<u>Theme/Unit</u> : Unit 1 – Scientific Method and Lab Skills (5 weeks) <u>Enduring Understandings</u> :		Standards-Based Essential Skills to be Targeted Throughout the Unit	Strategies or Best Practices Used to Explicitly Teach Skills and Concepts		Instructional Resources
 Science is the knowledge obtained by observing the natural world in order to discover facts and to formulate laws and principles that can be verified or tested. Scientists conduct safe experiments by using the Scientific Method, controls and independent/dependent variables, making accurate measurements, and understanding safety protocols. 	Reading Outcomes	 CCSS.ELA-Literacy.RST.6-8.1 CCSS.ELA-Literacy.RST.6-8.3 CCSS.ELA-Literacy.RST.6-8.4 CCSS.ELA-Literacy.RST.6-8.6 CCSS.ELA-Literacy.RST.6-8.7 CCSS.ELA-Literacy.RST.6-8.8 CCSS.ELA-Literacy.RST.6-8.10 	 After instruction, students will be able to: Describe the three methods of investigation Identify benefits of science in the world around you Explain why scientists use scientific methods Determine the appropriate design of a controlled experiment Use information in tables and graphs to analyze experimental results Explain how scientific knowledge can change Give examples of three types of models Compare the ways scientists use hypotheses, theories, and laws Collect, record, and analyze information by using various tools Calculate area and density Identify lab safety symbols and demonstrate safe practices during lab investigations 	Literature	Allen, K., Berg, L., et al. (2008). Science in Out World. In Integrated science (pp. 2-35). Orlando, Florida: Holt, Rinehart and Winston.
Formative – During Unit: Hypothesis WKST, Observation Lab, Apple/Candle Demo, Hypotheses and Variables WKST, Scientific Method Study Guide, Scientific Method Quiz, Paper Towel Lab, Models Packet, Measuring Tools WKST, Accurate Length Lab, Measuring Length Lab, Conversions WKST, Metric Mania Packet, Measuring Mass Lab, Volume Lab, Accurate Mass Lab, Volume at Home, Density Lab, Density Packet, Density WKST, Liquid Density Lab, Unit 1 Review Sheet Summative – End of Unit: Unit 1 Test	Writing Outcomes	 CCSS.ELA-Literacy.WHST.6-8.1.b CCSS.ELA-Literacy.WHST.6-8.2 CCSS.ELA-Literacy.WHST.6-8.4 CCSS.ELA-Literacy.WHST.6-8.7 	Literature Based Writing: Informational Writing:	<u>Informational</u> <u>Poetry</u>	
Notes: Students will be given Guided Notes on the following subtopics: What is Science? Scientific Models Tools and Measurement Review: Scientific Method Study Guide Unit 1 Review Sheet Websites: Brain Pop NSTA	Language/Listening and Speaking			Focus Vocabulary	Tier 2 – Academic Vocabulary: Describe, explain, collect, calculate, identify, observe, determine, compare Tier 3 – Content Vocabulary: Science, scientific methods, hypothesis, observation, inference, controlled experiment, independent variable, dependent variable, control, model, theory, law, meter, area, mass, volume, temperature, density

