

UNIT/ORGANIZING PRINCIPLE:BODY OF KNOWLEDGE: THE NATURE OF SCIENCE/ LIFESCIENCE				Pacing: First Nine Weeks	
Essential Question(s)	Big Idea 1: The Practice of Science A. Scientific inquiry is a multifaceted activity. B. The processes of science frequently do not correspond to the traditional portrayal of “the scientific method.” C. Scientific argumentation is a necessary part of scientific inquiry. D. Scientific knowledge is based on observation and interference.		Big Idea 2: The Characteristics of Science Knowledge A. Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion. B. Scientific knowledge is durable and robust, but open to change. C. Because science is based on empirical evidence it strives for objectivity ...		
Concepts/ Content	Learning Targets/Skills Students will:	Benchmarks Complexity	Key Vocabulary	Houghton Mifflin Textbook	
Week 1 Introduction (Embedded for the duration of the school year.) The Scientific Process	<ul style="list-style-type: none"> Define a problem, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types such as: Systematic observations, experiments requiring the identification of variables, collecting and organizing data, interpreting data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions. 	SC.5.N.1.1 <i>High</i>	bias conclusions control group data experiment experimental design flaws hypothesis investigation multiple trials problem results inquiry observe solution inventor partner question	Pages S2-16 See Additional Resources Pages	
Data Collection and Analysis	<ul style="list-style-type: none"> Explain the difference between an experiment and other types of scientific investigation. Recognize and explain the need for repeated experimental trials. Identify a control group and explain its importance in an experiment. 	SC.5.N.1.2 <i>Moderate</i>			
The Nature of Science	<ul style="list-style-type: none"> Recognize and explain the need for repeated experimental trials. Identify a control group and explain its importance in an experiment. Recognize and explain that authentic scientific investigation frequently does not parallel the steps of "the scientific method." 	SC.5.N.1.3 <i>Moderate</i>			
		SC.5.N.1.4 <i>Moderate</i>			
		SC.5.N.1.5 <i>Moderate</i>			

	<ul style="list-style-type: none"> Recognize and explain the difference between personal opinion/interpretation and verified observation. 	SC.5.N.1.6 <i>Moderate</i>		Pages S2-16
Scientific Investigations	<ul style="list-style-type: none"> Recognize and explain that science is grounded in empirical observations that are testable; explanation must always be linked with evidence. 	SC.5.N.2.1		Pages S2-16
	<ul style="list-style-type: none"> Recognize and explain that when scientific investigations are carried out, the evidence produced by those investigations should be replicable by others. 	SC.5.N.2.2		See Additional Resources Pages

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Essential Question(s)	<p>Big Idea 8: Properties of Matter</p> <p>A. All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass.</p> <p>B. Objects and substances can be classified by their physical and chemical properties. Mass is the amount of matter (or “stuff”) in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth.</p>			
Concepts/ Content	Learning Targets/Skills Students will:	Benchmarks Complexity	Key Vocabulary	Houghton Mifflin Textbook
<p>Weeks 2-5</p> <p>Properties of Matter</p>	<ul style="list-style-type: none"> Compare and contrast the basic properties of solids, liquids, and gases, such as mass, volume, color, texture, and temperature. Investigate and identify materials that will dissolve in water and those that will not and identify the conditions that will speed up or slow down the dissolving process. Demonstrate and explain that mixtures of solids can be separated based on observable properties of their parts such as particle size, shape, color, and magnetic attraction. Explore the scientific theory of atoms (also called atomic theory) by recognizing that all matter is composed of parts that are too small to be seen without magnification. 	<p>SC.5.P.8.1 <i>Moderate</i></p> <p>SC.5.P.8.2 <i>High</i></p> <p>SC.5.P.8.3 <i>Moderate</i></p> <p>SC.5.P.8.4 <i>Low</i></p>	<p>Atom Electron Element Molecule Neutron Nucleus Proton Metal Chemical symbol Noble gas Nonmetal Semimetal Compound Periodic table Chemical formula Chemical reaction</p> <p>Boiling point Density Chemical property Conductivity Solubility Melting point Physical property Chemical change Chemical reaction Physical change Mixture Solute Solution Solvent</p>	<p>Unit E Chapter 12 Lessons 1, 2, 3 pg. E4-E33 and</p> <p>Chapter 13 Lessons 1, 2, 3 pg. E40-59</p> <p>See Additional Resources Pages</p>

