Grade 5	Unit 1: Science Processes: Scientific Method		Suggested Length: 2 wks.
Essential Questions	Program of Studies and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
	Program of Studies		
<ol> <li>Describe the steps of the Scientific Method?</li> <li>Explain how the Scientific Method is used for problem solving?</li> </ol>	<ul> <li>2.1 Scientific Ways of Thinking and Working refine and refocus questions that can be answered through scientific investigation combined with scientific information</li> <li>use appropriate equipment, tools, techniques, technology, and mathematics to gather, analyze, and interpret scientific data</li> <li>use evidence, logic, and scientific knowledge to develop explanations design and conduct scientific investigations</li> <li>communicate designs, procedures, observations, and results of scientific investigations</li> <li>review and analyze scientific investigations and explanations of other students</li> <li>S1-1 Identify questions that can be answered through scientific investigations combined with scientific information.</li> <li>SI-2 Use appropriate equipment (e.g., watches), tools (e.g., rain gauges), techniques (e.g., classifying), technology (e.g., calculators), and mathematics in scientific investigations.</li> <li>SI-3 Use evidence (e.g., classifications), logic, and scientific knowledge to develop scientific explanations.</li> <li>SI-4 Design and conduct different kinds of scientific investigations to answer different kinds of questions.</li> <li>SI-5 Communicate (e.g., draw, speak) designs, procedures, and results of scientific investigations.</li> <li>SI-6 Review and analyze scientific investigations and explanations of other</li> </ul>	□ Scientific Method □ Technology □ Lab Safety □ Science Equipment □ Question □ Hypothesis □ Experimentation □ Observation □ Conclusion □ Observe □ Infer □ Classify □ Predict □ Interpret data □ Measure □ Cause and Effect □ Compare and Contrast □ Sequencing	<ul> <li>□ Use the Science skills of Sequencing, Comparing, and Contrasting to Identify plants using a graphic organizer. DOK 1</li> <li>□ Research a famous scientist and discuss their discoveries to the scientific world. DOK 2</li> <li>□ Use the Scientific Method to discover which variables affect the molding of bread. Record your data on a graph and analyze your data. DOK 2</li> <li>□ Research the different kinds of lab equipment. Explain how scientists use the equipment doing a lab. DOK 1</li> <li>□ Open Response: Scientific Method. DOK 2</li> </ul>

Grade 5	Unit 1: Science Processes: Scientific Method		Suggested Length: 2 wks.
Essential Questions	Program of Studies and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
	students.		

Grade 5	Unit 2: Earth and Space Science		Suggested Length: 6 wks.
Essential	Program of Studies and Core Content	Key Terms and	Classroom Instruction and Assessment
Questions		Vocabulary	Student will:
	<b>Program of Studies</b>		
<ol> <li>Explain how water goes through the process of the water cycle.</li> <li>Explain how water causes</li> </ol>	<ul> <li>ESS-1 Model the water cycle and how water dissolves minerals and gases and carries them to the oceans.</li> <li>ESS-2 Explore the characteristics of the atmosphere and how the water cycle affects the atmosphere, clouds, weather and climate.</li> <li>ESS-3 Investigate living organisms' effects</li> </ul>	<ul> <li>□ Humidity</li> <li>□ Evaporation,</li> <li>□ Condensation</li> <li>□ Precipitation</li> <li>□ Ground water</li> <li>□ 4 layers of the atmosphere.</li> <li>□ Water Cycle</li> </ul>	<ul> <li>Explore how the water cycle affects our atmosphere. Write an article describing the path of one drop of water as it moves though the water cycle. Explain how water is conserved DOK 2</li> <li>Weather varies depending on many factors. These factors are closely interrelated. A change in any one can bring about a change in the others. List several factors that could affect our weather. For each factor</li> </ul>
erosion of	on the earth system.	☐ Air mass and pressure	listed, describe what type of weather that might
minerals and		□ Front	occur. DOK 3
gases.	<b><u>Core Content</u></b>	☐ Hydrosphere	□ Design a model showing the effects of water erosion
3. Describe what	□ SC-05-2.3.1 Students will	Ocean water and	on minerals and gases. DOK 2  Describe what a mountain climber would need to
our atmosphere	□ SC-05-2.3.1 Students will □ describe the circulation of water	salinity  Water pressure	Describe what a mountain climber would need to climb Mt. Everest. Explain why he would need these
is composed of.	(evaporation and condensation)	☐ Tide and water level	articles. DOK 2
is composed or.	from the surface of the Earth,	change	☐ Design a model of our Solar System. DOK 2
4. Describe how the atmosphere changes with elevation.	through the crust, oceans, and atmosphere (water cycle);  explain how matter is conserved in this cycle.	□ Current	☐ Open Response: Water Cycle and Erosion. DOK 2
<ul><li>5. Describe our solar system.</li><li>6. Explain how</li></ul>	Water, which covers the majority of the Earth's surface, circulates through the crust, oceans, and atmosphere in what is known as the water cycle. This cycle		
different	maintains the world's supply of fresh		
geological /global patterns	water. DOK 2		
affect our	□ SC-05-2.3.2 Students will explain		
weather.	interactions of water with Earth		

