

Strand 1: Properties and Principles of Matter and Energy

Strand 1-Integrating Faith by teaching the scientific principles to explore, discover, and classify God’s creation.

1. Changes in properties and states of matter provide evidence of the atomic theory of matter		
	Second	Fourth
A	<i>Scope and Sequence – Properties of Rocks and Soil</i>	<i>Scope and Sequence – Mixtures and Solutions</i>
<p>Four Objects, and the materials they are made of, have properties that can be used to describe and classify them</p>	<p>a. Describe and compare the physical properties of objects by using simple tools (i.e., thermometer, magnifier, centimeter ruler, balance, magnet)</p> <p>b. Classify objects/substances as “one kind of material” or a mixture (e.g. m & m’s® vs. trail mix, water vs. kool aid®)</p> <p style="text-align: center;">Curriculum:</p> <p>*given various objects, complete a chart recording the physical properties of the object *Students read the properties of their object and classmate guesses the object *using food ads, students cut and paste pictures of “one kind” or mixture *create trail mix for a classroom snack; discuss the fact that the items started as “one kind” and then we used them to create a mixture</p>	<p>a. Describe and compare the masses (the amount of matter in an object) of objects to the nearest gram using balances</p> <p>b. Describe and compare the volumes (the amount of space an object occupies) of objects using a graduated cylinder</p> <p>c. Identify situations where no two objects can occupy the same space at the same time (e.g. water level rises when an object or substance such as a rock is placed in a quantity of water)</p> <p>d. Classify types of materials (e.g., water, salt, sugar, iron filings, salt water) into “like” substances (materials that have specific physical properties) or mixtures of substances by using their characteristic properties</p> <p style="text-align: center;">Curriculum:</p> <p>*Divide students into four groups. Each group creates a demonstration of a, b, c, or d above. *Read from Discovery works</p>
DOK		a – 2, b – 2, c – 1, d – 2
B	<i>Scope and Sequence – Properties of Rocks and Soil</i>	<i>Scope and Sequence – Mixtures and Solutions/ Changes on the Earth’s Surface</i>
<p>Properties of mixtures depend upon the concentrations, properties, and interactions of particles</p>	<p>a. Observe and describe how mixtures are made by combining solids</p> <p>b. Describe ways to separate the components of a mixture by their physical properties (e.g., sorting, magnets, screening)</p> <p style="text-align: center;">Curriculum:</p> <p>**Use teacher provided materials to combine. Write in journals to describe what they saw. **Given a mixture, decide the best way to separate it.</p>	<p>a. Identify water as a solvent that dissolves materials (Do NOT assess the term solvent)</p> <p>b. Observe and describe how mixtures are made by combining solids or liquids, or a combination of these</p> <p>c. Distinguish between the components in a mixture/solution (e.g., trail mix, conglomerate rock, salad, soil, salt water)</p> <p>d. Describe ways to separate the components of a mixture/solution by their properties (i.e., sorting, filtration, magnets, screening)</p> <p style="text-align: center;">Curriculum:</p> <p>**Given water and various solids, observe and record if the water dissolves the solid **Given solids and/or liquids, observe and then record in journals which mixtures are made **Given mixture/solutions (such as: trail mix, conglomerate rock, etc.), divide into groups; each group lists the components. **Given several mixture/solutions; students determine and record the components and how they separated it.</p>
DOK		a – 1, b – 1, c – 1, d – 1

Strand 1: Properties and Principles of Matter and Energy

1. Changes in properties and states of matter provide evidence of the atomic theory of matter -- Continued		
	Third	
D	<i>Scope and Sequence – Investigating States of Matter</i>	
Physical changes in the state of matter that result from thermal changes can be explained by the Kinetic Theory of Matter	a. Compare the observable physical properties of solids, liquids, or gases (air) (i.e., visible vs. invisible, changes in shape, changes in the amount of space occupied)	
	Curriculum: complete a graphic organizer comparing solids, liquids, gases	
	b. Identify everyday objects/substances as solid, liquid, or gas (e.g., air, water)	
	Curriculum: Given a three column chart, students list classroom items as solid, liquid, or gas	
	c. Observe and identify that water evaporates (liquid water changes into a gas as it moves into the air)	
	Curriculum: Given cups of water, students observe if the water evaporates. Record findings in journal.	
	d. Measure and compare the temperature of water when it exists as a solid to its temperature when it exists as a liquid	
	Curriculum: Given ice cubes and room temperature water, students measure and record the temperatures of both.	
	e. Investigate and observe that water can change from a liquid to a solid (freeze), and back again to a liquid (melt), as the result of temperature changes	
	Curriculum: Given a small cup of water, students observe and record how the water starts and what it looks like after freezing.	
f. Describe the changes in the physical properties of water (i.e., shape, volume) when frozen or melted		
Curriculum: Freeze and thaw water in small containers. Measure the water. Record observations in journal.		
g. Predict and investigate the effect of heat (thermal energy) (i.e., change in temperature, melting, evaporation) on objects and materials		
Curriculum: Using items such as ice cubes, marshmallows, observe and record changes to items that have been microwaved and/or left in the sun.		
DOK	a – 2, b – 1, c – 1, d – 2, e – 1, f – 1, g – 2	