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Essential Question(s)	<p>Big Idea 9: Changes in Matter A. Matter can undergo a variety of changes. B. Matter can be changed physically or chemically.</p>		<p>Big Idea 10: Forms of Energy A. Energy is involved in all physical processes and is a unifying concept in many areas of science. B. Energy exists in many forms and has the ability to do work or cause a change.</p>	
Concepts/ Content	Learning Targets/Skills Students will:	Benchmarks Complexity	Key Vocabulary	Houghton Mifflin Textbook
Week 6 Changes in Matter	<ul style="list-style-type: none"> Investigate and describe that many physical and chemical changes are affected by temperature. 	<p>SC.5.P.9.1 <i>High</i></p>	Gas Liquid Solid Melting State of matter Condensation Deposition Sublimation Evaporation Thermal expansion Vaporization	Chapter 14 Lessons 1, 2 E70 – 88 See Additional Resources Pages
Weeks 7 - 10 Forms of Energy Properties of Energy Energy Transformation	<ul style="list-style-type: none"> Investigate and describe some basic forms of energy, including light, heat, sound, electrical, chemical, and mechanical. Investigate and explain that energy has the ability to cause motion or create change. Investigate and explain that an electrically-charged object can attract an uncharged object and can either attract or repel another charged object without any contact between the objects. Investigate and explain that electrical energy can be transformed into heat, 	<p>SC.5.P.10.1 <i>Moderate</i></p> <p>SC.5.P.10.2 <i>High</i></p> <p>SC.5.P.10.3 <i>High</i></p> <p>SC.5.P.10.4</p>	Energy Pitch Kinetic energy Potential energy Mechanical wave Vibration Volume Lens Reflection Refraction Visible light Heat Temperature Thermal energy Conduction Conductor Convection Insulator Radiation	Chapter 16 Lessons 1, 2, 3 F40 – 69 Chapter 17 Lessons 1, 2 F74 – 95 See Additional Resources Pages

	light, and sound energy, as well as the energy of motion.	<i>High</i>		
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Essential Question(s)	<p>Big Idea 11: Energy Transfer and Transformation</p> <p>A. Waves involve a transfer of energy without a transfer of matter. B. Water and sound waves transfer energy through a material. C. Light waves can travel through a vacuum and matter.</p>		<p>Big Idea 13: Forces and Changes in Motion</p> <p>A. It takes energy to change the motion of objects. B. Energy change is understood in terms of forces- pushes or pulls. C. Some forces act through physical contact, while others act at a distance.</p>	
Concepts/ Content	Learning Targets/Skills Students will:	Benchmarks Complexity	Key Vocabulary	Houghton Mifflin Textbook
Weeks 11 - 13 Energy Transfer	<ul style="list-style-type: none"> Investigate and illustrate the fact that the flow of electricity requires a closed circuit (a complete loop). Identify and classify materials that conduct electricity and materials that do not. 	<p>SC.5.P.11.1 <i>Moderate</i></p> <p>SC.5.P.11.2 <i>Moderate</i></p>	<p>Electric current Electric generator Static electricity Conductor Electric circuit Insulator Parallel circuit Series circuit Switch Voltage Electric motor</p>	<p>Chapter 18 Lessons 1, 2, 3 F100 – 128</p> <p>See Additional Resources Pages</p>
Week 14 Forces	<ul style="list-style-type: none"> Identify familiar forces that cause objects to move, such as pushes or pulls, including gravity acting on falling objects. 	<p>SC.5.P.13.1 <i>Low</i></p>	<p>Acceleration force Friction gravity Inertia motion Newton speed Velocity work Simple machines Electromagnet</p>	<p>Chapter 15 Lessons 1, 2, 3 F2 – 35</p> <p>See Additional Resources Pages</p>