Grade 5	Unit 2: Earth and Space Science		Suggested Length: 6 wks.
Essential	Program of Studies and Core Content	Key Terms and	Classroom Instruction and Assessment
Questions		Vocabulary	Student will:
	materials and results of those		
	interactions (e.g., dissolving minerals,		
	moving minerals and gases).		
	Water dissolves minerals and gases and		
	may carry them to the oceans. DOK 3		
	□ SC-05-2.3.3 Students will:		
	□ describe Earth's atmosphere as a		
	relatively thin blanket of air		
	consisting of a mixture of nitrogen,		
	oxygen, and trace gases, including water vapor;		
	analyze atmospheric data in order		
	to draw conclusions about real life		
	phenomena related to atmospheric		
	changes and conditions.		
	Earth is surrounded by a relatively thin		
	blanket of air called the atmosphere. The atmosphere is a mixture of nitrogen,		
	oxygen, and trace gases that include		
	water vapor. The atmosphere has		
	different properties at different		
	elevations. Conclusions based on the		
	interpretation of atmospheric data can		
	be used to explain real life phenomena		
	(e.g., pressurized cabins in airplanes,		
	mountain-climber's need for oxygen). DOK 3		
	DONS		
	□ SC-05-2.3.4 Students will:		
	□ analyze global patterns of		
	atmospheric movement;		
	<ul><li>explain the basic relationships of</li></ul>		
	patterns of atmospheric movement		
	to local weather.		
	Global patterns of atmospheric		

Grade 5	Unit 2: Earth and Space Science		Suggested Length: 6 wks.
Essential	Program of Studies and Core Content	Key Terms and	Classroom Instruction and Assessment
Questions		Vocabulary	Student will:
	movement can be observed and/or analyzed by interpreting patterns within data. Atmospheric movements influence local weather. Oceans have a major effect on climate, because water in the oceans holds a large amount of heat. Related data can be used to predict change in weather and climate. DOK 3		
	□ SC-05-2.3.5 Students will compare components of our solar system, including using models/representations that illustrate the system and resulting interactions.		
	Earth is the third planet from the Sun in a system that includes the moon, the Sun, eight other planets and their moons, and smaller objects. The Sun, an average star, is the central and largest body in the solar system.  Models/diagrams provide understanding of scale within the solar system. DOK 2		

Grade 5		Unit 3: Life Science - Cells			Sug	ggested Length: 6 wks.
Essential Que	estions	Program of Studies and Core Content	Key Terms and Vocabulary		Stu	Classroom Instruction and Assessment udent will:
		Program of Studies				
Explain h     function of     different of     organelles     keeps an     organism	of cell es	<ul> <li>5-LS-1 Recognize the relationship between structure and function at all level of organization (e.g., organ systems, whole organisms, and ecosystems).</li> <li>5-LS-2 Model cells and recognizes that cells carry out functions needed to sustain life. All organisms are composed of cells, the</li> </ul>	<ul> <li>□ Foc</li> <li>□ Nuc</li> <li>□ Tis</li> </ul>	l Division od Chain od Web cleus		Explain the cellular organization in all living organisms. DOK 1 Describe the 3 major differences between plant and animal cells. (Shape, Chloroplast, Cell Wall) DOK 1 Choose four organelles found in the plant/animal cell and explain how these
2. Describe dead cells		fundamental unit of life. Most organisms are single cells; other organisms, including plants	_	gan Systems l Wall		organelles sustain life for the organism. DOK 1

