

Camp Hill School District Planned Course Document Cover Page

Subject: Science _____ Grade Level(s): 4th Grade _____

Updated Units:

- Energy
- Environments
- Physical and Changing Earth pt 1
- Physical and Changing Earth pt 2
- Solar Systems

Development/Revision Date: Summer 2019 _____

“The Camp Hill School Community strives to prepare every student with the skills and knowledge necessary to thrive in a global society.”





CAMP HILL SCHOOL DISTRICT

Energy

Big Ideas: Interactions between any two objects can cause changes in one or both. Waves are a repeating pattern of motion that transfers energy from place to place without overall displacement of matter. Interactions of objects or systems of objects can be predicted and explained using the concept of energy transfer and conservation.

<u>Essential Question</u>	<u>Focus for Instruction</u> (What students should be able to do?) Concepts: What students should know Competencies: What students should be able to do.	Essential Vocabulary	<u>Planned Learning Experiences and Instructional Strategies</u> (How will you adjust instruction to meet the needs of diverse learners?)	<u>Assessments</u> (How will you know if students have learned? List Summative [S], Formative [F], Benchmark [B], Diagnostic [D])	<u>Technology, Materials and Resources Standards</u>	Suggested Timeframe (If applicable)
How can one explain and predict interactions between objects within systems?	<p>Competency: Investigate the forces between two or more magnets to identify patterns.</p> <p>Concept: When objects touch or collide, they push on one another and can change motion or shape. Magnets create a magnetic field that can exert an attracting or repelling force on other objects that can affect motion.</p> <p>Competency: Design and refine solutions to a problem by using magnets to move objects not in contact with one another.</p>	Attract Collision Friction Gravity Magnets Repel	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.2.3 B1 3.2.3.B2 3.2.4.B1 3.2.4.B2 3.2.4.B4	

	Concept: When objects touch or collide, they push on one another and can change motion or shape. Magnets create a magnetic field that can exert an attracting or repelling force on other objects that can affect motion.					
How can one explain and predict interactions between objects within systems?	Competency: Investigate the push-and-pull forces between objects not in contact with one another. Concept: Magnets create a magnetic field that can exert an attracting or repelling force on other objects that can affect motion.	Attract Collision Magnets Repel	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.2.3 B1 3.2.3.B2 3.2.4.B1 3.2.4.B2 3.2.4.B4	
How can one explain and predict interactions between objects within systems?	Competency: Design and refine solutions to a problem by using magnets to move objects not in contact with one another. Concept: When objects touch or collide, they push on one another and can change motion or shape. Magnets create a magnetic field that can exert an attracting or repelling force on other objects that can affect motion.	Attract Collision Magnets Repel	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.2.3 B1 3.2.3.B2 3.2.4.B1 3.2.4.B2 3.2.3.B6 3.2.4.B4	
How can one explain and predict interactions	Competency: Construct an	Pull push	Use learning, interest and readiness profiles to	PSSA (S) Unit Tests (S)	3.2.4 B1	

<p>between objects within systems?</p>	<p>explanation using data why an object subjected to multiple pushes and pulls might stay in one place or move. Concept: A system can appear to be unchanging when processes within the system are going on at opposite but equal rates (eg water behind a dam is at a constant height because water is flowing in at the same rate that water is flowing)</p>		<p>differentiate notes, materials, experiments and assessments.</p>	<p>Quizzes (F) Projects (F) Teacher Observations (F) FOSS</p>		
<p>How are waves used to transfer energy and information?</p>	<p>Competency: Investigate and provide evidence that the color people see depends on the color of the available light sources as well as the properties of the surface of the object reflecting the light. Concept: An object can be seen when light reflected from its surface enters the eyes.</p>	<p>Reflection Refraction</p>	<p>Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.</p>	<p>PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS</p>	<p>3.2.3.B5 3.2.4.B5</p>	
<p>How are waves used to transfer energy and information?</p>	<p>Competency: Investigate and provide evidence that the color people see depends on the color of the available light sources as well as the properties of the surface of the object reflecting the light Concept:</p>	<p>Color Reflection</p>	<p>Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.</p>	<p>PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS</p>	<p>3.2.3.B5 3.2.4.B5</p>	

