suitable for both print and online publications.

Units of study include the ABCs of Reporting, Understanding Bias and Angle, The High School Newsroom, Media Law and Ethics, and Online Reporting. Students also learn effective interviewing and reporting techniques, how to proofread and edit accurately, and the art of collaboration and peer review.

This course also explores general topics and issues related to the field, including responsible reporting, First Amendment rights, the history of American journalism, newsroom structure, citizenship reporting, and other modern-day trends. Students will be able and encouraged to submit articles to *Ram-Page*, the school newspaper. This course will not only introduce students to these components of journalism, but also provide them with knowledge and skills that will have a real-life application beyond the classroom.

The New Jersey State Common Core Content Standards for English Language Arts, the Core Curriculum Content Standards for Social Studies, the New Jersey Student Learning Standards: 21st Century Life and Careers, New Jersey's Technology Standards, and the standards and goals established by the Randolph Township Board of Education will guide the course.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Journalism I

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
6 weeks	I	The ABCs of Reporting
3 weeks	II	Writing Across the Discipline
5 weeks	III	The History of Journalism in America
4 weeks	IV	Understanding News: Bias and Angle
5 weeks	V	The High School Newsroom
4 weeks	VI	Media Law and Ethics
4 weeks	VII	Online Reporting
5 weeks	VIII	Public Relations and Marketing

36 weeks is the average

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Journalism I

UNIT I: The ABCs of Reporting

TRANSFER: Students will be able to conduct research, analyze current events, and produce a piece of writing that conforms to journalistic standards.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>W.9-10.2: Write informative/explanatory text to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p> <p>W.9-10.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>W.9-10.6: Use technology, including the Internet, to produce, taking advantage of technology's capacity to link to other information and to display information.</p> <p>W.9-10.8: Gather relevant information from multiple authoritative print and digital sources, using advanced searched effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</p>	Reporters must understand the basic elements of what constitutes newsworthiness including timeliness, conflict, emotional impact, proximity, novelty, and prominence.	<ul style="list-style-type: none"> • What is news?
	The basic tenets of journalism, including the ABCs of journalism (accuracy, brevity, clarity) and the 5Ws, 1H approach to writing (who, what, when, where, why, how), impact the readers' understanding of current events and guide reporters in their writing of news.	<ul style="list-style-type: none"> • How do key elements of journalism affect our reading of the news?
	Reporters write their stories based on four components (news lead, engine paragraph, body, and conclusion) in order to best facilitate the reader's understanding of a current event.	<ul style="list-style-type: none"> • How does the organization of an article impact writers and readers?

<p>W.9-10.9: Draw evidence from literary or informational texts to support analysis, reflection, and research</p> <p>W.11-12.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.</p> <p>RI.9-10.2: Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.</p> <p>RI.11-12.4: Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>SL.9-10.1: Initiate and participate in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.</p> <p>SL.9-10.2: Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.</p> <p>SL.9-10.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.</p>	<p>Reporters must be adept at all aspects of the reporting process, as they may overlap: finding stories, doing background research, writing interview questions, conducting interviews, taking notes, attributing quotes, following up, and working with an editor to create balanced and truthful articles.</p>	<ul style="list-style-type: none"> • Why is the reporting process more circular than linear? • What skills are required to be a good reporter?
	<p>The definition of being a successful reporter varies depending on the type of publication—tabloid versus broadsheet, for example—and intended audience.</p>	<ul style="list-style-type: none"> • Why are there different definitions of successful reporting?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Using the 5Ws, 1H approach to journalism is a successful way to create a news lead.</p> <p>The basic tenets of journalism include the ABCs of reporting.</p> <p>The basic four-part structure of a news article provides necessary organization for the writer and reader.</p>	<p>Students will be able to:</p> <p>Create a clear and concise opening paragraph (“news lead”).</p> <p>Analyze news articles that successfully incorporate the ABCs.</p> <p>Produce a clear and concise news story that includes the four components of story structure.</p> <p>Research a topic and organize information from</p>

<p>L.11-12.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.</p> <p>L.11-12.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.</p> <p>(21CLC) 9.3.12.AR-JB.2: Demonstrate writing processes used in journalism and broadcasting.</p>	<p>An inverted pyramid structure ensures that the most important information in a news story is in the lead and that it becomes progressively less important as the story unfolds.</p> <p>News gathering and reporting is a non-linear, circular process.</p> <p>KEY TERMS: Headline, lead, engine/nut graph, body, conclusion, accuracy, brevity, clarity, news, attribution, story, fair, accurate, balanced, ABCs of journalism, 5Ws and 1H, e full disclosure, breaking news, catastrophe coverage, timeliness, conflict, emotional impact, proximity, novelty, prominence</p>	<p>most important to least important.</p> <p>Gather information for a news story and follow all of the necessary steps, including interviewing a classmate, writing the story, following up with the classmate to make any necessary edits, and submitting the story for publication in <i>Ram-Page</i> or on a local news site.</p>
<p>ASSESSMENT EVIDENCE: Students will show their learning by:</p> <ul style="list-style-type: none"> ● Writing reflective journals on the tenets of journalism. ● Creating a clear and concise story that successfully incorporates the following techniques: 5Ws and 1H, ABCs, four-part structure, and inverted pyramid. <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none"> ● Read and annotate news articles to determine how successfully they incorporate the key elements of journalistic writing. ● Evaluate the organization of an article and assess the top-to-bottom flow of information; label the elements; create an 		

article that follows the format.

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Journalism I

Unit I: The ABCs of Reporting

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
6 Weeks	<p>The ABCs of Reporting</p> <ul style="list-style-type: none">● News story structural techniques● Basic tenets of journalism● Self-reflection● Current events	<p><i>Newseum.org</i></p> <p><i>Americanpressinstitute.org</i></p> <p><i>Highered.mheducation.com (Inside Reporting)</i></p> <p><i>Pulitzercenter.org</i></p> <p><i>hsj.org</i> and <i>poynter.org</i> activities</p> <p><i>Time Magazine's 9/11 coverage:</i> <i>http://www.time.com/time/covers/1101020909/index.html</i></p> <p>Profile of Bill Biggart, journalist killed taking photos at Ground Zero on 9/11: <i>https://www.youtube.com/watch?v=g8IGShWsx78</i></p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Journalism I

UNIT II: Writing Across the Discipline

TRANSFER: Using knowledge of journalistic disciplines, students will be able to tailor their writing to suit the specific genre for which they are writing.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>W.9-10.2: Write informative/ explanatory text to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p> <p>W.9-10.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>Sports writers must not show partisanship for the sport and know the elements of a great sports story, which include the use of active verbs, the absence of clichés, and an interpretation of a sporting event, not just a play-by-play reporting of it.</p>	<ul style="list-style-type: none"> • How can a sports writer create a balanced story about a sporting event? • What makes a great sports story?
<p>W.9-10.6: Use technology, including the Internet, to produce, taking advantage of technology’s capacity to link to other information and to display information.</p> <p>W.9-10.8: Gather relevant information from multiple authoritative print and digital sources, using advanced searched effectively; assess the usefulness of each</p>	<p>Feature writing may be the most creative form of journalism because it encourages the use of literary devices as well as plot, characterization, and other elements of storytelling because they help paint a complete picture for the reader of the subject or topic.</p>	<ul style="list-style-type: none"> • Why should features incorporate more creative elements than news stories?

<p>source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</p> <p>W.9-10.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <p>W.11-12.2: Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p> <p>W.11-12.3: Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.</p> <p>W.11-12.5: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</p> <p>W.11-12.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.</p> <p>RI.9-10.2: Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.</p> <p>RI.11-12.4: Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and</p>	<p>The editorial pages are the one section in which news organizations and columnists are encouraged to convey their opinion on a news topic.</p>	<ul style="list-style-type: none"> • Why should editorials be separate from other sections in a news source?
<p>A profile is an in-depth article on a notable person that addresses not only what makes him/her newsworthy but also his/her personal side in a creative and compelling way.</p>	<ul style="list-style-type: none"> • What makes a profile strong? 	
<p>KNOWLEDGE</p>	<p>SKILLS</p>	
<p>Students will know:</p> <p>Commonly used sports clichés and the importance of original phrasing.</p> <p>Objectivity in sports writing means being neutral in the coverage of a sporting event.</p> <p>Feature stories incorporate elements of storytelling such as characterization and plot (as opposed to the pyramid structure).</p> <p>Editorial writing utilizes the “we” voice to express the opinion of a news organization as well as the opposing view.</p>	<p>Students will be able to:</p> <p>Identify commonly used sports clichés.</p> <p>Create original phrasing in place of clichés.</p> <p>Craft a sports piece that demonstrates objectivity.</p> <p>Write a quality feature story that successfully implements the proper stylistic and content elements.</p> <p>Analyze and generate an editorial that expresses opinion and uses a point-counterpoint technique.</p>	

technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).

RI.11-12.8: Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., *The Federalist*, presidential addresses).

SL.9-10.1: Initiate and participate in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

SL.9-10.2: Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.

SL.9-10.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

L.11-12.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

L.11-12.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

(21CLC) 9.3.12.AR-JB.2: Demonstrate writing processes used in journalism and

Profiles focus on noteworthy individuals and highlight their contributions to society as well as personal triumphs and tribulations.

KEY TERMS:

Features, profiles, editorials, characterization, plot, editorial “we” voice, soft news, “evergreen,” cliché, sports slang, column, subjective and objective writing, point-counterpoint

Create two separate columns arguing both sides of an editorial worthy topic.

Select and interview a subject and write a publishable profile on a noteworthy member of the Randolph High School or local community.

broadcasting.		
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Selecting a topic that suits one of the disciplines (sports, feature, profile, editorial) and writing a fully realized piece that is suitable for publication in *Ram-Page*.

KEY LEARNING EVENTS AND INSTRUCTION:

- Students will read and annotate selected professional samples in each genre in order to understand the difference between creating a superior piece and a mediocre one.
- Full-class discussions on the structure of different pieces of writing.

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Journalism I

Unit II: Writing Across the Discipline

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	Writing Across the Discipline <ul style="list-style-type: none">● Writing sports stories● Writing feature stories● Writing profile stories● Writing for the editorial page● Opinion versus news writing● Current events	Editorial archives for <i>The New York Times</i> : topics.nytimes.com/top/opinion/editorialsandoped/editorials/index.html Roundup of great feature articles: theatlantic.com/entertainment/archive/2011/05/early-100-fantastic-pieces-of-journalism/238230/ sportsjournalism.org/site-archive/

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Journalism I

UNIT III: The History of Journalism in America

TRANSFER: Students will be able to analyze key historical events and their impact on modern day journalism.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>W.9-10.2: Write informative/ explanatory text to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p>	<p>Freedom of the press impacts other Constitutional freedoms, benefits reporters and civilians alike, and is essential for the dissemination of information.</p>	<ul style="list-style-type: none"> • What would be the impact on society if freedom of the press did not exist?
<p>W.9-10.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>The introduction of the newspaper provided the American people with a more convenient and accessible way of learning about current events.</p>	<ul style="list-style-type: none"> • How has the introduction of the newspaper impacted American culture?
<p>W.9-10.6: Use technology, including the Internet, to produce, taking advantage of technology’s capacity to link to other information and to display information.</p>	<p>The history of newspapers allows us to reflect on societal trends in the sharing of news and other information.</p>	<ul style="list-style-type: none"> • Why is it important to study the history of news delivery? • How do changes in news delivery reflect societal changes?
<p>W.9-10.8: Gather relevant information from multiple authoritative print and digital sources, using advanced searched effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</p>	<p>Throughout history, journalists have taken risks that have impacted future journalists and consumers of news.</p>	<ul style="list-style-type: none"> • Why do journalists take risks?

<p>W.9-10.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.</p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>W.11-12.2: Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p> <p>W.11-12.5: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</p> <p>W.11-12.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.</p> <p>RI.9-10.2: Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.</p> <p>RI.11-12.4: Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>RI.11-12.8: Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and</p>	<p>Students will know:</p> <p>The contents and significance of the First Amendment and how it applies to the professional press and high school journalists.</p> <p>A basic timeline of American journalism and how its history connects and builds upon itself—for example, how America’s first newspaper, <i>Publick Occurrences</i>, founded in 1690, led to the creation of the <i>Boston News-Letter</i> in 1704.</p> <p>The contributions that significant journalists have made globally throughout history from Nelly Bly (a late-nineteenth century pioneer in investigative journalism) to Julian Assange (started <i>Wikileaks</i> in 2006).</p> <p>How standards of journalistic writing have changed throughout America’s history; for example, standards loosened with the advent of tabloid journalism with New York’s <i>Daily News</i> in 1919.</p>	<p>Students will be able to:</p> <p>Identify and explain how freedom of the press is one the five basic freedoms guaranteed by the First Amendment to the U.S. Constitution (in addition to religion, speech, assembly, and petition).</p> <p>Create a timeline of American journalism and analyze how prior events impact later events.</p> <p>Research past journalists and analyze the impact they have had on society.</p> <p>Compare and contrast the styles of journalistic writing over the course of America’s history and how they reflect society.</p>

dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., *The Federalist*, presidential addresses).

RI.11-12.9: Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address) for their themes, purposes, and rhetorical features.

SL.9-10.1: Initiate and participate in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

SL.9-10.2: Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.

SL.9-10.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

L.11-12.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

L.11-12.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

(SS) 6.1.12.A.2.a: Assess the importance of the intellectual origins of the Foundational Documents (i.e., Declaration

KEY TERMS:

First Amendment, freedom of the press, Constitution, American Revolution, Linotype and letterpress printing, Golden Age of journalism, muckrakers, yellow journalism, tabloids, television, Watergate, mercantile papers, penny papers, photojournalism, Internet, *Publick Occurrences*, telegraph

of Independence, the Constitution, and Bill of Rights) and assess their importance on the spread of democracy around the world.

(SS) 6.1.12.D.2.b: Explain why American ideals put forth in the Constitution (i.e., due process, rule of law, and individual rights) have been denied to different groups of people throughout time.

(SS) 6.1.12.A.3.g: Determine the extent to which state and local issues, the press, the rise of interest-group politics, and the rise of party politics impacted the development of democratic institutions and practices.

(21CLC) 9.3.12.AR-JB.2: Demonstrate writing processes used in journalism and broadcasting.

ASSESSMENT EVIDENCE: Students will show their learning by:

- Creating a timeline of American journalism.
- Researching a significant journalist in the history of American journalism and producing a clear and coherent research paper on that topic.

KEY LEARNING EVENTS AND INSTRUCTION:

- Students will role-play a significant journalist from history and do a presentation on that journalist's background and writing.
- Compare and contrast the styles of journalistic writing—including word use, formality, and levels of accuracy—over the course of America's history and how they reflect society.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Journalism I
Unit III: The History of Journalism in America

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 Weeks	The History of Journalism in America <ul style="list-style-type: none"> ● First Amendment ● Tabloid journalism ● Societal influence ● Advances in technology 	History of Journalism museum exhibit: <i>newseum.org</i> First Amendment Center: <i>firstamendmentcenter.org/tag/high-school- newspaper; Iforall.us/teach-the-first- amendment/</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Journalism I

UNIT IV: Understanding News: Bias and Angle

TRANSFER: Students will be able to evaluate and reduce biases in their writing.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>W.9-10.2: Write informative/ explanatory text to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p> <p>W.9-10.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>Though news corporations are meant to be objective, there is always bias involved, whether knowingly or not, in how news is delivered because of societal and other influences on human beings.</p>	<ul style="list-style-type: none"> • Why is bias unavoidable in news?
<p>W.9-10.6: Use technology, including the Internet, to produce, taking advantage of technology’s capacity to link to other information and to display information.</p>	<p>Bias can be positive because it helps journalists construct an understandable narrative for the reader by enabling them to weed out information that detracts from the story line.</p>	<ul style="list-style-type: none"> • Can bias ever be good in a news story?
<p>W.9-10.8: Gather relevant information from multiple authoritative print and digital sources, using advanced searched effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</p>	<p>It is important to readers that news be objective because reading the “whole” story, both point and counterpoint, enables them to have a clear understanding of the issue at hand so that they can form an educated opinion on the topic.</p>	<ul style="list-style-type: none"> • Why is it important to readers that news be objective?

<p>W.9-10.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <p>W.11-12.2: Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p> <p>W.11-12.3: Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.</p> <p>W.11-12.5: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</p> <p>W.11-12.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.</p> <p>RI.9-10.2: Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.</p> <p>RI.11-12.4: Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p>	<p>The information that the journalist chooses to include in a story reveals bias because the journalist may also be excluding information that would balance the story but potentially detract from his or her narrative angle.</p>	<ul style="list-style-type: none"> • How is the journalist’s selection of information biased?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know: Bias is a slanted presentation of information meant to satisfy the predominant view of a publication’s readership in order to maintain or increase circulation and advertising sales.</p> <p>A news angle is the way writers slant their pieces to meet their objective.</p> <p>The news angle is the most important aspect of the news story because it focuses the narrative and displays a reporter’s understanding of his/her audience.</p> <p>Communications firms often feed stories to news outlets and may influence a reporter’s level of bias.</p>	<p>Students will be able to: Identify the bias in an article.</p> <p>Explore coverage of the same news story by different news organizations that appeal to a variety of readerships to evaluate evidence of bias.</p> <p>Identify a writer’s news angle.</p> <p>Evaluate the reporter’s and news organization’s “spin” in an article and its headline in order to identify the probable demographic of the readership.</p> <p>Collaborate with peers to write the same news story from different angles in order to address various readerships.</p>

<p>SL.9-10.1: Initiate and participate in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.</p> <p>SL.9-10.2: Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.</p> <p>SL.9-10.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.</p> <p>L.11-12.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.</p> <p>L.11-12.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.</p> <p>(21CLC) 9.3.12.AR-JB.2: Demonstrate writing processes used in journalism and broadcasting.</p>	<p>KEY TERMS: Bias, angle, spin, objectivity, spin control, readership, target audience, communications firms, subjectivity, censorship, prejudice, sexism, slant</p>	<p>Reangle an existing news story in order to satisfy a specific readership.</p>
<p>ASSESSMENT EVIDENCE: Students will show their learning by:</p> <ul style="list-style-type: none"> ● Writing the same news story from different angles to satisfy various readerships. <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none"> ● Working in small groups, students will be assigned specific angles to use in order to rewrite the same basic news story for various readerships. Groups will read, assess, and reflect on each other's stories and then present their results and findings to the class. 		

- Students will evaluate a variety of news sources—including word choice, narrative focus, and headline—to determine the degree of bias and probable editorial reasoning behind it.
- Working in small groups, students will receive a various articles from two different news sources. Students must read each of the articles and create two piles to identify which articles would appear in the same news source, and students must explain their reasoning for their piles and address a potential target audience for each.

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Journalism I

Unit IV: Understanding News: Bias and Angle

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4 Weeks	Understanding News: Bias and Angle <ul style="list-style-type: none">● Biases● Societal influences● Relationship between reporter/news organization and readership	American Journalism Review: <i>http://ajr.org/2015/04/28/how-the-media-covered-baltimore-riots/</i> Columbia Journalism Review: <i>http://www.cjr.org/behind_the_news/bias_study_falls_437_percent_s.php</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Journalism I

UNIT V: The High School Newsroom

TRANSFER: Students will be able to identify and analyze the hierarchy of a workplace, especially as it applies to a publishing environment.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>W.9-10.2: Write informative/ explanatory text to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p>	<p>Newsgathering is a complex step-by-step process that involves the reporter as well as a hierarchy of publishing professionals who perform various functions to ensure the highest possible level of accuracy.</p>	<ul style="list-style-type: none"> • Why is the process of newsgathering so complex?
<p>W.9-10.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>The structure of a newsroom is designed as a series of checkpoints in order to ensure that copy is published free of factual errors and falsehoods.</p>	<ul style="list-style-type: none"> • How does the structure of a newsroom enhance reporters’ abilities to do their job?
<p>W.9-10.6: Use technology, including the Internet, to produce, taking advantage of technology’s capacity to link to other information and to display information.</p> <p>W.9-10.8: Gather relevant information from multiple authoritative print and digital sources, using advanced searched</p>	<p>The newsroom has its own distinct jargon that is necessary for the successful functioning of this unique environment.</p>	<ul style="list-style-type: none"> • How does “journalism speak” reflect the culture of the newsroom?

<p>effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</p>	<p>All newsrooms, including those at high schools, must adapt in response to their publishing environment, staff, readership, and available resources in order to be relevant and successful.</p>	<ul style="list-style-type: none"> • Why is the high school newsroom different from the professional newsroom?
<p>W.9-10.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.</p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>W.11-12.2: Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p> <p>W.11-12.3: Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.</p> <p>W.11-12.5: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</p> <p>W.11-12.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.</p> <p>RI.9-10.2: Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.</p> <p>SL.9-10.1: Initiate and participate in a range of collaborative discussions (one-</p>	<p>Students will know:</p> <p>Commonly used jargon and its function in the newsroom.</p> <p>Every person in a newsroom has a unique role in the newsgathering and editing process designed to streamline the publishing operation.</p> <p>In order to successfully produce an article for the high school newspaper, students must take into consideration the publishing environment and available resources.</p> <p>A news, sports, or feature story must meet all of the specifications of an editor and/or publisher in order to make it acceptable for publication.</p> <p>To create deadline-driven stories, reporters rely on an ensemble of tools of the trade that range from being accurate in their writing and using</p>	<p>Students will be able to:</p> <p>Identify, explain, and utilize newsroom jargon.</p> <p>Identify and explain the roles and responsibilities of staff in a newsroom.</p> <p>Observe and analyze the <i>Ram-Page</i> editorial process.</p> <p>Produce an appropriate news, sports, or feature story and submit it for publication in <i>Ram-Page</i>.</p> <p>Identify the tools necessary to complete deadline-driven stories under the structure of a newsroom.</p>

<p>on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.</p> <p>SL.9-10.2: Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.</p> <p>SL.9-10.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.</p> <p>L.11-12.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.</p> <p>L.11-12.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.</p> <p>(21CLC) 9.3.12.AR-JB.2: Demonstrate writing processes used in journalism and broadcasting.</p>	<p>proper story structure to working with editors and other newsroom staffers as needed through the final production of their articles.</p> <p>KEY TERMS: Newsroom, byline, dateline, lead, quote, attribution, flag, edition, infographic, deck, text, jump or jumpline, cutline, teaser, wire story, mugshot, art, centerpiece, index, kill, copy, deadline, off the record, logo</p>	
<p>ASSESSMENT EVIDENCE: Students will show their learning by:</p> <ul style="list-style-type: none"> Analyzing the functions of the <i>Ram-Page</i> newsroom by attending an editing session and completing a written assignment as a follow-up based on their findings. Submitting a completed article for <i>Ram-Page</i> then analyzing and reflecting on the changes <i>Ram-Page</i> staff made to their copy in order to publish it. <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none"> Work as a group to identify and assess the roles and responsibilities of staff in a newsroom. Create a mock mini-newsroom, using the proper newsroom jargon and following the correct procedure to see copy from 		

the initial writing stage through final publication.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Journalism I
Unit V: The High School Newsroom

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 Weeks	The High School Newsroom <ul style="list-style-type: none">● Collaboration and hierarchy● Editorial process● Article production	View and critique “All the President’s Men” <i>http://www.imdb.com/title/tt0074119/</i> NYTimes blog on rights and responsibilities: <i>http://learning.blogs.nytimes.com/2011/08/22/student-journalism-a-guide-to-rights-and-responsibilities/?_r=0</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Journalism I

UNIT VI: Media Law and Ethics

TRANSFER: Students will be able to identify and analyze current ethical issues in journalism and be able to apply this knowledge to the ethics of other professions.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>W.9-10.2: Write informative/ explanatory text to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p>	<p>A code of ethics helps reporters to maintain fairness, accuracy, and honesty in reporting, while simultaneously avoiding the “7 Deadly Sins” of ethical reporting.</p>	<ul style="list-style-type: none"> • Why should reporters adhere to a code of ethics?
<p>W.9-10.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>W.9-10.6: Use technology, including the Internet, to produce, taking advantage of technology’s capacity to link to other information and to display information.</p>	<p>American journalists face myriad challenges and risks when reporting abroad because of governments’ varying definitions of what constitutes freedom of the press.</p>	<ul style="list-style-type: none"> • In what ways do governments around the world constrict, or even violate, American journalists’ right to freedom of the press in order to censor, control, or restrict the dissemination of information?

<p>W.9-10.8: Gather relevant information from multiple authoritative print and digital sources, using advanced searched effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</p> <p>W.9-10.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <p>W.11-12.2: Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p> <p>W.11-12.5: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</p> <p>W.11-12.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.</p> <p>RI.9-10.2: Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.</p> <p>RI.11-12.4: Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an</p>	<p>Because publishers have a wide range of goals and values, they also interpret journalistic ethics differently, and it is the responsibility of the consumer to consider the source of information and its likely ethical standards.</p>	<ul style="list-style-type: none"> • Why is the definition of journalistic ethics so debatable?
	<p>Publications manipulate material in order to cater to a specific audience, which serves their own needs and purposes.</p>	<ul style="list-style-type: none"> • What is an acceptable level of alteration of text and/or photos to suit the needs of a publication?
	<p>Reporters must, at all times, be factual, truthful, and accurate in their news stories to produce unbiased, complete news stories in order to maintain a trusting audience.</p>	<ul style="list-style-type: none"> • Why is it the reporter’s responsibility to be balanced and truthful?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know: The “7 Deadly Sins” of ethical reporting include deception, conflict of interest, bias, fabrication, theft, burning a source, and plagiarism.</p> <p>Freedom of the press means journalists have the right to report the news and express their opinions without fear of censorship or reprisal by the government.</p> <p>The Society of Professional Journalists (SPJ) has</p>	<p>Students will be able to: Identify, explain, and avoid committing the “7 Deadly Sins” of ethical reporting.</p> <p>Define and discuss freedom of the press and its importance in not only journalism, but also American society as a whole.</p> <p>Create a student journalist’s code of ethics for the</p>

<p>author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>RI.11-12.8: Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., <i>The Federalist</i>, presidential addresses).</p> <p>RI.11-12.9: Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address) for their themes, purposes, and rhetorical features.</p> <p>SL.9-10.1: Initiate and participate in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.</p> <p>SL.9-10.2: Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.</p> <p>SL.9-10.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.</p> <p>L.11-12.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.</p>	<p>its own code of ethics (seek truth and report it, minimize harm, act independently/avoid conflict of interest, and be accountable and transparent) that reporters must follow, no matter the surrounding circumstances, in order to produce quality and accurate news.</p> <p>The meaning of terms such as libel, slander, invasion of privacy, and freedom of the press is essential to executing the duties of a journalist properly.</p> <p>Breaches of ethics in the field of journalism occur regularly because the need for increased advertising, sales, and readership often trumps the objective presentation of news.</p> <p>KEY TERMS: Freedom of the press, ethics, media law, code of ethics, libel, invasion of privacy, conflict of interest, deception, fabrication, theft, burning a source, plagiarism, photoshop, sic, “7 Deadly Sins” of ethical reporting, slander, intellectual property, copyright, federal shield law, patriot act, fact-checking, catastrophe coverage</p>	<p>duration of the Journalism I course.</p> <p>Identify and define the following terms—libel versus slander, invasion of privacy, and freedom of the press—and study their application in actual journalism case studies.</p> <p>Research, report on, and discuss a journalism ethics case study either selected individually or as assigned by the teacher.</p>
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<p>L.11-12.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.</p> <p>(SS) 6.1.12.A.2.a: Assess the importance of the intellectual origins of the Foundational Documents (i.e., Declaration of Independence, the Constitution, and Bill of Rights) and assess their importance on the spread of democracy around the world.</p> <p>(SS) 6.1.12.D.2.b: Explain why American ideals put forth in the Constitution (i.e., due process, rule of law, and individual rights) have been denied to different groups of people throughout time.</p> <p>(21CLC) 9.3.12.AR-JB.2: Demonstrate writing processes used in journalism and broadcasting.</p>		
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Writing a research paper and presenting an ethics case study involving a “disgraced journalist” in media (print, online, or broadcast journalism) for group discussion.

KEY LEARNING EVENTS AND INSTRUCTION:

- Media Ethics Stations: Students receive examples of ethics cases, and they must independently determine what is and is not ethical, from photoshop to textual content.
- “7 Deadly Sins” Intensive Study and Analysis: Students read various news articles, identify the “sins” as they appear, and explain why it falls under that “sin.”

