

**Curriculum Map - Science - 4 Science**

Unit	State Standards	Outcomes	Essential Questions	Essential Skills	Assessments	Faith Integration
Entire Year						
Life Science Unit A ~ Living Things  <i>(updated 6/3/20)</i>	<p>SCI.CC1.3-5(A)                      Students identify similarities and differences in order to sort and classify natural objects and designed products. They identify patterns related to time, including simple rates of change and cycles, and use these patterns to make predictions.</p> <p>SCI.CC2.3-5(A)                      Students routinely identify and test causal relationships and use these relationships to explain change. They understand events that occur together with regularity may or may not signify a cause and effect relationship.</p> <p>SCI.CC3.3-5(A)                      Students recognize natural objects and observable phenomena exist from the very small to the immensely large. They use standard units to measure and describe physical quantities such as mass, time, temperature, and volume.</p> <p>SCI.CC4.3-5(A)                      Students understand a system is a group of related parts that make up a whole and can carry out functions its individual parts cannot. They also describe a system in terms of its components and their interactions.</p> <p>SCI.CC7.3-5(A)                      Students measure change in terms of differences over time, and observe that change may occur at different rates. They understand some systems appear stable, but over long periods of time they will eventually change.</p> <p>SCI.SEP1.B.3-5(A)                      Students use prior knowledge to describe and define simple design problems that can be solved through the development of an object, tool, process, or system. They include several criteria for success and constraints on materials, time, or cost.</p> <p>SCI.SEP2.A.3-5(A)                      Students build and revise simple models and use models to represent events and design solutions. This includes the following:                      •Identify limitations of models.                      •Collaboratively develop and/or revise a model based on evidence that shows the relationships among variables for frequent and regular occurring events.                      •Develop a model using an analogy, example, or abstract representation to describe a scientific principle or design solution.                      •Develop and/or use models to describe or predict phenomena.                      •Develop a diagram or simple physical prototype to convey a proposed object, tool, or process.                      •Use a model to test cause and effect relationships or interactions concerning the functioning of a natural or designed</p>		What are living things and how are they classified? How are animals different from one another?	Summarize five functions of living things. Compare plant and animal cells. Define and compare the kingdoms of living things. Describe different types of microorganisms. Describe the functions of roots, stems, and leaves. Explain the processes of photosynthesis and respiration. Describe pollination in flowering plants. Explain the life cycle of a flowering plant. Define "animal" and list the basic needs and characteristics of animals. Summarize the characteristics of groups of invertebrates. Define "vertebrates" and describe their characteristics. Describe the seven groups of vertebrates. Identify seven organ systems of animals. Summarize the structure and functions of the seven organ systems. Compare incomplete metamorphosis to complete metamorphosis. Summarize how traits are passed from parent to offspring.	Exit Tickets Formative Assessments Summative Assessments Daily/Class Work Teacher Observation	Students will learn that God is the creator of all living and non-living things. "Through him all things were made; without him nothing was made that has been made." John 1:3

system

**SCI.SEP4.A.3-5(A)**

Students begin to use quantitative approaches to collect data and conduct multiple trials of qualitative observations. (When possible, digital tools should be used.) This includes the following:

- Represent data in tables or various graphical displays (bar graphs, pictographs, and pie charts) to reveal patterns that indicate relationships.
- Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, or computation.
- Compare and contrast data collected by different groups in order to discuss similarities and differences in their findings.
- Analyze data to refine a problem statement or the design of a proposed object, tool, or process.
- Use data to evaluate and refine design solutions.

**SCI.SEP7.A.3-5(A)**

Students critique the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world. This includes the following:

- Compare and refine arguments based on an evaluation of the evidence presented.
- Distinguish among facts, reasoned judgment based on research findings, and speculation in an explanation.
- Respectfully provide and receive critiques from peers about a proposed procedure, explanation, or model by citing relevant evidence and posing specific questions.
- Construct and/or support an argument with evidence, data, or a model.
- Use data to evaluate claims about cause and effect.
- Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem.