	The color people see depends on the color of the available light sources as well as the properties of the surface.					
How is energy transferred and conserved?	<p>Competency: Demonstrate the energy transfer between two objects using a magnet and other objects/</p> <p>Concept: Magnets can exert forces on other magnets or on materials, causing energy transfer between them (e.g., leading to changes in motion) even when the objects are not touching.</p>	Energy Force Magnet Transfer	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.4.4 B 3.4.4 C	
How is energy transferred and conserved?	<p>Competency: Use evidence to construct an explanation for the relationship between speed, energy and motion</p> <p>Concept: The faster a given object is moving, the more energy it possesses.</p>	Energy motion	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.2.4.B2 3.2.5.B4	
How can one explain the structure, properties, and interactions of matter?	<p>Competency: Construct an electromagnet and plan an investigation to determine how one can make the electromagnet stronger or weaker.</p> <p>Concept: A core of iron or steel becomes an electromagnet when</p>	Current Electromagnet System	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.2.6.B4 3.2.4.B6 3.2.5.B3 3.2.5.B4	How can one explain the structure, properties, and interactions of matter?

	electricity flows through a coil of insulated wire surrounding it.					
How can one explain the structure, properties, and interactions of matter?	<p>Competency: Plan and carry out an investigation to determine factors that affect the strength of electric and magnetic forces.</p> <p>Concept: Electromagnetic forces can be attractive or repulsive, and their sizes depend on the magnitude of the charges, currents, or magnetic strengths involved and on the distances between the interacting objects.</p>	Current Electromagnetic forces	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.2.5.B4 3.4.7.C 3.6.7.C	How can one explain the structure, properties, and interactions of matter?
How can one explain the structure, properties, and interactions of matter?	<p>Competency: Investigate and describe conductors and insulators.</p> <p>Concept: Materials that allow electricity to flow are conductors; those that do not are insulators.</p>	Conductor Electricity Insulator	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.2.4.B4	
How can one explain the structure, properties, and interactions of matter?	<p>Competency: Construct serial and parallel circuits and describe the path of electrons in the circuit.</p> <p>Concept: Electrical circuits require a complete loop through which an electrical current can pass.</p>	Parallel circuit Serial circuit System	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.2.4.B4	
How can one explain the structure, properties, and interactions of matter?	<p>Competency: Demonstrate and</p>	Closed circuit Open circuit	Use learning, interest and readiness profiles to	PSSA (S) Unit Tests (S)	3.2.3.B4 3.2.4.B4	

interactions of matter?	<p>explain open and closed circuits utilizing switches.</p> <p>Concept: An open circuit is an incomplete electric pathway; a closed circuit is a complete pathway.</p>	Switch System	differentiate notes, materials, experiments and assessments.	<p>Quizzes (F)</p> <p>Projects (F)</p> <p>Teacher Observations (F)</p> <p>FOSS</p>		
How is energy transferred and conserved?	<p>Competency: Obtain and communicate information explaining how technology allows humans to concentrate, transport, and store energy for practical use.</p> <p>Concept: Energy can be moved from place to place by moving objects or through sound, light, or electric currents.</p>	Battery Conversion Energy Production Stored Energy	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	<p>PSSA (S)</p> <p>Unit Tests (S)</p> <p>Quizzes (F)</p> <p>Projects (F)</p> <p>Teacher Observations (F)</p> <p>FOSS</p>	<p>3.2.3.B2</p> <p>3.2.4.B2</p> <p>3.2.4.B5</p>	
How is energy transferred and conserved?	<p>Competency: Carry out investigations to provide evidence that energy is transferred from place to place by sound, light, heat, electric currents, interacting magnets, and moving or colliding objects.</p> <p>Concept: Energy can be moved from place to place by moving objects or through sound, light, or electric currents.</p>	Collision Electric current Energy Heat Light Magnets Sound transformation	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	<p>PSSA (S)</p> <p>Unit Tests (S)</p> <p>Quizzes (F)</p> <p>Projects (F)</p> <p>Teacher Observations (F)</p> <p>FOSS</p>	<p>3.2.3.B</p> <p>3.2.4.B</p>	
How is energy transferred and conserved?	<p>Competency: Obtain and communicate information for how</p>	Electric current Energy Energy conversion Light	Use learning, interest and readiness profiles to differentiate notes, materials, experiments	<p>PSSA (S)</p> <p>Unit Tests (S)</p> <p>Quizzes (F)</p> <p>Projects (F)</p>	<p>3.2.3.B</p> <p>3.2.4.B</p> <p>3.2.5.B</p>	