Theme/Unit: Unit 2 – Matter (6-7 weeks) Enduring Understandings:	Standards-Based Essential Skills to be Targeted Throughout the Unit	Strategies or Best Practices Used to Explicitly Teach Skills and Concepts	Instructional Resources
 Matter is anything that has mass and takes up space and it can be changed by physical and chemical means. Matter comes in three forms: solid, liquid, and gas, and can physically change into any of the other states. The states of matter also exist as elements, compounds, mixtures, and solutions. 	CCSS.ELA-Literacy.RST.6-8.1 CCSS.ELA-Literacy.RST.6-8.3 CCSS.ELA-Literacy.RST.6-8.4 CCSS.ELA-Literacy.RST.6-8.7 CCSS.ELA-Literacy.RST.6-8.10	After instruction, students will be able to: Identify the properties to describe matter Describe what makes up matter Describe the properties of a mixture Explain what a physical and chemical changes are Describe how energy changes when matter changes Describe the motions of particles in a solid, liquid, and a gas Explain what happens to a substance during changes between solid and liquid, liquid and gas, and solid and gas Explain how pressure, temperature, and volume of a gas are related	 Thorton, K., Buckley, D., et al. (2013). Interactive science: Physical science (pp. 2-61). Upper Saddle River, NJ: Pearson. Thorton, K., Buckley, D., et al. (2013). Interactive science: Physical science (Teacher ed., pp. 2-61H). Upper Saddle River, NJ: Pearson.
Assessments: Formative – During Unit: Describing Matter WKST; Classifying Matter WKST; Measuring Matter WKST; Separating Mixtures Lab; Mystery Mixture Lab; Elements, Compounds, and Mixtures Quiz; Physical and Chemical	CCSS.ELA-Literacy.WHST.6-8.1.b CCSS.ELA-Literacy.WHST.6-8.2 CCSS.ELA-Literacy.WHST.6-8.4	Literature Based Writing: Informational Writing:	Poetry
Changes Lab; Changes in Matter WKST; Changes in Matter Quiz; States of Matter WKST; Solid, Liquid, Gas Packet; Why Does Matter, Matter Packet; Changes of State WKST; Changes in State Lab; States of Matter Quiz; Gas Behavior WKST; Gas Behavior Packet; Matter Unit Review Sheet Summative – End of Unit: • Unit 2 Test	Writing Outcomes		Informational
Notes: Students will be given Guided Notes on the following subtopics: Describing Matter Classifying Matter Measuring Matter Changing Matter States of Matter Changes of State Gas Behavior Review: Matter Unit Review Sheet Websites: Brain Pop YouTube	Language/Listening and Speaking		Tier 2 – Academic Vocabulary: Describe, explain, identify Tier 3 – Content Vocabulary: Matter, chemistry, substance, physical property, chemical property, element, atom, chemical bond, molecule, compound, chemical formula, mixture, physical change, chemical change, law of conservation of mass, temperature, thermal energy, endothermic change, exothermic change, chemical energy

 Theme/Unit: Unit 3 – Chemistry (6 weeks) Enduring Understandings: Atoms are the smallest unit of matter that make up everything the in universe. Elements, which are arranged on the Periodic Table, react with on another through different type of bonds by sharing/losing electrons to create compounds. 	Reading Outcomes	Standards-Based Essential Skills to be Targeted CCSS.ELA-Literacy.RST.6-8.1 CCSS.ELA-Literacy.RST.6-8.2 CCSS.ELA-Literacy.RST.6-8.4 CCSS.ELA-Literacy.RST.6-8.7 CCSS.ELA-Literacy.RST.6-8.10	Strategies or Best Practices Used to Explicitly Teach Skills and Concepts After the lessons, students will be able to: Describe how the atomic theory developed and the modern model of the atom Explain how Mendeleev discovered the pattern that led to the Periodic Table Identify data about the elements found in the Periodic Table Summarize the properties of metals, nonmetals, and metalloids Describe how metals, nonmetals, and metalloids are classified into families on the Periodic Table Explain what determines an element's chemistry Explain how ions form Explain how the formulas and names of ionic compounds are written Identify properties of ionic compounds Describe how atoms are held together in a covalent bond Explain how mass is conserved during a chemical reaction Explain how activation energy is related to chemical reactions and factors that affect the rate of chemical reactions	Literature	 Instructional Resources Thorton, K., Buckley, D., et al. (2013). Interactive science: Physical science (pp. 71-187). Upper Saddle River, NJ: Pearson. Thorton, K., Buckley, D., et al. (2013). Interactive science: Physical science (Teacher ed., pp. 71-187G). Upper Saddle River, NJ: Pearson. An Atom Apart story by Leslie Cargile and modified by Rebecca Hartnett Metal Basics reading packet
Assessments: Formative – During Unit: Intro to Atoms WKST; Organizing the Elements WKST; Metals WKST; Nonmetals and Metalloids WKST; Periodic Table Quiz; Atoms, Bonding, and the Periodic Table WKST; Ionic Bonds WKST; Covalent and Metallic Bonds WKST; Observing Chemical Reactions WKST; Chemistry Unit Review Sheet Summative – End of Unit: Atom Model Project Unit 3 Test	Writing Outcomes	 CCSS.ELA-Literacy.WHST.6-8.1 CCSS.ELA-Literacy.WHST.6-8.2 CCSS.ELA-Literacy.WHST.6-8.4 CCSS.ELA-Literacy.WHST.6-8.5 CCSS.ELA-Literacy.WHST.6-8.6 CCSS.ELA-Literacy.WHST.6-8.7 CCSS.ELA-Literacy.WHST.6-8.8 	Literature Based Writing: Informational Writing:	<u>Informational</u> <u>Poetry</u>	
Notes: Students will be given Guided Notes on the following subtopics: Intro to Atoms Organizing the Elements Metals	Language/Lis			Focus	Tier 2 – Academic Vocabulary: Describe, explain, identify, classify, summarize

