



Course: Science Grade:5 Designer(s):Jeannette Hartley	Overview of Course (Briefly describe what students should understand and be able to do as a result of engaging in this course): Students will gain an understanding of the basic knowledge of Life, Earth, Physical, and Space & Technology Science
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Overarching Big Ideas, Enduring Understandings, and Essential Questions
 (These “spiral” throughout the entire curriculum.)

Big Idea (A Big Idea is typically a noun and always transferable within and among content areas.)	Standard(s) Addressed (What Common Core Standard(s) and/or PA Standard(s) address this Big Idea?)	Enduring Understanding(s) (SAS refers to Enduring Understandings as “Big Ideas.” EUs are the understandings we want students to carry with them after they graduate. EUs will link Big Ideas together. Consider having only one or two EUs per Big Idea.)	Essential Question(s) (Essential Questions are broad and open ended. Sometimes, EQs can be debated. A student’s answer to an EQ will help teachers determine if he/she truly understands. Consider having only one or two EQs per Enduring Understanding.)
(The first overarching Big Idea goes here.) Investigation	(The Common Core Standard(s) and/or PA Standard(s) that addresses the first overarching Big Idea goes here.) S8.A.2.1.5 Use evidence from investigations to clearly communicate and support conclusions S8.A.1.1.3 Use evidence, such as observations or experimental results, to support inferences about a relationship S8.A.1.1.2 Explain how certain questions can be answered through scientific inquiry and /or technological design	(The Enduring Understanding(s) for the first overarching Big Idea goes here.) Evidence from investigations is needed to support hypotheses, procedures, and conclusions.	(The Essential Question(s) for the Enduring Understanding(s) for the first overarching Big Idea goes here.) What evidence from your investigation can support your hypothesis, procedures, and conclusions?
(The second overarching Big Idea...) Systems	S8.A.3.1.1 Describe a system as a group of related parts with specific roles that work together to achieve an observed result	A system is a group of related parts with specific roles that work together to achieve an observed result	How are parts working together in a specific system , allowing the system to function correctly?

Big Ideas, Enduring Understandings, and Essential Questions Per Unit of Study
(These do NOT “spiral” throughout the entire curriculum, but are specific to each unit.)

Month of Instruction (In what month(s) will you teach this unit?)	Title of Unit	Big Idea(s) (A Big Idea is typically a noun and always transferable within and among content areas.)	Standard(s) Addressed (What Common Core Standard(s) and/or PA Standard(s) addresses this Big Idea?)	Enduring Understanding(s) (SAS refers to Enduring Understandings as “Big Ideas.” EUs are the understandings we want students to carry with them after they graduate. EUs will link Big Ideas together. Consider having only one or two EUs per Big Idea.)	Essential Question(s) (Essential Questions are broad and open ended. Sometimes, EQs can be debated. A student’s answer to an EQ will help teachers determine if he/she truly understands. Consider having only one or two EQs per Enduring Understanding.)	Common Assessment(s)* (What assessments will all teachers of this unit use to determine if students have answered the Essential Questions?)	Common Resource(s)* Used (What resources will all teachers of this unit use to help students understand the Big Ideas?)
Unit 1 Semester #1	Life Science	Systems Classification Investigation	S8.B.1.1.4 Identify the levels of organization from cell to organism and describe how specific structures/parts, which underlie larger systems , enable the system to function as a whole S8.A.3.1.1 Describe a system as a group of related parts with specific roles that works together to achieve an observed result S8.B.1, 3.3.7 describe the similarities and differences that	Systems are made of smaller parts that play specific roles Structures of living things help them function in a unique way Adaptations are needed for organisms to live and thrive in a particular environment	What is a cell? How do cells work together? How do organs work together? What is the circulatory system? What is the respiratory system? What are the digestive systems and urinary systems? How do ecosystems change? How do species		

			<p>characterize diverse living things.</p> <p>S8.B.1.1.3 Apply knowledge of characteristic structures to identify or categorize</p> <p>S8.A.2.1.5 Use evidence from investigations to clearly communicate and support conclusions</p>		<p>change?</p> <p>How do changes cause more changes?</p>		
Unit 2 Semester #2	Earth Science	<p>Systems Investigations</p> <p>Cycles</p> <p>Changes</p> <p>Patterns</p> <p>Resources</p>	<p>S8. D.1.3.3. Distinguish among different water systems and describe their relationships to each other as well as to landforms</p> <p>S8.D.1.3.1 Describe the water cycle and the physical processes on which it depends</p> <p>S8.D. 2.1.3 ID how cloud types, wind directions and barometric pressure changes are associated with weather patterns in different regions of the country</p> <p>S8.A.2.1.2 ID how global patterns of atmospheric movement influence regional weather and climate</p>	<p>The water cycle is a system</p> <p>There are different types of water</p> <p>Water types (salt, fresh, polluted) effect the life contained in them</p> <p>Weather patterns are caused by changes in clouds, wind and barometric pressure.</p> <p>Weather and climate are determined by how the air moves in masses.</p> <p>Severe weather is the result of changes</p> <p>Climate is a regions weather over a long period of time</p> <p>The Earth is made up of</p>	<p>How can the oceans be described?</p> <p>Where is fresh water found?</p> <p>What is the water cycle?</p> <p>How do clouds form?</p> <p>How does air move?</p> <p>What are air masses?</p> <p>What causes severe weather?</p> <p>How are weather Forecasts made?</p> <p>What is climate?</p> <p>What are nonrenewable energy resources?</p>		