	<p>technology allows humans to concentrate, transport, and store energy for practical use.</p> <p>Concept: Energy can be moved from place to place by moving objects or through sound, light, or electric currents.</p>	Sound	and assessments.	Teacher Observations (F) FOSS		
How is energy transferred and conserved?	<p>Competency: Design and construct a device that converts energy from one form to another using given design criteria.</p> <p>Content: Energy can be moved from place to place by moving objects or through sound, light, or electric currents.</p>	Electric current Energy Light Sound Transfer	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.2.3.B	
How is energy transferred and conserved?	<p>Competency: Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electrical currents.</p> <p>Content: Energy can be moved from place to place by moving objects or through sound, light, or electric currents.</p>	Electric current Energy transfer Energy Conversion Light Sound	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.2.3.B	
How is energy transferred and conserved?	<p>Competency: Construct an explanation for the relationship between energy and motion</p> <p>Content:</p>	Energy Light	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.2.3.B 3.2.4.B	

	Energy is present whenever there are moving objects, sound, light, or heat.					
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CAMP HILL SCHOOL DISTRICT

Physical and Changing Earth pt 1

Big Ideas: Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth.
 Waves are a repeating pattern of motion that transfers energy from place to place without overall displacement of matter.
 The Earth's processes affect and are affected by human activities.

<u>Essential Question</u>	<u>Focus for Instruction</u> (What students should be able to do?)	Essential Vocabulary	<u>Planned Learning Experiences and Instructional Strategies</u> (How will you adjust instruction to meet the needs of diverse learners?)	<u>Assessments</u> (How will you know if students have learned? List Summative [S], Formative [F], Benchmark [B], Diagnostic [D])	<u>Technology, Materials and Resources</u>	Suggested Timeframe (If applicable)
How can there be so many similarities among	Competency: Analyze and interpret	Extinct Fossils	Use learning, interest and readiness profiles to	PSSA (S) Unit Tests (S)	3.1.2.C3 3.1.3.C3	

organisms yet so many different kinds of plants, animals, and microorganisms?	data from fossils to provide evidence of the organisms and environments in which they lived long ago. (competency) Concept: Some plants and animals that once lived on earth are no longer found anywhere.(concept)		differentiate notes, materials, experiments and assessments.	Quizzes (F) Projects (F) Teacher Observations (F) FOSS	4.7.4.C	
How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Competency: Analyze and interpret data from fossils to provide evidence of the organisms and environments in which they lived long ago. (competency) Concept: Fossils provide evidence about types of organisms that lived long ago as well as about the nature of the environment. (concept)	Extinct Fossils	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)	3.1.2.C3 3.1.3.C3 4.7.4.C	
How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Competency Use evidence to argue that when the environment changes in ways that affect a place’s physical characteristics, organisms may survive, move to new locations, or die. Concept: Changes in an organism’s habitat can be beneficial or harmful to the	Endangered Habitat Physical and Behavioral Adaptations	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)	3.2.4.B5 3.2.4.B6 3.1.4.A 3.1.4.B 3.1.4.C 3.1.4.C 3.2.4.A 3.2.4.B 3.3.4.A 3.3.4.B 3.4.4.D 3.4.4.E 4.1.4.A 4.1.4.E 4.4.4.A 4.4.4.D	

	organism				4.5.4.A 4.5.4.C	
How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	<p>Competency: Use evidence to construct an explanation that some rocks and minerals record the remains of organisms.</p> <p>Concept: Fossils provide evidence about the types of organisms (both visible and microscopic) that lived long ago and also about the nature of their environments.</p>	Fossils Microscope	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)	3.1.4.A 3.1.4.C 4.4.3.D 4.2.4.C	
How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	<p>Competency: Obtain and communicate information that some organisms that once lived on earth are no longer found anywhere, although other organisms now may resemble them.</p> <p>Concept: Fossils provide evidence about the types of organisms (both visible and microscopic) that lived long ago and also about the nature of their environments.</p>	Microscopic organism Organism Visible organism	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)	3.1.4.A 3.1.4.C 4.5.4.D 4.2.4.C	