**SCI.LS1.A.4(A)**

Plants and animals have both internal and external macroscopic structures that allow for growth, survival, behavior, and reproduction.

**SCI.LS1.B.3(A)**

Reproduction is essential to every kind of organism. Organisms have unique and diverse life cycles.

**SCI.LS1.C.5(A)**

Food provides animals with the materials and energy they need for body repair, growth, warmth, and motion. Plants acquire material for growth chiefly from air, water, and process matter, and obtain energy from sunlight, which is used to maintain conditions necessary for survival.

**SCI.LS1.D.4(A)**

Different sense receptors are specialized for particular kinds of information; animals use their perceptions and memories to guide their actions.

**SCI.ESS2.A.4(A)**

Four major Earth systems interact. Rainfall helps to shape the land and affects the

types of living things found in a region. Water, ice, wind, organisms, and gravity break rocks, soils, and sediments into smaller pieces and move them around.

**SCI.SEP1.A.3-5(I)**

Students ask questions that specify qualitative relationships. This includes the following:

- Ask questions about what would happen if a variable is changed.
- Identify scientific (testable) and non-scientific (non-testable) questions.
- Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.

**SCI.SEP3.A.3-5(I)**

Students plan and carry out investigations that control variables and provide evidence to support explanations or design solutions. This includes the following:

- Collaboratively plan and conduct an investigation to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered.
- Evaluate appropriate methods and tools for collecting data.
- Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.
- Make predictions about what would happen if a variable changes.
- Test two different models of the same proposed object, tool, or process to determine which better meets criteria for success.

**SCI.SEP6.A.3-5(I)**

Students use evidence to construct explanations that specify variables which describe and predict phenomena. This includes the following:

- Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard).
- Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation.
- Identify the evidence that supports particular points in an explanation.

**SCI.SEP6.B.3-5(I)**

Students use evidence to create multiple solutions to design problems. This includes the following:

- Apply scientific ideas to solve design problems.
- Generate multiple solutions to a problem and compare how well they meet the criteria and constraints.

Life Science  
Unit B ~  
Ecosystems

(updated 6/3/20)

**SCI.LS1.C.5(A)**

Food provides animals with the materials and energy they need for body repair, growth, warmth, and motion. Plants acquire material for growth chiefly from air, water, and process matter, and obtain energy from sunlight, which is used to maintain conditions necessary for survival.

**SCI.LS1.D.4(A)**

Different sense receptors are specialized

Where do plants and animals live and how do they depend on each other?  
What happens to living things when their environments

Identify abiotic factors in an ecosystem.  
Describe ecosystems, communities, and populations.  
Define and describe Earth's six main biomes.  
Explain how energy is cycled through an

Exit Tickets  
Formative Assessments  
Summative Assessments  
Daily/Class Work  
Teacher Observation

God created all things to interact perfectly in His world. "But ask the animals, and they will teach you, or the birds in the sky, and they will tell you; or speak to the earth, and it will teach you, or let the fish in the sea inform you. Which of all these does not know that the hand of the Lord has done this? In his hand is the life of every creature and the breath of all mankind."

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for particular kinds of information, animals use their perceptions and memories to guide their actions.

SCI.LS2.A.5(A)  
The food of almost any animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants, while decomposers restore some materials back to the soil.

SCI.LS2.B.5(A)  
Matter cycles between the air and soil and among organisms as they live and die.

SCI.LS2.C.3(A)  
When the environment changes, some organisms survive and reproduce, some move to new locations, some move into

SCI.LS2.D.3(A)  
Being part of a group helps animals obtain food, defend themselves, and cope with changes.

SCI.LS3.A.3(A)  
Many characteristics of organisms are inherited from their parents. Other characteristics result from individuals' interactions with the environment. Many characteristics involve both inheritance and environment.

SCI.LS3.B.3(A)  
Different organisms vary in how they look and function because they have different inherited information; the environment also affects the traits that an organism develops.