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Journalism I

Unit VI: Media Law and Ethics

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4 Weeks	Media Law and Ethics <ul style="list-style-type: none"> ● “7 Deadly Sins” ● Freedom of the press ● Libel laws ● Codes of ethics 	Media ethics case studies View and critique <i>Shattered Glass</i> (2003) <i>landing.adobe.com/en/na/products/creative-cloud/69308-real-or-photoshop/</i> (25 Years of Photoshop) <i>spj.org/shieldlaw-faq.asp</i> <i>journalism.nyu.edu/publishing/ethics-handbook/privacy-vs-the-publics-right-to-know/</i> <i>judiciary.house.gov/issue/usa-freedom-act/</i> SPJ Code of Ethics (textbook Appendix)

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Journalism I

UNIT VII: Online Reporting

TRANSFER: Students will have a greater understanding of digital environments and be able to produce material that is suitable for modern-day communication.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>W.9-10.2: Write informative/ explanatory text to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p>	<p>The advantages of online reporting include being able to get news immediately; however, because of the speed of its delivery, that news may contain inaccuracies.</p>	<ul style="list-style-type: none"> • Why might online reporting be preferable to print?
<p>W.9-10.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>Online news sites have taken a toll on print publications because the former allows for faster and cheaper delivery of the news to consumers.</p>	<ul style="list-style-type: none"> • How has online reporting supplanted the need for print publications?
<p>W.9-10.6: Use technology, including the Internet, to produce, taking advantage of technology's capacity to link to other information and to display information.</p>	<p>Online news sites have the benefit of publishing content as needed with unlimited space and a 24-</p>	<ul style="list-style-type: none"> • Why are there differences between online news sites and printed newspapers?

<p>W.9-10.8: Gather relevant information from multiple authoritative print and digital sources, using advanced searched effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</p> <p>W.9-10.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <p>W.11-12.2: Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p> <p>W.11-12.3: Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.</p> <p>W.11-12.5: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</p> <p>W.11-12.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.</p> <p>RI.9-10.2: Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.</p>	<p>hour news cycle rather than adhering to space restrictions and daily, weekly, or even monthly deadlines for printed newspapers.</p>	
	<p>Social networking has helped usher in the new age of citizen journalism, where anyone can create and deliver news content to a targeted readership.</p>	<ul style="list-style-type: none"> • How has social networking changed the face of news?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Online news has threatened the print news business because it adheres to a twenty-four-hour news cycle and is more easily accessible.</p> <p>Advances in technology have a profound effect on the delivery of news because people have access to news through their smartphones at any place or time.</p> <p>Online reporting can be a threat to delivering truthful and accurate news because of competition and speed of news delivery.</p> <p>KEY TERMS:</p>	<p>Students will be able to:</p> <p>Consider and discuss what direction the print medium will take in the future.</p> <p>Track and analyze recent trends in online reporting based on major technological advancements such as the smartphone, multimedia capability, and social media.</p> <p>Compete with classmates to write a truthful and accurate article on a breaking news topic as quickly as possible in order to be the first reporter to get published.</p>

<p>SL.9-10.1: Initiate and participate in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.</p> <p>SL.9-10.2: Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.</p> <p>SL.9-10.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.</p> <p>L.11-12.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.</p> <p>L.11-12.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.</p> <p>(T) 8.1.12.D.1: Demonstrate appropriate application of copyright, fair use and/or Creative Commons to an original work.</p> <p>(T) 8.1.12.D.2: Evaluate consequences of unauthorized electronic access (e.g., hacking) and disclosure, and on dissemination of personal information.</p> <p>(T) 8.1.12.D.3: Compare and contrast policies on filtering and censorship both locally and globally.</p> <p>(T) 8.1.12.D.5: Analyze the capabilities and limitations of current and emerging technology resources and assess their potential to address personal, social,</p>	<p>Citizen journalism, print publication, online reporting, consumers, multimedia, smartphone, social media</p>	
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lifelong learning, and career needs.

(21CLC) 9.3.12.AR-JB.2: Demonstrate writing processes used in journalism and broadcasting.

ASSESSMENT EVIDENCE: Students will show their learning by:

- Researching, writing, and submitting an online news story to a local news organization.
- Analyze the 24-hour news cycle that goes hand-in-hand with online reporting.

KEY LEARNING EVENTS AND INSTRUCTION:

- With a partner, students will compare and contrast an online and a print version of an article written on the same news topic.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Journalism I
Unit VII: Online Reporting

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4 Weeks	Online Reporting <ul style="list-style-type: none"> ● Writing for online news organizations ● Similarities and differences between online and print articles ● Societal influences 	Online news agencies such as: <i>CNN.com</i> , <i>buzzfeed.com</i> , and <i>TAPintoRandolph.net</i> Social networking sites such as: Twitter, Facebook, and YouTube Print news such as: <i>The New York Times</i> , <i>The New York Post</i> , and <i>Randolph Reporter</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Journalism I

UNIT VIII: Public Relations, Marketing, and Advertising

TRANSFER: Students will be able to create a successful marketing, advertising, or public relations campaign and recognize how these disciplines influence their lives and choices.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>RI.11-12.1: Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.</p>	<p>Public relations, marketing, and advertising create positive images for clients, enabling them to promote brands and sell products that impact not only the economy but also our society in general.</p>	<ul style="list-style-type: none"> • How often do public relations, marketing, and advertising distort the truth in order to please a client?
<p>RI.11-12.2: Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.</p>	<p>Unlike in journalism, public relations, marketing, and advertising concern target audiences with both positive and negative messages in order to create revenue for the media and corporations.</p>	<ul style="list-style-type: none"> • How do public relations, marketing, and advertising work together to impact the media and society?

<p>RI.11-12.3: Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.</p>	<p>It is imperative that public relations, marketing, and advertising teams remain current with advances in technology and society in order to efficiently and successfully reach their target audience.</p>	<ul style="list-style-type: none"> • In what ways have public relations, marketing, and advertising evolved over time?
<p>RI.11-12.5: Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.</p>	<p>Public relations, marketing, and media outlets conduct research to create relevant content and campaigns for their target audiences and “publics” in order to generate a better income, image, or product.</p>	<ul style="list-style-type: none"> • How and why do we become the targeted audience of public relations, marketing, and media campaigns?
<p>RI.11-12.6: Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.</p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>RI.11-12.7: Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.</p>		
<p>W.11-12.1: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.</p>	<p>Students will know: Clients hire public relations, marketing, and advertising firms to create, improve, or change the image for their products or themselves.</p>	<p>Students will be able to: Plan an effective public relations, marketing, or advertising campaign.</p>
<p>W.11-12.2: Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</p>	<p>One main difference between PR, marketing, and advertising and journalism is that bias and bending of the truth are standard practices in PR, marketing, and advertising, whereas in most news organizations, barring tabloids, objectivity is valued.</p>	<p>Create a marketing strategy and media kit/deck for said campaign.</p>
<p>W.11-12.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>		<p>Assess the differences and similarities between public relations, marketing, and advertising and journalism.</p>
<p>W.11-12.5: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new</p>		

approach, focusing on addressing what is most significant for a specific purpose and audience.

W.11-12.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

W.11-12.7: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

W.11-12.8: Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

SL.11-12.1: Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

SL.11-12.5: Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

L.11-12.1: Demonstrate command of the

Public relations, marketing, advertising, and journalism are all communications fields that present the same basic information in vastly different ways to satisfy the needs of their clients and readership.

A press release contains journalistic details framed for a different audience.

KEY TERMS:

Public relations, marketing, advertising, revenue, targeting, press release, campaign, bias, publics, deck, media kit

Research the similarities and differences in how the same content is handled by public relations, marketing, and advertising firms versus a news organization.

Read a press release and identify what components are “newsworthy.”

Write a press release about a current issue.

<p>conventions of standard English grammar and usage when writing or speaking.</p> <p>L.11-12.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.</p> <p>L.11-12.3: Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.</p> <p>L.11-12.5: Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.</p> <p>(21CLC) 9.3.12.AR-JB.2: Demonstrate writing processes used in journalism and broadcasting.</p>		
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Planning an effective public relations, marketing, or advertising campaign, and creating a marketing strategy and media kit/deck for said campaign.

KEY LEARNING EVENTS AND INSTRUCTION:

- Students will research a specific news event and analyze how coverage was handled differently by a public relations, marketing, or advertising campaign and a news organization.
- Students will study recent press releases, identify their newsworthy components, and then use these samples to write an original press release about a current issue.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Journalism I
Unit VIII: Public Relations, Marketing, and Advertising

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
5 Weeks	Public Relations, Marketing, and Advertising <ul style="list-style-type: none"> ● Public relations ● Marketing ● Advertising ● Press release 	Online press/media kits Advertising, marketing, and public relations campaign samples for brands such as Nike, people such as Olympic athletes, and the enhancement of corporate images Randolph Township Schools website <i>publicityinsider.com</i>

APPENDIX A

Benchmark 1

All student journalists will attend an emergency press conference in the school. The spokesperson will share details of a breaking news event. Students will be assessed for this benchmark in three ways: 1) their preparation for the conference; 2) their participation during the conference; and 3) their completion of a news article immediately following the conclusion of the conference.

More specifically, students will be assessed based on the following components:

1. Prior to the press conference:

Student journalists will prepare for the press conference in two ways, both of which will be assessed: 1) Perform background research: Research should be two paragraphs in length, typed, and double spaced. 2) Prepare a list of ten questions for the spokesperson, suitable for the press conference. Questions must be typed and double spaced in 12-point type. Students will submit both of these completed tasks at the end of the benchmark period.

2. During the press conference:

During the conference, student journalists will be assessed in two ways, on their interviewing and note-taking skills. They will be required to ask a minimum of three questions during the conference, and they must submit their hand-written notes at the end of the conference.

Assessment: These two tasks will be assessed based on one or more of the following checklists, as warranted.

Interviewing/questioning

- *Does the journalist ask questions related to the 5Ws and 1H?
- *Does the journalist ask for proper spelling, when warranted?
- *Does the journalist request proper attribution information, when warranted?
- *Do the journalist's questions show evidence of having prepared for the conference in advance?
- *Is the journalist asking a hard-hitting question in a respectful way?
- *Is the journalist asking follow-up questions, when warranted?
- *Is the journalist showing respect in his or her questioning?

Notetaking

- *Did the journalist take thorough notes of the conference?
- *Did the journalist check his or her spelling of names, places, etc.?
- *Did the journalist quote the source correctly?
- *Was the journalist accurate and clear enough in his or her note-taking to compose a news article?

3. After the press conference:

Students will write a news article based on their notes from the press conference, around 150 words in length, which they must type and submit, double spaced, by the end of the benchmark class period. **Note:** No news articles will be accepted late, after the close of the benchmark class period. The teacher will grade news articles based on the attached rubric.

Benchmark points as follows:

1. Background research-25 points. (Full credit for two paragraphs that address all of the questions; partial credit for one or two paragraphs that address only some of the questions; no credit for missing paragraphs or paragraphs that are off topic.)
2. 10 questions-25 points. (Full credit for ten questions that are suitable for the press conference; partial credit for fewer than ten questions that are suitable for the press conference; no credit for missing questions or questions that are off topic.)
3. Interviewing-25 points. (Full credit for asking the source a minimum of three questions that adhere to the checklist above; partial credit for asking the source fewer than three questions that adhere to the checklist; no credit for asking no questions or questions that are unsuitable or off topic.)
4. Notetaking-25 points. (Full credit for accurate, comprehensive, and clear notes; partial credit for notes that are not completely accurate, comprehensive, or clear; no credit for notes that are completely inaccurate, incomprehensive, and unclear.)
5. News article-100 points. (See rubric for credit breakdown.)

Benchmark 1: News Writing Rubric

	Unacceptable 50-59	Poor 60-69	Fair 70-79	Good 80-89	Excellent 90-100
Head, Lead, and Nut Graph	Head, Lead, and nut graph are non-existent or do not relate to story's main facts.	Head, Lead and nut graph are weak and contains little necessary information. Do not address 5Ws & H. Do not grab reader's attention. Head is mechanical, too long or short, or vague. Lead trivializes the story. Lead is too broad and/or vague.	Head, Lead and nut graph contain necessary information, but are weakly composed or awkward. Includes most of essential 5Ws & H. Do little to grab reader attention. Head is either slightly long, short, or vague. Lead emphasizes less important facts or contains too many facts.	Head, Lead and nut graph are well-written and contain needed information. Include 5Ws & 1H. Grab reader attention. Head is enticing and contains strong, active verbs and short, simple words. Lead summarizes story's most important points. Nut graph opens with a back-up quote and attribution and completes most of the 5Ws and 1H. Engages reader	Head, Lead, and nut graph are written clearly and without error. Includes necessary 5Ws & H. Fully engages reader attention. Head is catchy; makes reader want to jump right into story; Distills the essence of the news point of a story; Is positive and specific; Contains strong, active verbs and short, simple words
Inverted Pyramid	Article lacks any organizational structure. Information is not presented in a logical way.	Organizational structure is limited. Article is disjointed most of the time, but some of the information follows the inverted pyramid or narrative storytelling format.	The article shows the elements of basic organization. Information follows the inverted pyramid or narrative storytelling format at a basic level.	The information follows a coherent inverted pyramid structure or narrative storytelling format.	Information is deftly organized by importance, and there is an overwhelming logic to the order in which it is written.
Accuracy and Grammar	Frequent errors in accuracy and grammar and use of passive verbs make story hard to comprehend. Story is missing multiple important facts or those facts or buried.	Errors in accuracy and grammar and use of passive verbs cause some confusion. Story is missing some important facts or those facts or buried.	Some errors in accuracy and grammar and use of passive verbs do not cause significant confusion. Story has sufficient detail.	Errors in accuracy and grammar are minimal. Story contains unusual and interesting detail. Important facts are located sufficiently high in the story. Writer uses active verbs throughout.	Errors in accuracy and grammar are virtually nonexistent. Story contains unusual and interesting detail. Important facts are highlights in the story. Active verbs keep reader engaged.
Transitions, Lead-Ins, Quotes	Article lacks transitions. Article lacks lead-ins to quotes. Article lacks direct quotes or proper attribution.	Transitions are weak or not complete. Lead-ins step on quote or are unrelated to the content of the quote. Article has a few quotes that are only marginally interesting. Information that should have been paraphrased and attributed is often quoted directly.	Has basic transitions that are choppy. Quotes have acceptable lead-ins. Article has some meaningful quotes, but from too few sources. Information that should have been paraphrased and attributed is occasionally quoted directly.	Good transitions help article clarity. Lead-ins provide context for the quotes. Article has good number of sources and some interesting quotes that are attributed properly. Paraphrased quotes are attributed properly.	Uses solid transitions that keep reader engaged in article. Lead-ins are interestingly written and provide excellent context for the quotes. All direct quotes are interestingly said; from interesting and appropriate sources; and attributed properly. Paraphrased quotes are attributed properly.
Writing: Flow and Length	Writing doesn't flow. Language is imprecise and/or not thought-provoking. Sentences are wordy and repetitious. Sentences are all around	Writing mostly doesn't flow. Language is frequently imprecise and/or not thought-provoking. Sentences are frequently wordy and/or repetitious.	Writing doesn't always flow. Language is occasionally imprecise and/or not thought-provoking. Sentences are occasionally wordy and/or repetitious.	Writing mostly flows well, although there are rough spots. Language is occasionally interesting. Sentences are occasionally wordy and/or repetitious.	Writing flows well, is concise, and contains interesting language. Sentence length is varied. Avoids wordiness and unnecessary repetition. Paragraphs are appropriate

	<p>the same length. Paragraphs are all too long and contain too many ideas.</p>	<p>Sentence length is frequently monotonous. Paragraphs are mostly too long and contain too many ideas.</p>	<p>Sentence length can be monotonous. Paragraphs can be too long and contain too many ideas.</p>	<p>Sentence length is varied. Paragraphs are mostly appropriate length. Most paragraphs contain only one idea.</p>	<p>length and contain only one idea per paragraph.</p>
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Benchmark 2

For this benchmark, student journalists will be handing in a feature profile package—consisting of both prewriting and writing—based on their approved profile subject. They will be graded on all steps listed below as per the rubric.

Prior to benchmark day: Students must complete and submit all of the preliminary steps—interviewing, prewriting, and writing their rough draft—for their feature profile package (see below) prior to benchmark day by the due dates below, in order to receive full credit. These preliminary steps must be submitted as hard copy according to the due dates below. The preliminary steps consist of the following four components: 1) List of interview questions; 2) Transcript of interviews; 3) Completed outline; 4) Rough draft.

On benchmark day: At the beginning of the benchmark period, the teacher will return the students' edited rough drafts (assuming he or she receives one from them as per the schedule), and they will have the entire benchmark period to revise it into final draft form. Once done, they will electronically file (submit) their final drafts with the teacher. Before leaving the classroom, they must wait for confirmation from the teacher to ensure that she or he has received the students' emailed final drafts. In order to receive full credit, final drafts must be filed by the end of the benchmark class period (unless students are eligible for extended time).

PRIOR TO BENCHMARK DAY

STEP 1: Interviewing (prep and actual)

- 1) Questions: Students must include their list of questions for their main profile subject (15 to 20 questions) and two additional interviewees (5 questions) who know the students' subjects well enough to provide meaningful quotes about them. Submit as hard copy, 12 point TNR.
- 2) Transcript: Students must transcribe their complete interviews with their main subject and interviewees and submit them as hard copy. It is the students' responsibility to schedule their interview times and dates. **Note:** If a profile subject is unable to meet prior to the due date, students must switch to another approved subject in order to meet the deadline.

STEP 2: Prewriting

- 1) Outline: Students must complete the feature outline graphic organizer they have already received. It must include all of their quotations and information they will be using based on your research. All sections in the graphic organizer must be completed in a meaningful way for full credit.

STEP 3: Write

- 1) Rough draft: 600 to 800 words long. This must be submitted as hard copy.
 - a. Head: clever and concise, no more than five words long.
 - b. Deck: Must draw in the reader. Must hint at angle of profile. No more than twenty words long.
 - c. Intro: One to two paragraphs long. Clever lead. Creative style. Begin narrative "thread." Establish voice. Humanize subject. Use description. Use anecdotes.

- Include sensory details: sight, hearing, taste, smell, touch, emotion. Paint a picture of your subject. How he/she moves, speaks, etc. Help the reader “see” the subject.
- d. Nut graph: Pass the “So what?” test. Include background information.
 - e. Body: Include six quotations *minimum*, three or four from the main subject and the rest from other sources (two minimum). Elaborate on lead. Continue using all feature writing techniques outlined in intro (above).
 - f. Conclusion: Wrap it up. Come full circle. Finish the thread.

ON BENCHMARK DAY

STEP 4: Revise

- 1) Final draft. Using the edited rough draft the teacher returns to students on benchmark day, they will craft their final draft in class, during the benchmark period. This final draft must be filed (emailed) to the teacher as outlined above by the end of the benchmark period for full credit.

STEP 5: Publish

- 1) Students must file their story with the teacher by the end of the benchmark class period!
Benchmark points as follows:
 - a. List of interview questions: 25 points. (Full credit for listing 20 or more questions that are suitable for your interviews; partial credit for fewer than 20 questions that are suitable for interviews; no credit for missing questions or questions that are off topic.)
 - b. Interview transcript: 25 points. (Full credit for asking fifteen or more questions during your interviews); partial credit for asking fewer than fifteen questions; no credit for a missing transcript or for asking questions that are unsuitable or off topic.)
 - c. Outline of draft: 25 points. (Full credit for a fully completed, clear outline containing all quotes; partial credit for an outline that is somewhat comprehensive or clear; no credit for a missing or unclear outline.)
 - d. Rough Draft: 100 points. (See rubric for credit breakdown.)
 - e. Final draft: 100 points. (See rubric for credit breakdown.)

Benchmark 2: Feature Writing Rubric

	Unacceptable 50-59	Poor 60-69	Fair 70-79	Good 80-89	Excellent 90-100
Head, Deck, Lead, and Nut Graph	Head, Deck, Lead and Nut Graph are non-existent or do not relate to story's main facts.	Head, Deck, Lead and nut Graph are weak and contain little necessary information. Do not grab reader's attention. Head is mechanical, too long or short, or vague. Deck is unclear and/or off topic; Lead trivializes the story. Lead is too broad and/or vague. Nut Graph does not pass the "so what?" test or include background information.	Head, Deck, Lead and nut Graph contain necessary information, but are weakly composed or awkward. Do little to grab reader attention. Head is either slightly long, short, or vague. Deck is somewhat clear and on topic; Lead emphasizes less important facts or contains too many facts. Nut Graph attempts to pass the "so what?" test and include background information.	Head, Deck, Lead, and Nut Graph are mostly clear, with only minor error, and engage reader attention. Head is somewhat catchy and addresses story angle. Deck attempts to zoom in on Head and hint at what's in article; makes reader somewhat curious to read story; attempts to capture the essence of the story; contains strong, active verbs and short, simple words. Lead is somewhat catchy and draws in reader. Nut Graph somewhat passes "so what?" test and includes background information.	Head, Deck, Lead and Nut Graph are clear, without error, and fully engage reader attention. Head is catchy and addresses story angle. Deck zooms in on Head and hints at what's in article; makes reader want to jump right into story; captures the essence of the story; contains strong, active verbs and short, simple words. Lead is catchy and draws in reader. Nut Graph passes "so what?" test and includes background information.
Accuracy and Grammar	Frequent errors in accuracy and grammar and use of passive verbs make story hard to comprehend. Story is missing multiple important facts or those facts or buried.	Errors in accuracy and grammar and use of passive verbs cause some confusion. Story is missing some important facts or those facts or buried.	Some errors in accuracy and grammar and use of passive verbs do not cause significant confusion. Story has sufficient detail.	Errors in accuracy and grammar are minimal. Story contains unusual and interesting detail. Important facts are located sufficiently high in the story. Writer uses active verbs throughout.	Errors in accuracy and grammar are virtually nonexistent. Story contains unusual and interesting detail. Important facts are highlights in the story. Active verbs keep reader engaged.
Transitions, Lead-Ins, Quotes	Article lacks transitions. Article lacks lead-ins to quotes. Article lacks direct quotes or proper attribution.	Transitions are weak or not complete. Lead-ins step on quote or are unrelated to the content of the quote. Article has a few quotes that are only marginally interesting. Information that should have been paraphrased and attributed is often quoted directly.	Has basic transitions that are choppy. Quotes have acceptable lead-ins. Article has some meaningful quotes, but from too few sources. Information that should have been paraphrased and attributed is occasionally quoted directly.	Good transitions help article clarity. Lead-ins provide context for the quotes. Article has good number of sources and some interesting quotes that are attributed properly. Paraphrased quotes are attributed properly.	Uses solid transitions that keep reader engaged in article. Lead-ins are interestingly written and provide excellent context for the quotes. All direct quotes are interestingly said; from interesting and appropriate sources; and attributed properly. Paraphrased quotes are attributed properly.
Writing: Flow and Length	No attempt to paint a picture of the subject. No clear angle. Writing doesn't flow. Language is imprecise and/or not thought provoking. Sentences are wordy and repetitious. Sentences are all around the same length. Paragraphs are all too long and contain too many ideas.	Writing mostly doesn't flow. Angle is weak. Language is frequently imprecise and/or not thought provoking. Sentences are frequently wordy and/or repetitious. Sentence length is frequently monotonous. Paragraphs are mostly too long and contain too many ideas.	Some attempts at painting a picture of subject. Writing doesn't always flow. Language is occasionally imprecise and/or not thought provoking. Sentences are occasionally wordy and/or repetitious. Sentence length can be monotonous. Paragraphs can be too long and contain too many ideas.	Paints a somewhat vivid picture of profile subject. Somewhat interesting angle. Writing mostly flows well, although there are rough spots. Language is occasionally interesting. Sentences are occasionally wordy and/or repetitious. Sentence length is varied. Paragraphs are mostly appropriate length. Most paragraphs contain only one idea.	Paints a vivid picture of profile subject. Interesting angle. Writing flows well, is concise, and contains interesting language. Sentence length is varied. Avoids wordiness and unnecessary repetition. Paragraphs are appropriate length and contain only one idea per paragraph.

_____ /100 = _____ %

**Randolph Township Schools
Randolph Middle School**

Robotics II Curriculum

Department of Science, Technology, Engineering, and Math

Anne Vitale Richardson
Supervisor

Curriculum Committee

Ned Sheehy
Nick Lavender

Curriculum Developed:

July 2016

Date of Board Approval:

Randolph Township Schools
Department of Science, Technology, Engineering, and Mathematics
Robotics II

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools
Department of Science, Technology, Engineering, and Mathematics
Robotics II

Introduction

Robotics II will immerse students in activities that allow them to apply skills obtained in Robotics I. This is accomplished by providing problem-based learning lessons that expose students to real-world conditions. This learning approach creates a student-centered environment by providing a *learning by doing* setting which is the focal point of educational robotics. This program focuses on transferable skills and stresses understanding and demonstration of the science and mathematical knowledge, technological tools, machines, materials, processes and systems related to robotics. Robotics II provides opportunities for realistic high-tech interdisciplinary application of content students can relate to their lives. Through teamwork, students solve increasingly complex problems, cumulating with a project in which they apply all the skills obtained in previous units. Students are encouraged to take possession of their tasks and will feel empowered solving real-world problems they have chosen. This curriculum is based on building to learn. Robotics provides the means to apply this type of environment.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Robotics II

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
2 weeks	I	Hazardous Waste Design Challenge
2 weeks	II	Obstacle Course Olympics
2 weeks	III	Robot Athletics: Bluetooth Connectivity
3 weeks	IV	Mars Land Surveyor

RANDOLPH TOWNSHIP SCHOOL DISTRICT

<p>STANDARDS / GOALS:</p> <p>8.1.8.A.1 Demonstrate knowledge of a real world problem using digital tools.</p> <p>8.1.8.A.4 Graph and calculate data within a spreadsheet and present a summary of the results</p> <p>8.2.8.A.2 Examine a system, consider how each part relates to other parts, and discuss a part to redesign to improve the system.</p> <p>8.2.8.B.2 Identify the desired and undesired consequences from the use of a product or system.</p> <p>8.2.8.D.1 Design and create a product that addresses a real world problem using a design process under specific constraints.</p> <p>8.2.8.D.3 Build a prototype that meets a STEM-based design challenge using science, engineering, and math principles that validate a solution.</p> <p>8.2.8.E.4 Use appropriate terms in conversation (e.g., programming, language, data, RAM, ROM, Boolean logic terms).</p> <p><u>CCSS.ELA-LITERACY.RST.6-8.3</u> Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p>	<p>ENDURING UNDERSTANDINGS</p>	<p>ESSENTIAL QUESTIONS</p>
	<p>Students can control their physical environment by coding software to manipulate a robot.</p>	<ul style="list-style-type: none"> • How can the coding of software effect the environment around you?
	<p>Autonomous robots protect humans from harmful conditions (i.e hazardous waste conditions, bomb disposal, etc).</p>	<ul style="list-style-type: none"> • Under what conditions should research be conducted for the development of robots to perform a task rather than a human?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>Students will know:</p> <p>Robotics has the ability to change the environment around us.</p> <p>How to code robots to sort items by color distinction and properly execute robotic commands.</p> <p>Gear ratios and their implementation to actuators.</p> <p>Different types of hazardous waste such as paints, automotive wastes, electronics, etc.</p> <p>VOCABULARY: Hazardous waste, actuator</p>	<p>Students will be able to:</p> <p>Research, design, build, code, and test a robot that will sort hazardous chemicals that have been discovered in an abandoned factory.</p> <p>Progress through a self-paced challenge to master certain programming functions.</p> <p>Construct robots that include gears and sensors.</p> <p>Describe the effects of robotics on society.</p>

	KEY TERMS: Color assortment, gear ratios	
ASSESSMENT EVIDENCE: Students will show their learning by: <ul style="list-style-type: none"> • See Appendix A 		

Robotics II
UNIT I: Hazardous Waste Design Challenge

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Robotics 2
UNIT I: Hazardous Waste Design Challenge

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
2 Weeks	<p style="text-align: center;"> UNIT I: Hazardous Waste Design Challenge </p> <p style="text-align: center;"> Research of Autonomous Robots Design and construct autonomous robots What is Hazardous Waste? Create code that sorts objects by color distinction Hazardous Waste Design Challenge </p>	<p style="text-align: center;"> <u>BOOKS:</u> None Required Readings taken from various relevant sources. </p> <p style="text-align: center;"> <u>Suggested Supplies:</u> Computers Programs such as Microsoft Word, PowerPoint, and Excel Open Source and Web 2.0 Applications NXT, EV3 and VEX robot kits. </p> <p style="text-align: center;"> <u>Suggested Activities:</u> Research Parts definition Hazardous Waste Design Challenge </p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Robotics II

