



# Our Savior Christian Academy

*Curriculum Framework for:*     **Science**

✠ **PHILOSOPHY** ✠

*God is the Creator of all things living and non-living. He lovingly upholds all created things. God's glory and His character are revealed through exploration, observation, and scientific study of His world. Man's fall into sin has impacted all of creation, and it literally groans in expectation waiting for Christ's second return, when all things will be made new. We seek to serve God as wise stewards of His resources and work to restore Creation's original beauty.*

# Our Savior Christian Academy

## *Broad Goals*

### *Our Savior Christian Academy's Science goals include:*

- Incorporating Jesus Christ in all core areas of Science.
- Providing the children with a wide range of knowledge, skills, and related activities that help him/her to develop an understanding of the physical world.
- Encouraging the children to be confident and to communicate Science effectively through reading, writing, speaking, and listening.
- Using higher order thinking skills including comprehension, application, analysis, evaluation, and synthesis in the learning concepts in life science, earth science, and physical science.
- Displaying respect in their interactions with the environments of which they are members.
- Exhibiting organizational skills, intellectual curiosity and growth, and application of what has been learned in science both to future schoolwork and to lifelong learning.
- Providing learning experiences in which students will recognize, develop, and apply effective communication skills at or above grade level in the areas of Science.
- Students are shown strategies on how to be knowledgeable and proficient thinkers who will make positive Christ-like contributions to society.

### *Our Savior Christian Academy obtains this through:*

- Keeping Our Savior, Jesus Christ, as the center focus on our campus and in our curriculum
- Fascinating and significant Science experiences through multi-sensory activities that incorporate the world around them.
- Applying Science to other core areas of learning.
- Adapting other subjects to add valuable perspectives to the Science curriculum.
- Teaching on an individual basis with the knowledge that children acquire an understanding of Science in an uneven way.
- Continuous assessment for analysis and planning in Science.
  - Focuses on the identification of the children's existing knowledge and strategies.
  - Updating curriculum to meet changing state standards along with student needs.
  - Provides information that will enable the teacher to cater for individual differences in ability, previous learning and learning style, and to resist pressure to push the child to premature mastery.
- Work samples and results that are shared with the parents, congregants, and community.

# 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		
	Kindergarten	First
<b>A</b>	<p><i>Scope and Sequence – Properties of Matter</i></p> <p>a. Describe physical properties of objects (i.e., size, shape, color, mass) by using the senses, simple tools (e.g., magnifiers, equal arm balances), and/or nonstandard measures (e.g., bigger/smaller; more/less)</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Students will study a variety of objects (socks, books, leaves, wood sticks, pebbles, metal) and compare texture, look, smells, and differences/similarities between them.</li> <li>• Students will use tools (thermometers, scales, magnifiers, etc.) to describe and compare objects.</li> </ul> <p>b. Identify materials (e.g., cloth, paper, wood, rock, metal) that make up an object and some of the physical properties of the materials (e.g., color, texture, shiny/dull, odor, sound, taste, flexibility)</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Students will study a variety of objects (socks, books, leaves, wood sticks, pebbles, metal) and compare texture, look, smells, and differences/similarities between them.</li> <li>• Scavenger hunt for objects with these characteristics.</li> </ul> <p>c. Sort objects based on observable physical properties (e.g., size, material, color, shape, mass)</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Students will sort a variety of objects based on size, material, color, shape, etc. (i.e.: unifix cubes for color, marbles for size, blocks for shapes, etc.).</li> </ul>	<p><i>Scope and Sequence – Mass and Temperature</i></p> <p>a. Given an equal-arm balance and various objects, illustrate arrangements in which the beam is balanced</p> <p>b. Measure and compare the mass of objects (more/less)</p> <p>c. Order objects according to mass</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Place a variety of objects in the pails and observe and compare the results they will use the results of their comparisons to place four objects in serial order.</li> <li>• Students record comparisons using binary symbols-greater than (&gt; ) less than (&lt;), and equal to (=).</li> <li>• Students discuss their comparisons and problem-solving strategies.</li> <li>• Have Students discuss the concept of fair comparisons.</li> </ul>
<b>DOK</b>		