1. Changes in properties and states of matter provide evidence of the atomic theory of matter -- Continued		
	Fourth	
DOK		
I	<i>Scope and Sequence – Water Cycle and Weather</i>	
Mass is conserved during any physical or chemical change	a. Observe the mass of water remains constant as it changes state (as evidenced in a closed container)	
	Curriculum: Students record their steps and observations as the class weighs a container of water and then weighs it again after freezing it. Using chocolate bars, weigh the full bar; cut it and weigh again; melt and then weigh a third time. Compare the weights and record data and observations in journals.	
DOK	a – 1	a – 1

Strand 1: Properties and Principles of Matter and Energy

2. Energy has a source, can be stored, and can be transferred but is conserved within a system			
	Second	Third	Fourth
A	<i>Scope and Sequence – Forms of Energy: Sound</i>		
Forms of energy have a source, a means of transfer (work and heat), and a receiver	<p>a. Identify air, water, and solids as mediums that sound travels through Curriculum: Students predict and the test whether or not sound travels through air, water or solids. Record results in journal. Read about sound in text; Discovery Works.</p> <p>b. Describe different ways to change the pitch of a sound (i.e., changes in size, such as length or thickness, and in tightness/tension of the source) Curriculum: Students create a “guitar” with a box and rubber bands of various sizes.</p> <p>c. Describe how the ear serves as a receiver of sound (i.e., sound vibrates eardrum) Curriculum: Students create a poster showing the ear structure and describing how it serves as a receiver.</p> <p>d. Describe how to change the loudness of a sound (i.e., increase or decrease the force causing vibrations) Curriculum: Students take turns striking keys of a piano and compare sounds heard to their finger pressure.</p>	<p>a. Identify sources of thermal energy (e.g., Sun, stove, fire, body) that can cause solids to change to liquids, and liquids to change to gas Curriculum: in groups, create a list of sources of thermal energy. Combine lists for one large class list.</p> <p><i>Scope and Sequence – Earth, Sun, and Moon</i></p> <p>b. Identify sources of light energy (e.g., Sun, bulbs, flames) Curriculum: Divide class into groups. Each group is to list as many light energy sources as they can. Share answers and eliminate duplicate answers. The group with the most non-duplicated answers wins.</p> <p>c. Observe light being transferred from the source to the receiver (eye) through space Curriculum: Make the room as dark as possible while also keeping it safe. Give each student a flashlight and have them look for specific things in the room. (the flag, chalkboard, etc.)</p> <p>d. Identify the three things (light source, object, and surface) necessary to produce a shadow Curriculum: Make the room as dark as possible while also keeping it safe. Group the students in pairs; allow them to take turns holding a flashlight so the other can make shadows.</p>	<p>a. Construct and diagram a complete electric circuit by using a source (e.g., battery), means of transfer (e.g., wires), and receiver (e.g., resistance bulbs, motors, fans) Curriculum: Given a battery, wires and a bulb, be able to connect them so the bulb will light.</p> <p>b. Observe and describe the evidence of energy transfer in a closed series circuit (e.g., lit bulb, moving motor, fan) Curriculum: Using the material from above, students should describe the type of circuit they have made and how they know. Be able to define circuit as open when wires are not connected.</p> <p>c. Classify materials as conductors or insulators of electricity when placed within a circuit (e.g., wood, pencil lead, plastic, glass, aluminum foil, lemon juice, air, water) Curriculum: Using material from above, add various items one at a time and categorize them as conductors or insulators. Record results in journal.</p>
	DOK		a – 1, b – 1, c – 1
C	<i>Scope and Sequence – Earth, Sun, and Moon/Food Chains</i>		
Electromagnetic energy from the Sun (solar radiation) is a major source of energy on Earth	<p>a. Identify the Sun as the primary source of light and food energy on Earth Curriculum: Students create a poster using a picture of the sun and incorporating Genesis 1:3.</p>		
	DOK		a – 1

Strand 1: Properties and Principles of Matter and Energy

2. Energy has a source, can be stored, and can be transferred but is conserved within a system -- Continued	
	Fourth
DOK	
F	<i>Scope and Sequence – Forms of Energy: Electrical Circuits</i>
Energy can be transferred within a system as the total amount of energy remains constant (i.e., Law of Conservation of Energy)	a. Identify the evidence of energy transformations (temperature change, light, sound, motion, and magnetic effects) that occur in electrical circuits Curriculum: Allow each student to bring in a battery or electrical toy. Allow them to show the toy and explain what happens when the circuit is closed.
DOK	a – 1

Strand 2: Properties and Principles of Force and Motion

Strand 2-Integrating Faith by being able to use scientific principles to explore, discover, and classify God’s creation.

1. The motion of an object is described by its change in position relative to another object or point		
	Second	Fourth
A		<i>Scope and Sequence – Laws of Motion</i>
The motion of an object is described as a change in position, direction, and speed relative to another object (frame of reference)		a. Classify different types of motion [straight line, curved, vibrating (back and forth)] b. Describe an object’s motion in terms of distance and time Curriculum: Students roll a marble and record its motions in their journal. With a partner, use a stop watch to record how long the marble rolled. Measure the distance with a tape measure.
DOK		a – 2, b – 2
B	<i>Scope and Sequence – Forces and Motion</i>	
An object that is accelerating is speeding up, slowing down, or changing direction	a. Describe Earth’s gravity as a force that pulls objects on or near the Earth toward the Earth without touching the object. Curriculum: Standing from a height, students drop small, soft objects. Explain that they are demonstrating gravity.	
DOK		