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>8.1.8.A.1 Demonstrate knowledge of a real world problem using digital tools.</p>	<p>Input sensors provide data about the environment in which robots reside.</p>	<p>How can software be coded that will modify the robots functions based on the data received from the sensor?</p>
<p>8.1.8.A.4 Graph and calculate data within a spreadsheet and present a summary of the results</p>	<p>Mobility over various terrain is crucial for robots to perform specific tasks.</p>	<p>How does limited mobility effect both robot and human’s ability to function as designed?</p>
<p>8.2.8.A.2 Examine a system, consider how each part relates to other parts, and discuss a part to redesign to improve the system.</p>	<p>Robots are designed to function properly on multiple terrain surfaces.</p>	<p>How can you design a robot to travel more efficiently over various terrains?</p>
<p>8.2.8.B.2 Identify the desired and undesired consequences from the use of a product or system.</p>	KNOWLEDGE	SKILLS
<p>8.2.8.D.1 Design and create a product that addresses a real world problem using a design process under specific constraints.</p>	<p>Students will know: Different sensors (touch, ultrasonic, color, gyro sensors) can interact with the physical environment.</p>	<p>Students will be able to: Research, design, construct, code, and test a robot that will travel though a course using sensors to go around or remove obstacles</p>
<p>8.2.8.D.3 Build a prototype that meets a STEM-based design challenge using science, engineering, and math principles that validate a solution.</p>	<p>Robots can be designed and constructed to utilize different methods of mobility.</p>	<p>Code software programed to perform different tasks.</p>
<p>8.2.8.E.4 Use appropriate terms in conversation (e.g., programming, language, data, RAM, ROM, Boolean logic terms).</p>	<p>Topography (terrain) can affect how robots are designed and how they function.</p>	<p>Develop robots that can successfully function on multiple terrains.</p>
<p><u>CCSS.ELA-LITERACY.RST.6-8.3</u> Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p>	<p>VOCABULARY: Topography, terrain, mobility, sensors</p>	
	<p>KEY TERMS:</p>	

ASSESSMENT EVIDENCE: Students will show their learning by:

- See Appendix A

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Robotics II
Unit II: Obstacle Course Olympics

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
<p>2 Weeks</p>	<p style="text-align: center;">Unit II: Obstacle Course Olympics</p> <p style="text-align: center;">Sensor installation Software modification using sensors How topography affects mobility Obstacle Course Olympics</p>	<p style="text-align: center;"><u>BOOKS:</u> None Required Readings taken from various relevant sources.</p> <p style="text-align: center;"><u>Suggested Supplies:</u> Computers Programs such as Microsoft Word, PowerPoint, and Excel Open Source and Web 2.0 Applications NXT, EV3 and VEX robot kits.</p> <p style="text-align: center;"><u>Suggested Activities:</u> Obstacle Course Olympics</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT

<p>STANDARDS / GOALS:</p> <p>8.1.8.A.1 Demonstrate knowledge of a real world problem using digital tools.</p> <p>8.1.8.A.4 Graph and calculate data within a spreadsheet and present a summary of the results</p> <p>8.2.8.A.2 Examine a system, consider how each part relates to other parts, and discuss a part to redesign to improve the system.</p> <p>8.2.8.B.2 Identify the desired and undesired consequences from the use of a product or system.</p> <p>8.2.8.D.1 Design and create a product that addresses a real world problem using a design process under specific constraints.</p> <p>8.2.8.D.3 Build a prototype that meets a STEM-based design challenge using science, engineering, and math principles that validate a solution.</p> <p>8.2.8.E.4 Use appropriate terms in conversation (e.g., programming, language, data, RAM, ROM, Boolean logic terms).</p> <p><u>CCSS.ELA-LITERACY.RST.6-8.3</u> Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p>	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
	Wi-Fi and Bluetooth are different standards for wireless communication.	<ul style="list-style-type: none"> How does Wi-Fi connection and Bluetooth connectivity compare?
	Pairing two or more devices allows for control of robots remotely.	<ul style="list-style-type: none"> Explain how you can use Bluetooth to pair multiple devices to control robots remotely.
	Technology allows for communication and control to take place over long distances.	<ul style="list-style-type: none"> How can technology be used to reach people or objects over long distances?
	KNOWLEDGE	SKILLS
	<p>Students will know:</p> <p>How to pair various devices via blue tooth.</p> <p>How to create code to customize the layout on their device screen to the functions the robot executes.</p> <p>How to design and construct an environment that facilitates communication over long distances.</p> <p>VOCABULARY: Pairing, Wi-Fi, Bluetooth</p> <p>KEY TERMS: Bluetooth Connectivity, technological</p>	<p>Students will be able to:</p> <p>Create various robots to compete in athletic activities while controlling their robot using their personal devices via blue tooth.</p> <p>Research, design, construct, code, and test a robot competed in multiple athletic events against other robots created by students.</p> <p>Develop a means of communication between two devices over a long distance.</p>

communication

ASSESSMENT EVIDENCE: Students will show their learning by:

- See Appendix A

Robotics II

UNIT III: Robot Athletics: Bluetooth Connectivity

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Robotics II

Unit III: Robot Athletics: Bluetooth Connectivity

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
2 Weeks	<p>Unit III: Robot Athletics: Bluetooth Connectivity</p> <p>Understanding the difference between Wi-Fi and Bluetooth connections Pairing devices via Bluetooth Establishing long range communication environments Robot Athletics</p>	<p><u>BOOKS:</u> None Required Readings taken from various relevant sources.</p> <p><u>Suggested Supplies:</u> Computers Programs such as Microsoft Word, PowerPoint, and Excel Open Source and Web 2.0 Applications NXT, EV3 and VEX robot kits.</p> <p><u>Suggested Activities:</u> Robot Golf Robot Soccer Robot Jousting Robot Hockey</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Robotics II
UNIT IV: Mars Land Surveyor

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>8.1.8.A.1 Demonstrate knowledge of a real world problem using digital tools.</p> <p>8.1.8.A.4 Graph and calculate data within a spreadsheet and present a summary of the results</p> <p>8.2.8.A.2 Examine a system, consider how each part relates to other parts, and discuss a part to redesign to improve the system.</p> <p>8.2.8.B.2 Identify the desired and undesired consequences from the use of a product or system.</p> <p>8.2.8.D.1 Design and create a product that addresses a real world problem using a design process under specific constraints.</p> <p>8.2.8.D.3 Build a prototype that meets a STEM-based design challenge using science, engineering, and math principles that validate a solution.</p> <p>8.2.8.E.4 Use appropriate terms in conversation (e.g., programming, language, data, RAM, ROM, Boolean logic terms).</p> <p><u>CCSS.ELA-LITERACY.RST.6-8.3</u> Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p>	<p>Scientists and Engineers need to consider the environment and conditions in which they are working when designing equipment.</p> <p>Students have the power to shape the future by developing new technologies that will benefit our society.</p> <p>Through the combination of hardware and software, robots can sense their environment, make decisions, and perform different tasks based on information received from input data.</p>	<ul style="list-style-type: none"> • How can surveying Mars’ landscape benefit our lives on Earth? • Explain how the specifications and individual characteristics of an environment effect the manner in which you conduct research, design, build, and test a robot. • How can we use technology to further explore unknown frontier on Earth? • How can robots be used to perform tasks and solve problems?
	KNOWLEDGE	SKILLS
	<p>Students will know:</p> <p>Appropriate navigation of their robot through several different geological sections.</p> <p>Research, construction, and coding multifunction robots that use multiple sensors, make various decisions, and perform an assortment of tasks.</p> <p>Pairing, mobility, and proper execution of robotic commands.</p> <p>Stop and load minerals into robot cargo bay.</p>	<p>Students will be able to:</p> <p>Utilize the Engineering Design Process to develop solutions for student-designed problem.</p> <p>Apply current technical knowledge to their design of a robot.</p> <p>Evaluate their project and modify it as needed. Locate “RANtrium” mineral using various sensors.</p>

VOCABULARY: surveying, navigation

ASSESSMENT EVIDENCE: Students will show their learning by:

- See Appendix A

RANDOLPH TOWNSHIP SCHOOL DISTRICT

Robotics II

Unit IV: Mars Land Surveyor

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	<p>Unit IV: Mars Land Surveyor</p> <p>Use the engineering design method to solve multiple problems simultaneously to accomplishing a task.</p> <p>Design the hardware to solve multiple problems based on information received from multiple sensors</p> <p>Design the software to solve multiple problems based on information received from multiple sensors</p> <p>Mars Land Surveyor</p>	<p><u>BOOKS:</u> None Required Readings taken from various relevant sources.</p> <p><u>Suggested Supplies:</u> Computers Programs such as Microsoft Word, PowerPoint, and Excel Open Source and Web 2.0 Applications NXT, EV3 and VEX robot kits.</p> <p><u>Suggested Activities:</u> Mars Land Surveyor</p>

APPENDIX A

UNIT I: Hazardous Waste Design Challenge

	3	2	1	0
Research	Student obtained plans that thoroughly demonstrated how the robot will move, detect containers, identify color, capture container and move it to the proper location.	Student obtained plans that demonstrated how the robot will move, detect containers, identify color, capture container and move it to the proper location.	Student obtained incomplete plans that demonstrates how the robot will move, detect containers, identify color, capture container and move it to the proper location.	Student was unable to find plans.
Design	Student exceeded design constraints of how the robot will move, detect containers, identify color, capture container and move it to the proper location.	Student met design constraints of how the robot will move, detect containers, identify color, capture container and move it to the proper location.	Student created an incomplete design of how the robot will move, detect containers, identify color, capture container and move it to the proper location.	Student was unable to create a design
Construct	Student constructed a robot that moves, detects containers, identifies color, captures container and moves it to the proper location.	Student constructed a robot that completes three out of four.	Student constructed a robot completes at least two functions.	Student did not create a robot.
Code	Student coded a program that moves, detects containers, identifies color, captures container and moves it to the proper location.	Student coded a robot that completes three out of four.	Student coded a robot that completes two out of four.	Student did not create code.
Test	Student tested their robot to insure that it moves, detects containers, identifies color, captures container and moves it to the proper location.	Student tested a robot that completes three out of four.	Student teste a robot that completes two out of four.	Student did not test.

Unit II: Obstacle Course Olympics

	3	2	1	0
Research	Student obtained plans that thoroughly demonstrated how the robot will move through different terrains, and detect objects of different sizes, shapes and colors.	Student obtained plans that demonstrated how the robot will move through different terrains, and detect objects of different sizes, shapes and colors.	Student obtained incomplete plans that thoroughly demonstrated how the robot will move through different terrains, and detect objects of different sizes, shapes and colors.	Student was unable to find plans.
Design	Student exceeded design constraints that will move through different terrains, and detect objects of different sizes, shapes and colors.	Student met design constraints that will move through different terrains, and detect objects of different sizes, shapes and colors.	Student incompletely created a design that will move through different terrains, and detect objects of different sizes, shapes and colors.	Student was unable to create a design
Construct	Student constructed a robot that will move through different terrains, and detect objects of different sizes, shapes and colors.	Student constructed a robot that completes three out of four.	Student constructed a robot completes at least two functions.	Student did not create a robot.
Code	Student coded a robot that will move through different terrains, and detect objects of different sizes, shapes and colors.	Student coded a robot that completes three out of four.	Student coded a robot that completes two out of four.	Student did not create code.
Test	Student tested a robot that moves through different terrains, and detects objects of different sizes, shapes and colors.	Student tested a robot that completes three out of four.	Student teste a robot that completes two out of four.	Student did not test.

UNIT III: Robot Athletics: Bluetooth Connectivity

	3	2	1	0
Research	Student obtained plans that thoroughly demonstrated how the robot will effectively compete in the athletic competition.	Student obtained plans that demonstrated how the robot will effectively compete in the athletic competition.	Student obtained plans that incompletely demonstrated how the robot will effectively compete in the athletic competition.	Student was unable to find plans.
Design	Student exceeded design constraints that will effectively compete in the athletic competition.	Student met design constraints that will effectively compete in the athletic competition.	Student incompletely created a design that will effectively compete in the athletic competition.	Student was unable to create a design
Construct	Student constructed a robot that will effectively compete in the athletic competition, pairs with their personal device, and has a proper screen layout.	Student constructed a robot that completes two out of three.	Student constructed a robot completes at least one function.	Student did not create a robot.
Test	Student tested a robot that effectively competes in the athletic competition, pairs with their personal device, and has a proper screen layout.	Student tested a robot that completes two out of three.	Student teste a robot that completes one function.	Student did not test.

Unit IV: Mars Land Surveyor

	3	2	1	0
Research	Student obtained plans that thoroughly demonstrated how the robot will effectively navigate the Mars surface using their personal device, detect “RANitrium”, and finally load it.	Student obtained plans that demonstrated how the robot will effectively navigate the Mars surface using their personal device, detect “RANitrium”, and finally load it.	Student obtained plans that incompletely demonstrated how the robot will effectively navigate the Mars surface using their personal device, detect “RANitrium”, and finally load it.	Student was unable to find plans.
Design	Student exceeded design constraints that will effectively navigate the Mars surface using their personal device, detect “RANitrium”, and finally load it.	Student met design constraints that will effectively navigate the Mars surface using their personal device, detect “RANitrium”, and finally load it.	Student incompletely created a design that will effectively navigate the Mars surface using their personal device, detect “RANitrium”, and finally load it.	Student was unable to create a design
Construct	Student constructed a robot that will effectively navigate the Mars surface using their personal device, detect “RANitrium”, and finally load it.	Student constructed a robot that completes two out of three.	Student constructed a robot completes at least one function.	Student did not create a robot.
Test	Student tested a robot that effectively navigate the Mars surface using their personal device, detect “RANitrium”, and finally load it.	Student tested a robot that completes two out of three.	Student teste a robot that completes one function.	Student did not test.

Randolph Township Schools
Randolph Middle School

3D Storytelling Curriculum

*“I found I could say things with color and shapes
that I couldn't say any other way — things I had no words for.”*

~Georgia O'Keeffe

Department of Humanities
Lisa DiAgostino, Supervisor

Curriculum Committee
Jackie O'Malley
Katherine Reiche

Curriculum Developed
July 2016

Date of Board Approval

Randolph Township Schools
Department of Humanities
3D Storytelling
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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first.
- Mutual respect and trust are the cornerstones of a learning community.
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members.
- A successful learning community communicates honestly and openly in a non-threatening environment.
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways.
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences.
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth.

Randolph Township Schools
Department of Humanities
3D Storytelling

Introduction

3D Storytelling is an engaging way for students enhance their literacy and creativity skills while utilizing the engineering and design process. This interdisciplinary, middle school cycle course will facilitate opportunities for students to develop their 21st Century skills such as thinking creatively, critically and collaboratively in a workshop/makerspace environment. Students will organize and self-direct their own learning as they devise a plan, prioritize tasks and execute that plan in which they compose and create original stories and/or convey ideas through words and artistic representation in the form of a dimensional “pop-up” style book. They will apply mathematical, engineering, visual art and literacy skills as they conceive and develop their own stories or messages. Additionally, students will improve their visual literacy skills through the evaluation of mentor artwork in order to create and engineer their own pop-up designs. To achieve these goals, the course will be guided by the Language Arts Common Core Standards, the Next Generation Science Standards, the New Jersey Technology Standards and the New Jersey Art Standards.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
3D Storytelling

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
2 weeks	I	Introduction to 3D Structures
3 weeks	II	Storytelling
4 weeks	III	Workshop

RANDOLPH TOWNSHIP SCHOOL DISTRICT
3D Storytelling
Unit I: Introduction to 3D Structures

COURSE TRANSFER GOAL: Compose, design and create an original 3D story.

<p>Goals</p> <p>CCSS ELA SL.7.1. b: Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.</p> <p>SL.7.1.c: Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.</p> <p>SL.7.1. d: Acknowledge new information expressed by others and, when warranted, modify their own views.</p> <p>NGSS Engineering MS-ETS1-4: Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.</p> <p>NGSS Science MS-PS2-2: Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.</p>	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
	A system is a set of connected parts that form a complex whole.	<ul style="list-style-type: none"> • How can we make a paper system?
	A pop-up book is a system of parts that work together to create movement or provide for user interaction.	<ul style="list-style-type: none"> • How can we figure out how a system works? • How can we use a model to learn?
	KNOWLEDGE	SKILLS
	<p>Students will know: A pop-up book is a paper system made of multiple pieces of paper working together to create an interactive, moving visual.</p> <p>Systems can be understood by looking at their individual parts.</p> <p>Reverse engineering is the deconstruction of a system in order to understand its parts.</p> <p>VOCABULARY: v-folds, lifts/flaps, pull-strips, hubs/discs, interactive, 90-degree elements, 180-degree elements, gatefold, obtuse angle, acute angle, slit, valley fold, mountain fold, spine, linkage, washer tab</p> <p>KEY TERMS: pop-ups, reverse engineering, systems, model, applied elements, base elements, single sheet element</p>	<p>Students will be able to: Engineer foundational pop-up mechanisms including v-folds, lifts/flaps, pull-strips, hubs/discs.</p> <p>Deconstruct model pop-ups into separate parts in order to evaluate the interacting components of the system.</p> <p>Analyze and explain reactions to the text and illustrations in a variety of pop-up books.</p>

ASSESSMENT EVIDENCE:

- Makerspace procedures and safety quiz
- Journal responses
- Student-created model/prototype of the basic folds (v-folds, lifts/flaps, pull-strips, hubs/discs)
- Vocabulary check

KEY LEARNING EVENTS AND INSTRUCTION:

- Establish routines of a makerspace
- Lesson on equipment safety
- Reverse engineering mini-lesson (“What Makes You Say That” from [*Harvard Project Zero*](#))
- Reverse engineering in collaborative groups
- Student-created model/prototype jigsaw

RANDOLPH TOWNSHIP SCHOOL DISTRICT
3D Storytelling
Curriculum Pacing Chart

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
2 Weeks	Unit I: Introduction to 3D Structures	<p>Smithsonian History of Pop-ups http://www.sil.si.edu/pdf/FPPT_brochure.pdf</p> <p>Templates from Elements of Pop Up Hardcover – October 1, 1999 by James Diaz http://www.kyleolmon.com/files/ElementsTemplates.pdf</p> <p>Pop up Places https://www.makepopupcards.com/downloads/diy-blank-pop-up-paper-house/</p> <p>Templates, more complex http://wp.robertsabuda.com/make-your-own-pop-ups/</p> <p>Glossary of Terms on Page 26 http://moosenoodle.com/labs/hendrix/dr_diss/myproposal.pdf</p> <p>Artful Thinking https://issuu.com/captcurk/docs/artful_thinking-using_art_to_promote_thinking/1b</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
3D Storytelling
Unit II: Storytelling

COURSE TRANSFER GOAL: Compose, design and create an original 3D story.

GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>CCSS ELA W.7.3: Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well- structured event sequences.</p>	<p>When effectively used together, language and visuals can be complementary components of a powerful story.</p>	<ul style="list-style-type: none"> • How might language and visuals work together to convey a story?
<p>W.7.3.a: Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.</p>	<p>Audience, purpose, and desired outcome affect the structure of a story.</p>	<ul style="list-style-type: none"> • Why might a writer consider audience and purpose to determine the form and structure of a story?
<p>W.7.3.c: Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.</p>	KNOWLEDGE	SKILLS
<p>W.7.3.d: Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.</p>	<p>Students will know: Stories communicate real or imagined experiences or events.</p>	<p>Students will be able to: Craft a story that communicates real or imagined experiences.</p>
<p>W.7.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1-3 above.)</p>	<p>Written stories are enhanced by using techniques such as figurative language, sensory details, and pacing of plot.</p>	<p>Utilize appropriate writing techniques and literary elements to enhance a story.</p>
<p>W.7.5: With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 7 here.)</p>	<p>Word choice and transitions are necessary components for conveying a story.</p>	<p>Select appropriate vocabulary to produce a clear, coherent story and/or convey tone and mood.</p>
<p>L.7.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.</p>	<p>Narrative writing includes literary elements such as a problem, solution, plot, setting, characters, a narrator, and a theme.</p>	<p>Utilize literary elements for appropriate effect in a story.</p>
<p>L.7.2.b Spell correctly.</p>	<p>Poetry writing includes a speaker, imagery, a turning point, a resolution and a theme.</p>	<p>Analyze a story draft, independently revise content, grammar, usage, and conventional errors.</p>
	<p>Precise word choice effectively conveys tone and mood.</p>	<p>Design and construct a storyboard, including words and images, as a guide for a pop-up book.</p>
	<p>The writing process is not complete without significant revision and editing of a draft.</p>	

<p>L.7.3 Use knowledge of language and its conventions when writing, speaking, reading or listening.</p> <p>L.7.3.a Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.</p> <p>Art Standard 1.1.12.D.2: Stimuli for the creation of artworks can come from many places, including other arts disciplines. Translate literary compositions by using them as stimulus/inspiration for corresponding visual artworks.</p> <p>1.4.8.A.1: Contextual clues to artistic intent are embedded in artworks. Analysis of archetypal or consummate works of art requires knowledge and understanding of culturally specific art within historical contexts</p> <p>1.4.8.A.5: Symbolism and metaphor are characteristics of art and art-making</p> <p>1.4.12.B.2: The cohesiveness of a work of art and its ability to communicate a theme or narrative can be directly affected by the artist's technical proficiency as well as by the manner and physical context in which it is performed or shown</p>	<p>The elements and principles of design can be combined to create a vehicle for expression.</p> <p>Visuals impact a reader's interpretation of a story by providing more concrete details.</p> <p>Color wheels help artists select appropriate color schemes that communicate a mood or message.</p> <p>In art, a symbol is a visual picture of a recognizable item that represents a more complex idea.</p> <p>Tools are thoughtfully selected for the combination of two-dimensional art forms with three-dimensional art forms.</p> <p>VOCABULARY: tone, mood, transitions, narrative, poetry, problem, solution, plot, setting, characters, narrator, theme, speaker, imagery, turning point, resolution, figurative language, sensory details, pacing, dialogue, connotation, denotation, color scheme</p> <p>KEY TERMS: literary elements, word choice, storytelling, artful thinking, elements of design</p>	<p>Compare and contrast the use of elements of art and principles of design in works of art.</p> <p>Apply specific elements of art and production techniques for expressive purposes.</p> <p>Apply appropriate images that will enhance the reader's reading experience.</p> <p>Select and apply color schemes to create a mood.</p> <p>Explain the concept of symbolism in art.</p> <p>Apply understanding of symbolism through the creation of distinctive symbols for artistic expression.</p> <p>Demonstrate knowledge and application of tools and techniques to combine multiple art media into a two or three-dimensional work of art.</p> <p>Demonstrate critical thinking skills in tool selection when combining art media to find functional solutions to potential issues.</p> <p>Design and assemble mixed media pieces using techniques such as, but no limited to, collage, photo transfers and paint layering.</p>
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ASSESSMENT EVIDENCE:

- Journal responses
- Original storyboard including written and visual expression
- Teacher conference anecdotal notes

KEY LEARNING EVENTS AND INSTRUCTION:

- “See, Think, Wonder” mini-lesson ([Harvard Project Zero](#))
- “Color, Symbol, Image” mini-lesson ([Harvard Project Zero](#))
- Close-reading mentor texts for craft and structure
- Mini-lessons: Effective writing strategies including *Lucy Calkins Units of Study*
- Mini-lesson: Color choice
- Mini-lesson: Word choice
- Mini-lesson: Storyboarding
- Peer writing conferences

RANDOLPH TOWNSHIP SCHOOL DISTRICT
3D Storytelling
Curriculum Pacing Chart

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	Unit II: Storytelling	<p>Elements of Design and Art (for storyboarding) http://splitcomplementary.blogspot.com/2012/08/new-and-improved-elements-and.html?m=1</p> <p>Psychology of Color https://s-media-cache-ak0.pinimg.com/564x/3f/a4/12/3fa4126abf2e9b5e93a7efe8052dae5d.jpg</p> <p>http://static1.1.sqspcdn.com/static/f/482333/16334716/1328020419777/The-Psychology-of-Color-Infographic.png?token=fN%2BmrbziPGLBp527c6tD8pDe7h8%3D</p> <p>Artful Thinking https://issuu.com/captcurk/docs/artful_thinking-using_art_to_promote_thinking/1b</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
3D Storytelling
Unit III: Workshop

COURSE TRANSFER GOAL: Compose, design and create an original 3D story.		
<p>GOALS: NGSS Engineering MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.</p> <p>MS- ETS1.A (DCI): Defining and Delimiting Engineering Problems The more precisely a design task’s criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions. (MS-ETS1-1)</p> <p>MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.</p> <p>MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.</p> <p>MS-ETS1.B (DCI): Developing Possible Solutions There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. (MS-ETS1-2), (MS-ETS1-3)</p> <p>MS-ETS1.B (DCI): Developing Possible Solutions Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors. (MS-ETS1-3)</p> <p>MS-ETS1.C (DCI): Optimizing the Design Solution Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign</p>	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
	<p>The engineering design process is a series of steps that engineers use to guide them as they solve problems.</p>	<ul style="list-style-type: none"> • How might you create a product using the design process?
	KNOWLEDGE	SKILLS
	<p>Students will know: The design process is cyclical in order to make improvements through multiple iterations.</p> <p>Describing a project in terms of a problem statement is a first step in applying the engineering design process.</p> <p>An open ended design process promotes creativity and practicality.</p> <p>Two key themes of the engineering design process are teamwork and design.</p> <p>Teamwork is crucial for innovation. The process of “talking it out” provides the stepping stone for new ideas; this is also called brainstorming.</p> <p>Designing and modeling ideas is an aspect of the design process where prototypes are created and tested.</p>	<p>Students will be able to: Brainstorm a model/prototype for a pop-up book through collaborative discussion and research.</p> <p>Revise and refine storyboard to include written story with diagrams of specific paper fold elements.</p> <p>Apply the engineering design process.</p> <p>Build a model or prototype of pop-up book which includes the written story and paper folds.</p> <p>Test and evaluate model or prototype in a collaborative setting.</p> <p>Optimize the final pop-up book product.</p>

<p>process—that is, some of those characteristics may be incorporated into the new design. (MS-ETS1-3)</p> <p>MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.</p> <p>MS-ETS1.B (DCI): Developing Possible Solutions A solution needs to be tested, and then modified on the basis of the test results, in order to improve it. (MS-ETS1-4)</p> <p>MS-ETS1.B (DCI): Developing Possible Solutions Models of all kinds are important for testing solutions. (MS-ETS1-4)</p> <p>MS-ETS1.C (DCI): Optimizing the Design Solution The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution. (MSETS1-4)</p> <p>Art Standard 1.1.5.D.2: The elements of art and principles of design are universal. Compare and contrast works of art in various mediums that use the same art elements and principles of design.</p>	<p>Working in teams provides critical feedback to the maker for his or her improvement cycle.</p> <p>Optimization is a reached within the constraints of time, space, money, and society.</p> <p>Sharing results of an engineering project is the final step in the design process.</p> <p>VOCABULARY: problem, brainstorm, constraint, design, innovation, invention, iteration, modify, prototype, troubleshoot, test, evaluate, optimize</p> <p>KEY TERMS: engineering, design process</p>	<p>Share the pop-up book with others.</p>
<p>ASSESSMENT EVIDENCE:</p> <ul style="list-style-type: none"> • Completion of the final 3D story project • Self-evaluation • Peer-evaluation • Teacher conferences • <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none"> • “Does It Fit?” (Harvard Project Zero) • Revision of storyboard to include diagrams of specific paper fold elements • Creation of prototype/model • Peer teaching • Cyclical revisions of models to optimize desired outcome • Presentation of final 3D story project 		

RANDOLPH TOWNSHIP SCHOOL DISTRICT
3D Storytelling
Curriculum Pacing Chart

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4 Weeks	Unit III: Workshop	<p>Engineering Design Graphic http://www.jpl.nasa.gov/edu/pdfs/engineering_design_process_light.pdf</p> <p>The Design Cycle http://static1.squarespace.com/static/50f36339e4b07e77c4681bee/t/5498c027e4b02f36a3b8411f/1419296814499/?format=750w</p> <p>Ted-ED Popup book with the design process https://www.youtube.com/watch?v=RZR_b753ZJ0</p> <p>How to design your own pop-up cards https://www.makepopupcards.com/how-to-design-your-own-pop-up-cards/</p>

Appendix A

Book List

- **ISBN-13:** 978-0762440870
Ayako Brodek (2011) *The New Encyclopedia of Origami and Papercraft Techniques*
- **ISBN-13:** 978-1899618095
Birmingham, Duncan. (1997) *Pop Up! A Manual of Paper Mechanisms*
- **ISBN-13:** 978-0689822247
Carter, D. A., & Diaz, J. (1999). *The elements of pop-up: A pop-up book for aspiring paper*
- **ISBN-13:** 978-0906212493
Hiner, Mark (1986) *Paper Engineering for Pop-up Books and Cards*
- **ISBN-13:** 978-0688079024
Irvine, Joans (1991) *How to Make Pop-Ups Paperback*
- **ISBN-13:** 978-0805028843
Jackson, Paul (1994) *The Pop Up Book: Step by step instruction for creating over 100 paper projects.*
- **ISBN-13:** 978-1581805963
Jacobs, Michael (2005) *Cards the pop up, flip and slide.*
- **ISBN-13:** 978-1850009092
Johnson, P. (1992) *Pop-up paper engineering: Cross-curricular activities in design, technology, English, and art.*
- **ISBN-13:** 978-0486268378
Johnson, P. (2012) *Creating with Paper: Basic Forms and Variations* (2012)
- **ISBN-13:** 978-1571204202
Pridemore, Heidi. (2007) *Pop-Up Paper Structures: The Beginner's Guide to Creating 3-D Elements for Books, Cards & More*

Appendix B

Rubric 1: 3D Storyboard Rubric

Grade Scale	Story Planning	3D Element Planning	Artful Planning
3	Storyboard effectively communicates literary and visual elements.	There are four 3D elements described (sketched or annotated).	There is an impactful rationale for the design elements (ex: color, shape, texture, etc.)
2	Storyboard partially communicates some literary and visual elements.	There are three 3D elements described (sketched or annotated).	There is a rationale for the design elements (ex: color, shape, texture, etc.)
1	Storyboard displays minimal effort and is incomplete in some areas.	There are two 3D elements described (sketched or annotated).	There is no rationale for the design elements (ex: color, shape, texture, etc.)