Grade 5	Unit 3: Life Science - Cells		Suggested Length: 6 wks.
Essential Questions	Program of Studies and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
replaced.  3. Compare different organisms to their adaptations.	and animals are multicellular.  AC-2 Demonstrate the role science plays in everyday life and explores different careers in science  Core Content  SC-05-3.4.1 Students will describe and compare living systems to understand the complementary nature of structure and function.  Observations and comparisons of living systems at all levels of organization illustrate the complementary nature of structure and function. Important levels of organization for structure and function include cells, tissues, organs, organ systems, organisms (e.g., bacteria, protists, fungi, plants, animals), and ecosystems. Examining the relationship between structure and function provide the basis for comparisons and classification schemes. DOK 2  SC-05-3.4.2 Students will explain the essential functions of cells necessary to sustain life.  Cells carry on the many functions needed to sustain life. Models of cells, both physical and analogical, promote understanding of their structures and functions. Cells grow and divide, thereby producing more cells.		
	This requires that they take in nutrients, which provide energy for the work that cells do and make the materials that a cell needs.		
	DOK 2  SC-05-3.4.3 Students should understand that		

Grade 5	Unit 3: Life Science - Cells		Suggested Length: 6 wks.
Essential Questions	Program of Studies and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
	all organisms are composed of cells, the fundamental unit of life. Most organisms are single cells; other organisms, including plants and animals are multicellular.		
	□ SC-05-3.5.1 Students will describe cause and effect relationships between enhanced survival/reproductive success and particular biological adaptations (e.g., changes in structures, behaviors, and/or physiology) to generalize about the diversity of species.		
	Biological change over time accounts for the diversity of species developed through gradual processes over many generations. Examining cause and effect relationships between enhanced survival/reproductive success and biological adaptations (e.g., changes in structures, behaviors, and/or physiology), based on evidence gathered, creates the basis for explaining diversity. DOK 2		
	SC-05-3.5.2 Students should understand that all organisms must be able to obtain and use resources, grow, reproduce, and maintain stable internal conditions while living in a constantly changing external environment.		
	□ SC-05-4.7.1 Students will: □ describe and categorize populations of organisms according to the function they serve in an ecosystem (e.g., producers, consumers, decomposers); □ draw conclusions about the effects of changes to populations in an ecosystem.		
	Populations of organisms can be categorized by the function they serve in an ecosystem.		

Grade 5	Unit 3: Life Science - Cells		Suggested Length: 6 wks.
Essential Questions	Program of Studies and Core Content	Key Terms and Vocabulary	Classroom Instruction and Assessment Student will:
	Plants and some microorganisms are producers because they make their own food. All animals, including humans, are consumers, and obtain their food by eating other organisms. Decomposers, primarily bacteria and fungi, are consumers that use waste materials and dead organisms for food. Food webs identify the relationships among producers, consumers, and decomposers in an ecosystem. Using data gained from observing interacting components within an ecosystem, the effects of changes can be predicted. DOK 3		
	□ SC-05-4.7.2 Students should understand that a population consists of all individuals of a species that occur together at a given place and time. All populations living together and the physical factors with which they interact compose an ecosystem.		

Grade 5	Unit 4: Physical Science: Properties of Matter		Suggested Length: 6 wks.
Essential Questions	Program of Studies and Core Content	Key Terms and Vocabulary	Classroom Instruction and Assessment
			Student will:
	Program of Studies		
1. Describe the	□ 7-PS-1 Investigate characteristic properties	□ Matter	☐ Research 4 different substances for their
building blocks	of substances.	□ Mass	boiling point, melting point, freezing point,
of matter.	□ 7-PS-2 Examine chemical reactions between	□ Volume	solubility, and density. Explain how these
	substances recognize that the total mass	□ Weight	characteristics differentiate one substance from
2. Explain how	remains the same and that substances are	□ Density	another. DOK 2
compounds are	categorized by how they react.	☐ Insulate	☐ Design an experiment, using different
made.	□ 7-PS-3 Recognize that elements do not break	□ Element	strategies, to show how a mixture of
	down during normal laboratory reactions and	□ Compound	substances can be separated into its original
3. Compare	how elements combine to produce compounds	☐ Conservation of Mass	components. DOK 2
physical and		□ Proton	☐ Construct a model to show how substances can
chemical	Core Content	□ Neutron	be a solid, liquid, or gas by explaining the