2. Forces affect motion

	Second	Fourth
A	<i>Scope and Sequence – Forces and Motion</i>	
Forces are classified as either contact (pushes, pulls, friction, buoyancy) or non-contact forces (gravity, magnetism), that can be described in terms of direction and magnitude	a. Identify magnets attract and repel each other and certain materials b. Describe magnetism as a force that can push or pull other objects without touching them c. Measure (using non-standard units) and compare the force (i.e., push or pull) required to overcome friction and move an object over different surfaces (i.e., rough, smooth) Curriculum: Given magnets and various metal objects, allow students to experiment with the magnets and record their findings in their journal. (a, b, and c)	<i>Scope and Sequence – Laws of Motion</i> a. Identify the forces acting on the motion of objects traveling in a straight line (specify that forces should be acting in the same line as the motion, provide examples) b. Describe and compare forces (measured by a spring scale in Newton’s) applied to objects in a single line. c. Observe and identify friction as a force that slows down or stops a moving object that is touching another object or surface d. Compare the forces (measured by a spring scale in Newton’s) required to overcome friction when an object moves over different surfaces (i.e., rough/smooth) Curriculum: Using marbles or other small balls, experiment with rolling them in straight lines and then bumping with another marble. Record observations in journals. Read text examples.
DOK		

Strand 2: Properties and Principles of Force and Motion

	Second	Fourth
B	<i>Scope and Sequence – Forces and Motion</i>	<i>Scope and Sequence – Laws of Motion-</i>
Every object exerts a gravitational force on every other object	Describe Earth’s gravity as a force that pulls objects on or near the Earth toward the Earth without touching the object Curriculum: Stand at a small height and drop an object. Define gravity from text and research Sir Isaac Newton.	a. Determine the gravitational pull of earth on an object (weight) using a spring scale. Curriculum: Research various gravitational pulls from the internet and/or text. Use a scale to measure and compare objects.
DOK		
2. Forces affect motion – Continued		
	Second	Fourth
DOK		
D	<i>Scope and Sequence – Forces and Motion</i>	<i>Scope and Sequence – Laws of Motion</i>
Newton’s Laws of Motion explain the interaction of mass and forces, and are used to predict changes in motion	<p>a. Describe the direction and amount of force (i.e., direction of push or pull, strong/weak push or pull) needed to change an object’s motion (i.e., faster/slower, change in direction)</p> <p>b. Describe and compare the distances traveled by heavier/lighter objects after applying the same amount of force (i.e., push or pull) in the same direction</p> <p>c. Describe and compare the distances traveled by objects with the same mass after applying different amounts of force (i.e., push or pull) in the same direction</p> <p>Curriculum: Using small toy cars and string, experiment by pushing the cars at different forces/speeds. Attach a string and pull the cars to see how that changes their distance. (use vehicles of different weights)</p>	<p>a. Observe that balanced forces do not affect an object’s motion (need to clarify that balanced forces means no change in forces acting on an object)</p> <p>b. Describe how unbalanced forces acting on an object changes its speed (faster/slower), direction of motion, or both (need to clarify that unbalanced forces means any change in forces acting on an object)</p> <p>c. Predict how the change in speed of an object (i.e., faster/slower/remains the same) is affected by the amount of force applied to an object and the mass of the object</p> <p>Curriculum: Using small toy cars and string, experiment by pushing the cars at different forces/speeds. Attach a string and pull the cars to see how that changes their distance. (use vehicles of different weights)</p> <p style="text-align: center;"><i>Scope and Sequence - Energy: Electrical Circuits</i></p> <p>d. Predict the effects of an electrostatic force (static electricity) on the motion of objects (attract or repel)</p> <p>Curriculum: Using balloons, rub together to create static electricity. Experiment with the effects of static electricity on objects. Read text examples.</p>
DOK		

Strand 2: Properties and Principles of Force and Motion

2. Forces affect motion – Continued	
	Second
DOK	
F	<i>Scope and Sequence – Forces and Motion</i>
Work transfers energy into and out of a mechanical system	<p>a. Compare and describe the amount of force (i.e., more, less, or same push or pull) needed to raise an object to a given height, with or without using inclined planes (ramps) of different slopes</p> <p>b. Compare and describe the amount of force (i.e., more, less, or same push or pull) needed to raise an object to a given height, with or without using levers</p> <p>c. Apply the use of an inclined plane (ramp) and/or lever to different real life situations in which objects are raised</p> <p>Curriculum: Using small toy cars, create a small ramp for the cars. Experiment with different forces and record results.</p> <p>Brainstorm ways we have seen an inclined plane and/or lever used.</p> <p>Read text and/or internet examples.</p>
DOK	

Strand 3: Characteristics and Interactions of Living

Strand 3-Integrating Faith by teaching that God created the heavens and the earth, including all things visible and invisible, amazingly large and atomically small, living and non-living.

1. There is a fundamental unity underlying the diversity of all living organisms		
	Second	Third
A		<i>Scope and Sequence – Plants</i>
Organisms have basic needs for survival		a. Describe the basic needs of most plants (i.e., air, water, light, nutrients, temperature) Curriculum: *List what plants need.
DOK		a – 1
B	<i>Scope and Sequence – Life Cycles of Animals</i>	<i>Scope and Sequence – Plants</i>
Organisms progress through life cycles unique to different types of organisms	a. Identify and sequence life cycles (birth, growth, and development, reproduction and death) of animals (i.e, butterfly, frog, chicken, snake, dog) b. Record observations on the life cycle of different animals (e.g., butterfly, dog, frog, chicken, snake) Curriculum: *observe lady bugs *write in journals; record phases of development	a. Describe and sequence the stages in the life cycle (for a plant) of seed germination, growth and development, reproduction, and death (i.e., a flowering plant) Curriculum: *Read about stages in Discovery Works Science
DOK		a – 1