SCI.LS4.A.3(A)  
Some living organisms resemble organisms that once lived on Earth. Fossils provide evidence about the types of organisms and environments that existed long ago.

SCI.LS4.B.3(A)  
Differences in characteristics between individuals of the same species provide advantages in surviving and reproducing.

SCI.LS4.C.3(A)  
Particular organisms can only survive in particular environments.

SCI.LS4.D.2(A)  
Biodiversity and Humans

SCI.ESS2.A.4(A)  
Four major Earth systems interact. Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, organisms, and gravity break rocks, soils, and sediments into smaller pieces and move them around.

SCI.ETS1.A.3(A)  
Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.

SCI.ETS1.B.3(A)  
Research on a problem should be carried

change:

ecosystem.

Describe food webs and give examples of predator-prey relationships. Define "adaptation" and give examples of how adaptations help animals to survive in their habitats. Define and describe the types of symbiotic relationships. Describe ways in which plants respond to their environments. Describe plant adaptations. Describe how living and nonliving things cause ecosystems to change. Understand that changes to ecosystems affect living organisms.

SS.12.7.10

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	<p>out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions.</p> <p>SCI.ETS1.B.4(A) At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs.</p> <p>SCI.ETS1.C.5(A) Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.</p> <p>SCI.ETS2.A.5(A) Science and technology support each other.</p> <p>SCI.ETS2.A.6(A) Tools and instruments are used to answer scientific questions, while scientific discoveries lead to the development of new technologies.</p> <p>SCI.ETS2.B.1(A) People's needs and wants change over time, as do their demands for new and improved technologies.</p> <p>SCI.ETS2.B.2(A) Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands.</p> <p>SCI.ETS1.B.5(I) Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved.</p> <p>SCI.ETS2.B.3(I) When new technologies become available, they can bring about changes in the way people live and interact with one another.</p>					
<p>Earth/Space Unit C ~ Earth &amp; Its Resources <i>(updated 6/3/20)</i></p>	<p>SCI.LS2.A.5(A) The food of almost any animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants, while decomposers restore some materials back to the soil.</p> <p>SCI.LS2.B.5(A) Matter cycles between the air and soil and among organisms as they live and die.</p> <p>SCI.LS2.C.3(A) When the environment changes, some organisms survive and reproduce, some move to new locations, some move into</p> <p>SCI.LS2.D.3(A) Being part of a group helps animals obtain food, defend themselves, and cope with changes.</p> <p>SCI.LS4.A.3(A) Some living organisms resemble organisms that once lived on Earth. Fossils provide evidence about the types of organisms and environments that existed long ago.</p> <p>SCI.LS4.B.3(A) Differences in characteristics between individuals of the same species provide advantages in surviving and reproducing.</p>		<p>What causes Earth's surface to change? What are Earth's resources, and how can we conserve them?</p>	<p>Identify Earth's landforms and the features of the ocean floor. Describe the layers of Earth. Describe how the movement of plates builds mountains and causes earthquakes and volcanoes. Explain how scientists use seismic waves to study earthquakes. Define and give examples of physical and chemical weather. Explain how erosion helps to break down and build up Earth's land. Describe the effects of floods, fires, tornadoes, and hurricanes. Explain the causes and effects of landslides and avalanches. Describe the properties used to identify and classify minerals.</p>	<p>Exit Tickets Formative Assessments Summative Assessments Daily/Class Work Teacher Observation</p>	<p>Students will know that God created the heavens and the Earth. "In his hand are the depths of the earth; the heights of the mountains are his also. The sea is his, for he made it, and his hands formed the dry land." Psalm 95:4-5</p>

SCI.LS4.C.3(A)  
Particular organisms can only survive in particular environments.

SCI.LS4.D.2(A)  
Biodiversity and Humans

SCI.ESS3.A.4(A)  
Energy and fuels humans use are derived from natural sources, and their use affects the environment. Some resources are renewable over time, others are not.