How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	<p>Competency: Use evidence from fossil records to construct an explanation of the relationship between types of organisms living today and types of organisms that lived in the past.</p> <p>Concept:</p>	Explanation Fossil record	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)	3.1.4.A 3.1.4.C 4.5.4.D 4.2.4.C	
How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	<p>Competency: Use evidence to construct explanations for how environments today may be different from past environments in which fossilized organisms once lived.</p> <p>Concept:</p>	Fossil	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)	3.1.4.A 3.1.4.C 4.5.4.D 4.2.4.C	
How are waves used to transfer energy and information?	<p>Competency: Identify the patterns of waves by observing their motion in water.</p> <p>Concept: Waves are regular patterns of motion, and can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; it does not move horizontally.</p>	Energy Information Motion Waves	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)	3.2.4.B5 3.2.4.B6	
How are waves used to transfer energy and information?	<p>Competency: Provide evidence that waves transfer energy to objects as a wave passes.</p> <p>Concept:</p>	Energy transfer Information Motion Waves	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.2.4.B6	

	Waves are regular patterns of motion, and can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; it does not move horizontally.					
How are waves used to transfer energy and information?	<p>Competency: Plan data collection methods and make observations to provide evidence that waves transfer energy to objects.</p> <p>Concept: Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; it does not move in the direction of the wave—observe, for example, a bobbing cork or seabird—except when the water meets the beach.</p>	Energy transfer Waves	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)	3.2.4.B5 3.2.4.B6	
How are waves used to transfer energy and information?	<p>Competency: Use a model to describe the amplitude and wavelength of waves.</p> <p>Concept: Waves of the same type can differ in amplitude (height of the wave) and wavelength (spacing between waves)</p>	Amplitude Wavelength waves	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.2.4.B5 3.2.4.B6	
How are waves used to	Competency:	Earthquake	Use learning, interest and	PSSA (S)	3.2.4.B5	

transfer energy and information?	Describe how similar seismic waves are to other types of waves. Concept: Earthquakes cause seismic waves, which are waves of motion in the Earth's crust.	Seismic waves	readiness profiles to differentiate notes, materials, experiments and assessments.	Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)	3.2.4.B6	
How do Earth's processes and human activities affect each other?	Competency: Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. Concept: A variety of hazards result from natural processes (e.g., earthquakes, tsunamis, etc.). Humans cannot eliminate the hazards, but can take steps to reduce the impact.	Earthquake Natural hazard Tsunami Volcanic eruptions Weather	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)	3.4.8.B	
How is energy transferred and conserved?	Competency: Develop a model using examples to explain differences between renewable and non-renewable sources of energy. Concept: Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not.	Non-renewable energy Renewable energy	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS Investigation 4	3.2.3.B2	https://www.nrel.gov/workingwithus/education-resources.html#teachers



CAMP HILL SCHOOL DISTRICT

Environments

Big Ideas: Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth.

Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment.

Interactions of objects or systems of objects can be predicted and explained using the concept of energy transfer and conservation.

The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.

All organisms are made of cells and can be characterized by common aspects of their structure and functioning.

<u>Essential Question</u>	<u>Focus for Instruction</u> (What students should be able to do?)	Essential Vocabulary	<u>Planned Learning Experiences and Instructional Strategies</u> (How will you adjust instruction to meet the needs of diverse learners?)	<u>Assessments</u> (How will you know if students have learned? List Summative [S], Formative [F], Benchmark [B], Diagnostic [D])	<u>Technology, Materials and Resources</u>	Suggested Timeframe (If applicable)
How can there be so	Competency:	Habitats	Use learning, interest and	PSSA (S)	3.1.4.A	