Strand 3: Characteristics and Interactions of Living

1. There is a fundamental unity underlying the diversity of all living organisms -- Continued		
	Third	
	<i>Scope and Sequence – Plants</i>	
D Plants and animals have different structures that serve similar functions necessary for the survival of the organism	a. Identify the major organs (roots, stems, flowers, leaves) and their functions in vascular plants (e.g., absorption, transport, reproduction) (Do NOT assess the term vascular)	
	Curriculum:	
	*Students create a model of a plant with their choice of material. (ex: yarn, construction paper, real leaves, etc.)	
DOK	a – 1	

2. Living organisms carry out life processes in order to survive		
	Third	
	<i>Scope and Sequence – Plants</i>	
DOK C Complex multicellular organisms have systems that interact to carry out life processes through physical and chemical means	a. Illustrate and trace the path of water and nutrients as they move through the transport system of a plant	
	Curriculum:	
	*Create a model of a plant and use arrows to show the path of water and nutrients	
DOK	a – 1	
DOK		

3. There is a genetic basis for the transfer of biological characteristics from one generation to the next through productive processes		
	Second	Third
	<i>Scope and Sequence – Life Cycles of Animals</i>	
D There is heritable variation within every species of organism	a. Identify and relate the similarities and differences among animal parents and their offspring or multiple offspring	<i>Scope and Sequence – Plants</i> a. Identify and relate the similarities and differences between plants and their offspring (i.e., seedlings)
	Curriculum:	Curriculum:
	Using animal books, students describe how parents and offspring are similar and different.	Discuss ways that plants and parents are similar and different. (talk about plants they have at home, look at plants through window, take a nature walk)
DOK		a – 2

Strand 4: Changes in Ecosystems and Interactions of Organisms with their Environments

Strand 4: Integrating faith by discussing stewardship and caring about God’s creation through a recycling unit.

1. Organisms are interdependent with one another and with their environment	
	Fourth
A	<i>Scope and Sequence – Interactions Among Organisms and Their Environment</i>
<p style="margin: 0;">All populations living together within a community interact with one another and with their environment in order to survive and maintain a balanced ecosystem</p>	<p>a. Identify the ways a specific organism may interact with other organisms or with the environment (e.g., pollination, shelter, seed dispersal, camouflage, migration, hibernation, defensive mechanism)</p> <p>b. Identify and describe different environments (i.e. pond, forest, prairie) support the life of different types of plants and animals</p> <p>Curriculum:</p> <ul style="list-style-type: none"> *Students use nationalgeographic.com/kids to research an animal of student choice. *record information found in a graphic organizer *share learned information with class
DOK	a – 1, b – 1

1. Organisms are interdependent with one another and with their environment -- Continued	
	Fourth
D	<i>Scope and Sequence – Interactions among Organisms and their Environment</i>
<p style="margin: 0;">The diversity of species within an ecosystem is affected by changes in the environment, which can be caused by other organisms or outside processes</p>	<p>a. Identify examples in Missouri where human activity has had a beneficial or harmful effect on other organisms (e.g., feeding birds, littering vs. picking up trash, hunting/conservation of species, paving/restoring green space)</p> <p>Curriculum:</p> <ul style="list-style-type: none"> *give each student a 3 x 5 card with terms listed above *students read their card and then stand under the sign they agree with
DOK	<p style="margin: 0;">*in one part of the room, have the words, helpful/harmful posted.</p> <p style="margin: 0;">*discuss each answer; encourage debate/defending their position</p>
DOK	a – 1

2. Matter and energy flow through an ecosystem		
	Third	Fourth
A	<i>Scope and Sequence – Food Chains</i>	<i>Scope and Sequence – Interactions among Organisms and their Environment</i>
<p style="margin: 0;">As energy flows through the ecosystem, all organisms capture a portion of that energy and transform it to a form they can use</p>	<p>a. Identify sunlight as the primary source of energy plants use to produce their own food</p> <p>b. Classify populations of organisms as producers or consumers by the role they serve in the ecosystem</p> <p>c. Sequence the flow of energy through a food chain beginning with the Sun</p> <p>d. Predict the possible effects of removing an organism from a food chain</p> <p>Curriculum: Read text; Discovery Works. Using small pictures of animals and their names, use yarn to connect animals/plants in a food web. Talk about and identify the producers and consumers in the web. Remove one picture from the web and discuss how that would affect all other animals.</p>	<p>a. Classify populations of organisms as producers and consumers by the role they serve in the ecosystem</p> <p>b. Differentiate between the types of consumers (herbivore, carnivore, omnivore, and detritivore/decomposer)</p> <p>c. Categorize organisms as predator or prey in a given ecosystem</p> <p>Curriculum: Read text, Discovery Works. Discuss the meaning of terms in a,b,c above. Write animal/plant examples under those headings. Give the class small cards with new animals written on them. Decide individually on the words from above. Check as a class;discussing how we know it belongs or does not belong in each category.</p>
DOK	a – 1, b – 1, c – 1, d – 2	a – 1, b – 1, c – 2

Strand 4: Changes in Ecosystems and Interactions of Organisms with their Environments