## 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		
A	Kindergarten	First
<p><b>Forms of energy have a source, a means of transfer (work and heat), and a receiver</b></p>	<p><i>Scope and Sequence – Investigating Sound</i></p> <p>a. Identify the sounds and their source of vibrations in everyday life (e.g., alarms, car horns, animals, machines, musical instruments)</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Students close their eyes and listen carefully to all the sounds in the room. On chart paper, list all the sounds that were heard. Continue experiment outside and do they same thing.</li> <li>• Students sit in a circle with eyes closed and listen for various sounds the teacher makes (coins clinking, clapping hands, tap a pencil on the desk, etc.).</li> </ul> <p>b. Compare different sounds (i.e., loudness, pitch, rhythm)</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Students will identify different sounds of a bell, voice, etc. to compare loudness, pitch or rhythm.</li> </ul> <p>c. Identify the ear as a receiver of vibrations that produce sound</p> <p style="text-align: center;"><b>Curriculum</b></p> <p>Students will help in creating a model eardrum. Using a bowl, plastic wrap, uncooked rice and a cookie sheet, demonstrate how an eardrum works, detecting vibrations form noise.</p>	<p><i>Scope and Sequence – Properties of Matter: Mass and Temperature</i></p> <p>a. Identify the source of energy that causes an increase in the temperature of an object (e.g., Sun, stove, flame, light bulb)</p> <p>b. Compare the temperature of hot and cold objects using a simple thermometer</p> <p>c. Describe the change in temperature of an object as warmer or cooler</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Use a light bulb or sunlight and a thermometer to compare how heat flows through different materials (aluminum, air, colored paper, cloth).</li> <li>• Take temperature of items in lunch bags (ice packs, cooked food, not cooked food). Ask students what happens between cooking food in microwave and getting to lunch room...goes from hot, to warm, to cool, and eventually cold.</li> </ul>
	DOK	

## 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		
	Kindergarten	First
<b>A</b>	<p><i>Scope and Sequence – Changes in Position</i></p> <p>a. Describe an object’s position relative to another object (e.g., above, below, in front of, behind)</p>	<p><i>Scope and Sequence – Investigating Motion</i></p> <p>a. Compare the position of an object relative to another object (e.g., left of or right of)</p>
<p><b>The motion of an object is described as a change in position, direction, and speed relative to another object (frame of reference)</b></p>	<p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Students demonstrate with their own bodies standing in front of or behind another student. Students listen for directions in finding objects in the room that are above or below something. While reading a book, ask for student to tell what is above, behind, in front of or below in the picture.</li> </ul>	<p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Have children describe the location of different objects around them. Challenge them to describe the location of one object in as many ways as they can. For example, a book might be on top of the table, but the book might also be under the pencil sharpener and next to the door. Describe the locations of different objects together, using words such as <i>right, left, above, below, under, over</i>, etc.</li> </ul> <p>b. Describe an object’s motion as straight, circular, vibrating (back and forth), zigzag, stopping, starting, or falling</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Use a ball with partners to move straight, spin, and vibrate. Have them sit in a zigzag line and roll the ball in the zigzag pattern.</li> <li>• Paper book to draw lines and words for objects motion (straight, circular, vibrating, zigzag)</li> <li>• Red light, green light game.</li> </ul> <p>c. Compare the speeds (faster vs. slower) of two moving objects</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Roll different sized balls with various masses down a hill</li> <li>• Push chairs off and on wheels (faster, slower)</li> <li>• Have students race through chairs. Who is faster and who is slower.</li> </ul>
<b>DOK</b>		