Appendix C

Rubric 2: 3D Story Final Project Rubric

Grade Scale	3D Elements <i>Technology Standards</i> 8.2.8.C.3 <i>NGSS Engineering Standards</i> MS-ETS1-4; MS-ETS1.C (DCI)	Written Story <i>CCSS ELA Standards</i> W.7.3; W.7.3.a; W.7.3.c; W.7.3.d; W.7.4; L.7.2; L.7.2.b; L.7.3; L.7.3.a)	Artful Thinking <i>Art Standards</i> 1.1.5.D.2; 1.1.12.D.2	Craftsmanship
5	Product displays the proper use of a paper system, includes four or more working paper folds.	Product includes a well-written story free of grammatical errors. Word choices effectively convey tone and mood.	Words and 3D elements are combined in original and surprising ways to tell an interesting story. Images and color choices effectively convey tone and mood.	The writing and visual elements were beautiful and carefully done; evidences high level of craftsmanship.
4	Product displayed proper use of a paper system, includes three working paper folds.	Product includes a well-written story with one or two grammatical errors. Word choices effectively convey tone and mood.	Words and 3D elements are combined in original and way to tell a story. Images and color choices effectively convey tone and mood.	With a little more effort, the work could have been outstanding; lacks the finishing touches.
3	Product displayed proper use of a paper system, however the project uses only two working paper folds.	Product includes well-written story but contains several grammatical errors OR little attempt to convey tone and mood through word choice.	Words and 3D elements are combined in ways that are derived from the thinking of others. Images and color choices somewhat convey tone and mood.	The student showed average craftsmanship; adequate, but limited thought and effort.
2	Product displays proper use of a paper system however it only includes one working paper fold.	Product includes a story with minimal development OR several grammatical errors OR no attempt to convey tone and mood through word choice.	Words and 3D elements are combined in ways that are derived from the thinking of others. Words and 3D elements do not work together to convey the story's tone and mood.	The student showed average craftsmanship, rushed to finish product with time remaining and improved minimally.
1	Product does not display proper use of a paper system and includes no working paper folds.	Product does not include a written story.	Ideas are copied or restated from the sources consulted. No evidence of thoughtful use of image and color.	The student showed poor craftsmanship; rushed to finish product with time remaining; no improvements made.

**Randolph Township Schools
Randolph High School**

Advanced Placement European History

"History will be kind to me, for I intend to write it."

-Winston Churchill

Humanities Department
Benjamin Horwitz, Supervisor

Curriculum Committee
Andrew Buchanan
Michael Lonie
Peter Quinn

Curriculum Developed:
July 2016

Date of Board Approval:

**Randolph Township Schools
Department of Social Studies
Advanced Placement European History**

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools
Department of Social Studies
Advanced Placement European History

Introduction

AP European History focuses on developing students' abilities to think conceptually about European history from approximately 1450 to the present and apply historical thinking skills as they learn about the past. Five themes of equal importance — interaction of Europe and the world, poverty and prosperity, objective knowledge and subjective visions, states and other institutions of power, and individual and society — provide areas of historical inquiry for investigation throughout the course. These require students to reason historically about continuity and change over time and make comparisons among various historical developments in different times and places. The course also allows teachers flexibility to teach certain topics of their choice in depth.

Students in the course will explore European History since 1450 with an emphasis on the cultural, economic, political, and social developments that played a fundamental role in shaping the world in which they currently live. Students will engage in the study of European intellectual and cultural history. This will include changes in religious thought and institutions, ideologies characterized as “-isms” (socialism, liberalism, nationalism), and the diffusion of new intellectual concepts among different social groups. The political and diplomatic history, characterized by the rise and functioning of the modern state in its various forms, will be studied. Cultural diffusion will also form a core of student investigation. This includes the diffusion of new intellectual concepts, colonialism, imperialism, decolonization, and the study of social and economic history related to the growth of interdependence in national and world markets. Students will participate in a variety of activities designed to prepare them for the Advanced Placement Examination.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Advanced Placement European History

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
2 weeks	I	Renaissance Europe
3 weeks	II	Europe Expands & Divides
3 weeks	III	Political and Economic Changes in Early Modern Europe
3 weeks	IV	Social and Cultural Changes in Early Modern Europe
3 weeks	V	The French Revolution
6 weeks	VI	Era of Industrialization and Ideologies
6 weeks	VII	Imperialism and Global Conflict
4 weeks	VIII	Modern Europe
6 weeks	IX	European History Past and Present

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
UNIT I: Renaissance Europe

TRANSFER: Students will be able to evaluate ways intellectual advances have led to changed social norms in contemporary society and draw parallels and comparisons to changed social norms during the Renaissance.

<p>STANDARDS / GOALS:</p> <p>Common Core:</p> <p>RH.11-12.1 - Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p> <p>RH.11-12.2 - Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</p> <p>RH.11-12.3 - Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p> <p>RH.11-12.4 - Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>RH.11-12.5 - Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.</p> <p>RH.11-12.6 - Evaluate authors' differing points of view on the same historical event</p>	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
	<p>Massive social and economic upheaval in the Late Middle Ages disrupted feudalism in Western Europe and aided in the formation of nation-states.</p>	<ul style="list-style-type: none"> ● What role does chaos play in the creative process? ● When does it become necessary for individuals to question and criticize authority?
	<p>A revival of classical texts led to new methods of scholarship and new values in both society and religion and supported new models for individual and political behavior.</p>	<ul style="list-style-type: none"> ● To what extent are contemporary values shaped by a reevaluation of past knowledge?
	<p>A new focus on humanism, secularism, and individualism began a transformation of European cultural attitudes.</p>	<ul style="list-style-type: none"> ● Do societal changes reflect cultural works, or do cultural works reflect societal changes?
	KNOWLEDGE	SKILLS
	<p>Students will know:</p>	<p>Students will be able to:</p> <p>Analyze the structure of the feudal foundation and Catholic Church and evaluate the effect of these</p>

<p>or issue by assessing the authors' claims, reasoning, and evidence.</p> <p>RH.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>RH.11-12.8 - Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.</p> <p>RH.11-12.9 - Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p> <p>RH.11-12.10 - By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.</p> <p>WHST.11-12.1.A-E - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.2.A-E - Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</p> <p>WHST.11-12.4.A - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>WHST.11-12.10.A - Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p> <p>NJCCCS:</p>	<p>Europe in the fourteenth and fifteenth centuries was dominated by the religious and political hierarchies of feudalism and the Catholic Church.</p> <p>The Hundred Years' War disrupted the political stability of Europe, redrew boundaries, and created concepts of nationalism throughout Europe.</p> <p>The Black Death resulted in the death of one quarter of the population of Europe, and resulted in a dramatic change in economic, social, and cultural life in Europe.</p> <p>The development of Renaissance humanism and the printing press contributed to the emergence of a new theory of knowledge and conception of the universe.</p> <p>New theories of government and politics, such as those of Machiavelli and Thomas More, attempted to provide a coherent explanation for human behavior and the extent to which they adhered to or diverged from traditional explanations based on religious beliefs.</p> <p>Due to new intellectual developments, individualism, subjectivity, and emotion came to be considered a valid source of knowledge.</p> <p>The new concepts of virtù and humanism applied to civic life helped contribute to the growing political importance and rights of the individual.</p>	<p>institutions on the economy, culture, and society of Europe.</p> <p>Identify key individual and nations involved in the Hundred Years War and evaluate the effect of this conflict on the concept of nationalism.</p> <p>Evaluate the effects of the Black Death on the social, political, and economic life of Europe.</p> <p>Analyze the development of Renaissance humanism and evaluate how it contributed to new theories of knowledge and conceptions of the universe.</p> <p>Evaluate the importance of politics and geography in the development of Italian city-states, and compare how governmental development differed across the continent.</p> <p>Compare and contrast the ideas and values of the Renaissance with those of the Middle Ages.</p> <p>Analyze the changing role of the individual within European society in light of new concepts of civic and political authority.</p> <p>Analyze and evaluate the artistic examples of Renaissance works and explain how they encompass Renaissance ideas.</p>
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<p>6.2.12.B.2.a Relate the geographic location of Italian city-states to the fact that Italy was the center of the Renaissance.</p> <p>6.2.12.D.2.a Determine the factors that led to the Renaissance and the impact on the arts</p> <p>6.2.12.D.2.d Analyze the impact of new intellectual, philosophical, and scientific ideas on how humans viewed themselves and how they viewed their physical and spiritual worlds</p> <p>6.2.12.D.2.e Assess the impact of the printing press and other technologies developed on the dissemination of ideas.</p>	<p>Religious authorities commissioned painting and architectural works based on classical styles to promote personal, political, and religious goals.</p> <p>Renaissance artists and architects employed specific new techniques of to create works with both religious and secular themes.</p> <p>Renaissance values and ideas spread to Northern Europe, where emphasis was placed on religious reform movements.</p> <p>VOCABULARY & KEY TERMS: city-states, cinquecento, Great Schism, Hanseatic League, humanism, individualism, national monarchies, patronage, primogeniture, quattrocento, Renaissance, secularism, vernacular</p>	<p>Inspect examples of Renaissance art and architecture, and discern the various new techniques used in their creation.</p> <p>Compare and contrast the ideas and values of the Northern Renaissance with the early Renaissance movement.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Students will produce a multimedia presentation in which they analyze and annotate a piece of Renaissance artwork from a variety of different perspectives.

KEY LEARNING EVENTS AND INSTRUCTION:

- Students will identify the key characteristics of Renaissance art through reading the first chapter in *The Annotated Mona Lisa*.
- Students will compare developments in art made during the Renaissance to earlier artistic movements through a classroom gallery walk.
- Students will analyze how themes, symbolism, and meaning in Renaissance art reflected changing societal values through classroom discussions and a practice analysis of *The Mona Lisa* and *The Arnolfini Wedding*.
- Students will select a piece of artwork, research the artist, dissect all elements of the work, and present their analysis to the class.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
Unit I: Renaissance Europe

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
2 Weeks	Unit I: Renaissance Europe <ul style="list-style-type: none"> ● Crisis and Disintegration in the 14th Century <ul style="list-style-type: none"> ○ Black Death and Social Crisis ○ War and Political Instability ○ Decline of the Church ○ The Cultural World of the 14th Century ○ Society in an Age of Adversity ● Recovery and Rebirth: The Age of the Renaissance <ul style="list-style-type: none"> ○ Meaning and Characteristics of the Italian Renaissance ○ The Making of Renaissance Society ○ The Italian States in the Renaissance ○ The Intellectual Renaissance in Italy ○ The Artistic Renaissance ○ The European State in the Renaissance ○ The Church in the Renaissance 	Richard Wunderli, <i>Peasant Fires</i> Carol Strickland, <i>The Annotated Mona Lisa</i> Baldassare Castiglione, <i>The Book of the Courtier</i> Niccolo Machiavelli, <i>The Prince</i> Desiderius Erasmus, <i>The Praise of Folly</i> Thomas More, <i>Utopia</i> Jacob Burckhardt, <i>The Civilization of the Renaissance in Italy</i> Peter Burke, <i>The Myth of the Renaissance</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
Unit II: Europe Expands & Divides

TRANSFER: Students will be able to identify instances involving religious conflict in the modern world. They will be able to compare modern examples to contentious historical religious issues and analyze the causes and consequences that result from religious conflict.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Common Core:</p> <p>RH.11-12.1 - Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p> <p>RH.11-12.2 - Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</p> <p>RH.11-12.3 - Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p> <p>RH.11-12.4 - Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>RH.11-12.5 - Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs,</p>	<p>Religious reformers protested Catholic abuses which led to the Protestant Reformation, fundamentally changing European theology, religious institutions, and culture.</p>	<ul style="list-style-type: none"> ● How does institutional reform impact society?
	<p>The Catholic Reformation revived the Church but cemented the division within Christianity.</p>	<ul style="list-style-type: none"> ● When does it become necessary for individuals to question and criticize authority?
	<p>Voyages of exploration, enabled by technological advances, were driven by Christian evangelism, national prestige, and a desire for wealth.</p>	<ul style="list-style-type: none"> ● Why would individuals and nations engage in policies of discovery and exploration?
	<p>Europe’s colonial expansion led to cultural diffusion with, and the destruction of, indigenous civilizations, leading to a shift toward global European dominance politically and economically.</p>	<ul style="list-style-type: none"> ● What are the benefits and drawbacks of global interaction? ● Why have people throughout history been willing to enslave others?
	<p>Conflicts among religious groups overlapped with political and economic competition within and among states.</p>	<ul style="list-style-type: none"> ● Is unity of faith possible or desirable?

and larger portions of the text contribute to the whole.	KNOWLEDGE	SKILLS
<p>RH.11-12.6 - Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.</p> <p>RH.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>RH.11-12.8 - Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.</p> <p>RH.11-12.9 - Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p> <p>RH.11-12.10 - By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.</p> <p>WHST.11-12.1.A-E - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.2.A-E - Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</p> <p>WHST.11-12.4.A - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>WHST.11-12.10.A - Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range</p>	<p>Students will know:</p> <p>New monarchies, such as those in England and Spain, laid the foundation for the centralized modern state by establishing a monopoly on tax collection, military force, and gaining the right to determine the religion of their subjects.</p> <p>Using coercion, religious conversion, and new martial and navigational technologies, European nations carved out colonial empires to lessen the economic, demographic, and religious pressures on the continent.</p> <p>Exploration and expansion gave rise to the Atlantic Slave Trade, a practice with long-term negative consequences for the African continent and the larger world.</p> <p>Martin Luther, John Calvin, Henry VIII and other religious/political leaders challenged the authority of the Catholic Church; this would contribute to the amelioration of Church authority and the creation of new religions.</p> <p>The Catholic Church attempted to stop the spread of Protestantism though a movement known as the Catholic Reformation, which was exemplified by the Jesuit Order, the Council of Trent, and a return to mysticism.</p> <p>Monarchs, such as Henry VIII and Elizabeth I, initiated</p>	<p>Students will be able to:</p> <p>Analyze the economic and political causes of the consolidation of state power by the New Monarchies, and evaluate corresponding effects on subject populations.</p> <p>Assess both the factors and underlying motivations that led to European exploration and colonization of indigenous populations during the Sixteenth Century.</p> <p>Evaluate the role of European contact on overseas territories through the introduction of disease, indigenous subjugation, and slavery.</p> <p>Identify the challenges raised by religious reformers, and analyze the changing relationship between state and ecclesiastical authorities during the Protestant Reformation.</p> <p>Evaluate the effectiveness and legacy of the Catholic Church's attempt to address the grievances raised by Protestant Reformers during the Catholic Reformation.</p> <p>Compare the use of religious reforms by European</p>

<p>of discipline-specific tasks, purposes, and audiences.</p> <p>NJCCCS</p> <p>6.2.12.D.2.b Determine the factors that led to the Reformation and the impact on European politics.</p> <p>6.2.12.B.2.b - Relate the division of European regions during this time period into those that remained Catholic and those that became Protestant to the practice of religion in the New World.</p>	<p>religious reform from the top down in an effort to exercise greater control over religious life and morality.</p> <p>Religious conflicts, caused by groups questioning the monarch’s power, became a basis for challenging state control of religious institutions, as evidenced by the Huguenots in France and the Puritans in England.</p> <p>Issues of religious reform, exacerbated by conflicts between the monarchy and the nobility, led to the French Wars of Religion. This resulted in a tenuous agreement of religious freedom for French Huguenots in order to maintain domestic peace.</p> <p>Political localism and religious pluralism in central Europe led to the decline of the ideal of a united Christian empire, and the outbreak of the Thirty Years’ War.</p> <p>The Peace of Westphalia accelerated the decline of the Holy Roman Empire by granting princes, bishops, and other local leaders control over religion.</p> <p>VOCABULARY & KEY TERMS: Act of Supremacy, Anabaptists, Anglican Church, Catholic Counter-Reformation, Diet of Worms, Edict of Nantes, Elizabethan Settlement, indulgences, Huguenots, justification, Lutheranism, Ninety-Five Theses, Peace of Augsburg, politiques, predestination, Puritans, reformation, Schmalkadic League, simony, audiencias, Aztecs, balance of trade, Columbian Exchange, conquistadors, encomienda, Incas, joint-stock company, mercantilism, Middle Passage, Mughal Empire, price revolution, Treaty of Tordesillas, Triangular Trade,</p>	<p>monarchs as a tool to exercise greater control over religious life and morality of their subject populations.</p> <p>Interpret the political, social, and economic causes of the European religious conflicts that spread throughout the continent immediately after the Protestant Reformation.</p> <p>Explore the divisions between Catholic and Protestants in France, and propose an alternative arrangement that may have avoided conflict.</p> <p>Evaluate how the concept of localized religious control and toleration contributed to a shift in the balance of power in central Europe.</p> <p>Dissect the inputs and immediate effects of the Peace of Westphalia, and estimate the long-term effects on political and religious power structures.</p>
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	viceroys	
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Students will produce study materials to differentiate all sects and religious leaders relevant to the unit (chart, flash cards, technological solutions, etc.), and share them with the rest of the class.

KEY LEARNING EVENTS AND INSTRUCTION:

- Students will compare and contrast Christian sects and their related founders, creators, and religious/political leaders in sixteenth- and seventeenth-century Europe including (but not limited to): Anabaptism, Calvinism, Puritanism, Lutheranism, Anglicanism, Presbyterian, Society of Friends. Students will then share results and created materials with a jigsaw-style activity.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
Unit II: Europe Expands & Divides

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	Unit II - Europe Expands and Divides <ul style="list-style-type: none"> ● Reformation and Religious Warfare in the 16th Century <ul style="list-style-type: none"> ○ Prelude to Reformation ○ Martin Luther and the Reformation in Germany ○ The Spread of the Protestant Reformation ○ The Social Impact of the Protestant Reformation ○ The Catholic Reformation ○ Politics and the Wars of Religion in the 16th Century ● Europe & the World: New Encounters 1500-1800 <ul style="list-style-type: none"> ○ On the Brink of a New World ○ New Horizons: The Portuguese and Spanish Empires ○ New Rivals on the World Stage ○ The Impact of European Expansion ○ Toward a World Economy 	Johann Tetzel, <i>The Spark for the Reformation: Indulgences</i> Martin Luther, <i>Justification by Faith</i> Martin Luther, <i>Condemnation of the Peasant Revolt</i> John Calvin, <i>Institutes of the Christian Religion</i> Ignatius of Loyola, <i>Constitution of the Society of Jesus</i> Euan Cameron, <i>What Was the Reformation?</i> G.R. Elton, <i>A Political Interpretation of the Reformation</i> Steven Ozment, <i>The Legacy of the Reformation</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
Unit III: Political & Economic Changes in Early Modern Europe

TRANSFER: Using both historical and modern examples, students will be able to investigate and argue whether or not the benefits of a strong, centralized government outweigh the potential for abuses of power.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Common Core:</p> <p>RH.11-12.1 - Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p>	<p>After the challenges of religious and civil warfare of the sixteenth and seventeenth centuries, many European monarchs turned to absolute, divine-right political systems.</p>	<ul style="list-style-type: none"> ● What is the best response to unrest and uncertainty? ● From where does power originate?
<p>RH.11-12.2 - Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</p>	<p>Some European nations turned to limited government and constitutionalism, which produced unique conflicts between the interests of monarchs, the aristocracy, and the people.</p>	<ul style="list-style-type: none"> ● How can a government best balance the needs of all its citizens?
<p>RH.11-12.3 - Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p>	<p>Conflicts in the eighteenth century no longer arose from the religious disputes, but rather from economic competition, territorial ambitions, and the balance of power on the continent.</p>	<ul style="list-style-type: none"> ● Why do nations seek to dominate others?
<p>RH.11-12.4 - Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p>	<p>In response to rapid inflation and agricultural innovation, Europe embraced a new view of the economy based on manufactured goods, a market economy, and colonial exploitation.</p>	<ul style="list-style-type: none"> ● How can innovation make people's lives easier and more difficult?
<p>RH.11-12.5 - Analyze in detail how a complex primary source is structured,</p>		

<p>including how key sentences, paragraphs, and larger portions of the text contribute to the whole.</p>	<p style="text-align: center;">KNOWLEDGE</p>	<p style="text-align: center;">SKILLS</p>
<p>RH.11-12.6 - Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.</p> <p>RH.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>RH.11-12.8 - Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.</p> <p>RH.11-12.9 - Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p> <p>RH.11-12.10 - By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.</p> <p>WHST.11-12.1.A-E - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.2.A-E - Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</p> <p>WHST.11-12.4.A - Produce clear and</p>	<p>Students will know:</p> <p>Some European monarchs, responding to previous conflicts that had roiled their nations, sought to extend their total control over political and state affairs, a form of government known as absolute monarchy.</p> <p>In France, Louis XIV and his stable of advisors and ministers provided a model for absolutism by extending state control to administrative, financial, military, and religious matters.</p> <p>Chief among the fractious German states, Prussia and its rulers found success with an efficient bureaucracy, streamlined military, and enlightened absolutist mentality, challenging Austria as the most influential Germanic nation-state.</p> <p>Guided by principles of absolutism and Westernization, Russian monarchs Peter the Great and Catherine the Great consolidated power and established Russia as the dominant player in Eastern Europe, largely at the expense of Sweden and Poland.</p>	<p>Students will be able to:</p> <p>Contrast the consolidated power of absolute monarchies with the decentralized power structure of feudalism.</p> <p>Analyze the existing conditions in France that allowed Louis XIV to institute his vision for absolute rule, and judge how successful he actually was in asserting full control.</p> <p>Evaluate Frederick the Great's role as an enlightened despot, and compare his accomplishments and rule with other historical "enlightened" rulers.</p> <p>Relate the difficulties faced by Russian monarchs in reforming and modernizing Russian society with the difficulties faced by another modern nation attempting reform.</p>

<p>coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>WHST.11-12.10.A - Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p> <p>NJCCCS:</p> <p>6.2.12.A.2.c – Determine the reasons for, and the consequences of, the rise of powerful, centralized nation states in Europe (i.e., the French absolute monarchy and the English limited monarchy).</p> <p>6.2.12.C.2.a - Relate the development of more modern banking and financial systems to European economic influence in the world.</p>	<p>Absolutist rulers found resistance to their attempts to increase their power in the aristocracy and other elite groups, who typically sought more localized and shared power structures.</p> <p>The English Civil War, a conflict between the absolutist-minded monarchy and Parliament’s disaffected elites, exemplified the issues inherent in balancing strong, centralized rule with outside interests.</p> <p>By the end of the English Civil War and Glorious Revolution, Parliament and the aristocracy assured themselves rights that protected them against the overreach of the monarchy.</p> <p>Nations like Poland and the Dutch Republic, wary of increased centralized monarchies, turned to more limited forms of government with mixed results.</p> <p>After the Peace of Westphalia, religion was no longer a primary cause for war among European nations, replaced by a focus on the delicate balance of power on the continent.</p> <p>Increased competition for economic resources and opportunities outside of Europe fueled national rivalries and conflict.</p>	<p>Describe instances in the seventeenth and eighteenth centuries of both successful and unsuccessful attempts by elites to increase their power.</p> <p>Trace the developments of the abolition and restoration of the English monarchy, and evaluate the short- and long-term effects these events had on English (and possibly American) politics.</p> <p>Analyze the victories earned by Parliament and the English aristocracy in the English Civil War, and create a rationale as to why this success was not achieved by other European nobles.</p> <p>Describe the major differences between nations that embraced absolutism and nations that embraced limited government.</p> <p>Compare the causes of selected European conflicts in the fifteenth and sixteenth centuries.</p> <p>Identify one specific resource or commodity that was highly sought-after by Europeans and explain the reasons for its high importance/appeal.</p>
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	<p>Exploitation of colonies and foreign lands across the globe resulted in a large-scale exchange of raw materials, forced and free labor, and new agricultural products to Europe, in turn developing a nascent consumer culture.</p> <p>Commerce, new financial centers, and a new focus on a money economy led to the growth of an economic elite, sometimes separate from the existing social elite.</p> <p>The Agricultural Revolution and the manufacturing output of cottage industries helped to increase economic productivity, helping to develop a market economy.</p> <p>VOCABULARY & KEY TERMS:</p> <p>Absolutism, Act of Toleration, baroque, Battle of Lepanto, Bill of Rights, Bourbon dynasty, boyars, Defenestration of Prague, divine-right monarchy, Dutch realism, Fronde, Glorious Revolution, Habsburg dynasty, Hohenzollern dynasty, intendants, janissaries, Junkers, mannerism, mercantilism, oligarchy, Parlements of France, Parliament of England, Peace of Westphalia, procurator, Romanov dynasty, Stuart monarchy, Treaty of Utrecht, urban gentry, Versailles, War of Spanish Succession, Westernization, Agricultural Revolution, balance of power, cottage industry, enlightened absolutism, estates, Grand Tour, market economy, putting-out system, reason of state, Seven Years' War, slave labor system, War of Austrian Succession</p>	<p>Compare one or two focuses of today's modern consumer culture to the one established through trade in Europe in the eighteenth century.</p> <p>Debate the merits of the rise of economic elitism.</p> <p>Judge the benefits and/or drawbacks of a market economy to a nation, including upper, middle, and lower classes.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Students will take part in a Socratic Seminar in order to evaluate whether or not absolutism was an effective style of ruling.