3. Genetic variation sorted by the natural selection process explains evidence of biological evolution	
A	Fourth
Evidence for the nature and rates of evolution can be found in anatomical and molecular characteristics of organisms and in the fossil record	<p><i>Scope and Sequence – Change's in the Earth's Surface</i></p> <p>a. Compare and contrast common fossils found in Missouri (i.e., trilobites, ferns, crinoids, gastropods, bivalves, fish, mastodons) to organisms present on Earth today</p> <p>Curriculum: Divide students into groups. Each group researches one of the common fossils above and shares description/picture of it.</p>
DOK	a – 2

3. Genetic variation sorted by the natural selection process explains evidence of biological evolution -- Continued	
	Fourth
C	<p><i>Scope and Sequence – Interactions among Organisms and their Environment</i></p> <p>a. Identify specialized structures and describe how they help plants survive in their environment (e.g., root, cactus needles, thorns, winged seed, waxy leaves)</p> <p>b. Identify specialized structures and senses and describe how they help animals survive in their environment (e.g., antennae, body covering, teeth, beaks, whiskers, appendages)</p> <p>c. Identify internal cues (e.g., hunger) and external cues (e.g., changes in the environment) that cause organisms to behave in certain ways (e.g., hunting, migration, hibernation)</p> <p>d. Predict which plant or animal will be able to survive in a specific environment based on its special structures or behaviors.</p> <p>Curriculum: Read from text, Discovery Works. Allow students to choose a plant or animal. Research their plant or animal and then share with the class how the animal or plant is able to survive in their environment. Read aloud the Creation story and remind students that God created everything and He has designed plants and animals to interact and help one another.</p>
DOK	a – 2, b – 2, c – 1, d – 2

Strand 5: Processes and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere)

Strand 5: Integrating Faith by teaching that God loves His creation and continually cares and provides for it.

1. Earth's systems (geosphere, atmosphere, and hydrosphere) have common components and unique structures		
	Second	Fourth
A	<i>Scope and Sequence - Earth Materials: Rocks and Minerals</i>	<i>Scope and Sequence - Changes in the Earth's Surface</i>
<p>The Earth's crust is composed of various materials, including soil, minerals, and rocks, with characteristic properties</p>	<p>a. Observe and describe the physical properties (e.g., odor, color, appearance, relative grain size, texture, absorption of water) and different components (i.e., sand, clay, humus) of soils</p> <p>Curriculum: Divide the students into groups. Using different soil samples, allow them to investigate their soil and record their observations in their journals. Share information with the class.</p> <p>b. Observe and describe the physical properties of rocks (e.g., size, shape, color, presence of fossils)</p> <p>Curriculum: Allow students to bring rocks from home and/or walk around outside to find some. Demonstrate with 2-3 example rocks and then have the kids complete a chart describing their rock with the above criteria.</p>	<p>a. Identify and describe the components of soil (e.g., plant roots and debris, bacteria, fungi, worms, types of rock) and its properties (e.g., odor, color, resistance to erosion, texture, fertility, relative grain size, absorption rate)</p> <p>Curriculum: Divide the students into groups. Using different soil samples, allow them to investigate their soil and record their observations in their journals. Share information with the class. Also, read text information about soils.</p> <p>b. Compare the physical properties (i.e., size, shape, color, texture, layering, presence of fossils) of rocks (mixtures of different Earth materials, each with observable physical properties)</p> <p>Curriculum: Allow students to bring rocks from home and/or walk around outside to find some. Demonstrate with 2-3 example rocks and then have the kids complete a chart describing their rock with the above criteria.</p>
DOK		a – 1, b – 2

1. Earth's systems (geosphere, atmosphere, and hydrosphere) have common components and unique structures -- Continued		
	Third	
C	<i>Scope and Sequence - Investigating States of Matter</i>	
<p>The atmosphere (air) is composed of a mixture of gases, including water vapor, and minute particles</p>	<p>a. Identify that liquid water can be changed into a gas (vapor) in the air.</p> <p>b. Identify that clouds are composed of tiny droplets of water</p> <p>c. Identify air as a substance that surrounds us, taking up space and moves around us as wind</p> <p>Curriculum: Read text information and the book, Clouds, from our class library.</p>	
DOK	a – 1, b – 1, c – 1	

Strand 5: Processes and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere)

2. Earth's systems (geosphere, atmosphere, and hydrosphere) interact with one another as they undergo change by common processes		
	Second	Fourth
A	<i>Scope and Sequence – Earth Materials: Rocks and Minerals</i>	<i>Scope and Sequence- Changes in the Earth's Surface</i>
The Earth's materials and surface features are changed through a variety of external processes	<p>a. Observe and identify examples of slow changes in the Earth's surface and surface materials (e.g., rock, soil layers) due to processes such as decay (rotting), freezing, thawing, breaking, or wearing away by running water or wind</p> <p>Curriculum: Read from our text, Discovery Works. Take a nature walk around the school and look for examples of the above.</p>	<p>a. Observe and describe the breakdown of plant and animal material into soil through decomposition processes (i.e., decay/rotting, composting, digestion)</p> <p>Curriculum: Using a small clear container, add soil and fruit or vegetable peels; watch it decompose.</p> <p>Read from text, Discovery Works.</p> <p>b. Identify the major landforms/bodies of water on Earth (i.e., mountains, plains, river valleys, coastlines, canyons)</p> <p>Curriculum: Cut examples of the major landforms/bodies of water and glue to note cards with their definition.</p> <p>c. Describe how weathering agents (e.g., water, chemicals, temperature, wind, plants) cause surface changes that create and/or change Earth's surface materials and/or landforms/ bodies of water</p> <p>d. Describe how erosion processes (i.e., action of gravity, waves, wind, rivers, glaciers) cause surface changes that create and/or change Earth's surface materials and/or landforms/ bodies of water</p> <p>e. Relate the type of landform/water body to the process by which it was formed</p> <p>Curriculum (c,d,e): Read from text, Discovery Works. Discuss examples of the above that students have seen around their home and/or on trips.</p>
DOK		a – 1, b – 1, c – 1, d – 1, e – 2