SCI.ESS3.B.4(A)  
A variety of hazards result from natural processes; humans cannot eliminate hazards but can reduce their impacts.

SCI.ESS3.C.5(A)  
Societal activities have had major effects on the land, ocean, atmosphere, and even outer space. Societal activities can also help protect Earth's resources and environments.

SCI.ETS2.B.1(A)  
People's needs and wants change over time, as do their demands for new and improved technologies.

SCI.ETS2.B.2(A)  
Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands.

SCI.ETS2.B.3(A)  
When new technologies become available, they can bring about changes in the way people live and interact with one another.

SCI.ETS3.B.5(A)  
Basic laws of nature are the same everywhere in the universe (e.g. gravity, conservation of matter, energy transfer, etc.).

SCI.ETS1.A.3(I)  
Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.

SCI.ETS1.B.3(I)  
Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions.

SCI.ETS1.B.4(I)  
At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs.

SCI.ETS1.B.5(I)  
Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved.

SCI.ETS1.C.5(I)  
Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.

Classify minerals.  
Compare the three types of rocks.  
Describe the different layers of soil and how they form.  
Define the texture, porosity, and permeability of soil.  
Describe the different kinds of fossils, the ways they form, and how they provide evidence of Earth's past.  
Explain why fossil fuels are a valuable and nonrenewable resource.  
Explain how the water cycle renews Earth's freshwater.  
Describe ways people use and obtain freshwater.  
Identify the effects of pollution to land, water, and air.  
Describe ways to reduce pollution and conserve resources.

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	<p>SCI.ETS2.A.5(I) Science and technology support each other.</p> <p>SCI.ETS2.A.6(I) Tools and instruments are used to answer scientific questions, while scientific discoveries lead to the development of new technologies.</p> <p>SCI.ETS3.A.3(I) Science and engineering knowledge have been created by many cultures.</p> <p>SCI.ETS3.A.4(I) People use the tools and practices of science and engineering in many different situations (e.g. land managers, technicians, nurses and welders).</p> <p>SCI.ETS3.A.5(I) Science and engineering affect everyday life.</p> <p>SCI.ETS3.B.3(I) Science and engineering are both bodies of knowledge and processes that add new knowledge to our understanding.</p> <p>SCI.ETS3.B.4(I) Scientific findings are limited to what can be supported with evidence from the natural world.</p> <p>SCI.ETS3.B.6(I) Engineering solutions often have drawbacks as well as benefits.</p> <p>SCI.ETS3.C.3(I) The products of science and engineering are not developed through one set "scientific method" or "engineering design process." Instead, they use a variety of approaches described in the Science and Engineering Practices.</p> <p>SCI.ETS3.C.4(I) Science explanations are based on a body of evidence and multiple tests, and describe the mechanisms for natural events. Science explanations can change based on new evidence.</p> <p>SCI.ETS3.C.5(I) There is no perfect design in engineering. Designs that are best in some ways (e.g. safety or ease of use) may be inferior in other ways (e.g. cost or aesthetics).</p>					
<p>Earth/Space Unit D ~ Weather &amp; Space  <i>(updated 8/28/19)</i></p>	<p>SCI.CC5.3-5(A) Students understand matter is made of particles and energy can be transferred in various ways and between objects. Students observe the conservation of matter by tracking matter flows and cycles before and after processes, recognizing the total mass of substances does not change.</p> <p>SCI.CC6.3-5(A) Students understand different materials have different substructures, which can sometimes be observed; and substructures have shapes and parts that serve functions.</p> <p>SCI.SEP2.A.3-5(A) Students build and revise simple models and use models to represent events and design solutions. This includes the following: •Identify limitations of models.</p>		<p>What are weather and climate? What objects are in the solar system and beyond?</p>	<p>Define the atmosphere as a mixture of different gases. Describe four properties of weather that can be measured and the tools to measure them. Sequence the steps of the water cycle. Identify and describe types of clouds and precipitation. Explain how air masses form and identify the types of weather they cause. Forecast the weather by interpreting data on a weather map.</p>	<p>Exit Tickets Formative Assessments Summative Assessments Daily/Class Work Teacher Observation</p>	<p>Students will learn that Earth is perfectly located in the solar system. Also, the wind and waves obey God. "And He got up and rebuked the wind and said to the sea, "Hush, be still." And the wind died down and it became perfectly calm. And He said to them, "Why are you afraid? Do you still have no faith?" They became very much afraid and said to one another, "Who then is this, that even the wind and the sea obey Him?" Mark 4:39-41</p>