KEY LEARNING EVENTS AND INSTRUCTION:

- Students will read, highlight, and annotate various primary source documents that serve as the justifications of absolutism as a governing system. These primary source documents include the *Edict of Fountainbleau*, *Memoirs of the Duc de Saint-Simon*, *Politics Drawn from the Very Words of Holy Scripture*, and *True Law of Free Monarchies*. A class discussion on the primary sources will follow to assess students' comprehension.
- Students will read, highlight, and annotate various historical interpretations of absolutism in order to gain an understanding of the historiography surrounding the governing system. These secondary source documents include *The Age of Louis XIV*, *A Short History of the French People*, *The XVIth and XVIIth Centuries*. A class discussion on these secondary sources will follow to assess comprehension.
- Students will prepare for the Socratic Seminar by responding to reading analysis questions that will be used during the discussion, as well as by preparing and answering their own analysis questions to bring to the discussion.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
Unit III: Political and Economic Changes in Early Modern Europe

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	<p>Unit III – Political and Economic Changes in Early Modern Europe</p> <ul style="list-style-type: none"> • State Building and the Search of Order in the Seventeenth Century <ul style="list-style-type: none"> ○ Social Crises, War, and Rebellions ○ The Practice of Absolutism: Western Europe ○ Absolutism in Central, Eastern, and Northern Europe ○ Limited Monarchy and Republics ○ The Flourishing of European Culture • The Eighteenth Century: European States, International Wars, and Social Change <ul style="list-style-type: none"> ○ The European States ○ Wars and Diplomacy ○ Economic Expansion and Social Change ○ The Social Order of the Eighteenth Century 	<p><i>English Bill of Rights</i> James I, <i>True Law of a Free Monarchy</i> Catherine the Great, <i>Memoirs</i> Louis XIV, <i>Edict of Fountainbleau</i> <i>Memoirs of the Duc de Saint-Simon</i> J.B. Bossuet, <i>Politics Draws from the Very Words of the Holy Scripture</i> Voltaire, <i>The Age of Louis XIV</i> Cecil Jenkins, <i>A Short History of the French People</i> Roland Mousnier, <i>The XVIth and XVIIth Centuries</i></p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
Unit IV: Social and Cultural Changes in Early Modern Europe

TRANSFER: Using natural rights theories from the Enlightenment, students will be able to evaluate modern-day threats to those rights.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Common Core:</p> <p>RH.11-12.1 - Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p> <p>RH.11-12.2 - Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</p> <p>RH.11-12.3 - Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p> <p>RH.11-12.4 - Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>RH.11-12.5 - Analyze in detail how a complex primary source is structured,</p>	<p>Experimentation and observation based on the scientific method led to a revolution in human understanding of many scientific fields, including astronomy, anatomy, and biology.</p>	<ul style="list-style-type: none"> ● What drives humans to search for knowledge?
	<p>The emergence of rationalism and empirical thinking during the Enlightenment challenged long-held ideas and values of traditional social and cultural institutions.</p>	<ul style="list-style-type: none"> ● Why does change inspire fear? Must it always?
	<p>Enlightenment ideals and thought heavily influenced both contemporary and future political and economic theorists, incorporating natural rights, social contract, and free market theories into political life.</p>	<ul style="list-style-type: none"> ● What makes a right a human right?
	<p>Everyday life transformed dramatically as a result of advances in human thought and understanding commonplace problems, positively addressing issues of demographics and quality of life.</p>	<ul style="list-style-type: none"> ● How can thought and theory be made practical? ● What is the power of an idea?

<p>including how key sentences, paragraphs, and larger portions of the text contribute to the whole.</p> <p>RH.11-12.6 - Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.</p> <p>RH.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>RH.11-12.8 - Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.</p> <p>RH.11-12.9 - Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p> <p>RH.11-12.10 - By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.</p> <p>WHST.11-12.1.A-E - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.2.A-E - Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</p> <p>WHST.11-12.4.A - Produce clear and</p>	<p style="text-align: center;">KNOWLEDGE</p> <p>Students will know:</p> <p>Concepts and ideas sprang from the Scientific Revolution that conflicted with the accepted assumptions supported by ancient institutions, including mankind's and Earth's place in the universe.</p> <p>Astronomers and physicists in the Scientific Revolution came to understand and codify new concepts in their disciplines, including heliocentrism and gravity.</p> <p>Shifting from a medieval emphasis on humors, medical theories and practice in the sixteenth century moved toward an integrated understanding of anatomy and epidemiology.</p> <p>Philosophers of the Enlightenment period applied reason and empirical thinking to matters related to government, the church, and medicine, leading to a reexamining of the existing social and cultural landscape.</p> <p>Women, still undermined and oppressed even under new Enlightenment ideals, argued for sexual equality and inclusion in all aspects of social, cultural, and political life.</p>	<p style="text-align: center;">SKILLS</p> <p>Students will be able to:</p> <p>Contrast the enshrined views on social institutions and natural laws with the concepts espoused by the Scientific Revolution.</p> <p>Explain how the emergence of scientific principles in the fields of astronomy and physics directly impacted life in the Scientific Revolution time period.</p> <p>Provide examples of at least one public health failure before the Scientific Revolution and apply the new understandings of anatomy and disease to retroactively "solve" it.</p> <p>Identify specific areas of public life that were influenced by Enlightenment philosophy and detail the specific transformations that occurred.</p> <p>Develop an argument countering the sexist worldview held by the new social and political order constructed by the Enlightenment.</p>
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<p>coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>WHST.11-12.10.A - Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p> <p>NJCCCS:</p> <p>6.2.12.A.2.a - Determine how the principle ideas of the Enlightenment (e.g., rationalism, secularism, tolerance, empiricism, natural rights, contractual government, laissez- faire economics, promotion by merit, and new theories of education) altered political thought in Europe, and trace the impact of these ideas over time.</p> <p>6.2.12.A.2.b - Explain the paradox between the ideology of the Enlightenment and the treatment of women and non-Europeans in European society.</p> <p>6.2.12.D.2.d - Analyze the impact of new intellectual, philosophical, and scientific ideas on how humans viewed themselves and how they viewed their physical and spiritual worlds.</p>	<p>Enlightenment political and economic thinkers, such as Locke and Smith, ordered their theories around the concepts of liberty and individual rights rather than statist absolutism or traditional power structures.</p> <p>An increased focus on individualism and privacy during the seventeenth and eighteenth centuries led to a novel approach to faith and religion, deemphasizing sect and dogma and emphasizing toleration and the personal nature of spirituality.</p> <p>Artistic movements of the seventeenth and eighteenth centuries largely concerned themselves with the burgeoning middle class and individualism, in contest to the previous system of state and religious patronage.</p> <p>Though population growth remained relatively steady through the pre-industrial period, new social and demographic trends emerged such as leisure time, urban poverty, and public health/safety crises.</p> <p>VOCABULARY & KEY TERMS:</p> <p>Alchemy, Aristotelian philosophy, astrology, Cartesian dualism, cosmology, deductive method, empiricism, geocentric conception, heliocentric model of the universe, Hermeticism, inductive method, Principia Mathematica, Ptolemaic/geocentric model of the universe, querelles des femmes, rationalism, Royal Academy of the Sciences,</p>	<p>Trace the development theories on the individual vs. society from ancient philosophy through the Enlightenment and beyond.</p> <p>Judge the spiritual ideas embraced by the Enlightenment against the effects that organized religion had on Europe to this point, including benefits and harms.</p> <p>Examine various cultural works, and outline the shift from state/religious patronage to new topics, inspirations, and themes.</p> <p>Generate a plan to solve a demographic problem experienced in pre-industrial Europe using Enlightenment- or Scientific Revolution-era solutions or ideas.</p>
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	Royal Society, scholasticism, scientific method, Scientific Revolution, world machine, Deism, general will, laissez-faire, natural law, natural rights, neoclassicism, mercantilism, Methodism, old order, original state of nature, philosophe, physiocrat, Pietism, Rococo, salon, separation of powers, tabula rasa, the social contract	
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Choose a specific human or natural rights theory. Using understandings of the theory, relate it to specific events, theories, movements, individuals, or actions that exist today that threaten or undermine it. Then, analyze these threats using the lens of empiricism and/or rationalism and produce an evaluation of the seriousness of the threat.

KEY LEARNING EVENTS AND INSTRUCTION:

- Students will complete readings of Enlightenment primary sources (using selected supplemental unit resources) and modern current event sources.
- Students will produce a written report discussing an enumeration of relevant threats in the form of political/social/economic ideas, theories, movements, individuals, as well as an identification of vulnerabilities of chosen/selected rights or principles.
- Students will create a threat analysis and evaluation based on knowledge of past issues and current political/social/economic climate.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
Unit IV: Social and Cultural Changes in Early Modern Europe

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	Unit IV – Social and Cultural Changes in Early Modern Europe <ul style="list-style-type: none"> • Toward a New Heaven and a New Earth: The Scientific Revolution and the Emergence of Modern Science <ul style="list-style-type: none"> ○ Background to the Scientific Revolution ○ Toward a New Heaven: A Revolution in Astronomy ○ Advances in Medicine and Chemistry ○ Women in the Origins of Modern Science ○ Toward a New Earth: Descartes, Rationalism, and a New View of Humankind ○ The Scientific Method and the Spread of Scientific Knowledge • The Eighteenth Century: An Age of Enlightenment <ul style="list-style-type: none"> ○ The Enlightenment ○ Culture and Society in the Enlightenment ○ Religion and the Churches 	René Descartes, <i>The Discourse on Method</i> Galileo Galilei, <i>Letter to Christina of Tuscany: Science and Scripture</i> Immanuel Kant, <i>What Is Enlightenment?</i> Denis Diderot, <i>Prospectus for the Encyclopedia of Arts and Sciences</i> Jean Jacques Rousseau, <i>The Social Contract</i> John Locke, <i>Second Treatise of Government</i> Adam Smith, <i>Wealth of Nations</i> Voltaire, <i>Candide</i> Baron de Montesquieu, <i>Spirit of the Laws</i> Bonnie S. Anderson & Judith P. Zinsser, <i>Women in the Salons</i> Lester G. Crocker, <i>The Age of Enlightenment</i>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
UNIT V: The French Revolution

TRANSFER: Students will be able to analyze a modern day revolution and compare the differences in ideologies between the historical and contemporary examples.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Common Core:</p> <p>RH.11-12.1 - Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p> <p>RH.11-12.2 - Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</p> <p>RH.11-12.3 - Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p> <p>RH.11-12.4 - Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>RH.11-12.5 - Analyze in detail how a complex primary source is structured,</p>	<p>The French Revolution resulted from a combination of long-term social and political causes, as well as Enlightenment ideas, exacerbated by short-term fiscal and economic crisis.</p>	<ul style="list-style-type: none"> ● How do people know when a system is unfair?
	<p>The French Revolution posed a fundamental challenge to Europe’s existing political and social order.</p>	<ul style="list-style-type: none"> ● What would motivate people to rebel against institutions of power? ● What accounts for the dominance of some ideologies over others?
	<p>After a phase of moderate political developments during its early stages, discontent with foreign and domestic policies led to a radical backlash in revolutionary France.</p>	<ul style="list-style-type: none"> ● How do people judge the success or failure of a revolutionary movement?
	<p>Claiming to defend the ideals of the French Revolution, Napoleon Bonaparte imposed French control over much of the European continent that eventually provoked a nationalistic reaction that led to his defeat.</p>	<ul style="list-style-type: none"> ● What are the limits of conquest?

<p>including how key sentences, paragraphs, and larger portions of the text contribute to the whole.</p> <p>RH.11-12.6 - Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.</p> <p>RH.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>RH.11-12.8 - Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.</p> <p>RH.11-12.9 - Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p> <p>RH.11-12.10 - By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.</p> <p>WHST.11-12.1.A-E - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.2.A-E - Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</p> <p>WHST.11-12.4.A - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p style="text-align: center;">KNOWLEDGE</p> <p>Students will know: The moderate phase of the French Revolution established a constitutional monarchy, and led to the abolishment of the Old Regime in France.</p> <p>Opposition to the Revolution at home and war abroad led to the radicalization of the Revolution, the Reign of Terror, and the Thermidorian Reaction.</p> <p>The spread of Enlightenment ideas and institutions contributed to the growing discontent of Frenchmen on the eve of the Revolution.</p> <p>The financial fallout from French involvement in the American Revolution and bad harvests leading to food shortages led to the outbreak of violence in 1789.</p> <p>Reformers during the moderate phase of the Revolution increased popular participation in French politics, nationalized the Catholic Church, and abolished hereditary privileges for the nobility in France.</p> <p>After the execution of Louis XVI, the radical Jacobin Republic responded to opposition at home and war abroad by instituting the Reign of Terror, and pursuing a policy of de-Christianization.</p>	<p style="text-align: center;">SKILLS</p> <p>Students will be able to: Discuss the extent to which the reforms made during the initial stages of the Revolution undermined the original goals of 1789.</p> <p>Construct an argument based on historical evidence that discusses whether the later stages of the Revolution were a continuation of, or break from the early stages of the Revolution.</p> <p>Analyze the long-term causes that contributed to the general feeling of discontent within the classes of French Society on the eve of the Revolution.</p> <p>Evaluate the political, social, and economic events that served to spark the outbreak of violence and the start of the Revolution in 1789.</p> <p>Analyze how new political and economic theories from the 17th century and the Enlightenment influenced the outcome of the moderate phase of the French Revolution.</p> <p>Assess the degree to which the goals of moderate phase were addressed during the early Revolution, and analyze the underlying causes behind the radicalization of the Revolution.</p>
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<p>WHST.11-12.10.A - Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p> <p>NJCCCS:</p> <p>6.2.12.A.3.a - Explain how and why various ideals (e.g., liberty, popular sovereignty, natural rights, democracy, and nationalism) became driving forces for reforms and revolutions, their influence on Latin American independence movements, and evaluate their impact on government, society, and economic opportunities.</p> <p>6.2.12.A.3.b - Relate the responses of various governments to pressure for self-government or self-determination to subsequent reform or revolution.</p> <p>6.2.12.D.3.a - a Explain how individuals and groups promoted revolutionary actions and brought about change during this time period</p>	<p>Revolutionary ideals in France spread throughout Europe, where revolutionary armies, raised by mass conscription, sought to bring the changes initiated in France to the rest of Europe.</p> <p>Across the Atlantic, revolutionary ideals inspired a slave revolt led by Toussaint L’Ouverture in the French colony of Saint Domingue, which became the independent nation of Haiti in 1804.</p> <p>While many throughout Europe embraced the wave of nationalism brought on by the Revolution, members of the elite classes throughout Europe condemned its disregard for traditional authority, leading to a conservative backlash.</p> <p>Women enthusiastically participated in the early phases of the revolution; however, while there were brief improvements in the legal status of women, citizenship in the republic was soon restricted to men.</p> <p>As first consul and emperor, Napoleon undertook a number of enduring domestic reforms while often curtailing some rights and manipulating popular impulses behind a façade of representative institutions.</p> <p>Napoleon’s new military tactics allowed him to exert direct or indirect control over much of the European continent, spreading the ideals of the French Revolution across Europe.</p>	<p>Describe the trajectory and results of the spread of Revolutionary nationalism and reforms to the remainder of the European Continent during the Era of the French Revolution.</p> <p>Evaluate how the ideologies and social reform of the French Revolution contributed to the growing sense of discontent and independence in the French colony of Saint Domingue.</p> <p>Compare the reaction of the general European population to the ideas of the French Revolution to that of the ruling elites across the continent.</p> <p>Compare the role of women in French society on the eve of the French Revolution with that of women during the Napoleonic Era based on the changes that took place during the French Revolution.</p> <p>Evaluate the extent to which Napoleon’s domestic reforms and policies were built upon the framework established during the French Revolution.</p> <p>Assess the strategies and tactics used by Napoleon to help exert direct or indirect control over much of the European continent.</p>
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	<p>After the defeat of Napoleon by a coalition of European powers, the Congress of Vienna attempted to restore the balance of power in Europe and contain the danger of revolutionary or nationalistic upheavals in the future.</p> <p>VOCABULUARY & KEY TERMS: Bastille, cahiers de doléances, Great Fear, Jacobin Republic, Code Napoleon, Louis XVI, Committee of Public Safety, Napoleon Bonaparte, Congress of Vienna, National Assembly, Constituent Assembly, nationalism, Constitution of 1791, Old Regime, consulate, Reign of Terror, Continental System, Republic of Virtue, Declaration of the Rights of Man and Citizen, Robespierre, Jean-Paul Marat, Georges Danton, Declaration of the Rights of Woman, sans-culottes, Society for Revolutionary Republican Women, De-Christianization, Tennis Court Oath, the three estates, Estates-General, Thermidorean Reaction, Toussaint L'Ouverture, Women's March on Versailles</p>	<p>Interpret the ideological underpinnings of Napoleon's defeat and analyze its consequences to the balance of power in Europe.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Students will take part in a Socratic Seminar in which they discuss whether or not Napoleon was a child of the French Revolution.

KEY LEARNING EVENTS AND INSTRUCTION:

- Students will read, highlight, and annotate Napoleon's *Memoirs* for a deeper understanding of his goals and outlook as the French Leader.
- Students will be introduced to the discussion question for the first time, and will have an initial classroom discussion on whether or not Napoleon was a child of the French Revolution, in order to ensure all students', understand the topic.
- Students will review primary sources from the French Revolution, including "What is the Third Estate?", "The Declaration of the Rights of Man and Citizen", & the "Declaration of the Rights of Woman and the Female Citizen" in order to revisit the goals of the Revolution.
- Students will read excerpts from Louis Bergeron's, *France Under Napoleon*, and Martyn Lyons, *Napoleon Bonaparte and the Legacy of the French Revolution* in order to gain an understanding of two historical perspectives on the relationship between Napoleon and the French Revolution.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
Unit V: The French Revolution

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
<p>3 Weeks</p>	<p>Unit V: The French Revolution</p> <ul style="list-style-type: none"> • A Revolution in Politics: The Era of the French Revolution & Napoleon <ul style="list-style-type: none"> ○ The Beginning of the Revolutionary Era: The American Revolution ○ Background to the French Revolution ○ Reaction and the Directory ○ The Age of Napoleon ○ The Fall of Napoleon 	<p>Emmanuel Joseph Sieyes, <i>What is the Third Estate?</i> <i>The Cahiers: Discontents of the Third Estate</i> <i>The Declaration of the Rights of Man and Citizen</i> Olympe de Gouges, <i>Declaration of the Rights of Woman and the Female Citizen</i> Maximilien Robespierre, <i>The Terror Justified</i> Napoleon Bonaparte, <i>Memoirs</i> Georges Lefebvre, <i>The Coming of the French Revolution</i> Donald Sutherland, <i>The Revolution of the Notables</i> William Doyle, <i>An Evaluation of the French Revolution</i> Louis Bergeron, <i>France Under Napoleon</i> Martyn Lyons, <i>Napoleon Bonaparte and the Legacy of the French Revolution</i></p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
UNIT VI: Era of Industrialization and Ideology

TRANSFER: Using evidence, students will be able to construct a contemporary worldview based on 21st century society and current ideologies, and analyze the evolution of this worldview from the time of the Industrial Revolution.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Common Core:</p> <p>RH.11-12.1 - Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p> <p>RH.11-12.2 - Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</p> <p>RH.11-12.3 - Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p> <p>RH.11-12.4 - Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>RH.11-12.5 - Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to</p>	<p>A confluence of various economic and social factors and conditions, first appearing in Great Britain, sparked the Industrial Revolution on the European continent.</p>	<ul style="list-style-type: none"> ● What conditions must exist for an agricultural society to develop into an industrial society? ● How do larger societal movements affect the lives of everyday individuals?
	<p>Issues raised by both industrialization and the spread of nationalism provoked a range of ideological, governmental, and collective responses.</p>	<ul style="list-style-type: none"> ● How do new ideologies originate?
	<p>European states struggled to maintain international stability and sovereignty in an age of nationalism and revolutions.</p>	<ul style="list-style-type: none"> ● How do governments balance political development with a need for stability within society?
	<p>The Industrial Revolution and unification movements in central Europe led to a shift in the global balance of power, as industrialized nations dominated the rest of the world.</p>	<ul style="list-style-type: none"> ● When does a nation have the right to interfere in the affairs of another nation?
	<p>The European worldview shifted to reflect a tension between objectivity and scientific realism on one hand, and subjectivity and individual expression on the other.</p>	<ul style="list-style-type: none"> ● To what extent can objective knowledge and subjective visions coexist?

<p>the whole.</p> <p>RH.11-12.6 - Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.</p> <p>RH.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>RH.11-12.8 - Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.</p> <p>RH.11-12.9 - Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p> <p>RH.11-12.10 - By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.</p> <p>WHST.11-12.1.A-E - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.2.A-E - Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</p> <p>WHST.11-12.4.A - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>WHST.11-12.10.A - Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p>	<p style="text-align: center;">KNOWLEDGE</p> <p>Students will know:</p> <p>A combination of economic conditions, political will, energy and natural resources led to the start of the Industrial Revolution in Great Britain.</p> <p>Great Britain established its industrial dominance through the mechanization of textile production, iron and steel production, and new transportation systems.</p> <p>Due to state sponsorship in places such as France and Prussia, continental Europe soon followed Britain's lead in industrialization with mixed success.</p> <p>A combination of factors, including geography and a lack of resources, led to a lag of industrial development and persistence of serfdom in eastern and southern Europe.</p> <p>The Second Industrial Revolution of the 19th century led to more complex industrial activity across the continent; include new chemical developments, and technological means of mass communication and transportation.</p> <p>Industrialization led to socioeconomic changes that created greater divisions of labor, leading to the development of self-conscious classes.</p>	<p style="text-align: center;">SKILLS</p> <p>Students will be able to:</p> <p>Debate a ranked order of the most important economic, political, and natural factors that led to the start of the Industrial Revolution in Great Britain.</p> <p>Evaluate the factors that combined to allow Great Britain to be the leader in industrialization in Europe.</p> <p>Compare the role of government in the spread of industrialization in western Europe with that of Great Britain during the Industrial Revolution.</p> <p>Explain the lack of industrialization in eastern and southern Europe during the Industrial Revolution, and propose a plan that might have solved this issue.</p> <p>Evaluate whether the first or second Industrial Revolution had a greater impact on the lives of everyday Europeans during the 19th century.</p> <p>Assess the development of class-consciousness in European history in light of the developments made during the Industrial Revolution.</p>
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<p>NJCCCS:</p> <p>6.2.12.A.3.b - Relate the responses of various governments to pressure for self-government or self-determination to subsequent reform or revolution.</p> <p>6.2.12.A.3.c - Analyze the relationship between industrialization and the rise of democratic and social reforms, including the expansion of parliamentary government.</p> <p>6.2.12.A.3.d - Compare and contrast the struggles for women’s suffrage and workers’ rights in Europe and North America, and evaluate the degree to which each movement achieved its goals.</p> <p>6.2.12.C.3.a - Analyze interrelationships among the “agricultural revolution,” population growth, industrialization, specialization of labor, and patterns of land-holding</p> <p>6.2.12.C.3.b - Analyze interrelationships among the Industrial Revolution, nationalism, competition for global markets, imperialism, and natural resources.</p> <p>6.2.12.C.3.c - Compare the characteristics of capitalism, communism, and socialism to determine why each system emerged in different world regions.</p> <p>6.2.12.C.3.d - Determine how, and the extent to which, scientific and technological changes, transportation, and new forms of energy brought about massive social, economic, and cultural changes.</p> <p>6.2.12.D.3.b - Explain how industrialization and urbanization affected class structure, family life, the daily lives of men, women, and children, and the environment.</p>	<p>The Industrial Revolution altered the family structure and relations of middle and working-class families, as the middle class became focused on a new consumerism, the nuclear family and cult of domesticity.</p> <p>Ideologies such as liberalism, conservatism, socialism, and communism took root throughout society as a response to industrial and political revolutions.</p> <p>The Concert of Europe was established at the Congress of Vienna and sought to maintain the status quo in European affairs through collective action and adherence to conservatism.</p> <p>The breakdown of the Concert of Europe opened the door for movements of national unification in Italy and Germany, transforming the European balance of power.</p> <p>Romanticism broke with neoclassical forms of artistic representation with rationalism, placing more emphasis on intuition and emotion.</p> <p>A new relativism in values brought on by philosophers like Friedrich Nietzsche, and the loss of confidence in the objectivity of knowledge led to modernism in intellectual and cultural life.</p> <p>VOCABULARY & KEY TERMS: Anti-Corn Law League, Bessemer Process, bourgeoisie, capital, capitalism, Chartist movement, Crystal Palace, entrepreneur, Factory Act of 1833, Flora Tristan, Great Exhibition of 1851, Industrial Revolution, Jeremy</p>	<p>Examine the changing role of family structure in the lower, middle, and upper classes of European society from the Renaissance through the Industrial Revolution.</p> <p>Formulate a criticism to various European ideologies, such as liberalism, conservatism, socialism, and communism, from the perspective of a competing ideology during the time period.</p> <p>Identify the founding principles of the Concert of Europe and assess the degree to which they were successfully achieved during the first half of the 19th century.</p> <p>Predict the future of the European balance of power with evidence from the unification movements of Italy and Germany.</p> <p>Evaluate how European art and literature evolved in content and structure to reflect changing societal values during the Industrial Revolution.</p> <p>Discuss the evolution of the European worldview from the start of the Renaissance to the start of the 20th century.</p>
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	<p>Bentham, John Stuart Mill, joint-stock investment bank, Luddites, mass production, Mines Act of 1842, Proletariat, tariff, Ten Hours Act of 1847, trade union, Concert of Europe, Congress of Vienna, conservatism, Decembrist Revolt, Friedrich Engels, Charles Fourier, Grossdeutsch, July Revolution, Kleindeutsch, liberalism, Karl Marx, nationalism, Robert Own, Peterloo Massacre, principle of intervention, principle of legitimacy, Quadruple Alliance, Reform Act of 1832, Revolutions of 1848, Risorgimento, Romanticism, Saint Simon, socialism, utopian socialists, Austro-Prussian War, Austro-Sardinian War, The Communist Manifesto, Crimean War, Franco-Prussian War, materialism, natural selection, organic evolution, pasteurization, populism, Realism, Realpolitik, Red Shirts, Reform Act of 1867, Second Empire, anarchism, cartels, depression, emigration, evolutionary socialism, Kulturkampf, Paris Commune, Second Industrial Revolution, Social Democratic Party, Third Republic</p>	
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Students will evaluate the main problems faced by industrial workers during the Industrial Revolution, as well as the philosophies of those purporting to help them through taking part in a culminating “Workers’ Rally” project.
- Students will complete a follow-up writing assignment reflecting on the success of all ideologies in meeting the needs of the workers.

KEY LEARNING EVENTS AND INSTRUCTION:

- Students will read and interpret primary source materials that discuss the plight faced by industrial working class populations in the 19th century, including *Inquiry into the Condition of the Poor* and *The Condition of the Working Class in England* in order to create an annotated list of grievances of the working class.
- Students will read, highlight, and annotate foundational documents of various ideologies from the 19th century including *On Liberty*, *The Organization of Work*, *The Communist Manifesto*, and *Conservative Principles*. As they read, students will be annotating the materials from the perspective of an industrial worker, in order to evaluate how well each ideology addresses their needs.

- Students will take part in a classroom discussion and simulation in which they analyze philosophies, as well as criticisms of the philosophies from multiple perspectives.
- Students will be broken into groups, assigned an ideology, and work with their group to prepare a three minute “pitch” to a group of industrial workers discussing why the lower classes’ needs would best be addressed through the assigned philosophy.
- Students will act in the roles of supporters of their ideologies and create posters to sway a group of industrialized workers as part of an in-class simulation of a “Workers’ Rally.”

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
UNIT VI: Era of Industrialization and Ideology

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
6 Weeks	<p>Unit VI: Era of Industrialization and Ideology</p> <ul style="list-style-type: none"> ● The Industrialization and Its Impact on European Society <ul style="list-style-type: none"> ○ The Industrial Revolution in Great Britain ○ Technological Changes and New Forms of Industrial Organization ○ Britain’s Great Exhibition of 1851 ○ Industrialization on the Continent ○ The Social Impact of the Industrial Revolution ○ Efforts at Change: The Workers ● Reaction, Revolution, and Romanticism, 1815-1850 <ul style="list-style-type: none"> ○ The Conservative Order (1815-1830) ○ The Ideology of Conservatism ○ Conservative Domination: The Concert of Europe ○ The Ideologies of Change ○ Revolution and Reform (1830-1850) ○ The Emergence of an Ordered Society ○ Culture in an Age of Reaction and Revolution: The Mood of Romanticism ○ The Revival of Religion in the Age of Romanticism 	<p>Klemens von Metternich, “Conservative Principles” “Testimony for the Factory Act of 1833” Benjamin Disraeli, “Sybil, or the Two Nations: Mining Towns” Friedrich Engels, “The Condition of the Working Class in England” Louis Blanc, <i>The Organization of Work</i> <i>The Carlsbad Decree, 1819</i> Jeremy Bentham, <i>English Liberalism</i> <i>The First Chartist Petition: Demands for Change in England</i> Otto von Bismarck, “Speeches on Pragmatism and State Socialism” Giuseppe Mazzini, <i>The Duties of Man</i> Heinrich von Treitschke, <i>Militant Nationalism</i> Charles Darwin, <i>The Origin of Species and the Descent of Man</i> Herbert Spencer, <i>Liberalism and Social Darwinism</i> John Stuart Mill, <i>On Liberty</i> Karl Marx and Friedrich Engels, <i>The Communist Manifesto</i> Houston Stewart Chamberlain, “Foundations of 19th Century Racism” Friedrich Nietzsche, <i>Beyond Good and Evil</i> Sigmund Freud, <i>The Interpretation of Dreams</i></p>

	<ul style="list-style-type: none">● An Age of Nationalism and Realism, 1850-1871<ul style="list-style-type: none">○ The France of Napoleon III○ National Unification: Italy and Germany○ Nation Building and Reform: The National State at Midcentury○ Industrialization and the Marxist Response○ Science and Culture in an Age of Realism● Mass Society in an “Age of Progress”, 1871-1894<ul style="list-style-type: none">○ The Growth of Industrial Prosperity○ The Emergence of a Mass Society○ The National State	
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
Unit VII: Imperialism and Global Conflict

TRANSFER: Students will be able to examine a multinational corporation’s relationship with a developing country and determine whether the relationship has led to a new form of imperialism.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Common Core:</p> <p>RH.9-10.1 Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.</p> <p>RH.9-10.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.</p> <p>RH.9-10.3 Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.</p> <p>RH.9-10.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social studies.</p> <p>WHST.9-10.1 Write arguments focused on discipline-specific content.</p> <p>WHST.9-10.1a Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claims(s), counterclaims, reasons, and evidence.</p>	<p>European nations entered into a period of imperialism in the late nineteenth and early twentieth centuries, which resulted in the domination by European countries of the continent of Africa and Southeast Asia.</p>	<ul style="list-style-type: none"> ● How did imperialism affect society & culture? ● What new advances allowed Europeans to colonize Africa and Asia? How did they justify their actions? ● How was social Darwinism used to justify racist, anti-Semitic and imperialist policies?
	<p>Militarism, alliances, imperialism, and nationalism led to World War I, a war of destruction never before seen that would eventually contribute to further global conflict.</p>	<ul style="list-style-type: none"> ● How can people avoid war, and when is war necessary? ● How has technology affected warfare, and what are the ethical obligations of nations during times of war?
	<p>The political and social unrest that followed World War I led to the rise of totalitarian dictators in Europe that resulted in human oppression and genocide.</p>	<ul style="list-style-type: none"> ● What factors propel change? ● How do individuals respond to injustice?
	<p>The failure to resolve political, economic, social, and diplomatic factors ignited a second global conflict, World War II.</p>	<ul style="list-style-type: none"> ● Why is peace difficult to maintain?
	<p>The world wars altered nations politically, economically,</p>	<ul style="list-style-type: none"> ● How does conflict provoke change?