2. Earth's systems (geosphere, atmosphere, and hydrosphere) interact with one another as they undergo change by common processes – Continued			
	Second	Third	Fourth
E		<i>Scope and Sequence – Investigating States of Matter</i>	
Changes in the form of water as it moves through Earth's systems are described as the water cycle		<p>a. Describe clouds and precipitation as forms of water</p> <p>Curriculum: Read from text, Discovery Works. Heat water on the stove, allowing it to boil. Place a lid on it as it boils. Show the condensation on the lid and discuss that this is similar to how precipitation can then become clouds, etc.</p>	
DOK			

Strand 5: Processes and Interactions of the Earth's Systems (Geosphere, Atmosphere, and Hydrosphere)

3. Human activity is dependent upon and affects Earth's resources and systems		
	Second	Fourth
A	<i>Scope and Sequence – Earth materials: Rocks and Soil</i>	<i>Scope and Sequence – Changes in the Earth's Surface</i>
Earth's materials are limited natural resource's affected by human activity	<p>a. Observe and describe ways humans use Earth's materials (e.g., soil, rocks) in a daily life.</p> <p>Curriculum: Divide students into groups. Each group is to list as many ways that they can think of that we use Earth's materials. Read from our text, Discovery Works.</p>	<p>a. Identify the ways humans affect the erosion and deposition of Earth's materials (e.g., clearing of land, planting vegetation, paving land construction of new buildings)</p> <p>b. Propose ways to solve simple environmental problems (e.g., recycling, composting, ways to decrease soil erosion) that result from human activity</p> <p>Curriculum: Read from our Discovery Works text. Divide the class into two groups; the first group will give examples of ways that humans affect the earth.</p> <p>The second group will give examples of ways to solve environmental problems.</p>
DOK		a – 1, b – 2

Strand 6: Composition and Structure of the Universe and the Motion of the Objects Within It

Strand 6: Integrating Faith by creating a book about the seven days of creation.

1. The universe has observable properties and structure	
	Third
A	<i>Scope and Sequence – Earth, Sun, and Moon</i>
The Earth, Sun, and Moon are part of a larger system that includes other planets and smaller celestial bodies	a. Describe our Sun as a star because it provides light energy to the solar system b. Observe and identify the Moon as a reflection of light <b style="background-color: yellow;">Curriculum: Read from our text, Discovery Works. Students create their own "Space Book" where they give definitions and examples of the standards in 1A and 2A.
DOK	a – 1, b – 1
2. Regular and predictable motions of objects in the universe can be described and explained as the result of gravitational forces	
	Third
A	<i>Scope and Sequence – Earth, Sun, and Moon</i>
The apparent position of the Sun and other stars, as seen from Earth, change in observable patterns	a. Illustrate and describe how the Sun appears to move slowly across the sky from east to west during the day <b style="background-color: yellow;">Curriculum: Read from our text, Discovery Works. Students create their own "Space Book" where they give definitions and examples of the standards in 1A and 2A.
DOK	a – 1
B	<i>Scope and Sequence – Earth, Sun, and Moon</i>
The apparent position of the moon, as seen from Earth, and its actual position relative to Earth change in observable patterns	a. Illustrate and describe how the Moon appears to move slowly across the sky from east to west during the day and/or night b. Describe the pattern of change that can be observed in the Moon's appearance relative to time of day and month as it occurs over several months (Do NOT assess moon phases) <b style="background-color: yellow;">Curriculum: Read from our text, Discovery Works. Students create their own "Space Book" where they give definitions and examples of the standards in 1A and 2A.
DOK	a – 1, b – 2
	Third
C	<i>Scope and Sequence – Earth, Sun, and Moon</i>
The regular and predictable motions of the Earth and Moon relative to the Sun explain natural phenomena on Earth, such as day, month, year, shadows, moon phases, eclipses, tides, and seasons	a. Observe and identify there is a day/night cycle every 24 hours b. Describe the changes in length and position (direction) of shadows from morning to midday to afternoon c. Describe how the Sun's position in the sky changes the length and position of shadows <b style="background-color: yellow;">Curriculum: Read from our text, Discovery Works and the creation story from Genesis. With a partner, use a small toy and flashlight. Sit the toy on a piece of paper and hold the flashlight above, moving it as if it were the sun in the sky. Record what the shadow looks like for each time of the day.
DOK	a – 1, b – 1, c – 1

Strand 8: Impact of Science, Technology and Human Activity

Strand 8: Integrating faith by helping students understand how to use scientific principles to explore, discover, and classify God’s creation.