- Collaboratively develop and/or revise a model based on evidence that shows the relationships among variables for frequent and regular occurring events.
- Develop a model using an analogy, example, or abstract representation to describe a scientific principle or design solution.
- Develop and/or use models to describe or predict phenomena.
- Develop a diagram or simple physical prototype to convey a proposed object, tool, or process.
- Use a model to test cause and effect relationships or interactions concerning the functioning of a natural or designed system

## SCI.SEP3.A.3-5(A)

Students plan and carry out investigations that control variables and provide evidence to support explanations or design solutions. This includes the following:

- Collaboratively plan and conduct an investigation to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered.
- Evaluate appropriate methods and tools for collecting data.
- Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.
- Make predictions about what would happen if a variable changes.
- Test two different models of the same proposed object, tool, or process to determine which better meets criteria for success.

## SCI.ESS.A.5(A)

Stars range greatly in size and distance from Earth, and this can explain their relative brightness

## SCI.ESS.B.5(A)

The Earth's orbit and rotation, and the orbit of the moon around the Earth cause observable patterns.

## SCI.ESS.C.4(A)

Certain features on Earth can be used to order events that have occurred in a landscape.

## SCI.ESS2.A.4(A)

Four major Earth systems interact. Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, organisms, and gravity break rocks, soils, and sediments into smaller pieces and move them around.

## SCI.ESS2.B.4(A)

Earth's physical features occur in patterns, as do earthquakes and volcanoes. Maps can be used to locate features and determine patterns in those events.

## SCI.ESS2.C.5(A)

Most of Earth's water is in the ocean, and much of the Earth's freshwater is in glaciers or underground.

## SCI.ESS2.D.3(A)

Climate describes patterns of typical weather conditions over different scales and variations. Historical weather patterns

Define and give examples of climate.  
 Explain the main factors that determine climate.  
 Explain how Earth's rotation causes the cycle of day and night.  
 Explain why the Sun's apparent motion in the sky differs from season to season.  
 Explain why the Moon is covered with craters.  
 Identify the Explore stars, including their composition, appearance causes of the Moon's phases, solar eclipses, and lunar eclipses.  
 Define and describe the solar system.  
 Discuss the properties of the inner and outer planets.  
 Explore stars, including their composition, appearance, and distance from Earth.  
 Identify the characteristics of the Sun and its importance to life on Earth.