			<p>S8.D.2.1.1 Explain the impact of water systems on the local weather or the climate of a region</p> <p>S8.D.1.1.2 Compare and contrast different types of changes in Earth's surface</p> <p>S8.C.1.1 Explain concepts about the structure and properties of matter</p> <p>S8.D.1.1.1 Explain the rock cycle as changes in the solid earth and rock types found in Pennsylvania</p> <p>S8.B.3.3.2 Explain how renewable and nonrenewable resources provide for human needs</p> <p>S8.B.3.3.3 Describe how waste management affects the environment (Investigation)</p>	<p>layers that change land formations</p> <p>The earth is in a continuous state of change</p> <p>The resources on Earth have value and uses</p> <p>The resources on Earth are limited</p> <p>The sun is a star that generates energy</p> <p>Various energy sources are used to power our world</p> <p>Environmental, social, and economic choices effect the environment</p>	<p>What are other energy resources?</p> <p>Can resources be conserved?</p>		
Unit 3 Semester #3	Physical science	Investigate Systems Properties	<p>S8.A.2.2.2 Apply appropriate measurement systems to record and interpret observations under varying conditions (Investigate)</p>	<p>Atoms are the basic building blocks of matter</p> <p>Properties can be used to ID matter</p> <p>There are differences</p>	<p>What is a way you can determine density?</p> <p>What are properties of matter?</p> <p>How do atoms combine?</p>		STC modular Motion and Design Kit

			<p>S8.C.1.1.2 Use characteristic physical or chemical properties to distinguish one substance from another</p> <p>S8.C.1.1.1 Explain the differences among element, compounds, and mixtures</p> <p>S4.C.1.1.1 Use physical properties to describe matter</p> <p>S8.C.1.1.3 ID and describe reactants and products of simple chemical reactions</p> <p>S4.C.3.1.2 Compare the relative movement of objects or describe types of motion that are evident</p> <p>S8.C.3.1.1 Describe forces acting on objects</p> <p>S8.C.3.1.3 Explain that the mechanical advantages produces by simple machines help to do work by either overcoming a force or changing the direction of the applies force</p>	<p>between mixtures and solutions</p> <p>There are differences between atoms and molecules</p> <p>Chemical changes occur</p> <p>Different objects can be made by combining different materials.</p> <p>If two or more substances are combined, the new product will have different properties</p> <p>Motion can be described and measured</p> <p>Gravity, magnetism, and electricity are the fundamental forces</p> <p>Forces act on objects</p> <p>Simple machines make work easier</p>	<p>How do phase changes occur?</p> <p>What are mixtures and solutions?</p> <p>What are chemical changes?</p> <p>What are some kinds of chemical reactions?</p> <p>How are chemical properties used?</p> <p>How can you describe motion?</p> <p>What are forces?</p> <p>What are Newton's Laws of motion?</p> <p>What are simple machines?</p>		
Unit 4 Semester #4	Space and Technology Science Fair	Systems Investigate Patterns	S8.D.3.1.1 Describe patterns of Earth's movements in relation to the moon and sun	<p>The Earth has a place and moves in space</p> <p>There are relationships</p>	<p>In what ways does Earth move?</p> <p>What are the parts of</p>		

		<p><u>Science Fair</u> Investigate Systems Purpose Hypothesis Proceedure Results Conclusions</p>	<p>S8.D.3.1.3 Compare and contrast characteristics of celestial bodies found in the solar system</p> <p><u>Science Fair</u> S8.3.2.7 (A) Explain and apply scientific, and technological knowledge (B) Apply process knowledge to make and interpret observations (C) ID and use the elements of scientific inquiry to solve problem (D) Know and use the technological design process to solve problems</p>	<p>between the Earth, Sun and The Moon in the solar system</p> <p>The planets differ in characteristics, composition, and orbit at different distances around the sun</p> <p><u>Science Fair</u> Develop and present a project</p> <p>Compose and perform an oral presentation to inform or describe</p> <p>Propose, design, and apply a solution</p> <p>Explain results</p>	<p>the solar system?</p> <p>What are comets and asteroids?</p> <p>What is known about the moon?</p> <p><u>Science Fair</u> What is the difference between a theory and a belief?</p> <p>How does new information change theory and beliefs</p> <p>Describe relationships by making inferences and predictions</p> <p>Design controlled experiments, recognize variables, and manipulate variables</p> <p>Interpret data, formulate models, design models, and produce solutions</p> <p>Generate questions that can be answered through scientific investigation</p> <p>Evaluate, questions</p> <p>Design an</p>		
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					investigation with variables		
					Communicate appropriate conclusions		
					Explain the results, present improvements, ID and infer the impacts of the		

* Some teachers may need to think about the assessments and resources used in order to determine the Big Ideas, Enduring Understandings, and Essential Questions embedded in their courses. At this point in your curriculum mapping, you might want to ignore the “Common Assessments” and “Common Resources Used” columns. However, you may use them if you wish.