<p>many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?</p>	<p>Using evidence, make a claim about merits of solutions to problems caused when the environment changes and types of animals and plants that live there may change.</p> <p>Concept: Populations live in a variety of habitats and changes in those habitats impacts the organisms living there.</p>	<p>Populations</p>	<p>readiness profiles to differentiate notes, materials, experiments and assessments.</p>	<p>Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)</p>	<p>3.1.4.B 3.1.4.C 3.1.4.E 3.2.4.A 3.2.4.B 3.3.4.A 3.3.4.B 3.4.4.B 3.4.4.D 3.4.4.E 4.1.4.A 4.1.4.E 4.4.4.A 4.4.4.D 4.5.4.A 4.5.4.C</p>	
<p>How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?</p>	<p>Competency: Use evidence to demonstrate how humans, like all other organisms, obtain living and nonliving resources from their environment.</p> <p>Concept: Humans, like all other organisms, obtain living and nonliving resources from their environments.</p>	<p>Living Non-living</p>	<p>Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.</p>	<p>PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)</p>	<p>3.1.4.A 3.1.4.C 3.1.4.E 3.2.4.A 3.2.4.B 3.3.4.B 3.4.4.A 3.4.4.B 3.4.4.E 3.4.4.D 4.1.4.A 4.1.4.B 4.1.4.E 4.2.4.A 4.3.4.A 4.4.4.A 4.4.4.B 4.4.4.D 4.5.4.A 4.5.4.C</p>	
<p>How and why do organisms interact with their environment and what are the effects of these interactions?</p>	<p>Competency: Animals depend on each other and their surroundings to get what they need, including food, water, shelter, and a stable</p>	<p>Basic needs producer Consumer decomposer Heterotroph Representation Stable</p>	<p>Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.</p>	<p>PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)</p>	<p>3.1.4.A 3.1.4.C 3.2.4.A 3.2.4.B 3.3.4.B 3.4.4.A 3.4.4.B</p>	

	<p>temperature. Groups serve different functions and vary in size.</p> <p>Concept: Animals depend on each other and their surroundings to get what they need, including food, water, shelter, and a stable temperature. Groups serve different functions and vary in size.</p>				<p>3.4.4.E 4.1.4.A 4.1.4.B 4.1.4.C 4.2.4.A 4.2.4.B 4.2.4.C 4.4.4.B 4.5.4.D</p>	
How do organisms live grow, respond to their environment, and reproduce?	<p>Competency: Construct and argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. Concepts: Plants and animals have internal and external structures that serve various functions to survive.</p>	<p>Behaviors Cause and effect Function Offspring Reproduce Structure Survival System System mode</p>		<p>PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS</p>	<p>3.1.4 A 3.1.4.B 3.1.4 C 4.1.4 A 4.5.4.C 4.2.4.C 3.1.3.A.1</p>	
How and why is Earth constantly changing? (3rd)	<p>Competency: Identify various types of water environments in Pennsylvania. Concept: Water occurs underground, above ground, and in the atmosphere.</p>	<p>Lakes Lentic Lotic Ponds Rivers Streams Watersheds</p>	<p>Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.</p>	<p>PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS</p>	<p>3.3.4.A</p>	
How and why do organisms interact with their environment and				<p>PSSA (S) Unit Tests (S) Quizzes (F)</p>	<p>N/A</p>	

what are the effects of these interactions?				Projects (F) Teacher Observations (F)		
How can there be so many similarities among organisms yet so many different kinds of plants, animals and microorganisms?				PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)	N/A	



CAMP HILL SCHOOL DISTRICT

Physical and Changing Earth Pt 2

Big Ideas: The universe is composed of a variety of different objects, which are organized into systems each of, which develops according to accepted physical processes and laws.

The Earth is a complex and dynamic set of interconnected systems (EG geospheres, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.