<p>WHST.9-10.1b Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p> <p>WHST.9-10.1c Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.9.10.1d Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.</p> <p>WHST.9-10.1e Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.9-10.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments or technical processes.</p> <p>WHST.9-10.2a Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.9-10.2b Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.9-10.2c Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and</p>	and socially creating a new balance of power in the world.	
	Total war and political instability gave way to a polarized state order and eventually to efforts at transnational union.	<ul style="list-style-type: none"> How does war affect the belligerent nation's governmental and political institutions, economic affairs and social life?
	KNOWLEDGE	SKILLS
	<p>Students will know:</p> <p>Economic, political, and ideological factors led to and justified European imperialism in Africa and Asia in the 1800s-1900s.</p> <p>Despite resistance movements, European imperialism influenced and altered the development of Asian and Africa societies.</p> <p>When Western nations focused their imperial ambitions on East Asia, the reaction and results differed in China and Japan.</p> <p>As a result of imperialism, numerous Asian and African nations lagged in developing well-functioning political and economic systems.</p> <p>Militarism, alliances, imperialism, and nationalism led to World War I.</p> <p>World War I and long-term social unrest resulted in</p>	<p>Students will be able to:</p> <p>Explain the means, motives and justifications of European imperialism in the 19th century.</p> <p>Determine the advantages and disadvantages of imperialism and explain how it influenced social, economic, and political changes in Asia and Africa during this time period.</p> <p>Compare imperialism in India and Africa with imperialism in China and Japan.</p> <p>Analyze the legacy of imperialism on Asian and African nations.</p> <p>Explain how the alliance system, militarism, nationalism, and imperialism contributed to war.</p> <p>Explain how the Russian Revolution contributed to</p>

<p>clarify the relationships among ideas and concepts.</p> <p>WHST.9-10.2d Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers.</p> <p>WHST.9-10.2e Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.</p> <p>WHST.9-10.2f Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or significance of the topic).</p> <p>WHST.9-10.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>WHST.9-10.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</p> <p>WHST.9-10.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</p> <p>WHST.9-10.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</p>	<p>revolution in Russia.</p> <p>The terms of the peace agreement contained harsh penalties for Germany and established the first global organization whose purpose was to maintain global peace.</p> <p>Following World War I, Austria-Hungary and the Ottoman Empire were broken apart, forming new independent nations and changing political boundaries.</p> <p>Political instability, economic crises, and social unrest that followed World War I allowed totalitarian dictators to rise to power in Europe.</p> <p>Totalitarian dictators used violence, political skill, and propaganda to maintain power.</p> <p>Hitler used strong anti-Semitic beliefs, hostility toward or prejudice against Jews, as an explanation for Germany's problems and excluded Jews from mainstream German life through measures such as the Nuremberg Laws and Kristallnacht.</p> <p>As the Axis powers became increasingly aggressive, leaders sought to appease them in order to avoid conflict; this tactic backfired and led to the outbreak of World War II.</p> <p>During the Holocaust, Germany's Nazi government deliberately murdered approximately 6 million Jews and 5 million non-Jews in Europe.</p>	<p>restructuring of the country politically, economically, and socially.</p> <p>Describe how the Treaty of Versailles affected Germany. Identify the architect and explain the purpose of the League of Nations.</p> <p>Compare and contrast the political boundaries of the world in 1914 and 1939.</p> <p>Explain how Mussolini, Stalin, and Hitler rose to power and instituted totalitarian governments in Italy, the Soviet Union, and Germany.</p> <p>Identify the common features of totalitarian governments.</p> <p>Compare and contrast how Mussolini, Stalin, and Hitler rose to power and kept power.</p> <p>Compare how the Allies responded to the militaristic and expansionist actions of the Axis Powers (Germany, Italy, Japan).</p> <p>Assess governments' responses to incidents of ethnic cleansing and genocide during this time.</p>
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<p>WHST.9-10.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single day or two) for a range of discipline-specific tasks, purposes, and audiences.</p> <p>NJCCCS:</p> <p>6.2.12.A.3.g Analyze the motives for and methods by which European nations, Japan, and the United States expanded their imperialistic practices in Africa and Asia during this era, and evaluate the impact of these actions on their relations.</p> <p>6.2.12.D.3.d Analyze the extent to which racism was both a cause and consequence of imperialism, and evaluate the impact of imperialism from multiple perspectives.</p> <p>6.2.12.B.3.a Assess the impact of imperialism by comparing and contrasting the political boundaries of the world in 1815 and 1914.</p> <p>6.2.12.D.3.e Analyze the impact of the policies of different European colonizers on indigenous societies, and explain the responses of these societies to imperialistic rule.</p> <p>6.2.12.D.3.c Compare and contrast China’s and Japan’s views of and responses to imperialism, and determine the effects of imperialism on the development and prosperity of each country in the 20th century.</p> <p>6.2.12.C.3.e Assess the impact of imperialism on economic development in Africa and Asia.</p> <p>6.2.12.A.4.a Explain the rise of fascism and spread of communism in Europe and Asia.</p> <p>6.2.12.A.4.c Analyze the motivations, causes, and consequences of the genocides</p>	<p>The Allied Powers differed on their visions for the postwar world.</p> <p>During the World Wars, both sides used science and technology to create wartime weapons, which had terrifying consequences on society and the environment.</p> <p>VOCABULARY & KEY TERMS: imperialism, ideology, colonialism, protectorate, feudal system, dynasty, isolationism, extraterritoriality, westernization, reforms, alliance, neutral, assassination, propaganda, genocide, proletariat, armistice, mandates, gulag, fascism, totalitarianism, anti-Semitism, appeasement, deportation, ghetto, collectivization, purge, annex, lebensraum, scapegoat, isolationism, total war, direct rule, indirect rule, spheres of influence, Social Darwinism, British East India Company, Sepoy Mutiny, Raj, Indian National Congress, Muslim League, Qing Dynasty, Opium Wars, Treaty of Nanjing, unequal treaties, Taiping Rebellion, Boxer Rebellion, Tokugawa Shogunate, Treaty of Kanagawa, Meiji Period, Sino-Japanese War, Berlin Conference, Scramble for Africa, Boer War, Maji Maji Rebellion, Triple Alliance, Triple Entente, Central Powers, Allied Powers, Western Front, trench warfare, total war, Bolshevism, Marxism-Leninism, U-boats, Zimmerman Note, Fourteen Points, Treaty of Versailles, League of Nations, Balfour Declaration, fascism, propaganda, functionalism, Nazi Party, Lebensraum, Fuhrer Prinzip, Nuremberg Laws, Kristallnacht, Axis Powers, appeasement, nonaggression pact, blitzkrieg, Allies, Battle of Stalingrad, Battle of Midway, kamikazes, concentration camps,</p>	<p>Compare and contrast the visions of various Allied powers (Great Britain, United States, Soviet Union) for the postwar world.</p> <p>Compare and contrast World War I and World War II in terms of technological innovations and social/environmental impact.</p>
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of Armenians, Roma (gypsies), and Jews, as well as the mass exterminations of Ukrainians and Chinese.

6.2.12.A.4.d Assess government responses to incidents of ethnic cleansing and genocide.

6.2.12.B.4.a Determine the geographic impact of World War I by comparing and contrasting the political boundaries of the world in 1914 and 1939.

6.2.12.B.4.b Determine how geography impacted military strategies and major turning points during World War II.

6.2.12.B.4.c Explain how the disintegration of the Ottoman empire and the mandate system led to the creation of new nations in the Middle East.

6.2.12.B.4.d Explain the intended and unintended consequences of new national boundaries established by the treaties that ended World War II.

6.2.12.C.4.a Analyze government responses to the Great Depression and their consequences, including the growth of fascist, socialist, and communist movements and the effects on capitalist economic theory and practice.

6.2.12.C.4.b Compare and contrast World Wars I and II in terms of technological innovations (i.e., industrial production, scientific research, war tactics) and social impact (i.e., national mobilization, loss of life, and destruction of property).

6.2.12.C.4.c Assess the short- and long-term demographic, social, economic, and environmental consequences of the violence and destruction of the two World Wars.

6.2.12.C.4.d Analyze the ways in which new forms of communication, transportation, and weaponry affected

Einsatzgruppen, Holocaust, D-Day, V-E Day, V-J Day, Yalta Conference, United Nations, Potsdam Conference

<p>relationships between governments and their citizens and bolstered the power of new authoritarian regimes during this period.</p> <p>6.2.12.D.4.a Analyze the extent to which nationalism, industrialization, territory disputes, imperialism, militarism, and alliances led to World War I.</p> <p>6.2.12.D.4.b Analyze the Treaty of Versailles and the League of Nations from the perspectives of different nations.</p> <p>6.2.12.D.4.c Assess the causes of revolution in the 20th century (i.e., in Russia, China, India, and Cuba), and determine the impact on global politics.</p> <p>6.2.12.D.4.d Analyze the extent to which the legacy of World War I, the global depression, ethnic and ideological conflicts, imperialism, and traditional political or economic rivalries caused World War II.</p> <p>6.2.12.D.4.e Compare how Allied countries responded to the expansionist actions of Germany and Italy.</p> <p>6.2.12.D.4.f Explain the role of colonial peoples in the war efforts of the Allies and the Central/Axis Powers in both World Wars.</p> <p>6.2.12.D.4.g Analyze the role of nationalism and propaganda in mobilizing civilian populations in support of “total war”</p> <p>6.2.12.D.4.i Compare and contrast the actions of individuals as perpetrators, bystanders, and rescuers during events of persecution or genocide, and describe the long-term consequences of genocide for all involved.</p> <p>6.2.12.D.4.j Analyze how the social, economic, and political roles of women were transformed during this time period.</p>		
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6.2.12.D.4.1 Assess the cultural impact of World War I, the Great Depression, and World War II.		
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Students will identify, research, and create a written threat analysis of a region of Europe where geopolitical tensions could potentially ignite a new global conflict.

KEY LEARNING EVENTS AND INSTRUCTION:

- Through research of historical examples and a classroom discussion on the topic, students will identify and evaluate the factors that are necessary to successfully industrialize a country both historically and in the modern world.
- Create a cost-benefit analysis chart of European and indigenous perspectives of imperialism.
- Class discussion as to whether imperialist relationships exist in the modern world.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
Unit VII: Imperialism and Global Conflict

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
<p>6 Weeks</p>	<p>Unit VII: Imperialism and Global Conflict</p> <ul style="list-style-type: none"> ● An Age of Modernity, Anxiety, and Imperialism, 1894-1914 <ul style="list-style-type: none"> ○ Toward the Modern Consciousness: Intellectual and Cultural Developments ○ Politics: New Directions and New Uncertainties ○ The New Imperialism ○ International Rivalry and the Coming of War ● The Beginning of the 20th Century Crisis, War and Revolution <ul style="list-style-type: none"> ○ The Road to World War I ○ The War ○ War and Revolution ○ The Peace Settlement ● The Futile Search for Stability: Europe Between the Wars, 1919-1939 <ul style="list-style-type: none"> ○ An Uncertain Peace ○ Democratic States in the West 	<p>Political Cartoons – “European Views of Imperialism”: 41 Google Images Rudyard Kipling, <i>The White Man’s Burden</i> Henry Labouchere, <i>The Brown Man’s Burden</i> J.A. Hobson, <i>Imperialism</i> Ernst Junger, “The Author’s Preface.” <i>Storm of Steel</i>. Political Cartoon: “Powers of Europe and the Balkans” Woodrow Wilson. <i>The Fourteen Points</i> World War II Posters: http://www.loc.gov/pictures/collection/wwipos/ Father John A. Siemes, <i>Hiroshima</i> <i>The Atlantic Charter</i></p>

	<ul style="list-style-type: none">○ Authoritarian and Totalitarian States○ Expansion of Mass Culture and Mass Leisure○ Cultural and Intellectual Trends in the Interwar Years● Deepening of the European Crisis: World War II<ul style="list-style-type: none">○ Prelude to War○ The Course of World War II○ The New Order○ The Home Front○ Aftermath of the War	
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
UNIT VIII: Modern Europe

TRANSFER: Students will be able to examine a modern European political issue, explore realistic policy options to resolve it, and advocate persuasively for a specific course of action.

STANDARDS / GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Common Core:</p> <p>RH.11-12.1 - Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p> <p>RH.11-12.2 - Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</p> <p>RH.11-12.3 - Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p> <p>RH.11-12.4 - Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>RH.11-12.5 - Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.</p>	Society, culture and alliances across Europe changed dramatically after World War II.	<ul style="list-style-type: none"> ● How did the Cold War affect politics and society in Europe?
	New nations in Europe, Asia and Africa struggled to unify their diverse populations, often resulting in authoritarian or military rule.	<ul style="list-style-type: none"> ● In what ways do religious and cultural differences create problems for the stability of a nation?
	The globalized economy has brought the world closer together than ever before but it has affected nations across Europe differently.	<ul style="list-style-type: none"> ● In what ways can powerful nations affect weaker nations?
	A renewed international focus on human rights issues in Europe has improved the lives of women, ethnic minorities, and other often-marginalized groups.	<ul style="list-style-type: none"> ● What responsibilities do humans have to one another, and how can individuals or groups affect change?
	Modern Europe faces security issues stemming from terror, ethnic violence, and energy concerns.	<ul style="list-style-type: none"> ● How and why do threats to stability arise?
	Recent advances in technology and scientific understanding have upended centuries-old social and cultural norms with varying results.	<ul style="list-style-type: none"> ● What are the benefits and drawbacks to progress?

<p>RH.11-12.6 - Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.</p> <p>RH.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>RH.11-12.8 - Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.</p> <p>RH.11-12.9 - Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p> <p>RH.11-12.10 - By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.</p> <p>WHST.11-12.1.A-E - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.2.A-E - Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</p> <p>WHST.11-12.4.A - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>WHST.11-12.10.A - Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p> <p>NJCCCS:</p>	<p style="text-align: center;">KNOWLEDGE</p> <p>Students will know:</p> <p>The United Nations was established to protect members against aggression and aimed to achieve the goals of international peace, security, and the protection of human rights.</p> <p>The Universal Declaration of Human Rights sets human rights standards for all nations and although nonbinding, it inspired people and organizations around the world.</p> <p>The Marshall Plan helped Western Europe make a rapid recovery from the war and provided political stability.</p> <p>The U.S., Canada and most Western European countries joined into an alliance called the North Atlantic Treaty Organization, and the Soviet Union and other communist nations of Eastern Europe formed the Warsaw Pact.</p> <p>After World War II, African leaders threw off European colonial rule and created independent countries.</p> <p>The causes for the decline and collapse of the Soviet Union include Eastern European and ethnic minority resistance to Soviet control, economic collapse, failure to keep pace in the arms race, and decreased belief in the benefits of communism.</p> <p>The origins of the European Union and its role in the modern global society.</p>	<p style="text-align: center;">SKILLS</p> <p>Students will be able to:</p> <p>Describe the goals and reasons for the establishment of the United Nations in 1945.</p> <p>Analyze how the tenets of the Universal Declaration of Human Rights have been applied since 1948.</p> <p>Determine how the Marshall Plan impacted the spread of communism in Europe.</p> <p>Compare and contrast formation and implementation of NATO and the Warsaw Pact.</p> <p>Analyze the struggle towards viability of new nations.</p> <p>Identify the causes for the decline and collapse of the Soviet Union and the communist regimes of Eastern Europe.</p> <p>Gather current event information to speculate on the current and future prospects of the European Union.</p>
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<p>6.2.12.A.5.b Analyze the structure and goals of the United Nations and evaluate the organization's ability to solve or mediate international conflicts.</p> <p>6.2.12.A.5.c Explain how World War II led to aspirations for self-determination, and compare and contrast the methods used by African and Asian countries to achieve independence.</p> <p>6.2.12.A.5.e Assess the progress of human and civil rights around the world since the 1948 U.N. Declaration of Human Rights.</p> <p>6.2.12.A.6.a Evaluate the role of international cooperation and multinational organizations in attempting to solve global issues.</p> <p>6.2.12.A.6.b Analyze the relationships and tensions between national sovereignty and global interest in matters such as territory, economic development, use of natural resources, and human rights.</p> <p>6.2.12.A.6.c Analyze why terrorist movements have proliferated, and evaluate their impact on governments, individuals, and societies.</p> <p>6.2.12.B.5.a Determine the impact of geography on decisions made by the Soviet Union and the United States to expand and protect their spheres of influence.</p> <p>6.2.12.B.5.b Analyze the reasons for the Cold War and the collapse of the Soviet Union, and evaluate the impact of these events on changing national boundaries in Eastern Europe and Asia.</p> <p>6.2.12.B.6.a Determine the global impact of increased population growth, migration, and changes in urbanrural populations on natural resources and land use.</p> <p>6.2.12.C.5.a Explain how and why Western European countries achieved rapid economic recovery after World War II.</p>	<p>Globalization has created an enormous global economy with industrialized nations exerting their influence over developing nations.</p> <p>A variety of factors have led to an increase in terrorism in the 21st century, including domestic issues, radical Islamism, and ethnic tensions.</p> <p>The end of the Cold War, while reducing European foreign policy tensions surrounding nuclear weapons, led to new alignments in international relationships.</p> <p>Climate change is becoming a central issue that nations must address.</p> <p>Demographic concerns continue to threaten the human race, including overpopulation, access to food and water resources, and issues surrounding migration.</p> <p>VOCABULARY & KEY TERMS: superpowers, ideology, capitalism, communism, secular, doctrine, brinkmanship, détente, theocracy, human rights, interdependence, outsourcing, famine, epidemic, refugees, terrorism, sanctions, deforestation, biotechnology, cloning, Salt March, Policy of Containment, Anti-Ballistic Missiles (ABMs), Domino Theory, perestroika, United Nations, Iron Curtain, Cold War, Marshall Plan, atomic diplomacy, coup d'état, Korean War, People's Republic of China, Bay of Pigs, Cuban Missile Crisis, Berlin Crisis, Geneva Conference, Vietnam War, globalization, multinational corporations, NGO, free trade, popular culture, cultural diffusion, weapons of mass destruction, sustainable development, global warming, genetic engineering, green revolution</p>	<p>Evaluate the ways that developing nations are challenging the global power structure.</p> <p>Debate what constitutes an act of terror and why acts of terror succeed or fail in their intentions.</p> <p>Determine the factors that limit the influence of the United Nations in global affairs.</p> <p>Scrutinize scientific, political, and media opinions on the issue of climate change.</p> <p>Contrast migration issues of today to historical analogues, and evaluate whether similar solutions can be applied or adapted to today.</p>
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<p>6.2.12.C.5.b Compare and contrast free market capitalism, Western European democratic socialism, and Soviet communism.</p> <p>6.2.12.C.6.b Compare and contrast demographic trends in industrialized and developing nations, and evaluate the potential impact of these trends on the economy, political stability, and use of resources.</p> <p>6.2.123.C.6.d Determine how the availability of scientific, technological, and medical advances impacts the quality of life in different countries.</p> <p>6.2.12.D.6.a Assess the role of increased personal and business electronic communications in creating a “global” culture, and evaluate the impact on traditional cultures and values.</p>		
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Students will research and engage in small-group discussion in which they analyze a modern European political issue from a variety of different perspectives.

KEY LEARNING EVENTS AND INSTRUCTION:

- Compare and contrast how the superpowers responded to perceived acts of aggression from their rivals.
- Analyze primary source documents from when colonies became nations (e.g., First Servant of the Indian People, Farewell Without Tears, Balfour Declaration).
- Compose a written analysis of the changing European political power structures in the post-war world.
- Explore international sources of current events and theorize whether the global community is on the verge of another Cold War.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
UNIT VIII: Modern Europe

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4 Weeks	<p>Unit VIII: Modern Europe</p> <ul style="list-style-type: none"> ● Cold War and a New Western World, 1945-1965 <ul style="list-style-type: none"> ○ Development of the Cold War ○ Europe and the World: Decolonization ○ Recovery and Renewal in Europe ○ The U.S. and Canada: A New Era ○ Postwar Society and Culture in the Western World ● Protest and Stagnation: The Western World, 1965-1985 <ul style="list-style-type: none"> ○ A Culture of Protest ○ A Divided Western World ○ The Cold War: The Move to Detente ○ Society and Culture in the Western World ● After the Fall: The Western World in a Global Age (Since 1985) <ul style="list-style-type: none"> ○ Toward a New Western Order ○ After the Cold War: A New World Order or Age of Terrorism? ○ New Directions and New Problems in 	<p>NATO Treaty Warsaw Pact Tina Rosenberg, <i>The Haunted Land: Facing Europe's Ghosts after Communism</i>. Robert Frost, <i>Mending Wall</i>. Jawaharal Nehru, <i>First Servant of the Indian People</i> <i>The Balfour Declaration</i> Patrice Lumumba, <i>Farewell Without Tears</i> David Bastone. <i>Not For Sale: The Return of the Global Slave Trade – And How We Can Fight It</i></p>

	<p>Western Society</p> <ul style="list-style-type: none">○ Western Culture Today○ The Digital Age○ Toward a Global Civilization: New Challenges and Hopes	
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
UNIT IX: Europe Past and Present

TRANSFER: Students will be able to construct a written analysis of a contemporary issue in European society from multiple perspectives in order to predict how the event will shift the European balance of power.

STANDARDS / GOALS: Common Core:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
RH.11-12.1 - Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.	The concept of individual and group identity, and how Europeans have defined themselves, has evolved over time.	<ul style="list-style-type: none"> ● How does identity evolve over time?
RH.11-12.2 - Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.	Throughout history, European political and economic institutions have developed to reflect changing worldviews and ideologies.	<ul style="list-style-type: none"> ● Should institutions evolve to reflect changing societal values?
RH.11-12.3 - Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.	A globalized economy and culture have brought European nations closer together than ever before, but has affected different regions within Europe very differently.	<ul style="list-style-type: none"> ● Is cooperation and integration between nations desirable?
RH.11-12.4 - Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).	Modern European politics are subject to input and pressures from a variety of sources, including the European Union, non-governmental organizations, and foreign governments.	<ul style="list-style-type: none"> ● What are the limits of multinational cooperation in the modern world?
RH.11-12.5 - Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.		
RH.11-12.6 - Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.		
RH.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media		

<p>(e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>RH.11-12.8 - Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.</p> <p>RH.11-12.9 - Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p> <p>RH.11-12.10 - By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.</p> <p>WHST.11-12.1.A-E - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.2.A-E - Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</p> <p>WHST.11-12.4.A - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>WHST.11-12.10.A - Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p> <p>NJCCCS:</p> <p>6.2.12.A.6.a - Evaluate the role of international cooperation and multinational organizations in attempting to solve global issues.</p> <p>6.2.12.A.6.b - Analyze the relationships and tensions between national sovereignty and global interest in matters such as territory, economic development, use of natural resources, and human rights.</p> <p>6.2.12.A.6.d - Assess the effectiveness of responses by governments and international organizations to tensions resulting from ethnic, territorial, religious, and/or nationalist differences.</p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>Students will know:</p> <p>The European worldview shifted from one based on religious faith, communal values, and traditional sources of knowledge, to one that was more secular and placed emphasis on the individual.</p> <p>New advances in science, technology, and philosophical thought have led to a constantly evolving sense of both individual and group identity in European society.</p> <p>Over time, the development of nationalism and principle of self-determination have led to the evolution of political structures in modern European society.</p> <p>The migration of non-European people into Europe, and interactions between Europe and the world have led to a changing ethnic and religious composition of European society, and uncertainties about European identity.</p> <p>With the increasing political and economic integration that comes from the evolution of the European Union, efforts have been made to establish a shared European identity with varying levels of success.</p>	<p>Students will be able to:</p> <p>Create an historical analysis of how the European worldview has shifted from the start of the Renaissance to the modern world based on four distinct events in European history.</p> <p>Analyze the evolution of both the European individual and group identities from the start of the Renaissance to the modern world.</p> <p>Evaluate how the concept of nationalism has shaped the European political and economic landscape throughout history.</p> <p>Discuss how various European leaders have reacted to the movement of non-European people into Europe, and how this changes perceptions of European identity.</p> <p>Create an analysis of a modern issue in European society, and analyze how this events shifts ideas of European identity and fits into the larger themes of European history.</p>	

<p>6.2.12.B.6.a - Determine the global impact of increased population growth, migration, and changes in urban-rural populations on natural resources and land use.</p> <p>6.2.12.C.6.a - Evaluate efforts of governmental, nongovernmental, and international organizations to address economic imbalances and social inequalities.</p> <p>6.2.12.C.6.b - Compare and contrast demographic trends in industrialized and developing nations, and evaluate the potential impact of these trends on the economy, political stability, and use of resources.</p> <p>6.2.12.C.6.c - Assess the role government monetary policies, central banks, international investment, and exchange rates play in maintaining stable regional and global economies.</p>	<p>International negotiation and compromise at the multinational level has proven to be challenging to many European countries, particularly in light of new threats to global security.</p> <p>VOCABULARY & KEY TERMS: European Union, decolonization, Eurocommunism, European Economic Community, existentialism, détente, abstract, Expressionism, North Atlantic Treaty Organization (NATO), welfare state, nationalization, mutual deterrence, Mutually Assured Destruction, multiculturalism, guest workers, Postmodernism, socialized medicine.</p>	<p>Evaluate the legacy of the European Union and other multinational organizations in helping to better integrate Europe politically and economically.</p>
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Students will create a written historical analysis of events from each of four time periods in European history (1450-1648, 1648-1815, 1815-1914, 1914-Present). In this written analysis students will evaluate how the European worldview has shifted overtime using historical evidence from each of their four chosen events.
- Students will construct a thematic analysis of a contemporary issue in European society through the lens of the five College Board themes for Advanced Placement European History (Poverty & Prosperity, The Individual & Society, Objective Knowledge & Subjective Visions, States & Other Institutions of Power, The Interaction of Europe & the World). Students will predict how the outcome of this event will shift the European balance of power.