1. Science understanding is developed through the use of science process skills, scientific knowledge, scientific investigation, reasoning, and critical thinking

	Second	Third	Fourth
A	<i>Scope and Sequence - All Units</i>		
Scientific inquiry includes the ability of students to formulate a testable question and explanation, and to select appropriate investigative methods in order to obtain evidence relevant to the explanation	a. Pose questions about objects, materials, organisms and events in the environment b. Plan and conduct a simple investigation (fair test) to answer a question Curriculum: Use scientific inquiry (a,b,c,d) to learn about previous Science Standards.	a. Pose questions about objects, materials, organisms, and events in the environment b. Plan and conduct a fair test to answer a question Curriculum: Use scientific inquiry (a,b,c,d) to learn about previous Science Standards.	a. Formulate testable questions and explanations (hypotheses) b. Recognize the characteristics of a fair and unbiased test c. Conduct a fair test to answer a question Curriculum: Use scientific inquiry (a,b,c,d) to learn about previous Science Standards.
	DOK		
	Second	Third	Fourth
B	<i>Scope and Sequence - All Units</i>		
Scientific inquiry relies upon gathering evidence from qualitative and quantitative observations	a. Make qualitative observations using the five senses b. Make observations using simple tools and equipment (e.g., magnifiers/hand lenses, magnets, equal arm balances, thermometers) c. Measure length, mass, and temperature using standard and non-standard units d. Compare amounts/measurement Curriculum: Use scientific inquiry (a,b,c,d) to learn about previous Science Standards.	a. Make qualitative observations using the five senses b. Make observations using simple tools and equipment (e.g., hand lenses, magnets, thermometers, metric rulers, balances, graduated cylinders) c. Measure length to the nearest centimeter, mass using grams, temperature using degrees Celsius, volume using liters d. Compare amounts/measurements e. Judge whether measurements and computation of quantities are reasonable Curriculum: Use scientific inquiry (a,b,c,d) to learn about previous Science Standards.	a. Make qualitative observations using the five senses b. Make observations using simple tools and equipment (e.g., hand lenses, magnets, thermometers, metric rulers, balances, graduated cylinders, spring scale) c. Measure length to the nearest centimeter, mass using grams, temperature using degrees Celsius, volume to the nearest milliliter, force/weight to the nearest Newton d. Compare amounts/measurements e. Judge whether measurements and computation of quantities are reasonable Curriculum: Use scientific inquiry (a,b,c,d) to learn about previous Science Standards.
	DOK		

Strand 8: Impact of Science, Technology and Human Activity

1. Science understanding is developed through the use of science process skills, scientific knowledge, scientific investigation, reasoning, and critical thinking –Continued

	Second	Third	Fourth
C	<i>Scope and Sequence - All Units</i>		
<p>Scientific inquiry includes evaluation of explanations (laws/principles, theories/models) in light of evidence (data) and scientific principles (understandings)</p> <p>See CLEs: This concept became C, as the previous concept was eliminated and the GLEs were moved to this concept, and redundancy was eliminated</p>	<p>a. Use observations as support for reasonable explanations</p> <p>b. Use observations to describe relationships and patterns and to make predictions to be tested</p> <p>c. Compare explanations with prior knowledge</p> <p>Curriculum: Use the Scientific Inquiry process to meet previous standards.</p>	<p>a. Use quantitative and qualitative data as support for reasonable explanations</p> <p>b. Use data as support for observed patterns and relationships, and to make predictions to be tested</p> <p>c. Evaluate the reasonableness of an explanation</p> <p>d. Analyze whether evidence supports proposed explanations</p> <p>Curriculum: Use the Scientific Inquiry process to meet previous standards.</p>	<p>a. Use quantitative and qualitative data as support for reasonable explanations</p> <p>b. Use data as support for observed patterns and relationships, and to make predictions to be tested</p> <p>c. Evaluate the reasonableness of an explanation</p> <p>d. Analyze whether evidence supports proposed explanations</p> <p>Curriculum: Use the Scientific Inquiry process to meet previous standards.</p>
DOK		a – 3, b – 3, c – 3, d – 3	a – 3, b – 3, c – 3, d – 3
D	<i>Scope and Sequence - All Units</i>		
<p>The nature of science relies upon communication of results and justification of explanations</p> <p>See CLEs: This concept became D, as the original C concept was eliminated</p>	<p>a. Communicate simple procedures and results of investigations and explanations through:</p> <ul style="list-style-type: none"> ⇒ oral presentations ⇒ drawings and maps ⇒ data tables ⇒ graphs (bar, pictograph) ⇒ writings <p>Curriculum: Use the Scientific Inquiry process to meet previous standards. For example: write a persuasive paragraph, encouraging people to take care of the earth.</p>	<p>a. Communicate simple procedures and results of investigations and explanations through:</p> <ul style="list-style-type: none"> ⇒ oral presentations ⇒ drawings and maps ⇒ data tables ⇒ graphs (bar, single line, pictograph) ⇒ writings <p>Curriculum: Use the Scientific Inquiry process to meet previous standards. For example: write a persuasive paragraph, encouraging people to take care of the earth.</p>	<p>a. Communicate the procedures and results of investigations and explanations through:</p> <ul style="list-style-type: none"> ⇒ oral presentations ⇒ drawings and maps ⇒ data tables ⇒ graphs (bar, single line, pictograph) ⇒ writings <p>Curriculum: Use the Scientific Inquiry process to meet previous standards. For example: write a persuasive paragraph, encouraging people to take care of the earth.</p>
DOK		a – 2	a – 2