<u>Essential Question</u>	<u>Focus for Instruction</u> (What students should be able to do?)	Essential Vocabulary	<u>Planned Learning Experiences and Instructional Strategies</u> (How will you adjust instruction to meet the needs of diverse learners?)	<u>Assessments</u> (How will you know if students have learned? List Summative [S], Formative [F], Benchmark [B], Diagnostic [D])	<u>Technology, Materials and Resources</u>	Suggested Timeframe (If applicable)
How and why is Earth constantly changing?	<p>Competency: Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.</p> <p>Concept: Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed.</p>	Fossils Rock formations	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)	3.3.3.A1 3.3.5.A3	
How and why is the Earth constantly	Competency: Make observation and	Physical characteristics				

changing?	document how living things affect the physical characteristics in different regions. Concept: Living things affect the physical characteristics of their regions.					
How and why is Earth constantly changing?	Competency: Make observations and measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation (heating cooling, volume of water, speed of wind, deposition, slope, angles, etc.). Concept: Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms and gravity break rocks, soils, and sediments into smaller particles and move them around.	Deposition Erosion Vegetation Weathering	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.3.5.A1 Gettysburg	
How and why is Earth constantly changing?	Competency: Make observations and document how living things affect the physical characteristics in different regions. Concept: Living things affect the physical characteristics of their regions.	Physical characteristics	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	Gettysburg Social Studies	
How and why is Earth constantly changing?	Analyze and interpret data from maps to	Biogeology Earthquake	Use learning, interest and readiness profiles to	PSSA (S) Unit Tests (S)	3.3.4.A1 4.5.4.D	

	<p>describe patterns of Earth's features.</p> <p>Concept: The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns.</p>	<p>Geographic Geologic Hazards Mountain range Natural Plate tectonics Trench Volcano</p>	<p>differentiate notes, materials, experiments and assessments.</p>	<p>Quizzes (F) Projects (F) Teacher Observations (F) FOSS Investigations 2 and 3</p>	<p>FOSS</p>	
<p>How and why is Earth constantly changing?</p>	<p>Competency: Use fossils as evidence to infer that some rocks were formed from the remains of once living organisms.</p> <p>Concept: Many types of rocks and minerals are formed from the remains of organisms or are altered by their activities.</p>	<p>Erosion Fossil Landform Organism</p>	<p>Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.</p>	<p>PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS Investigation 2</p>	<p>3.3.4.A3 4.4.4.C</p>	
<p>How and why is Earth constantly changing?</p>	<p>Competency: Use evidence from patterns in rock formations and fossils in rock layers to support the explanation for a change in landforms and environments over time.</p> <p>Concept: The presence and location of certain fossil types indicate the order in which rock layers were formed.</p>	<p>Minerals Rock layers</p>	<p>Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.</p>	<p>PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS Investigation 2</p>	<p>3.3.4.A 4.3.4.A</p>	
<p>How and why is the Earth constantly changing?</p>	<p>Competency: Make observations and measurements to provide evidence of the effects of weathering of</p>	<p>Deposition Erosion Vegetation weathering</p>	<p>Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.</p>	<p>PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F)</p>	<p>3.5.4A1</p>	

	<p>the rate of erosion by water, ice, wind, or vegetation (heating, cooling, volume of water, speed of wind, deposition, slope, angles, etc.)</p> <p>Concepts: Living things affect the physical characteristics of their regions.</p>			FOSS Investigation		
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CAMP HILL SCHOOL DISTRICT

Solar Systems

Big Ideas: The universe is composed of a variety of different objects, which are organized into systems each of, which develops according to accepted physical processes and laws. What is the universe, and what is Earth’s place in it?

<u>Essential Question</u>	<u>Focus for Instruction</u> (What students should be able to do?)	Essential Vocabulary	<u>Planned Learning Experiences and Instructional Strategies</u> (How will you adjust instruction to meet the needs of diverse learners?)	<u>Assessments</u> (How will you know if students have learned? List Summative [S], Formative [F], Benchmark [B], Diagnostic [D])	<u>Technology, Materials and Resources Standards</u>	Suggested Timeframe (If applicable)
What is the universe and what is Earth’s place in it?	N/A	N/A	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	N/A	
<p>What is the brightness of the sun and stars due to their relative distances from the Earth?</p> <p>Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.</p>	<p>Competency: Support an argument that the apparent brightness of the sun and stars is due to their relative distances from Earth. (5-ESS1-1) Concept: The sun is a star that appears larger and brighter than other stars because it is closer. (ESS1.A)</p>	<p>Relative distance Apparent brightness Stars Sun Earth</p>	<p>Math Extensions: Problem of the Week Science and Engineering Extensions: Continue Tracking the Sun Research Sundials FOSS Next Generation Earth and Sun Investigation 1: The Sun Part 1: Shadow Shifting Part 2: Sun Tracking Part 3: Day and Night FOSS Science Resource Books: Changing Shadows Sunrise and Sunset Online Activities: Tutorial: Sun Tracking Shadow Tracking Seasons</p>	<p>PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS</p>	<p>3.3.5.B1. Provide evidence that the earth revolves around (orbits) the sun in a year’s time and that the earth rotates on its axis once approximately every 24 hours. 3.3.8.B 3.3.8.B1 S8.D.3.1 S8.D.3.1.1 S8.D.3.1.3</p>	