## Strand 2: Properties and Principles of Force and Motion

2. Forces affect motion		
	Kindergarten	First
<b>A</b>	<i>Scope and Sequence – Changes in Position</i>	<i>Scope and Sequence – Investigating Motion</i>
<p><b>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</b></p>	<p>a. Identify ways (push, pull) to cause some objects to move by touching them <b>Curriculum</b></p> <ul style="list-style-type: none"> <li>Students demonstrate pushing in a chair or pulling a door open or each other.</li> </ul> <p>b. Identify magnets cause some objects to move without touching them <b>Curriculum</b></p> <ul style="list-style-type: none"> <li>Using a variety of magnets to show movement without touching something.</li> <li>Students find objects around the room that are magnetic. Discuss properties (metal vs. wood, cloth, etc.) of which a magnet can make something move.</li> </ul>	<p>a. Identify the force (i.e., push or pull) required to do work (move an object) <b>Curriculum</b></p> <ul style="list-style-type: none"> <li>Rearrange classroom, moving objects through push or pull.</li> </ul>
DOK		
<b>D</b>	<b>First</b>	
<p><b>Newton's Laws of Motion explain the interaction of mass and forces, and are used to predict changes in motion</b></p>	<i>Scope and Sequence – Investigating Motion</i>	
DOK	<p>a. Describe ways to change the motion of an object (i.e., how to cause an object to go slower, go faster, go farther, change direction, stop) <b>Curriculum</b></p> <ul style="list-style-type: none"> <li>Give children pennies, marbles, or other small objects to push on the floor or on a flat surface. What happens to the motion of the object when they push harder?</li> <li>Play kickball and describe different movements of push and pull when playing. Also how when kicked harder or throw harder the ball moves faster and farther.</li> </ul>	

## Strand 3: Characteristics and Interactions of Living Organisms

**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	
	<b>First</b>
<b>A</b>	<i>Scope and Sequence – Characteristics of Plants and Animals</i>
<b>Organisms have basic needs for survival</b>	<p>a. Identify the basic needs of most animals (i.e., air, water, food, shelter)</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Create a “Basic Needs of Animals” book.</li> <li>• Create jar animals with basic need buttons</li> </ul> <p>b. Identify the basic needs of most plants (i.e., air, water, light)</p> <p>c. Predict and investigate the growth of plants when growing conditions are altered (e.g., dark vs. light, water vs. no water)</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Create a “Needs of Plants” book</li> <li>• Students will set up an experiment to learn about the importance of the sun (light/heat) and the need of water and air on living plants.</li> </ul>
<b>DOK</b>	

	<b>Kindergarten</b>	<b>First</b>
<b>D</b>	<i>Scope and Sequence – Plants and Animals</i>	<i>Scope and Sequence – Characteristics of Plants and Animals</i>
<b>Plants and animals have different structures that serve similar functions necessary for the survival of the organism</b>	<p>a. Observe and compare the structures and behaviors of different kinds of plants and animals</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Students will observe variety of plants and identify similarities (stem, roots, leaves, flowers) and differences (flowers, thorns, types of leaves, etc.) between them.</li> <li>• Students will create plant books, identify and label plant parts in the book.</li> <li>• Identify and compare familiar organisms on the basis of observable physical characteristics through pictures. Sort pictures in common groups during centers.</li> </ul>	<p>a. Identify and compare the physical structures of a variety of plants (e.g., stem, leaves, flowers, seeds, roots)</p> <p>b. Identify and compare the physical structures of a variety of animals (e.g., sensory organs, beaks, appendages, body covering) (Do NOT assess terms: sensory organs, appendages)</p> <p>c. Identify the relationships between the physical structures of plants and the function of those structures (e.g., absorption of water, absorption of light energy, support, reproduction)</p> <p>d. Identify the relationships between the physical structures of animals and the function of those structures (e.g., taking in water, support, movement, obtaining food, reproduction)</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Draw and label plants around church and school. Discuss the relationships between the structures and the plants function.</li> <li>• Identify and compare familiar organisms on the basis of observable physical characteristics through pictures. Discuss the relationships between the structures and the plants function. Sort pictures in common groups during centers.</li> </ul>
<b>DOK</b>		

## Strand 3: Characteristics and Interactions of Living Organisms

1. There is a fundamental unity underlying the diversity of all living organisms – Continued	
	<b>First</b>
<b>E</b>	<i>Scope and Sequence – Characteristics of Plants and Animals</i>
Biological classifications are based on how organisms are related	a. Distinguish between plants and animals based on observable structures and behavior <div style="text-align: right; margin-right: 50px;"><b>Curriculum</b></div> <ul style="list-style-type: none"> <li>• Discuss vocabulary words relating to structures and behavior. Sort pictures between plants and animals.</li> </ul>
DOK	