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Essential Question(s)	<p>Big Idea 13: Forces and Changes in Motion</p> <p>A. It takes energy to change the motion of objects. B. Energy change is understood in terms of forces- pushes or pulls. C. Some forces act through physical contact, while others act at a distance.</p>	<p>Big Idea 5: Earth in Space and Time</p> <p>A. Humans continue to explore Earth’s place in space. Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the solar system, and Earth. Humankind’s need to explore continues to lead to the development of knowledge and understanding of our solar system.</p>		
Concepts/ Content	Learning Targets/Skills Students will:	Benchmarks Complexity	Key Vocabulary	Houghton Mifflin Textbook
Weeks 15-16	<ul style="list-style-type: none"> Investigate and describe that the greater the force applied to it, the greater the change in motion of a given object. 	<p>SC.5.P.13.2 <i>Moderate</i></p>	Acceleration force Friction gravity Inertia	Chapter 15 Lessons 1, 2, 3 F2 – 35
Forces	<ul style="list-style-type: none"> Investigate and describe the more mass an object has, the less effect a given force will have on the object’s motion. Investigate and explain that when a force is applied to an object but it does not move, it is because another opposing force is being applied by something in the environment so that the forces are balanced. 	<p>SC.5.P.13.3 <i>Moderate</i></p> <p>SC.5.P.13.4 <i>High</i></p>	motion Newton speed Velocity work Simple machines Electromagnet	See Additional Resources Pages
Weeks 17-20	<ul style="list-style-type: none"> Recognize that a galaxy consists of gas, dust, and many stars, including any objects orbiting the stars. Identify our own galaxy as the Milky Way. 	<p>SC.5.E.5.1 <i>Low</i></p>	Asteroid comet Meteor meteorite Meteoroid planet Solar system Inner planets	Chapter 11 Lessons 1, 2, 3 D52 – 80
Characteristics of	<ul style="list-style-type: none"> Recognize the major common 	<p>SC.5.E.5.2 <i>Moderate</i></p>	Out planets Galaxy light-year	See Additional Resources Pages

Space	<p>characteristics of all planets and compare/contrast the properties of inner and outer planets.</p> <ul style="list-style-type: none"> Distinguish among the following objects of the Solar System – Sun, planets, moons, asteroids, comets – and identify Earth’s position in it. 	<p>SC.5.E.5.3 <i>High</i></p>	<p>Magnitude protostar star</p>	
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Essential Question(s)	<p>Big Idea 7: Earth Systems and Patterns A. Humans continue to explore the interactions among water, air, and land. Air and water are in constant motion that results in changing conditions that can be observed over time.</p>			
Concepts/ Content	Learning Targets/Skills Students will:	Benchmarks Complexity	Key Vocabulary	Houghton Mifflin Textbook
<p>Weeks 21</p> <p>Water Cycle</p>	<ul style="list-style-type: none"> Create a model to explain the parts of the water cycle. Water can be a gas, a liquid, or solid and can go back and forth from one state to another. Recognize that the ocean is an integral part of the water cycle and is connected to all the Earth’s water reservoirs via evaporation and precipitation. Distinguish among the various forms of precipitation (rain, snow, sleet, and hail), making connections to the weather in a particular place and time. 	<p>SC.5.E.7.1 <i>High</i></p> <p>SC.5.E.7.2 <i>Moderate</i></p> <p>SC.5.E.7.4 <i>High</i></p>		<p>See 4th grade textbook</p> <p>See Additional Resources Pages</p>