Grade 5	Unit 4: Physical Science: Properties of Matter		Suggested Length: 6 wks.
Essential Questions	Program of Studies and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
changes.		□ Electron	location of the atoms. DOK 2
	□ SC-05-1.1.1 Students will describe the	□ Nucleus	☐ Compare different elements according to their
	physical properties of substances (e.g.,	□ Molecule	properties.
	boiling point, solubility, density).	□ Solid	☐ Design a model of an atom, showing its
		□ Liquid	electron configuration and its nucleus. DOK 2
	A substance has characteristic physical	□ Gas	☐ Model and describe the chemical and physical
	properties (e.g., boiling point, solubility)	<ul><li>Melting point</li></ul>	characteristics of matter. DOK 2
	that are independent of the amount of the	☐ Mixture	☐ Design a rocket using alka-seltzer tablets, film
	sample. DOK 2	☐ Boiling point	canister and water to illustrate a chemical
		☐ Freezing point	change. Explain what new substance was made
		□ Compound	and why this substance propelled the film
		☐ Periodic Table	canister. DOK 2
		□ Scientific formula	☐ Open Response: Characteristics of a
		□ Properties	Substance. DOK 2
		☐ Physical change	
		☐ Chemical change	
		☐ Chemical reaction	
		<ul><li>Condensation</li></ul>	
		□ Solute	
		□ Solvent	
		□ Solubility	

Grade 5	Unit 5: Physical Science: Motion and Forces		Suggested Length: 6 wks.
Essential Questions	Program of Studies and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
	Program of Studies		
1. Describe how visible and invisible forces can change an objects motion, direction, speed, and position.	<ul> <li>6-PS-1 Describe, measure and represent an object's motion.</li> <li>6-PS-2 Investigate balanced or unbalanced forces and the effects on an object's motion.</li> </ul> Core Content	□ Force □ Inertia □ Friction □ Speed □ Velocity □ Acceleration □ Balanced forces	<ul> <li>□ Analyze Newton's first law of motion (objects at rest remain at rest, etc.) through the use of marbles in a classic game of marbles. DOK 2</li> <li>□ Using track and different size matchbox cars, determine if inertia and or elevation has anything to do with acceleration of the car. Record data on a graph and analyze data. DOK</li> </ul>
	□ SC-05-1.2.1 Students will interpret data in	<ul> <li>Unbalanced force</li> </ul>	2
2. Explain how	order to make qualitative (e.g., fast, slow,	□ Action	☐ Demonstrate balanced and unbalanced forces
scientist record	forward, backward) and quantitative	□ Reaction	using balloon rockets. Record and analyze

Grade 5	Unit 5: Physical Science: Motion and Forces		Suggested Length: 6 wks.
Essential Questions	Program of Studies and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
and analyze	descriptions and predictions about the	□ Gravity	data. DOK 2
their data for qualitative and quantitative measurements.	straight-line motion of an object.  The motion of an object can be described by its relative position, direction of motion, and speed. That motion can be measured and represented on a graph. DOK 3	<ul> <li>□ Magnetism</li> <li>□ Weight</li> <li>□ Newton Laws</li> <li>□ Motion</li> <li>□ Simple Machines</li> </ul>	<ul> <li>Construct an experiment using different size magnets to see their effects on metal model cars. Record data on a graph and analyze data. DOK 2</li> <li>Open Response: Newton's Laws. DOK 2</li> </ul>
	SC-05-1.2.2 Students should understand that forces are pushes and pulls, and that these pushes and pulls may be invisible (e.g., gravity, magnetism) or visible (e.g., friction, collisions).		