<p>Support an argument that the apparent brightness of the sun and stars is due to their relative distances from the Earth.</p>	<p>Competency: Support an argument that the apparent brightness of the sun and stars is due to their relative distances from Earth. (5-ESS1-1) Concept: Stars range greatly in their distance from Earth. (ESS1.A)</p> <p>Competency: Represent data in graphical displays to reveal patterns of daily changes in the length and direction of shadows, day and night, and seasonal appearance of stars in the sky. (5-ESS1-2) Data Graphical display Patterns Representation Shadows Concepts: The orbits of Earth around the sun and the moon around Earth, together with the rotation of Earth about</p>	<p>Data Graphical display Patterns Representation Shadows</p>	<p>FOSS Next Generation Earth and Sun Investigation 1: The Sun Part 1: Shadow Shifting Part 2: Sun Tracking Part 3: Day and Night FOSS Science Resource Books: Changing Shadows Sunrise and Sunset Online Activities: Tutorial: Sun Tracking Shadow Tracking Seasons</p>	<p>PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS</p>	<p>3.3.5. B3. · Understand how theories are developed. · Identify questions that can be answered through scientific investigations and evaluate the appropriateness of questions. · Design and conduct a scientific investigation and understand that current scientific knowledge guides scientific investigations. · Describe relationships using inference and prediction. · Use appropriate tools and technologies to gather, analyze, and interpret data and understand that it enhances accuracy and allows scientists to analyze and quantify results of investigations. · Develop descriptions, explanations, and models using evidence and understand that these emphasize evidence, have</p>	
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	<p>an axis between its north and South poles, cause observable patterns (e.g., day and night, length and direction of shadows, different positions of the sun, moon, and stars). (ESS1.B)</p>		<p>Investigation 2: Planetary Systems Part 1: Night-Sky Observations Part 2: How Big and How Far? Part 5: Stars FOSS Science Resource Books: Looking Through a Telescope Apollo 11 Space Mission Star Scientists</p>		<p>logically consistent arguments, and are based on scientific principles, models, and theories.</p> <ul style="list-style-type: none"> · Analyze alternative explanations and understanding that science advances through legitimate skepticism. · Use mathematics in all aspects of scientific inquiry. · Understand that scientific investigations may result in new ideas for study, new methods, or procedures for an investigation or new technologies to improve data collection. <p>3.4.5.A1. Explain how people use tools and techniques to help them do things.</p>	
<p>How has the way people live and work changed history in terms of</p>			<p>Investigation 2: Planetary Systems Part 2: How Big and</p>	<p>PSSA (S) Unit Tests (S) Quizzes (F)</p>	<p>3.4.5.B4. Identify how the way people live and work has</p>	

technology?			How Far? Part 5: Stars FOSS Science Resource Books: Looking Through a Telescope Apollo 11 Space Mission Star Scientists	Projects (F) Teacher Observations (F) FOSS	changed history in terms of technology. (cont.)	
How do we turn inventions and innovations into real things?			Investigation 2: Planetary Systems Part 1: Night-Sky Observations Part 5: Stars FOSS Science Resource Books: Looking Through a Telescope Star Scientists	PSSA (S) Unit Tests (S) Quizzes (F) Projects (F) Teacher Observations (F) FOSS	3.4.5.C3. Identify how invention and innovation are creative ways to turn ideas into real things. 3.3.8.B 3.3.5.B1 S8.D.3.1 S8.D.3.1.1 S8.D.3.1.3	