Nonmetals & Metalloids	<u>Tier 3 – Content Vocabulary:</u>
Atoms & Bonding	Atom, electron, nucleus, proton, energy level,
Ionic Bonds	neutron, atomic number, isotope, mass number,
Covalent and Metallic Bonds	atomic mass, periodic table, chemical symbol,
Observing Chemical Changes	period, group, metal, luster, malleable, ductile,
Controlling Chemical Changes	thermal conductivity, electrical conductivity,
	reactivity, corrosion, alkali metal, alkaline earth
Review:	metal, transition metal, nonmetal, diatomic
Chemistry Unit Review Sheet	molecule, halogen, noble gas, metalloid,
	semiconductor, valence electron, electron dot
Websites:	diagram, chemical bond, ion, polyatomic ion, ionic
Brain Pop	bond, ionic compound, chemical formula, subscript,
YouTube	crystal, covalent bond, molecule, metallic bond,
	alloy, reactant, product, precipitate, chemical
	equation, coefficient, activation energy,
	concentration, catalyst, enzyme, inhibitor

Theme/Unit: Unit 4 – Motion and Forces (6 weeks) Enduring Understandings:		Standards-Based Essential Skills to be Targeted Throughout the Unit	Strategies or Best Practices Used to Explicitly Teach Skills and Concepts		Instructional Resources
 An object's motion depends on speed, velocity, momentum, and acceleration, and must obey Newton's three laws. Forces like, gravity and friction will also impact an object's motion. Simple machines can be used to make the work of an object's motion easier. 	Reading Outcomes	 CCSS.ELA-Literacy.RST.6-8.1 CCSS.ELA-Literacy.RST.6-8.3 CCSS.ELA-Literacy.RST.6-8.4 CCSS.ELA-Literacy.RST.6-8.7 CCSS.ELA-Literacy.RST.6-8.10 	After the lessons, students will be able to: Determine when an object is in motion Calculate an object's speed Describe what velocity is Describe the motion of an object as it accelerates Demonstrate how to graph motion and acceleration Describe what a force is Describe how balanced and unbalanced forces are related to an object's motion Describe friction and identify factors that determine the friction between two objects Identify the factors that affect the gravitational force between two objects State Newton's 3 Laws of Motion Explain how momentum is determined and conserved Describe the motion of an object during free fall Describe the effect of the buoyancy force Describe how comparative densities determine buoyancy Define and calculate work and power Classify, describe, and calculate the mechanical advantages of inclined planes and levers	Literature	 Thorton, K., Buckley, D., et al. (2013). Interactive science: Physical science (pp. 233-335). Upper Saddle River, NJ: Pearson. Thorton, K., Buckley, D., et al. (2013). Interactive science: Physical science (Teacher ed., pp. 233-335G). Upper Saddle River, NJ: Pearson.
Assessments: Formative – During Unit: Describing Motion WKST, Speed and Velocity WKST, Speed and Velocity Lab, Acceleration WKST, Motion Quiz, Nature of Forces WKST, Friction and Gravity WKST, Newton's Laws of Motion WKST, Newton's Law Brain Pop Quiz, Newton's Law Practice, Momentum WKST, Momentum HW, Newton's Laws Lab, Free Fall and Buoyancy WKST, Motion and Forces Review Sheet, Work and Power WKST, Inclined Planes and Levers WKST, Simple Machines Packet, Work and Machines Packet, Simple Machines Lab Quiz, Simple Machines Lab, Work and Machines Review Sheet Summative – End of Unit: • Unit 4 Test	Writing Outcomes	 CCSS.ELA-Literacy.WHST.6-8.1 CCSS.ELA-Literacy.WHST.6-8.2 CCSS.ELA-Literacy.WHST.6-8.4 	Literature Based Writing: Informational Writing:	<u>Informational</u>	
Notes: Students will be given Guided Notes on the following subtopics: Describing Motion Speed and Velocity Acceleration	Language/Lis			Focus Vocabulary	Tier 2 – Academic Vocabulary: Describe, explain, identify, calculate, comparative, classify