Strand 8: Impact of Science, Technology and Human Activity

1. The nature of technology can advance, and is advanced by, science as it seeks to apply scientific knowledge in ways that meet human needs			
	Second	Third	Fourth
A	<i>Scope and Sequence – Forms of Energy: Sound</i>	<i>Scope and Sequence – Investigating States of Matter/ Earth, Sun, and Moon</i>	<i>Scope and Sequence – Forms of Energy: Electrical Circuits</i>
Designed objects are used to do things better or more easily and to do some things that could not otherwise be done at all	<p>a. Design and construct a musical instrument using materials (e.g., cardboard, wood, plastic, metal) and/or existing objects (e.g., toy wheels, gears, boxes, sticks) that can be used to perform a task (Assess Locally)</p> <p>Curriculum: Students create an instrument and use it to play, "Jesus Loves Me."</p>	<p>a. Observe and identify that some objects or materials (e.g., Sun, fire, ice, snow) occur in nature (natural objects); others (e.g., stoves, refrigerators, bulbs, candles, lanterns) have been designed and made by people to solve human problems and enhance the quality of life (human-made objects)</p> <p>Curriculum: As a class, create two lists of material from nature and human made.</p>	<p>a. Design and construct an electrical device, using materials and/or existing objects, that can be used to perform a task (Assess Locally)</p> <p>Curriculum: Students design and construct an electrical device. Be able to explain how they created it and demonstrate it working.</p>
DOK		a – 1	a – 3
B	<i>Scope and Sequence – Forms of Energy: Sound/Properties of Rocks and Soil</i>	<i>Scope and Sequence – Investigating States of Matter/ Earth, Sun, and Moon/Plants</i>	<i>Scope and Sequence – Mixtures and Solutions/Forms of Energy: Electrical Circuits</i>
Advances in technology often result in improved data collection and an increase in scientific information	<p>a. Describe how tools have helped scientists make better observations, measurements, or equipment for investigations (e.g., magnifiers, balances, stethoscopes, thermometers)</p> <p>Curriculum: Read from our text, Discovery Works.</p>	<p>a. Describe how new technologies have helped scientists make better observations and measurements for investigations (e.g., telescopes, magnifiers, balances, microscopes, computers, stethoscopes, thermometers)</p> <p>Curriculum: Read from our text, Discovery Works</p>	<p>a. Describe how new technologies have helped scientists make better observations and measurements for investigations (e.g., telescopes, magnifiers, balances, microscopes, computers, stethoscopes, thermometers)</p> <p>Curriculum: Read from our text, Discovery Works</p>
DOK		a – 2	a – 2

1. The nature of technology can advance, and is advanced by, science as it seeks to apply scientific knowledge in ways that meet human needs -- Continued	
	Fourth
C	<i>Scope and Sequence – Forms of Energy: Electrical Circuits/Laws of Motion/Interactions among Organisms and Their Environments</i>
Technological solutions to problems often have drawbacks as well as benefits	<p>a. Identify how the effects of inventions or technological advances (e.g., different types of light bulbs, semiconductors/integrated circuits and electronics, satellite imagery, robotics, communication, transportation, generation of energy, renewable materials) may be helpful, harmful, or both (Assess Locally)</p> <p>Curriculum: Read from our text, Discovery Works. Divide into teams; each team chooses a topic and researches it. One team member shares the potential helpful aspects, one focuses on the potential harmful aspects.</p>
DOK	a – 3

Strand 8: Impact of Science, Technology and Human Activity

2. Historical and cultural perspectives of scientific explanations help to improve understanding of the nature of science and how science knowledge and technology evolve over time		
	Third	Fourth
A	<i>Scope and Sequence – All units</i>	
People of different gender and ethnicity have contributed to scientific discoveries and the invention of technological innovations	<p>a. Research biographical information about various scientists and inventors from different gender and ethnic backgrounds, and describe how their work contributed to science and technology (Assess Locally)</p> <p>Curriculum: Given a scientist or inventor, students research and then share information. One student can pretend to be the scientist, the other can be the interviewer.</p>	<p>a. Research biographical information about various scientists and inventors from different gender and ethnic backgrounds, and describe how their work contributed to science and technology (Assess Locally)</p> <p>Curriculum: Given a scientist or inventor, students research and then share information. One student can pretend to be the scientist, the other can be the interviewer.</p>
DOK	a – 3	a – 3

3. Science and technology affect, and are affected by, society			
	Second	Third	Fourth
A	<i>Scope and Sequence - All Units</i>		
People, alone or in groups, are always making discoveries about nature and inventing new ways to solve problems and get work done	<p>a. Identify a question that was asked, or could be asked, or a problem that needed to be solved when given a brief scenario (fiction or nonfiction of individuals solving everyday problems or learning through discovery)</p> <p>b. Work with a group to solve a problem, giving due credit to the ideas and contributions of each group member (Assess Locally)</p> <p>Curriculum: Given the question, How can our school "Go Green", students will work together to create some possible responses and then share these ideas with the class.</p>	<p>a. Identify a question that was asked, or could be asked, or a problem that needed to be solved when given a brief scenario (fiction or nonfiction of people working alone or in groups solving everyday problems or learning through discovery)</p> <p>b. Work with a group to solve a problem, giving due credit to the ideas and contributions of each group member (Assess Locally)</p> <p>Curriculum: Given the question, How can our school "Go Green", students will work together to create some possible responses and then share these ideas with the class.</p>	<p>a. Identify a question that was asked, or could be asked, or a problem that needed to be solved when given a brief scenario (fiction or nonfiction of people working alone or in groups solving everyday problems or learning through discovery)</p> <p>b. Work with a group to solve a problem, giving due credit to the ideas and contributions of each group member (Assess Locally)</p> <p>Curriculum: Given the question, How can our school "Go Green", students will work together to create some possible responses and then share these ideas with the class.</p>
DOK		a – 3, b – 3	a – 3, b – 3