3. There is a genetic basis for the transfer of biological characteristics from one generation to the next through productive processes	
	<b>Kindergarten</b>
<b>D</b>	<i>Scope and Sequence – Parent-Offspring Relationships</i>
There is heritable variation within every species of organism	a. Identify that living things have offspring based on the organisms’ physical similarities and differences <div style="text-align: right; margin-right: 50px;"><b>Curriculum</b></div> <ul style="list-style-type: none"> <li>• Read <u><i>Are You My Mother?</i></u>. Students will observe physical characteristics of each character to determine the appropriate “mother”.</li> <li>• Students will identify animal babies and pair them the correct parent.</li> <li>• Students will discuss reasoning in pairings.</li> </ul>
DOK	

## 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. Organisms are interdependent with one another and with their environment		
A	Kindergarten	First
<p><b>All populations living together within a community interact with one another and with their environment in order to survive and maintain a balanced ecosystem</b></p>	<p><i>Scope and Sequence –Weather and Seasons</i></p> <p>a. Describe how the seasons affect the behavior of plants and animals.</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Read <u>The Season's of Arnold's Apple Tree</u> by Gail Gibbons (HBJ, 1984)</li> <li>• <u>A Bear for All Seasons</u> by Diane Marcial Fuchs, Illustrated by Kathryn Brown Published by Henry Holt and Company, 1995</li> <li>• Make a chart, ask students to tell you things they learned that can be written on the chart. Display and add to the chart throughout study of seasons.</li> <li>• Fold a sheet of paper into fourths, label each fourth a season. Have students draw a picture of how a tree would look in each season.</li> <li>• Ask students how the seasons may affect animals. Have students read <u>Something Froggy</u> about the life cycle of a frog. Ask the students to fold a paper in quarters and draw what Frederick may do in each season.</li> </ul> <p>b. Describe how the seasons affect the everyday life of humans (e.g., clothing, activities)</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Students will discuss the weather of the day, the season, how we should be dressed, etc. during calendar time.</li> <li>• Discuss snow days (why we have them) and days when it's too hot to go outside, when it's time for hats and gloves, swimsuits, etc.</li> </ul>	<p><i>Scope and Sequence – Characteristics of Plants and Animals</i></p> <p>a. Identify ways man depends on plants and animals for food, clothing, and shelter</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Generate a class list of how we use plants and animal products.</li> <li>• Create a collogue of different pictures after discuss how plants and animals are used</li> </ul>
	DOK	