	<p>can be analyzed.</p> <p>SCI.ESS2.E.4(A) Living things can affect the physical characteristics of their environment.</p> <p>SCI.ESS3.A.4(A) Energy and fuels humans use are derived from natural sources, and their use affects the environment. Some resources are renewable over time, others are not.</p> <p>SCI.ESS3.B.4(A) A variety of hazards result from natural processes; humans cannot eliminate hazards but can reduce their impacts.</p> <p>SCI.ESS3.C.5(A) Societal activities have had major effects on the land, ocean, atmosphere, and even outer space. Societal activities can also help protect Earth's resources and environments.</p> <p>SCI.PS4.A.4(I) Waves are regular patterns of motion, which can be made in water by disturbing the surface. Waves of the same type can differ in amplitude and wavelength. Waves can make objects move.</p>					
<p>Physical Science Unit E ~ Matter</p> <p><i>(updated 6/3/20)</i></p>	<p>SCI.CC5.3-5(A) Students understand matter is made of particles and energy can be transferred in various ways and between objects. Students observe the conservation of matter by tracking matter flows and cycles before and after processes, recognizing the total mass of substances does not change.</p> <p>SCI.CC6.3-5(A) Students understand different materials have different substructures, which can sometimes be observed; and substructures have shapes and parts that serve functions.</p> <p>SCI.SEP2.A.3-5(A) Students build and revise simple models and use models to represent events and design solutions. This includes the following:  <ul style="list-style-type: none"> <li>•Identify limitations of models.</li> <li>•Collaboratively develop and/or revise a model based on evidence that shows the relationships among variables for frequent and regular occurring events.</li> <li>•Develop a model using an analogy, example, or abstract representation to describe a scientific principle or design solution.</li> <li>•Develop and/or use models to describe or predict phenomena.</li> <li>•Develop a diagram or simple physical prototype to convey a proposed object, tool, or process.</li> <li>•Use a model to test cause and effect relationships or interactions concerning the functioning of a natural or designed system</li> </ul> </p> <p>SCI.SEP3.A.3-5(A) Students plan and carry out investigations that control variables and provide evidence to support explanations or design solutions. This includes the following:  <ul style="list-style-type: none"> <li>•Collaboratively plan and conduct an investigation to produce data to serve as</li> </ul> </p>		<p>What is matter and how is it classified? How can matter change?</p>	<p>Define and describe the three states of matter. Compare and contrast properties of matter. Describe some properties of matter that can be measured. Measure properties of matter using correct units. Explore how matter is classified. Explain how elements are organized in the periodic table. Comprehend that the change of state is a physical change. Differentiate between physical change and chemical change. Explain that mixtures are combinations of matter. Describe ways of separating mixtures. Describe how compounds form and their physical properties. Compare and contrast acids nad bases.</p>	<p>Exit Tickets Formative Assessments Summative Assessments Daily/Class Work Teacher Observation</p>	<p>Students will learn that God created all things, even the intricate details. "Great are the works of the Lord, studied by all who delight in them." Psalm 111:2</p>

the basis for evidence, using fair tests in which variables are controlled and the number of trials considered.

- Evaluate appropriate methods and tools for collecting data.
- Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.
- Make predictions about what would happen if a variable changes.
- Test two different models of the same proposed object, tool, or process to determine which better meets criteria for success.

## SCI.PS1.A.5(A)

Matter exists as particles that are too small to see. Matter is always conserved even if it seems to disappear. Measurements of a variety of observable properties can be used to identify particular materials.

## SCI.PS1.B.5(A)

Chemical reactions that occur when substances are mixed can be identified by the emergence of substances with different properties.

## SCI.PS1.B.6(A)

In chemical reactions the total mass remains the same.

## SCI.PS2.A.3(A)

Qualities of motion and changes in motion require description of both size and direction.

## SCI.PS2.A.4(A)

The effect of unbalanced forces on an object results in a change of motion.

## SCI.PS2.A.5(A)

Patterns of motion can be used to predict future motion.

## SCI.PS2.B.3(A)

Some forces act through contact, some forces (e.g. magnetic, electrostatic) act even when the objects are not in contact.

## SCI.PS2.B.5(A)

The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.

## SCI.PS3.A.4(A)

Moving objects contain energy. The faster the object moves, the more energy it has.

## SCI.PS3.B.4(A)

Energy can be moved from place to place by moving objects, or through sound, light, or electrical currents. Energy can be converted from one form to another form.

## SCI.PS3.C.4(A)

When objects collide, contact forces transfer energy so as to change objects' motions.

## SCI.PS3.D.4(A)

Plants capture energy from sunlight which can be used as fuel or food.

## SCI.PS3.D.5(A)

Stored energy in food or fuel can be converted to useable energy.

## SCI.ETS2.A.5(A)

Science and technology support each other.