KEY LEARNING EVENTS AND INSTRUCTION:

- Students will describe and analyze ways in which Europeans' view of the world shifted during the four distinct time periods in European history. Students will choose events from each of the four major time periods in European History that reflect this shifting worldview.
- Using historical evidence such as primary source and secondary scholarship, students will analyze how each event represents the worldview of the time period, and will evaluate how the worldview has shifted from the start of the Renaissance to the modern world.
- Students will construct a written analysis of how a chosen event fits into the larger picture of the five AP European History course themes, and will predict how this event will shift the European balance of power in the future.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Advanced Placement European History
UNIT IX: Europe Past and Present

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
<p style="text-align: center;">6 Weeks</p>	<p>Unit IX: Europe Past and Present</p> <ul style="list-style-type: none"> ○ AP Exam Review ○ European Identity Project ○ Modern European Issues Project 	<p>Susan Gerard, <i>Fast Track to a 5: Preparing for the AP European History Examination</i></p> <p>Jacques Chirac, “Secularism in French Society”</p> <p>“North African Women in France Respond to the Headscarf Ban”</p> <p>“World Scientists’ Warning to Humanity, 1992”</p> <p>“Findings of the IPCC Fourth Assessment Report, 2007”</p> <p><i>Charter of the United Nations</i></p> <p>Francis Fukuyama, <i>The End of History?</i></p> <p><i>The Charter of Economic Rights and Duties of States</i></p> <p><i>Charter of Fundamental Rights of the European Union</i></p>

APPENDIX A

A.1 – Unit II Sample Lesson Plan

Randolph High School
AP European History
Philosophies of the Protestant Reformation
Sample Lesson Plan

I. TITLE: Philosophies of the Protestant Reformation

- a. LEVEL: AP European History
- b. TOPIC: Protestant Reformation

II. LESSON GUIDING QUESTION(S):

- a. Lesson Essential Question: To what extent were various philosophies of the Reformation similar and different?
- b. Unit Essential Question: Is unity of faith possible or desirable?

III. STANDARDS

A. New Jersey CCCS & CCS – Social Studies Grades 9-12

- a. NJCCCS: 6.2.12.D.2.b, 6.2.12.B.2.b

IV. A. LEARNING GOALS

Learning Objectives	Assessments
Students will be able to analyze the similarities and differences between the reforms of Luther, Calvin, Zwingli, Henry VIII and the Anabaptists.	FA: Post-It Activity FA: Check-in during group activity and large group discussion FA: Exit Ticket FA: Comparison Box FA: HW – Short Answer
Students will be able to evaluate the purpose behind the emergence of the Lutherans, Calvinists, Zwinglis, Anglicans, and Anabaptists.	FA: Post-It Activity FA: Check-in during group activity and large group discussion FA: Exit Ticket FA: Comparison Box FA: HW- Short Answer

V. MATERIALS

Material	Use During Lesson
PowerPoint	Introduction to lesson, initial review
Primary Source Handouts, Exit Tickets	Do Now, Exit Ticket
Post-It Notes	Used during lesson to answer various analytical questions in groups. To be placed on the board during the lesson.

VI. PRE-LESSON ASSIGNMENTS AND/OR PRIOR KNOWLEDGE

a. The AP European History curriculum is divided into four units throughout the course of the academic year. We are currently on part two of unit one, which covers the Protestant Reformation, the Age of Religious Wars, and the Age of Exploration. Prior to entering the classroom, students will have investigated the Northern Renaissance, the Lutheran Reformation, and the spread of the Reformation throughout Europe. This material has been covered both in class and through reading assignments over the past week. Entering the class, students will have a solid foundation in the events of the era, allowing us to focus on the subtle differences in the ideology of the time period that makes this era such a difficult one to study in European History. Additionally, in each unit, our class focuses on a particular skill necessary for success on the AP European History exam. In this unit, we are taking a closer look at the new AP short answer questions, and the skills necessary to master them in May. Prior to the lesson, students will have practiced the questions, reviewed writing skills, and will know what constitutes a successful answer. Students should have some background knowledge of the Reformation from their freshmen year World History course.

VII. LESSON BEGINNING (Approximately 5 Minutes)

a. Beginning of class: The lesson objective will be written on the board– Do Now will be on the projection screen. Students are expected to complete brief map exercise with a partner around them.

b. **QUESTIONS ON MAP DO NOW (5 min):** 1. Which religion appears to be dominant in the largest number of countries? 2. Which countries were completely Protestant by 1600? 3. Which countries were completely Roman Catholic? 4. Which part of Europe had the greatest concentration of Protestants? 5. Based on the map, what generalization would you make about the Reformation?

1. During this time, I will circulate around the room, and offer assistance. I will make sure to keep an eye on students who may have difficulty focusing at the beginning of the period.

2. Turn to a partner and discuss. Discuss briefly as class.

VIII. INSTRUCTIONAL PLAN (Approximately 40 minutes)

a. Accessing Prior Knowledge from previous lessons (5-7 minutes).

- i. We will spend some time accessing prior knowledge and going over the Do Now – Large group discussion. Use 3-4 PPT slides to review information about the Protestant Reformation.
 - ii. Discuss the spread of the Reformation:
 - iii. **Who were the main Protestant Reformers other than Luther?**
- b. Instructor will then explain that today we will be looking at the key points in the philosophies of these “other reformers” with the goal of analyzing why they began their reforms, and the similarities/differences in their beliefs.
- c. Students will be assigned groups of five (five groups – one group of four)
- d. (20 min) Each group will be assigned one of five reform movements: Lutherans, Zwinglis, Calvinists, Anglicans, Anabaptists. I will explain that we will be using Post-It Notes to explore the philosophies of each of these groups, and how other reformers might respond to your beliefs
- e. (5 min) – Discussion – Putting it all together – If time, we will briefly look at the implications of the articles the students prepared for homework

IX. CLOSURE (Approximately 5 minutes)

- a. Turn back essays and pass around individual conference sheet.
- b. Hand students out Exit Ticket – Review key points of Short Answer responses
 - i. Students bullet Exit Ticket now and turn in
 - ii. Students complete full responses for homework
 - iii. Collect all responses

A.2 – Writing Rubrics

Note to reader: Unless otherwise specified on individual assignments, all writing rubrics for the course are adapted from the College Board writing rubrics for Advanced Placement European History.

Name: _____ DBQ Subject: _____

The DBQ is scored 0-7. In order to earn points, you must meet a series of intellectual objectives best summarized as follows:

Points	Category ^{and} Description																																											
THESIS																																												
0 1 2	THESIS	<ul style="list-style-type: none"> Provides an appropriate, explicitly stated thesis that directly addresses all parts of the question. The thesis may not simply restate the question and must be comprehensive. Develops and supports a cohesive argument that recognizes and accounts for historical complexity by explicitly illustrating relationships among historical evidence such as contradiction, corroboration, and/or qualification. 																																										
SOURCE ANALYSIS																																												
	SOURCE ANALYSIS	<ul style="list-style-type: none"> Analysis for at least six of docs in support of thesis/argument Explains the significance of the author's point of view, author's purpose, historical context, and/or audience for at least four documents. 																																										
Range	<i>Work the documents!</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Doc. 1</th> <th>Doc. 2</th> <th>Doc. 3</th> <th>Doc. 4</th> <th>Doc. 5</th> <th>Doc. 6</th> <th>Doc. 7</th> </tr> </thead> <tbody> <tr> <td>SUPPORTS THESIS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>HISTORICAL CONTEXT</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>AUDIENCE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PURPOSE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>POINT OF VIEW</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Doc. 1	Doc. 2	Doc. 3	Doc. 4	Doc. 5	Doc. 6	Doc. 7	SUPPORTS THESIS							HISTORICAL CONTEXT							AUDIENCE							PURPOSE							POINT OF VIEW						
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PURPOSE																																												
POINT OF VIEW																																												
CONTEXTUALIZATION																																												
0 1	CONTEXT	<ul style="list-style-type: none"> Situates the argument by explaining the broader historical events, developments, or processes immediately relevant to the question not found in the docs. The contextualization point is not awarded for merely a phrase or reference, but instead requires an explanation, typically consisting of multiple sentences or a full paragraph. 																																										
OUTSIDE EVIDENCE																																												
0 1	OUTSIDE EVIDENCE	<ul style="list-style-type: none"> Provides an example or additional piece of specific evidence beyond those found in the documents to support or qualify the argument. Responses need to reference an additional piece of specific evidence and explain how that evidence supports or qualifies the argument. 																																										
SYNTHESIS																																												
0 1	RELEVANCE	<ul style="list-style-type: none"> Connects topic to other times, places, or major happenings. Weaves and explains contradictions/challenges to thesis or arguments into essay. The synthesis point requires an explanation of the connections to different historical period, situation, era, or geographical area, and is not awarded for merely a phrase or reference. 																																										
Score	= Grade	Reader Commentary: <div style="text-align: right; border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto;"> FINAL SCORE/GRADE: / </div>																																										
7	100																																											
6	93																																											
5	86																																											
4	79																																											
3	72																																											
2	65																																											
1	58																																											
0	51																																											

A.3 - Long Essay Question (LEQ) Rubric

Note: This rubric has been adapted from Mr. Tom Richey
www.tomrichey.net

AP EURO LEQ RUBRIC

Name: _____

LEQ: _____

THESIS (ONE POINT)

Presents a thesis that makes a historically defensible claim and responds to all parts of the question. Must consist of one or more sentences located in either the introduction or the conclusion.	1	

EVIDENCE & SUPPORT FOR ARGUMENT (TWO POINTS)

Addresses the topic of the question with <u>specific</u> examples of relevant evidence (responses must include a broad range of evidence).	2	
Evidence Used (Essay may contain errors that do not detract from overall quality)		
<i>Another point is earned if the argument is</i>		
THESIS-DRIVEN (evidence effectively supports argument)	3	
Utilizes specific examples of evidence to fully and effectively substantiate the stated thesis or a relevant argument.		

HISTORICAL THINKING SKILL (TWO POINTS)

DESCRIBES causes AND/OR effects of a historical event, development, or process.	4	
<i>Another point is earned if, in addition, the student</i>		
EXPLAINS the reasons for the causes AND/OR effects of a	5	

<p>historical event, development, or process.</p> <p><i>(If the prompt requires discussion of both causes and effects, response must address both causes and effect in order to earn both points.)</i></p>	
---	--

SYNTHESIS (ONE POINT for any of the following)

<p><i>Extends the argument by <u>EXPLAINING</u> the connection between the argument and ONE of the following (must be more than a passing mention):</i></p>			6	
<p><i>A development in a different historical period, situation, era, or geographical area.</i></p>	<p><i>A course theme and/or approach to history that is not the focus of the essay (such as political, economic, social, cultural, or intellectual history).</i></p>	<p><i>A different discipline or field of inquiry (such as economics, government and politics, art history, or anthropology).</i></p>		

TOTAL POINTS:	/6
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Point Scale*:

- 6 – 40**
- 5 – 36**
- 4 – 32**
- 3 – 28**
- 2 – 24**
- 1 – 20**
- 0 – <20**

***Half points awarded**

A.4 - UNIT I ASSESSMENT, RENAISSANCE ART RESEARCH

Directions: Over the next week, we will be spending time investigating the major artistic trends of the Renaissance. In order to further investigate art at such a pivotal time in European History, you will be researching an artist and piece of artwork they produced during the Italian or Northern Renaissance. Below are the tasks that are required of you to complete this activity:

Part I: Research

- Read *The Annotated Mona Lisa*, pages 32-43, “The Renaissance: The Beginning of Modern Painting”
- You will be assigned an artist/sculptor from the Italian or Northern Renaissance.
- Conduct a bit of research on your artist, and select one (1) piece of art (painting, fresco, sculpture, etc.) that you believe epitomizes the new artistic, political, or intellectual movements of the time period (i.e. virtue, humanism, civic responsibility, changing role of the state)
- Email the title of the artwork you have selected no later than _____.

Part II: Writing (50 points)

After you have researched your art piece, respond to the following question in a 2-3-page typed essay:

1. Using at least three (3) primary sources that we have studied in class, and an outside source you have found through your own research, evaluate how the piece of art you have selected represents both advances in Renaissance art, as well as cultural or intellectual trends of the Renaissance.

Part III: Annotation and Presentation (50 points)

On _____, you will present your painting and findings to the class in the A-123 media lab. You using the smart board, you will annotate the artwork for the following items:

- Developments that represent a shift from Medieval to Renaissance art.
- The underlying religious, cultural, or intellectual meaning of the art.
- How the artwork represents a changing intellectual, philosophical, economic, and/or economic trend in European society.

All responses will be graded based on the approved RHS Writing Rubrics, or RHS Writing Rubrics that have been modified for Advanced Placement classes.

A.5 - UNIT III ASSESSMENT ABSOLUTISM SOCRATIC SEMINAR

AP European History
Unit II – Age of Absolutism
Socratic Seminar

Socratic Seminars consist of written preparation and participation in a group discussion. During this unit, you will read a selection of texts related to the Age of Absolutism and will create questions and responses to be used the day of the seminar. As an individual, you are responsible for being an active participant in the conversation. You should be able to ask strong discussion questions, make thoughtful comments, build off other students' ideas, make specific references to the text, encourage others to share their ideas, and be an engaged listener. As an observer of other groups, you will take detailed notes that will be collected at the conclusion of the seminars.

You are expected to prepare the following documents for the seminar:

- *Edict of Fountainbleau* by Louis XIV (Pre-assigned)
- *Memoirs of the Duc de Saint-Simon* (Pre-assigned)
- *Politics Drawn from the Very Words of Holy Scripture* by J.B. Bossuet (Pre-assigned)
- From *The Age of Louis XIV* by Voltaire (Blackboard)
- From *A Short History of the French People* (Blackboard)
- From *The XVIth and XVIIth Centuries* by Roland Mousnier (Blackboard)

Your grade on the Socratic will be based on the following items:

Participation in the Socratic Seminar: 50 points

Preparation and responses to pre-designed questions: 20 points

Preparation and responses of individual questions: 15 points

Total: 85-point quiz grade

In advance of your Socratic Seminar, prepare responses to the following questions. These questions will be used for discussion on the day of the Seminar. After you have completed the responses, use the documents and your knowledge of European History to craft and respond to three discussion questions of your own. Be sure to cite specific textual evidence in your responses.

1. Was absolutism an effective style of ruling?
2. Why did absolute states arise in Europe when they did?
3. How did the theory of absolutism differ from absolutism in practice?
4. Was absolutism as practiced by Louis XIV a positive for France?

All written responses will be graded based on the approved RHS Writing Rubrics, or RHS Writing Rubrics that have been modified for Advanced Placement classes.

Rubric

Socratic Seminar Questions: _____/50

4 (50-40 points)

- frequently contributes meaningfully to the discussion
- always uses specific details from the text
- frequently builds on points of other students
- consistently explains ideas clearly and thoroughly
- consistently asks strong discussion questions
- always pays attention when others speak
- consistently actively encourages other group members to speak

3 (39-30 points)

- mostly contributes meaningfully to the discussion
- mostly uses details from the text
- mostly refers to points made by other students
- mostly explains ideas clearly
- mostly asks strong discussion questions
- mostly pays attention when others speak
- is mostly encouraging of others to speak

2 (29-20 points)

- occasionally contributes to the discussion
- may make reference to the text but not sufficiently
- somewhat refers to points made by other students
- explains ideas somewhat clearly
- may ask some strong discussion questions
- sometimes pays attention when others speak
- somewhat encourages others to speak

1 (19 or fewer points)

- makes little or no contribution to the discussion
- makes insufficient use of the text
- does not refer to points made by other students
- ideas are not explained clearly
- questions are limited and not strong
- does not pay attention to others or is disrespectful in other ways
- dominates the conversation and does not encourage others to speak

A.6 - UNIT VI ASSESSMENT, WORKER'S RALLY

Advanced Placement European History Unit VI: Age of Industrialization & Ideologies Workers' Rally

Directions: Over the next two days, you will take part in a simulation that is meant to explore the ideologies present during the Industrial Revolution in Europe. In particular, your goal is to explore why certain ideologies were so appealing to the new industrialized working class. In class, we have analyzed the foundational texts of several ideologies that would have appealed to working classes in society for a multiplicity of reasons. Over the past few days, we have read the following sources that should help you in your analysis:

- John Stuart Mill, *On Liberty* (Liberalism)
- Louis Blanc, *The Organization of Work* (Utopian Socialism)
- Friedrich Engels, *The Condition of the Working Class in England* (Socialism)
- Klemens von Metternich, *Conservative Principles* (Conservatism)
- Karl Marx and Friedrich Engels, *The Communist Manifesto* (Communism)

In this simulation, you will be assigned a group and one of the following ideologies:

- Liberalism
- Conservatism
- Utopian Socialism
- Socialism
- Communism

Your goal as a group is to prepare a 3-5 minute “pitch” to a group of industrial workers, persuading them to become members of your political party or group. You may use any of your primary source or textbook for research purposes. On _____, you will present your findings to the class. For this assignment, you will need to accomplish the following tasks.

Poster/Presentation:

- Prepare a 3-5 minute presentation that persuades industrial workers to join your political movement.
- In your presentation, you must make at least three (3) specific references to the foundational documents of your ideology. Additionally, you must use specific historical evidence to show why your group would address the grievances of the working class.
- Prepare a poster for the Workers' Rally that includes a well-reasoned slogan/logo for your ideology, as well as the main points of your pitch to the workers.
- Be able to defend your ideology against the other remaining groups in class.

Writing Assignment:

- As a follow-up assignment, respond to the following question, individually, in a 2-3-page analytical essay in MLA format:

Using specific historical evidence, evaluate the degree to which various political and intellectual movements addressed the needs of industrialized workers in 19th century Europe.

All written responses will be graded based on the approved RHS Writing Rubrics, or RHS Writing Rubrics that have been modified for Advanced Placement classes.

**Randolph Township Schools
Randolph High School**

Criminal Law Honors Curriculum

“When you are weak on the facts but strong on the law, pound the law.

When you are weak on the law but strong on the facts, pound the facts.

When you are weak on the facts and the law, pound the table.”

-Oliver Wendell Holmes

Humanities Department

Benjamin Horwitz, Supervisor

Curriculum Committee

Peter Quinn

Lena Wasylyk

Robert Weber

Curriculum Developed:

July 2016

Date of Board Approval:

TBA

**Randolph Township Schools
Randolph High School
Department of Social Studies
Criminal Law Honors**

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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

These statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first.
- Mutual respect and trust are the cornerstones of a learning community.
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members.
- A successful learning community communicates honestly and openly in a non-threatening environment.
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways.
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences.
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth.

Randolph Township Schools
Department of Social Studies
Criminal Law Honors

Introduction

The Criminal Law Honors Course is a survey of the legal rights and responsibilities of American citizens with an emphasis on crimes against persons, crimes against property and crimes against the state. Elements will include those areas that are of practical importance to young adults and potential areas of concern to students in their immediate future. This course is intended as a companion to the Civil Law Honors course which will emphasize similarly focused areas of immediate concern to young adults in areas of civil law.

In this course, students will learn, analyze and evaluate the role of criminal law in society. Students will study the philosophy of criminal law, the goals of the criminal justice system, the workings of the local, state and federal criminal court systems, and the implementation of the criminal court system as it applies to minors. Students will study constitutional protections of the criminal prosecutorial system including limitations on police action and investigation, the rules of evidence and fair trial procedures.

Finally, the course will include a practicum that will permit the students to engage in mock trial programs within the class to enhance critical skills in analysis, evaluation, research, writing and public speaking, as students prepare for mock trial simulations.

The New Jersey State Core Curriculum Content Standards for Social Studies, the Common Core Content Standards, and the standards and goals established by the Randolph Township Board of Education will guide the course. This program will integrate and infuse information on New Jersey, the role of women, African-American and multi-cultural contributions, and social studies oriented vocations into the course of study, as mandated by the State of New Jersey.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Criminal Law Honors

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
5 weeks	I	Foundations of Criminal Law
3 weeks	II	Crimes Against Persons
3 weeks	III	Crimes Against Property & Legal Defenses
3 weeks	IV	Crimes Against the State
4 weeks	V	Legal Practicum

**RANDOLPH TOWNSHIP SCHOOL DISTRICT
CRIMINAL LAW HONORS
UNIT I: Foundations of Criminal Law**

TRANSFER: Students will be able to analyze societal problems or issues, and using the principles of statutory law, design practical solutions to them.

STANDARDS/GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Common Core:</p> <p>RH.11-12.1 - Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p>	<p>The general purpose of criminal law is to circumscribe actions and activities to allow a society to function within generally agreed upon boundaries for the benefit of society as a whole.</p>	<ul style="list-style-type: none"> ● Why do humans create laws?
<p>RH.11-12.2 - Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</p>	<p>The American justice system is built on the bedrock of constitutional principles, clearly delineating rights of the accused and restricting the actions of the government.</p>	<ul style="list-style-type: none"> ● Who should create laws? ● Should laws be created and enforced based on certain beliefs?

	KNOWLEDGE	SKILLS
<p>RH.11-12.3 - Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p> <p>RH.11-12.4 - Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>RH.11-12.5 - Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.</p> <p>RH.11-12.6 - Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.</p> <p>RH.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>RH.11-12.8 - Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.</p> <p>RH.11-12.9 - Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p> <p>WHST.11-12.1.A-E - Write arguments focused on discipline-specific content.</p>	<p>Students will know:</p> <p>Criminal law relates to conduct that is prohibited by the state and the punishments imposed on those who breach these laws.</p> <p>The American legal system is based on an adversarial model, adapted from British legal tradition.</p> <p>The United States Constitution codifies and protects the rights of individuals against the state and sets forth the practical rules of criminal procedure, thereby forming the backbone of the American legal system.</p> <p>Limitations of the state's power, including shouldering the burden of proof and the inability to prosecute twice for the same offense, help protect the accused and make the job of prosecution more challenging than in other legal traditions.</p> <p>Substantive Law defines how the facts in the case will be handled as well as how a crime is to be charged. Procedural Law determines how a proceeding concerning the enforcement of the substantive law will occur.</p> <p>Major Enlightenment philosophers, including John Locke and Thomas Hobbes, wrote extensively on the law and legal rights, offering new ideas about natural rights and the social contract.</p> <p>American law derives from five sources: federal and state</p>	<p>Students will be able to:</p> <p>Define criminal law and civil law, and contrast the areas of interest for both.</p> <p>Trace the origins of the American legal system to historical foundations.</p> <p>Enumerate the basic protections of the United States Constitution and apply them with modern examples.</p> <p>Explain the reasoning behind constitutional mandates on the rules of prosecution and evaluate the necessity of these protections in the modern world.</p> <p>Explain the relationship between substantive law and procedural law.</p> <p>Compare and contrast the legal views of selected Enlightenment philosophers and their impact on American legal tradition.</p> <p>Identify the various sources of law in the U.S. and explain how</p>

<p>WHST.11-12.4.A - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>NJCCCS:</p> <p>6.1.12.A.14.b - Analyze how the Supreme Court has interpreted the Constitution to define the rights of the individual, and evaluate the impact on public policies.</p> <p>6.1.12.A.2.e - Explain how judicial review made the Supreme Court an influential branch of government, and assess the continuing impact of the Supreme Court today.</p>	<p>constitutions, statutory law, administrative regulations, executive orders, and judicial decisions. These rules and regulations establish a citizen’s rights and regulates the relationships between citizens.</p> <p>The Bill of Rights (specifically the Fourth, Fifth, Sixth, and Eighth Amendments) enshrines rights including protection from illegal search and seizure, double jeopardy, self-incrimination, the right to a speedy trial & an impartial jury, and from excessive bail and cruel and unusual punishment.</p> <p>Every crime is made up of specific elements, typically including both a <i>mens rea</i> and an <i>actus rea</i>, or an intention and an action.</p> <p>VOCABULARY & KEY TERMS: Jurisprudence, criminal laws, felonies, misdemeanors, defendant, prosecutor, reasonable doubt, preponderance of the evidence, limited government, separation of powers, statutes, judicial review, unconstitutional, federalism, Bill of Rights, adversarial system, voir dire, peremptory challenges, trial court, appeals court, precedent, natural rights, social contract, substantive, procedural, <i>mens rea</i>, <i>actus rea</i>, double jeopardy, self-incrimination, cruel and unusual punishment</p>	<p>each source fits into our traditional ideas of how law is supposed to be made.</p> <p>Investigate and report on modern cases involving each of the rights of the accused delineated in the Bill of Rights.</p> <p>Identify and differentiate the <i>mens rea</i> and <i>actus rea</i> in given crimes.</p>
<p>ASSESSMENT EVIDENCE: Students will show their learning by:</p>		

- Designing a bill/law, which would garner legislative approval that solves a societal problem using the principles of statutory law.
- Analyzing a criminal case, paying specific attention to the evidence relied on by both the prosecution and defense, and defending opinions using textual evidence as to the outcome of the case.

KEY LEARNING EVENTS AND INSTRUCTION:

- Readings based on real cases regarding religious freedom, freedom of expression, national security, rights of criminal defendants, etc.
- Analyze evidence used by the prosecution and the defense in a given case to guide argumentation for conviction and/or acquittal.
- Identify and discuss key components and criteria of model bills/laws such as rationale, regulation, enforcement, time frame, etc, and use those criteria to draft a piece of legislation.

**RANDOLPH TOWNSHIP SCHOOL DISTRICT
CRIMINAL LAW HONORS
Unit I: Foundations of Criminal Law**

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES

<p>5 Weeks</p>	<p>Foundations of Criminal Law</p> <ul style="list-style-type: none"> ● Composition of Federal & State Courts ● Legal Precedents ● Parties in a Criminal Case ● Burdens of Proof: Criminal vs. Civil ● Double Jeopardy ● Substantive Law vs. Procedural Law ● Thomas Hobbes & John Locke: Natural Rights and the Social Contract ● What is Law? And the Sources of American Law ● The Bill of Rights, Rules of Criminal Procedure & the Criminal Justice Process ● Elements of a Crime: <i>Mens Rea</i> & <i>Actus Rea</i> ● Determining the Specific Elements of a Crime ● Types of Criminal Actors ● Inchoate Crimes: Attempt, Solicitation & Conspiracy 	<p>Daley, J. (Ed.). (2006). <i>Landmark decisions of the Supreme Court</i>. Mineola, NY: Dover Publications.</p> <p>Hobbes, T. (1988). <i>Leviathan</i>. London: Penguin.</p> <p>Lindsay, C.L. (2005). <i>The college student's guide to the law</i>. Lanham: Taylor Trade Publishing.</p> <p>Locke, J. (1988). <i>Two treatises of government</i> (3rd ed.) P. Laslett, (Ed.). Cambridge: Cambridge University Press.</p> <p>Friedman, L.M. (1993). <i>Crime and punishment in American history</i>. New York: Basic Books.</p> <p>Miller, G.D. (2001). <i>Criminal law (New Jersey practice)</i>. St. Paul, MN: West Group.</p> <p>Robinson, P. (1999). <i>Would you convict? Seventeen cases that challenged the law</i>. New York: NYU Press.</p>
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**RANDOLPH TOWNSHIP SCHOOL DISTRICT
CRIMINAL LAW HONORS
UNIT II: Crimes Against Persons**

TRANSFER: By evaluating and analyzing fact patterns in both hypothetical and actual scenarios, students will be able to apply their knowledge of criminal statutes to contemporary examples.

STANDARDS/GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Common Core:</p> <p>RH.11-12.1 - Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p> <p>RH.11-12.2 - Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</p> <p>RH.11-12.3 - Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p> <p>RH.11-12.4 - Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>RH.11-12.5 - Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.</p> <p>RH.11-12.6 - Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.</p> <p>RH.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as</p>	<p>Crimes against the person refer to a broad array of criminal offenses which usually involve bodily harm, the threat of bodily harm, or other actions committed against the will of an individual.</p>	<ul style="list-style-type: none"> ● What are the most critical elements of the common crimes against the person? Why?
	<p>Crimes against the person are deemed by society to be the most reprehensible.</p>	<ul style="list-style-type: none"> ● Why should moral distinctions determine the severity of a crime? ● Why should certain offenses be criminalized more severely than others?
	<p>In making sentencing decisions, judges weigh a number of factors in determining the appropriate punishment.</p>	<ul style="list-style-type: none"> ● What should the response of society be if a member violates societal mandates regarding protection of a person?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>The students will know:</p> <p>Crimes against the person include the following: homicide, suicide, robbery, assault, battery, domestic violence, hate crimes, harassment, kidnapping/false imprisonment and stalking.</p> <p>Any attempt to wrongfully harm or wrongfully imprison another's person is considered to be a crime against persons.</p> <p>Criminal homicide is classified by intent or reckless actions, while non-criminal homicide can be categorized as justifiable</p>	<p>Students will be able to:</p> <p>Identify the specific crimes categorized under crimes against persons.</p> <p>Determine the necessary elements to constitute a crime against the person.</p> <p>Distinguish between criminal and noncriminal homicide.</p>

<p>in words) in order to address a question or solve a problem.</p> <p>RH.11-12.8 - Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.</p> <p>RH.11-12.9 - Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p> <p>WHST.11-12.1.A-E - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.4.A - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>NJCCCS:</p> <p>6.1.12.A.14.b - Analyze how the Supreme Court has interpreted the Constitution to define the rights of the individual, and evaluate the impact on public policies.</p> <p>6.1.12.A.2.e - Explain how judicial review made the Supreme Court an influential branch of government, and assess the continuing impact of the Supreme Court today.</p> <p>6.1.12.D.16.c - Determine past and present factors that led to the widening of the gap between the rich and poor, and evaluate how this has affected individuals and society.</p>	<p>and not subject to criminal charges.</p> <p>Malice means having the intent to kill or seriously harm another person or acting in an extremely reckless manner which shows a lack of regard for human life.</p> <p>The different types of criminal homicide include: first-degree murder, felony murder, second-degree murder, voluntary manslaughter, involuntary manslaughter, and negligent homicide.</p> <p>Courts often view suicide attempts as a plea for help and require the person who attempted suicide to undergo psychological examinations and treatment for mental health issues.</p> <p>Assault and battery requires only that a person intended to cause bodily harm and are commonly used as interchangeable terms. There are multiple degrees of assault and battery including aggravated and simple assaults as well as domestic violence.</p> <p>Stalking occurs when a person repeatedly follows or harasses another person and makes threats, causing the victim to fear death or bodily injury.</p> <p>Sexual assault is the kind of assault that may include rape (intercourse without consent) or attempted rape; however, it may also include a range of victimizations of a sexual nature including, but not limited to, unwanted sexual contact.</p> <p>Rape is the act of sexual intercourse without consent of the victim and can be classified into a number of categories,</p>	<p>Evaluate the role malice plays in determining a crime against a person.</p> <p>Identify and differentiate the differences between the types of criminal homicide.</p> <p>Justify the reasons as to why courts often treat suicide as a plea for help rather than a crime.</p> <p>Distinguish the different classifications for assault and battery.</p> <p>Explain the crime of stalking and conclude how it is categorized as a crime against the person.</p> <p>Discuss the similarities and differences between the various forms of sexual assault.</p> <p>Define the crime of rape and determine the differences between its sub-classifications.</p>
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including: statutory rape, date rape and aggravated rape.