Grade 5	Unit 6: Physical Science: Transfer of Energy		Suggested Length: 6 wks.
Essential	Program of Studies and Core Content	Key Terms and Vocabulary	Classroom Instruction and Assessment
Questions			Student will:
	Program of Studies		
Explain how energy moves	□ 5-PS-1 Demonstrate that energy is a property of substances.	☐ Kinetic energy ☐ Potential energy	☐ Create a presentation showing 2 ways in which energy travels. DOK 3
from one place to another.	□ 5-PS-2 Observe forms of energy transfer. (e.g., vibration)	☐ Electric energy ☐ Thermal energy	☐ Construct electrical circuits showing energy transfer. Use poster board to illustrate and
2. Describe the different forms	<ul> <li>5-PS-3 Observe the ways heat can move.</li> <li>5-PS-4 Recognize that the Sun's energy arrives as light with a range of wavelengths</li> </ul>	☐ Conduction ☐ Convection ☐ Convection Currents	explain this transfer of energy. Be sure to include evidence of heat, light, sound and magnetic effects that are produced. DOK 2
of wave energy.	and explore how light interacts with matter  5-PS-5 Observe how electrical circuits	Radiation Vibration	☐ Draw a roller coaster showing the kinetic and potential energy. Include forces such as gravity
	transfer electrical energy	□ Sound wave □ Compression	and friction.  DOK 2
	Core Content	□ Pitch □ Frequency	☐ Research different forms of energy: Light, Heat, Sound, Electrical, Chemical, Kinetic and
	□ SC-05-4.6.1 Students will:	□ Volume	Potential Energy. Report how these energy's
	<ul> <li>classify energy phenomena as kinetic</li> </ul>	□ Decibel	are used everyday. DOK 3
	or potential;	□ Reflection	☐ Research how light interacts with matter
	<ul><li>describe the transfer of energy</li></ul>	□ Absorption	through refraction, absorption and reflection.
	occurring in simple systems or related	□ Echo	Compare each interaction and give an example

Grade 5	Uı	nit 6: Physical Science: Transfer of Energy			Su	ggested Length: 6 wks.
Essential Questions		Program of Studies and Core Content	Ke	ey Terms and Vocabulary	St	Classroom Instruction and Assessment udent will:
_		data.		Echolocation		of each. DOK 2
				Doppler effect		Describe how heat energy moves from warmer
		Energy can be classified as kinetic or		Fundamental frequency		objects to cooler objects by producing a
		potential. Energy is a property of many		Overtone		poster/model. Explain how this phenomenon
		substances and energy can be found in		Resonance		causes movement. DOK 2
		several different forms. For example,		Light energy		Open Response: Energy Forms. DOK 2
		chemical energy as found in food we eat or		Law of reflection		
		in the gasoline we burn in our car. Heat,		Concave mirror		
		light (solar), sound, electrical energy and		Convex mirror		
		the energy associated with motion (called		Transparent		
		kinetic energy) are examples of other forms		Translucent		
		of energy. Objects can also have energy		Polarization		
		simply by virtue of their position, called		Refraction		
		potential energy. Energy is transferred in		Concave lens		
		many ways. Analyzing simple systems can		Convex lens		
		provide the basis for describing the		Prism		
		transfer of energy occurring within the		Electromagnetic		
		system. DOK 2		Laser		
				Sound Energy		
		SC-05-4.6.2 Students should understand that		Light Energy		
		the Sun is a major source of energy for				
		changes on Earth's surface. The Sun loses				
		energy by emitting light. A tiny fraction of				
		that light reaches Earth, transferring energy				
		from the Sun to Earth.				
		SC-05-4.6.3 Students will:				
		□ draw conclusions about the transfer of				
		energy within models/representations				
		of electrical circuits as evidenced by				
		the heat, light, sound, and magnetic				
		effects that are produced;				
		describe changes within the system				
		that would affect the transfer of				
		energy.				
		Floatrical circuits provide a means of				
		Electrical circuits provide a means of				
		transferring electrical energy. This transfer				
L		can be observed and described as heat,				

Grade 5	Unit 6: Physical Science: Transfer of Energy		Suggested Length: 6 wks.
Essential Questions	Program of Studies and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
	light, sound, and magnetic effects are produced. Models and diagrams can be used to support conclusions and predict consequences of change within an electrical circuit. DOK 3		
	□ SC-05-4.6.4 Students will identify predictable patterns and make generalizations about light and matter interactions using data/evidence.		
	Light energy interacts with matter by transmission (including refraction), absorption, or scattering (including reflection). DOK 3		
	□ SC-05-4.6.5 Students should understand that heat energy moves in predictable ways, flowing from warmer objects to cooler ones, until both objects reach the same temperature. By examining cause and effect relationships, consequences of heat movement and conduction can be predicted and inferred.		