Nature of Forces	<u>Tier 3 – Content Vocabulary:</u>
Friction and Gravity	Motion, reference point, International System of
Newton's Laws	Units, distance, speed, average speed,
Momentum	instantaneous speed, velocity, slope, acceleration,
Free Fall and Buoyancy	force, newton, net force, friction, sliding friction,
Work and Power	fluid friction, rolling friction, gravity, mass, weight,
Inclined Planes and Levers	inertia, momentum, law of conservation of
	momentum, free fall, centripetal force, buoyant
Review:	force, work, joule, power, watt, machine, input
Newton's Laws Review	force, output force, mechanical advantage,
Motion and Forces Review Sheet	efficiency, simple machine, inclined plane, wedge,
Work and Machines Review Sheet	screw, lever, fulcrum, pulley, wheel and axle,
	compound machine
Websites:	
Brain Pop	

Theme/Unit: Unit 5 – Energy (4 weeks)		Standards-Based Essential Skills to be	Strategies or Best Practices Used to Explicitly	Instructional Resources
 Enduring Understandings: Energy comes in many different forms and can never be created or destroyed because it continually changes from one form of energy to another. 	Outcomes	 Targeted Throughout the Unit CCSS.ELA-Literacy.RST.6-8.1 CCSS.ELA-Literacy.RST.6-8.3 CCSS.ELA-Literacy.RST.6-8.4 CCSS.ELA-Literacy.RST.6-8.7 CCSS.ELA-Literacy.RST.6-8.10 	Teach Skills and Concepts After the lessons, students will be able to: Explain how energy, work, and power are related Name and describe the two basic types of energy Explain how to determine and object's mechanical energy List all six forms of energy and explain how they are all related State the law of conservation of energy Explain temperature and how it is measured Explain how heat is related to temperature and thermal energy Describe the three forms of heat transfer	 Instructional Resources Thorton, K., Buckley, D., et al. (2013). Interactive science: Physical science (pp. 345-471). Upper Saddle River, NJ: Pearson. Thorton, K., Buckley, D., et al. (2013). Interactive science: Physical science (Teacher ed., pp. 345-471G). Upper Saddle River, NJ: Pearson.
	Reading C		 Use specific heat, conductors and insulators, and thermal expansion to describe how materials respond to heat Explain what causes mechanical waves List and describe three types of mechanical waves Describe the four basic properties of waves Explain how a wave's speed is related to its wavelength and frequency Describe how reflection, refraction, and diffraction change a wave's direction Define sound and the factors that affect the speed of sound State what the pitch of a sound depends on Identify factors that affect the loudness of a sound Explain what causes the Doppler effect Describe the waves that make up the electromagnetic spectrum 	<u>Literature</u>
Assessments: Formative – During Unit: What is Energy? WKST; Forms of Energy WKST; Energy Transformation WKST; Shaking Water Lab; Energy Quiz Review Sheet; Energy Quiz; Temperature, Thermal Energy, and Heat WKST; Thermal Properties WKST; Thermal Energy Practice Packet; Heat Energy and Particle Movement Practice; What are Waves? WKST; Properties of Waves; Nature of Sound; Properties of Sound; Waves of the Electromagnetic Spectrum WKST; Energy and Waves Review Sheet Summative – End of Unit: • Unit 5 Test	Writing Outcomes	 CCSS.ELA-Literacy.WHST.6-8.1 CCSS.ELA-Literacy.WHST.6-8.2 CCSS.ELA-Literacy.WHST.6-8.4 	Literature Based Writing: Informational Writing:	<u>Informational</u> <u>Poetry</u>
Notes: Students will be given Guided Notes on the following subtopics: What is Energy? Forms of Energy Energy Transformations	Language/Lis tening and			Tier 2 – Academic Vocabulary: Describe, explain, identify

Temperature, Thermal Energy, and Heat	Tier 3 – Content Vocabulary:
Thermal Properties	Energy, kinetic energy, potential energy,
What are Waves?	gravitational potential energy, elastic potential
Properties of Waves	energy, mechanical energy, nuclear energy, thermal
Nature of Sound	energy, electrical energy, electromagnetic energy,
Properties of Sound	chemical energy, energy transformation, law of
Waves of the Electromagnetic Spectrum	conservation of energy, temperature, Fahrenheit
waves of the Electromagnetic Spectrum	scale, Celsius scale, Kelvin scale, absolute zero,
Review:	heat, convection, convection current, radiation,
Energy Review Sheet	conduction, conductor, insulator, specific heat,
Energy and Waves Review Sheet	thermal expansion, wave, medium, mechanical
Lifetgy and waves neview sheet	wave, vibration, transverse wave, crest, trough,
Websites:	longitudinal wave, compression, rarefaction,
Brain Pop	amplitude, wavelength, frequency, hertz,
• Выштор	reflection, refraction, diffraction, pitch, loudness,
	intensity, decibel, Doppler effect, electromagnetic
	spectrum, radio waves, microwaves, radar, infrared
	rays, thermogram, visible light, ultraviolet rays, X-
	rays, gamma rays