## SCI.ETS2.A.6(A)

	<p>Tools and instruments are used to answer scientific questions, while scientific discoveries lead to the development of new technologies.</p> <p>SCI.ETS2.B.1(A) People's needs and wants change over time, as do their demands for new and improved technologies.</p> <p>SCI.ETS2.B.2(A) Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands.</p> <p>SCI.ETS2.B.3(A) When new technologies become available, they can bring about changes in the way people live and interact with one another.</p> <p>SCI.ETS3.A.3(A) Science and engineering knowledge have been created by many cultures.</p> <p>SCI.ETS3.A.4(A) People use the tools and practices of science and engineering in many different situations (e.g. land managers, technicians, nurses and welders).</p> <p>SCI.ETS3.A.5(A) Science and engineering affect everyday life.</p> <p>SCI.ETS3.B.3(A) Science and engineering are both bodies of knowledge and processes that add new knowledge to our understanding.</p> <p>SCI.ETS3.B.4(A) Scientific findings are limited to what can be supported with evidence from the natural world.</p> <p>SCI.ETS3.B.5(A) Basic laws of nature are the same everywhere in the universe (e.g. gravity, conservation of matter, energy transfer, etc.).</p> <p>SCI.ETS3.B.6(A) Engineering solutions often have drawbacks as well as benefits.</p> <p>SCI.ETS3.C.3(A) The products of science and engineering are not developed through one set "scientific method" or "engineering design process." Instead, they use a variety of approaches described in the Science and Engineering Practices.</p> <p>SCI.ETS3.C.4(A) Science explanations are based on a body of evidence and multiple tests, and describe the mechanisms for natural events. Science explanations can change based on new evidence.</p> <p>SCI.ETS3.C.5(A) There is no perfect design in engineering. Designs that are best in some ways (e.g. safety or ease of use) may be inferior in other ways (e.g. cost or aesthetics).</p>					
<p>Physical Science Unit F ~ Forces and Energy  (updated 6/3/20)</p>	<p>SCI.CC.5.3-5(A) Students understand matter is made of particles and energy can be transferred in various ways and between objects. Students observe the conservation of matter by tracking matter flows and cycles before and after processes, recognizing</p>		<p>Why do things move? How do we use energy?</p>	<p>Explain how motion, speed, velocity, and acceleration are related. Summarize the forces that act on a moving object. Demonstrate the forces that act on a moving</p>	<p>Exit Tickets Formative Assessments Summative Assessments Daily/Class Work</p>	<p>While learning about force, motion, etc, students will learn about the guiding force in their lives ~ Jesus ~ and learn to depend on Him and to trust in His wisdom. "I guide you in the way of wisdom and lead you along straight paths." Proverbs 4:11</p>