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Essential Question(s)	<p>Big Idea 7: Earth Systems and Patterns</p> <p>A. Humans continue to explore the interactions among water, air, and land. Air and water are in constant motion that results in changing conditions that can be observed over time.</p>			
Concepts/ Content	Learning Targets/Skills Students will:	Benchmarks Complexity	Key Vocabulary	Houghton Mifflin Textbook
Weeks 22-25	<ul style="list-style-type: none"> Recognize air temperature, barometric pressure, humidity, wind speed and direction, and precipitation determine the weather in a particular place and time. 	<p>SC.5.E.7.3 <i>Moderate</i></p>	Climate Ocean currents El Nino Air mass Atmosphere	Chapter 9 Lessons 1, 2 D2 – 23
Weather	<ul style="list-style-type: none"> Recognize that some of the weather-related differences, such as temperature and humidity, are found among different environments, such as swamps, deserts, and mountains. 	<p>SC.5.E.7.5 <i>Moderate</i></p>	Front Mesosphere Stratosphere Thermosphere Troposphere	Chapter 7 Lessons 2 C50 – 59
Climate	<ul style="list-style-type: none"> Describe characteristics (temp. and prec.) of different climate zones as they relate to latitude, elevation, and proximity to bodies of water. 	<p>SC.5.E.7.6 <i>High</i></p>	Earthquake Epicenter Fault Focus Magma Seismic waves	<p>See Additional Resources Pages</p>
Natural Disasters Preparedness	<ul style="list-style-type: none"> Design a family preparedness plan for 	<p>SC.5.E.7.7</p>		

	natural disasters and identify the reasons for having such a plan.	<i>Moderate</i>		
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Essential Question(s)	<p>Big Idea 14: Organization and Development of Living Organisms</p> <p>A. All plants and animals, including humans, are alike in some ways and different in others.</p> <p>B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.</p> <p>C. Humans can better understand the natural world through careful observation.</p>			
Concepts/ Content	Learning Targets/Skills Students will:	Benchmarks Complexity	Key Vocabulary	Houghton Mifflin Textbook
Weeks 26 - 27 Body Systems	<ul style="list-style-type: none"> Identify the organs in the human body and describe their functions, including the skin, brain, heart, lungs, stomach, liver, intestines, pancreas, muscles and skeletons, reproductive organs, kidneys, bladder, and sensory organs. Compare and contrast the function of organs and other physical structures of plants and animals, including humans, for example: some animals have skeletons for support – some with internal skeletons, others with exoskeletons – while some plants have stems for support. 	<p>SC.5.L.14.1 <i>Moderate</i></p> <p>SC.5.L.14.2 <i>Moderate</i></p>		<p>See 4th grade textbook</p> <p>See Additional Resources Pages</p>

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Essential Question(s)	<p>Big Idea 15: Diversity and Evolution of Living Organisms</p> <p>A. Earth is home to a great diversity of living things, but changes in the environment can affect their survival.</p> <p>B. Individuals of the same kind often differ in their characteristics and sometimes the differences give individuals an advantage in surviving and reproducing.</p>		<p>Big Idea 17: Interdependence</p> <p>A. Plants and animals, including humans, interact with and depend upon one another and their environment to satisfy their basic needs.</p> <p>B. Both human activities and natural events can have major impacts on the environment.</p> <p>C. Energy flows from the sun through producers to consumers.</p>		
Concepts/ Content	Learning Targets/Skills Students will:	Benchmarks Complexity	Key Vocabulary	Houghton Mifflin Textbook	
Week 28 Environment Changes	<ul style="list-style-type: none"> Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations. 	SC.5.L.15.1 <i>High</i>		See Additional Resources Pages	
Week 29-30 Adaptations	<ul style="list-style-type: none"> Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycle variations, animal behaviors and physical characteristics. 	SC.5.L.17.1 <i>Moderate</i>		See Additional Resources Pages	