Theme/Unit: Unit 6 – Earth Science Review (4-6 weeks)		0. 1.15 15		
		Standards-Based Essential Skills to be Targeted Throughout the Unit	Strategies or Best Practices Used to Explicitly Teach Skills and Concents	Instructional Resources
 Enduring Understandings: The Earth is only one tiny planet in a vast and infinite universe composed of galaxies of stars. Earth's daily rotation and revolution around the Sun determines our weather/climate patterns and explains the variety of life that exists on Earth. The Earth is a rocky planet composed of minerals, rocks, and large tectonic plates that are continually moving and minutely changing the appearance of the planet. 	Reading Outcomes	Targeted Throughout the Unit CCSS.ELA-Literacy.RST.6-8.1 CCSS.ELA-Literacy.RST.6-8.3 CCSS.ELA-Literacy.RST.6-8.4 CCSS.ELA-Literacy.RST.6-8.7 CCSS.ELA-Literacy.RST.6-8.10	After the lessons, students will be able to: Describe a celestial object and apparent celestial motion Compare the geocentric model and the heliocentric model Describe stars and galaxies Analyze the Sun's size compared to other stars List the eight planets of our solar system in order, starting with the planet closest to the sun Explain the difference between asteroids, meteors, and comets Use Earth's coordinate system to determine a location Explain how the Earth's rotation determines night and day Explain how the Earth's revolution and tilt determines seasons Arrange the phases of the moon in proper order Explain how the moon and the create tides Compare a solar eclipse to a lunar eclipse List the three layers of the Earth Identify minerals by performing a series of identification tests Compare igneous, sedimentary, and metamorphic rocks Use the rock cycle to show how igneous, sedimentary, and metamorphic can transform into each other Explain the difference between weathering and erosion Describe the layers of the Earth's interior Describe the layers of the Earth's interior Describe the theory of plate tectonics and the three types of boundaries Explain how an earthquake occurs Explain how the weather is determined by temperature, humidity, air pressure, and wind speed and direction Explain how fronts can create storms like thunderstorms, tornadoes, and hurricanes	Denecke, Jr., E. (2006). New York State Grade 8 Intermediate Level Science Test (2 nd ed., pp. 146-230). Hauppage, NY: Barron's Educational Series. Page 146-230. Hauppage of the science Test (2 nd ed., pp. 146-230). Hauppag
Assessments: Formative – During Unit: Celestial Objects WSKT, Rotation vs. Revolution WKST, Phases of the Moon WKST, Astronomy Quiz Review Sheet, Astronomy Quiz, Elements and Rock Cycle WKST, Rock Cycle Practice, Erosion Paragraph Response, Mineral Identification Lab, Identifying Rocks Lab, Rock Quiz, Layers of the Earth and Tectonic Plates WKST, Earthquake Lab, Graham Cracker Tectonic Plate Lab, Weather Packet #1, Weather Packet #2, Earth Science Review Sheet	Writing Outcomes	 CCSS.ELA-Literacy.WHST.6-8.1 CCSS.ELA-Literacy.WHST.6-8.2 CCSS.ELA-Literacy.WHST.6-8.4 	Literature Based Writing: Informational Writing:	<u>Poetry</u>
Summative – End of Unit: • Unit 6 Test				Inform

Notes: Students will be given Guided Notes on the following subtopics: Celestial Objects Rotation vs. Revolution Phases of the Moon Minerals and Rocks Earth's Interior Weather Review: Astronomy Quiz Review Sheet Rock Cycle Practice Earth Science Review Sheet Websites: Brain Pop	Language/Listening and Speaking		Focus Vocabulary	Tier 2 – Academic Vocabulary: Describe, explain, identify, analyze, compare, arrange Tier 3 – Content Vocabulary: Celestial objects, apparent daily motion, heliocentric model, stars, galaxies, sun, planet, terrestrial planets, Jovian planets, asteroid, meteoroid, meteor, meteorite, comet, coordinate system, latitude, longitude, rotation, revolution, solar eclipse, lunar eclipse, tide, neap tide, lithosphere, hydrosphere, atmosphere, mineral, color, luster, streak, hardness, cleavage, heft, rock, fossils, igneous, sedimentary, metamorphic, magma, lava, volcano, weathering, erosion, crust
	Language/List		Focus	color, luster, streak, hardness, cleavage, heft, rock,