<p>the total mass of substances does not change.</p> <p><b>SCI.SEP6.A.3-5(A)</b> Students use evidence to construct explanations that specify variables which describe and predict phenomena. This includes the following:</p> <ul style="list-style-type: none"> <li>•Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard).</li> <li>•Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation.</li> <li>•Identify the evidence that supports particular points in an explanation.</li> </ul> <p><b>SCI.SEP7.A.3-5(A)</b> Students critique the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world. This includes the following:</p> <ul style="list-style-type: none"> <li>•Compare and refine arguments based on an evaluation of the evidence presented.</li> <li>•Distinguish among facts, reasoned judgment based on research findings, and speculation in an explanation.</li> <li>•Respectfully provide and receive critiques from peers about a proposed procedure, explanation, or model by citing relevant evidence and posing specific questions.</li> <li>•Construct and/or support an argument with evidence, data, or a model.</li> <li>•Use data to evaluate claims about cause and effect.</li> <li>•Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem.</li> </ul> <p><b>SCI.SEP8.A.3-5(A)</b> Students evaluate the merit and accuracy of ideas and methods. This includes the following:</p> <ul style="list-style-type: none"> <li>•Read and comprehend gradeappropriate complex texts and other reliable media to summarize and obtain scientific and technical ideas, and describe how they are supported by evidence.</li> <li>•Compare and/or combine information across complex texts and other reliable media to support the engagement in scientific and engineering practices.</li> <li>•Combine information in written text with that contained in corresponding tables, diagrams, or charts to support the engagement in other scientific and engineering practices.</li> <li>•Obtain and combine information from books or other reliable media to explain phenomena or solutions to a design problem.</li> <li>•Communicate scientific and technical information orally or in written formats, including various forms of media, which may include tables, diagrams, and charts.</li> </ul> <p><b>SCI.LS1.C.5(A)</b> Food provides animals with the materials and energy they need for body repair, growth, warmth, and motion. Plants acquire material for growth chiefly from air, water, and process matter, and obtain energy from sunlight, which is used to</p>		<p>that act on a moving object, including friction and gravity.</p> <p>Demonstrate a basic understanding of how forces affect motion.</p> <p>Explain how friction affects motion.</p> <p>Define work and energy.</p> <p>Explain that heat flows from warmer materials to cooler materials.</p> <p>Describe and define conduction, convection, and radiation.</p> <p>Explain how sound is produced and how it travels through a medium.</p> <p>Identify the characteristics of sound, including frequency of sound, including frequency, pitch, volume, and echoes.</p> <p>Demonstrate that light travels in a straight line.</p> <p>Describe ways light can be absorbed, reflected, or refracted by objects.</p> <p>Describe the characteristics of electrically charged objects.</p> <p>Explain the difference between static and current electricity.</p> <p>Describe a magnetic field and the effect of distance on magnetic force.</p> <p>Understand how an electromagnet, an electric motor, and a generator work.</p> <p>Compare and contrast potential and kinetic energy.</p> <p>Identify the different kinds of simple machines.</p> <p>Explain how simple machines work together to make compound machines.</p>	<p>from</p> <p>Teacher Observation</p>
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maintain conditions necessary for survival.			
SCI.PS3.A.4(A) Moving objects contain energy. The faster the object moves, the more energy it has.			
SCI.PS3.B.4(A) Energy can be moved from place to place by moving objects, or through sound, light, or electrical currents. Energy can be converted from one form to another form.			
SCI.PS3.C.4(A) When objects collide, contact forces transfer energy so as to change objects' motions.			
SCI.PS3.D.4(A) Plants capture energy from sunlight which can be used as fuel or food.			
SCI.PS3.D.5(A) Stored energy in food or fuel can be converted to useable energy.			
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SCI.ETS2.B.2(A) Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands.			
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SCI.ETS3.B.3(A) Science and engineering are both bodies of knowledge and processes that add new knowledge to our understanding.			
SCI.ETS3.B.5(A) Basic laws of nature are the same everywhere in the universe (e.g. gravity, conservation of matter, energy transfer, etc.).			
SCI.SEP5.A.3-5(I) Students extend quantitative measurements to a variety of physical properties, using computation and mathematics to analyze data and compare alternative design solutions. This includes the following: •Organize simple data sets to reveal patterns that suggest relationships. •Describe, measure, estimate, and/or graph quantities such as area, volume, weight, and time to address scientific and engineering questions and problems. •Create and use graphs or charts generated from simple algorithms to compare alternative solutions to an engineering problem.			
SCI.SEP6.B.3-5(I) Students use evidence to create multiple solutions to design problems. This includes			

the following:

- Apply scientific ideas to solve design problems.
- Generate multiple solutions to a problem and compare how well they meet the criteria and constraints.

SCI.PS4.A.4(I)

Waves are regular patterns of motion, which can be made in water by disturbing the surface. Waves of the same type can differ in amplitude and wavelength. Waves can make objects move.

SCI.PS4.B.4(I)

Objects can be seen when light reflected from their surface enters our eyes.

SCI.PS4.C.4(I)

Patterns can encode, send, receive, and decode information.

SCI.ETS3.B.6(I)

Engineering solutions often have drawbacks as well as benefits.