Vocabulary & Key Terms:

Homicide, criminal homicide, noncriminal homicide, malice, murder, manslaughter, negligent homicide, first- degree murder, felony murder, second-degree murder, voluntary manslaughter, involuntary manslaughter, suicide, assault, battery, stalking, sexual assault, rape, statutory rape, date rape/acquaintance rape.

ASSESSMENT EVIDENCE: Students will show their learning by:

- Analyzing the facts of real life scenarios, and citing evidence from within, articulate which crime(s) against the person have been committed.
- Analyzing and determining what factors could result in either a conviction or acquittal of a crime based on the required elements as determined by the particular statute and explain through writing.

KEY LEARNING EVENTS AND INSTRUCTION:

- Examine practice scenarios related to crimes against persons individually or in groups, and identify appropriate charges based on the required statutory elements.
- Full-class analysis and discussion of the New Jersey sexual assault statute as a model for how to dissect criminal statutes.

**RANDOLPH TOWNSHIP SCHOOL DISTRICT
CRIMINAL LAW HONORS
Unit II: Crimes Against Persons**

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	Crimes against the Person <ul style="list-style-type: none"> ● Homicide (Murder, Manslaughter, etc.) ● Suicide ● Assault & Battery ● Stalking ● Sexual Offenses 	Arnold, L.N. (2004). <i>Criminal practice and procedure</i> (Vols.31-32). St. Paul: Thomson West Uelman, G.F. (1996). <i>Lessons from the trial: The people v. O.J. Simpson</i> . Kansas City: Andrews and McMeel. Wootton, J. (1998). <i>Criminal Justice: Opposing Viewpoints</i> . San Diego: Greenhaven Press. New Jersey Code of Criminal Justice

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Criminal Law Honors
UNIT III: Crimes Against Property & Legal Defenses

TRANSFER: By analyzing a statute and identifying its legal parameters, students will be able to evaluate their own conduct and the conduct of others.

STANDARDS/GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Common Core:</p> <p>RH.11-12.1 - Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p> <p>RH.11-12.2 - Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</p> <p>RH.11-12.3 - Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p> <p>RH.11-12.4 - Determine the meaning of words and phrases as</p>	<p>Property protections are a cornerstone of the American legal system, thanks in large part to the philosophical and economic thinkers in the Western tradition who believed property was a core right afforded to any member of society.</p>	<ul style="list-style-type: none"> ● Is property an inalienable human right? ● What can or should be owned?
	<p>Crimes against property are as varied as property itself, and include various types of related theft, destruction, deception, and other uses of force.</p>	<ul style="list-style-type: none"> ● What makes some crimes worse than others?
	<p>Because the burden of proof falls to the government, successful prosecution often depends on eliminating or disproving criminal defenses that contest guilt based on a variety of factors.</p>	<ul style="list-style-type: none"> ● What circumstances excuse wrongdoing? ● How responsible are human beings for their own actions?
	<p>KNOWLEDGE</p>	<p>SKILLS</p>
	<p>The students will know:</p>	<p>Students will be able to:</p>

<p>they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>RH.11-12.5 - Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.</p> <p>RH.11-12.6 - Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.</p> <p>RH.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>RH.11-12.8 - Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.</p> <p>RH.11-12.9 - Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p> <p>WHST.11-12.1.A-E - Write arguments focused on discipline-specific content.</p>	<p>Crimes against property are crimes of varying severity that separate people from said property, whether through destruction or deprivation.</p> <p>Harm or potential harm to property includes arson (unlawful burning), and vandalism (defacing or damaging).</p> <p>In general, theft of property involves any purposeful taking of property belonging to someone else with the intent of permanent deprivation, regardless of the circumstances of possession.</p> <p>Some kinds of theft, such as robbery, also involve the use of force on people or residences, and are thus taken more seriously by the criminal justice system.</p> <p>There are various forms of crimes relating to money, including extorting individuals, embezzling when in a position of trust, and forging official documents and currency.</p> <p>Of increasing concern to the public and the criminal justice system is the rise in computer crime and identity theft, which use stolen personal and/or digital information for criminal purposes.</p> <p>While defense attorneys may simply force the prosecution to prove guilt, many employ strategies that challenge the evidence or claims presented in hopes of a favorable verdict or sentencing.</p> <p>Some defenses rely on showing that actions were not criminal or not committed by the defendant, while others admit the action took place but show the defendant was not or should not</p>	<p>Classify the basic criteria for determining that a crime against property has been committed.</p> <p>Discuss the varying crimes committed against property.</p> <p>Explain the requirements outlining property theft according to statute requirements.</p> <p>Assess the factors as to why certain property crimes are treated more harshly by the criminal justice system.</p> <p>Compare and contrast the various forms of crimes related to money.</p> <p>Evaluate the threat of computer crime and identity theft in today's society.</p> <p>Determine and evaluate the strategies and tactics a defense attorney may employ to gain a favorable verdict for their defendant.</p> <p>Distinguish the reasons an attorney may decide to establish a particular defense for their client.</p>
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<p>WHST.11-12.4.A - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>NJCCCS:</p> <p>6.1.12.A.16.b - Analyze government efforts to address intellectual property rights, personal privacy, and other ethical issues in science, medicine, and business that arise from the global use of new technologies.</p> <p>6.3.12.D.1 - Analyze current laws involving individual rights and national security, and evaluate how the laws might be applied to a current case study that cites a violation of an individual's constitutional rights.</p> <p>8.1.12.D.2 - 2 Evaluate consequences of unauthorized electronic access (e.g., hacking) and disclosure, and on dissemination of personal information.</p>	<p>be responsible for their actions due to other factors.</p> <p>VOCABULARY & KEY TERMS: Arson, vandalism, larceny, embezzlement, extortion, burglary, forgery, uttering, joyride, carjacking, identity theft, alibi, Make My Day laws, Stand Your Ground laws, Use of Force, entrapment, duress, necessity</p>	
<p>ASSESSMENT EVIDENCE: Students will show their learning by:</p> <ul style="list-style-type: none"> ● Analyzing fact patterns to determine what, if any, property crimes have been committed. ● Analyzing fact patterns to determine applicability of legal defenses. ● Reading, analyzing, and evaluating similarities and differences between New Jersey, Colorado and Florida use of force statutes. <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none"> ● Students will create their own fact patterns for a property crime(s). These scenarios will then be exchanged with another student who will have to evaluate the scenario for the purpose of identifying what particular crimes, if any, were committed. 		

- Working in small groups, students will analyze three types of use of force statutes (NJ, CO & FL). Students will then compare and contrast each statute's provisions in order to complete a graphic organizer detailing the parameters of using force to protect oneself, other people, and one's property.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Criminal Law Honors
Unit III: Crimes Against Property & Legal Defenses

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	<p>Crimes Against Property</p> <ul style="list-style-type: none"> • Arson • Vandalism • Theft/Larceny/Shoplifting • Theft of Lost, Mislaid, or Misdemeanor Property • Embezzlement • Robbery / Burglary • Extortion • Forgery/Uttering • Receiving Stolen Property (RSP) • Joyriding/Carjacking • Computer Crime • Identity Theft 	<p>http://www.cybercrime.gov [Cyber Crimes]</p> <p>Heinrichs, A. (2009). <i>Fire investigator</i>. Ann Arbor: Cherry Lake.</p> <p>Vandalism Resources: http://www.ncjrs.gov/pdffiles1/ojdp/fs200010.pdf http://www.popcenter.org/problems/vandalism/</p>

	<p>Legal Defenses</p> <ul style="list-style-type: none"> ● Actions do not constitute a Crime ● Mistaken Identity/Alibi ● Self Defense/Defense of Others ● Defense of Property ● Make My Day/Stand Your Ground Laws ● NJ's Use of Force Law ● Infancy ● Intoxication ● Insanity ● Entrapment ● Duress ● Necessity 	
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Criminal Law Honors
UNIT IV: Crimes Against the State

<p>TRANSFER: Using knowledge of crimes against the state, students will be able to debate and confront major constitutional questions.</p>		
<p>STANDARDS/GOALS:</p> <p>Common Core:</p> <p>RH.11-12.1 - Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p> <p>RH.11-12.2 - Determine the central ideas or information of a primary or</p>	<p style="text-align: center;">ENDURING UNDERSTANDINGS</p> <p>The law prohibits certain actions in order to preserve a free and fair democratic political process.</p> <p>Actions and behavior that tamper with witnesses, evidence, and testimony are criminalized because they would unjustly influence outcomes in the legal system.</p>	<p style="text-align: center;">ESSENTIAL QUESTIONS</p> <ul style="list-style-type: none"> ● What makes a political system fair? ● How can representative democracy and the law co-exist? ● What makes a legal system fair? ● At what point do individual actions infringe on the rights of others?

<p>secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</p>	<p>Crimes relating to terrorism have stretched the boundaries of legal responses by the government.</p>	<ul style="list-style-type: none"> • What limits should be placed on rights? • Do some crimes by their nature negate the rights of the perpetrator? Why?
<p>RH.11-12.3 - Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p>	<p>KNOWLEDGE</p>	<p>SKILLS</p>
<p>RH.11-12.4 - Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>RH.11-12.5 - Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.</p> <p>RH.11-12.6 - Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.</p> <p>RH.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>RH.11-12.8 - Evaluate an author's premises, claims, and evidence by</p>	<p>Students will know:</p> <p>Crimes against the state are typically those that are directed against the existence or actions of the state.</p> <p>Crimes specifically against the legal system, courts, law enforcement, or the political process as a whole are considered crimes against justice.</p> <p>Using money, privilege, or items of value to influence the actions of an official or other person with a legal or public duty is considered bribery. It is criminalized because it affects the fairness and impartiality of the legal and political systems.</p> <p>Intentionally violating an oath to tell the truth when delivering information to an official proceeding is known as perjury. It can be criminally prosecuted if it affects or influences the outcome of the proceeding.</p> <p>Altering or attempting to alter testimony of witnesses or evidence (including concealing, destroying, or falsifying) is called tampering. If tampering is committed by authorities, it violates the right to due process.</p>	<p>Students will be able to:</p> <p>Define specific crimes against state, and provide real-world examples of each.</p> <p>Evaluate the severity of the crimes against justice and justify which harm the legal system most.</p> <p>Prepare a plan to combat bribery and its effects in the modern American political system.</p> <p>Identify several real-world instances of perjury and hypothesize the motivations that the individuals in question had to do so.</p> <p>Examine hypothetical situations and, using evidence, analyze whether the situation warrants a charge of evidence or witness tampering.</p>

<p>corroborating or challenging them with other information.</p> <p>RH.11-12.9 - Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p> <p>WHST.11-12.1.A-E - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.4.A - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>NJCCCS:</p> <p>6.1.12.D.2.b - Explain why American ideals put forth in the Constitution (i.e., due process, rule of law, and individual rights) have been denied to different groups of people throughout time.</p> <p>6.1.12.A.14.h - Assess the effectiveness of government policies in balancing the rights of the individual against the need for national security.</p> <p>6.1.12.D.15.d - Analyze the reasons for terrorism and the impact that terrorism has had on individuals and government policies, and assess the effectiveness of actions taken by the United States and other nations to prevent terrorism.</p> <p>6.1.12.A.16.a - Determine the impact</p>	<p>In the modern world, few crimes against the state are as politically and socially important as terrorism, the use or threat of violence in pursuit of political or ideological goals.</p> <p>In response to the 9/11 terrorist attacks, the Congress passed the USA PATRIOT Act, which has controversially expanded the federal government’s ability to perform electronic and physical searches, detain non-citizens, and increase domestic surveillance.</p> <p>The legal system, political branches of government, and the American public are still exploring the boundaries of post-9/11 legal proceedings related to terrorism, including the rights of the accused, the use of military tribunals, detainment, interrogation and torture, and the use of electronic surveillance.</p> <p>Of particular interest regarding the legal issues of post-9/11 America is the status of detainees housed at the Guantanamo Bay prison, and whether the evidence against them justifies their continued detention.</p> <p>VOCABULARY & KEY TERMS: Bribery, corruption, perjury, witness tampering, evidence tampering, contempt of court, terrorism, USA PATRIOT Act, domestic surveillance, detention, enhanced interrogation/torture, military tribunal, Guantanamo Bay, enemy combatant,</p>	<p>Classify various actions and crimes based on whether they meet the definition of terrorism, and explain reasoning why.</p> <p>Investigate one or multiple controversial sections of the USA PATRIOT Act, and evaluate if the controversy surrounding it is warranted.</p> <p>Debate the limits of constitutional rights and law in regards to terrorism using legal argumentation and terminology.</p> <p>Develop and defend a plan to solve the legal and political impasse of the status of Guantanamo Bay detainees.</p>
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<p>of media and technology on world politics during this time period.</p> <p>6.2.12.A.6.c - Analyze why terrorist movements have proliferated, and evaluate their impact on governments, individuals, and societies.</p> <p>6.3.12.D.1 - Analyze current laws involving individual rights and national security, and evaluate how the laws might be applied to a current case study that cites a violation of an individual's constitutional rights.</p> <p>8.1.12.C.1 - Develop an innovative solution to a real world problem or issue in collaboration with peers and experts, and present ideas for feedback through social media or in an online community.</p>		
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ASSESSMENT EVIDENCE: Students will show their learning by:

- Debating topics related to terrorism and the criminal justice system that deal with the trial rights of citizens, indefinite detention, and the use of enhanced interrogation/torture to prevent future terrorist acts. Topics may include the following: Should Guantanamo Bay detainees be charged and released, or remain detained indefinitely? Should American citizens who engage in terrorism be tried as “enemy combatants?” Is enhanced interrogation/torture justified if there is a chance to prevent future terrorist attacks?

KEY LEARNING EVENTS AND INSTRUCTION:

- In teams, students will be assigned a debate topic for which they will research and prepare an argument to be delivered to their classmates.
- Students will develop analytic and challenging questions to be used for discussion while other groups debate.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Criminal Law Honors
Unit IV: Crimes Against the State

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 Weeks	<p>Crimes Against State</p> <ul style="list-style-type: none"> ● Bribery ● Perjury ● Witness Tampering ● Evidence Tampering ● Espionage & Sedition ● Terrorism ● Responses to Terrorism <ul style="list-style-type: none"> ● USA PATRIOT Act ● Expanded Surveillance ● Detention & Interrogation ● Trial Rights & Military Tribunals ● Guantanamo Bay 	<p>Cohen, B. (Producer), & Else, J. (Director). (2009). <i>Inside Guantanamo</i> [Motion picture]. United States: National Geographic.</p> <p>Egendorf, L.K. (Ed.). (2000). <i>Terrorism: Opposing viewpoints</i>. San Diego: Greenhaven Press.</p> <p><i>H.R. 3162 – USA PATRIOT Act of 2001.</i> [https://www.congress.gov/bill/107th-congress/house-bill/03162]</p>

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Criminal Law Honors
UNIT V: Legal Practicum

TRANSFER: By participating in a mock trial, students will understand the complex dynamics of a courtroom and will apply their legal training to a relevant court case.

STANDARDS/GOALS:	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<p>Common Core:</p> <p>RH.11-12.1 - Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p> <p>RH.11-12.2 - Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</p> <p>RH.11-12.3 - Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p> <p>RH.11-12.4 - Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term</p>	<p>Constitutional rights can only be safeguarded by a reliable and impartial judicial system, which includes a neutral and detached magistrate, the right to an attorney, trial by jury, and proof beyond a reasonable doubt.</p>	<ul style="list-style-type: none"> ● How does our adversarial system of justice safeguard the constitutional rights of a criminal defendant?
	<p>A criminal case is comprised of many different types of proceedings, each one of which serves a particular purpose and together provide a criminal defendant a fair and impartial process within which to resolve their charges.</p>	<ul style="list-style-type: none"> ● Is the American adversarial system of justice too complicated? Why? ● What stages of a criminal case are essential to protecting a criminal defendant’s constitutional rights?
	<p>Complex rules of evidence have been established to govern the procedures by which witnesses are examined and evidence introduced in order to ensure a criminal defendant receives a fair trial.</p>	<ul style="list-style-type: none"> ● What makes evidence reliable? ● What types of evidence should be admitted in court and under what circumstances? ● If some evidence is excluded, is a trial really a search for the truth? Why?
	KNOWLEDGE	SKILLS
	Students will know:	Students will be able to:

<p>over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</p> <p>RH.11-12.5 - Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.</p> <p>RH.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>RH.11-12.9 - Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p> <p>WHST.11-12.1.A-E - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.4.A - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>NJCCCS:</p> <p>6.1.12.D.4.e - Analyze the impact of the Civil War and the 14th Amendment on the development of the country and on the relationship between the national and state governments.</p>	<p>The various stages of a criminal justice process, what each stage entails and the purpose they serve in ensuring that a defendant receives a fair hearing.</p> <p>Some of the rules of evidence, the philosophical reasoning behind them, and their practical application in a trial.</p> <p>The elements and requirements essential to conduct a mock trial exercise by creating opening and closing statements, as well as detailed sets of questions to be used during a direct and cross-examination.</p> <p>VOCABULARY & KEY TERMS: Prosecutor, Defendant, Judge, Arrest, Bail, First Procedure, Grand Jury, Arraignment, Status Conference, Plea Bargain, Pre-Trial Conference, Jury Trial, Opening Statement, Direct Examination, Cross-Examination, Closing Statement, Jury Instructions, Verdict, Sentencing - Aggravating and Mitigating Factors, Relevance, Privilege, Opinion Testimony, Expert Testimony, Competency, First-Hand Knowledge, Hearsay, Impeachment, Admissibility.</p>	<p>Analyze and evaluate fact patterns to develop arguments for use in mock court proceedings.</p> <p>Analyze, evaluate and synthesize evidentiary rules and procedures to address issues of reliability in presentation of evidence and courtroom procedures.</p> <p>Engage in analysis and evaluation of hypothetical fact patterns and synthesize strategies for presentation of materials in a mock trial setting.</p>
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6.1.12.A.14.b - Analyze how the Supreme Court has interpreted the Constitution to define the rights of the individual, and evaluate the impact on public policies.

8.1.12.A.2 - Produce and edit a multi-page digital document for a commercial or professional audience and present it to peers and/or professionals in that related area for review.

ASSESSMENT EVIDENCE: Students will show their learning by:

- Preparing a written summary of the mock trial case, which shall include the identification of the issues that will need to be addressed during the trial and a review of the evidence to be relied on by both the prosecution and the defense relative to those issues.
- Drafting either an opening or closing statement, or a detailed set of questions for the direct and/or cross-examination of a trial witness.
- Participating in the mock trial in their assigned role (prosecutor, defense attorney, witness) by delivering an opening or closing statement, by examining a witness, or by acting the part of a trial witness.

KEY LEARNING EVENTS AND INSTRUCTION:

- Students will create and/or act out various proceedings in the criminal justice process to prepare for the mock trial.
- Students will be given sentencing scenario fact patterns that detail a defendant's current crimes and background information and will be tasked with identifying the applicable aggravating and mitigating factors. Once these factors are identified, the students will need to weigh these factors to determine an appropriate sentence.

**RANDOLPH TOWNSHIP SCHOOL DISTRICT
CRIMINAL LAW HONORS
Unit V: Legal Practicum**

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
4 weeks	<p>Legal Practicum</p> <p>Stages of the Criminal Justice Process</p> <ul style="list-style-type: none"> ● Arrest ● Bail ● First Procedure ● Grand Jury ● Arraignment ● Status Conferences ● Plea Bargains and Other Pre-Trial Dispositions ● Pre-Trial Conference ● Trial & Verdict ● Sentencing <p>Rules of Evidence</p> <ul style="list-style-type: none"> ● Relevance ● Competency ● First-Hand Knowledge ● Privilege ● Opinion Testimony ● Expert Testimony ● Hearsay ● Impeachment <p>Evidentiary Procedures</p>	<p>American Bar Association Resources can be found at: http://www.americanbar.org/groups/public_education/resources/Educational_resources/teaching_resource_guides/Resources_for_Teachers_students.html</p> <p>Arnold, L.N. (2004). Criminal Practice and Procedure (Vols. 31-32), St. Paul: Thompson West.</p> <p>Kipnees, R.J. (2003). Criminal Trial Preparation. New Brunswick, NJ: New Jersey Institute for Continuing Legal Education.</p> <p>National High School Mock Trial Resources found at: http://www.nationalmocktrial.org/.</p> <p>New Jersey Rules of Court, New Jersey Judiciary</p> <p>New Jersey State Bar Foundation Mock Trial Program Resources found at: http://www.njsbf.org/educators-and-students/programs.html.</p> <p>Street Law Mock Trial Resources found at: http://www.streetlaw.org.</p>

	<ul style="list-style-type: none"> ● Introducing Documentary Evidence ● Introducing Physical Evidence ● Qualifying an Expert 	
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APPENDIX A

**RANDOLPH HIGH SCHOOL CIVIL & CRIMINAL LAW
BENCHMARK ASSESSMENT: A MOCK TRIAL EXERCISE**

The quarterly benchmark will be the preparation, rehearsal and participation in a mock trial exercise. The class will be divided into teams of students representing both the plaintiff and defendant in a civil or criminal trial.

The chosen cases will give the students an opportunity to argue the black letter law they have learned during the semester, prepare and examine witnesses, and practice giving opening and closing statements.

STEP ONE: ESTABLISHING LEGAL TEAMS

The class will be divided into trial teams representing both the prosecution and the defense. Each team will be comprised of students who will serve as attorneys and witnesses. An attorney from each side will be matched with a witness or be assigned the task of drafting and presenting an opening and/or closing statement. Each paired attorney-witness will be responsible for preparing and performing a direct examination and/or a cross-examination of one of the opposing team’s witnesses. The remaining attorneys will be assigned to conduct opening and/or closing statements.

STEP TWO: INITIAL PREPARATION & SUMMARY OF CASE

Each student will be responsible for reviewing the case materials that will be distributed in class and preparing a summary of the case. The summary shall include the following:

A summary of the facts of the case.

A summary of the applicable law and legal principles in the case.

A summary of the proofs necessary to establish the legal requirements of the case from the perspective of both sides of the case.

Due Date for Written Summaries: See Schedule of Assignments

STEP THREE: PREPARATION OF DIRECT/CROSS EXAMINATIONS AND OPENING/CLOSING STATEMENTS

Each paired attorney-witness shall provide a final draft of their direct testimony and anticipated cross-examination. The direct testimony will be limited to 10 minutes of testimony. Cross-examination will be limited to 10 minutes of testimony. Any re-direct examination will be limited to 5 minutes. These time limitations will not include any interruptions to hear issues or objections raised by the opposing side. The questioning of witnesses shall be conducted according to the Model Rules of Mock Trial contained within the packet of case materials.

Each attorney assigned to present an opening and/or closing statement will provide a final draft of their statement. Opening and closing statements will be limited to 10 minutes. There will be no objections by the opposing side during opening or closing statements. Any objections to these statements can be made after both sides have given their opening/closing.

Time for practice and preparation will be permitted during class time for the purpose of preparing witnesses, reviewing testimony, and rehearsing parts. However, students will also need to spend time outside of class preparing their written work and practicing their assigned role.

Due Date for Written Submissions: See Schedule of Assignments

Students may submit drafts of their openings, closings or trial questions for review prior to the final due date.

STEP FOUR: THE MOCK TRIAL

Students will conduct a full mock trial.

The mock trial will be conducted pursuant to the instructions in the mock trial packet.

Benchmark/Trial Dates: See Schedule of Assignments

Grading: See Attached Rubric

GENERAL RULES & EXPECTATIONS:

All students should read the entire set of materials and discuss the information, procedures and rules of the mock trial with their team members.

All team roles in the case should be practiced.

Credibility of witnesses is very important. Therefore, students acting as a witness need to think and act like the witness they are portraying. Student witnesses should read over their statements/affidavits many times and have other members of the team or the class ask them questions about the facts until you know them cold.

Student team members have primary responsibility for deciding what questions should be asked of each witness. Questions for each witness should be written down and/or recorded by other means.

Opening and closing statements should also be written out by team members. Legal and/or non-legal language should be avoided where its meaning is not completely understood by attorneys and witnesses.

Team members should take notes during the trial.

Draft cross-examination questions will probably need to be modified as a witness testifies during direct examination.

Draft closing statements will probably need to be modified to reflect developments that arise during the trial.

Each team will have to decide which are the most important points needed to prove their side of the case and to make sure they prove those points.

An opening statement should clearly state what the team intends to prove, while the closing statement should effectively argue how the facts and evidence presented at trial prove their case.

Courtroom etiquette is a must: standing up when the judge enters the room; standing up when addressing the judge; calling the judge “your honor”; etc.

During direct examinations, remember to use non-leading questions. Review the rule and watch for this type of questioning in practice sessions.

Do not prolong cross-examination so as to lose your well-made points. Zero-in a few key points and make them count.

You will have to think quickly on your feet when a witness gives an unexpected answer, an attorney asks an unexpected question, or a judge asks a question of an attorney or witness.

Most of all...remember to have fun with it!

Mock Trial Scoring Rubric

Scoring: Students can obtain a maximum of 100 points on this exercise. To determine the score, assign a point value to each category (e.g., Preparation and Research) and multiply that value by the number in parenthesis (e.g., 6).

PREPARATION AND RESEARCH (X6 = Max. 60 Points)

- 9-10 Witness statement fully developed, completely consistent with historical record, accurately performed. Attorney questions relevant, logical, and clear; questions properly formed and delivered. Opening/Closing is clear, concise, factual and persuasively delivered.
- 7-8 Witness statement adequately developed, fairly consistent, and accurately performed. Attorney questions clear, logical, and relevant most of the time; most questions properly formed. Opening/Closing is somewhat clear, concise, factual and persuasive.
- 6-5 Written work or performance shows a lack of preparation.

VOICE (X1 = Max. 10 Points)

- 9-10 Easily understood; consistent use of appropriate rate, volume, and intonation.
- 7-8 Understood most of the time; appropriate rate, volume, and intonation most of the time.
- 5-6 Not easily understood; delivery needs work.

EYE CONTACT (X1 = Max. 10 Points)

- 9-10 Establishes appropriate eye contact for the situation and setting.

- 7-8 Establishes appropriate eye contact most of the time.
- 5-6 Does not establish eye contact.

AUTHENTICITY (X1 = Max. 10 Points)

- 9-10 Seems very real; excellent use of body and facial expression; words and gestures match; well adapted to setting; appropriate costume.
- 7-8 Believable; adequate use of body and facial expression; fairly well adapted to setting.
- 5-6 Needs to be more convincing.

COURTROOM DECORUM (X1 = Max. 10 Points)

- 9-10 Appropriate interaction with Justices and attorneys; stays in character.
- 7-8 Appropriate interaction with others most of the time.
- 5-6 Distracted, inappropriate behavior.

Source: Matt Johnson, social studies teacher, Benjamin Banneker Senior High School, Washington, D.C.