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

1. Earth's systems (geosphere, atmosphere, and hydrosphere) have common components and unique structures – Continued		
<b>C</b>	<b>Kindergarten</b>	
	<i>Scope and Sequence – Weather and Seasons</i>	
<p><b>The atmosphere (air) is composed of a mixture of gases, including water vapor, and minute particles</b></p>	<p>a. Observe wind as moving air that is felt</p>	<p><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Students will use straws to demonstrate moving air. Students will blow through the straws to move the cotton ball and suck the paper up the straw.</li> <li>• Students will create pinwheels and use them to demonstrate wind moves objects.</li> <li>• Students will observe the moving grass and trees and discover wind is moving them.</li> </ul>
<b>DOK</b>		
2. Earth's systems (geosphere, atmosphere, and hydrosphere) interact with one another as they undergo change by common processes – Continued		
	<b>Kindergarten</b>	<b>First</b>
	<i>Scope and Sequence – Weather and Seasons</i>	
<p><b>F</b></p> <p><b>Climate is a description of average weather conditions in a given area due to the transfer of energy and matter through Earth's systems</b></p>	<p>a. Observe and describe daily weather: precipitation (e.g., snow, rain, sleet, fog), wind (i.e., light breezes to strong wind), cloud cover, temperature</p> <p>b. Observe and describe the general weather conditions that occur during each season</p>	<p><i>Scope and Sequence – Observing Water and Weather</i></p> <p>a. Observe, measure, record weather data throughout the year (i.e., cloud cover, temperature, precipitation, wind speed) by using thermometers, rain gauges, wind socks</p> <p>b. Compare temperatures in different locations (e.g., inside, outside, in the sun, in the shade)</p> <p>c. Compare weather data observed at different times throughout the year (e.g., hot vs. cold, cloudy vs. clear, types of precipitation, windy vs. calm)</p> <p>d. Identify patterns indicating relationships between observed weather data and weather phenomena (e.g., temperature and types of precipitation, clouds and amounts of precipitation)</p>
	<b>Curriculum</b>	<b>Curriculum</b>
	<ul style="list-style-type: none"> <li>• Students will discuss the weather of the day, the season, how we should be dressed, etc. during calendar time.</li> <li>• Discuss snow days (why we have them) and days when it's too hot to go outside, when it's time for hats and gloves, swimsuits, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Observe and record weather throughout different seasons. Discuss and measure by using thermometers, rain gauges, and wind socks</li> <li>• Use a thermometer to record data inside and out. Demonstrate the differences of what happens to pieces of chocolate when sitting in sun/shade</li> <li>• Determine types of weather through weather calendar.</li> <li>• Discuss and chart patterns regarding types of participation, clouds, and amounts of precipitation</li> </ul>
<b>DOK</b>		

## 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	
<b>A</b>	<b>First</b>
<p><b>Earth's materials are limited natural resource's affected by human activity</b></p>	<p><i>Scope and Sequence – Observing Water and Weather</i></p> <p>a. Observe and describe ways water, both as a solid and liquid, is used in everyday activities at different times of the year (e.g., bathe, drink, make ice cubes, build snowmen, cook, swim)</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Play water charades. Discuss and act out different ways that water can be used throughout the year.</li> </ul>
<b>DOK</b>	

# 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	
	<b>Kindergarten</b>
<b>A</b>	<i>Scope and Sequence – Objects in the Sky</i>
<b>The Earth, Sun, and Moon are part of a larger system that includes other planets and smaller celestial bodies</b>	<p>a. Observe and describe the presence of the Sun, Moon, and stars in the sky</p> <p style="text-align: right; margin-right: 20px;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Draw a picture of the sky at night and in the day.</li> </ul> <p>b. Observe there are more stars in the sky than anyone can count and that they are scattered unevenly and vary in brightness</p> <p style="text-align: right; margin-right: 20px;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Explore the sky with Google Earth</li> <li>• Use black paper and white crayons to demonstrate a night sky</li> </ul>
<b>DOK</b>	

2. Regular and predictable motions of objects in the universe can be described and explained as the result of gravitational forces	
	<b>Kindergarten</b>
<b>A</b>	<i>Scope and Sequence – Objects in the Sky</i>
<b>The apparent position of the Sun and other stars, as seen from Earth, change in observable patterns</b>	<p>a. Describe the Sun as only being seen in the daytime and appears to move across the sky from morning to night</p> <p style="text-align: right; margin-right: 20px;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Learn that the position and shape of a shadow made by the sun can change. Trace a shadow made by the sun at different times of the day.</li> </ul>
<b>DOK</b>	
<b>B</b>	<i>Scope and Sequence – Objects in the Sky</i>
<b>The apparent position of the moon, as seen from Earth, and its actual position relative to Earth change in observable patterns</b>	<p>a. Observe the Moon can be seen sometimes at night and sometimes during the daytime</p> <p style="text-align: right; margin-right: 20px;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• At home, students observe the moon and draw what they see.</li> <li>• Show students pictures of the moon during the day</li> </ul> <p>b. Observe that the Moon appears to change shape over the course of a month</p> <p style="text-align: right; margin-right: 20px;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Students will predict the phases of the moon and put them in order (cut and paste sheet).</li> <li>• At home, students will observe the shape of the moon and draw what they see.</li> <li>• At school, students will compare predictions with actual shapes of moon.</li> </ul>
<b>DOK</b>	

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

2. Regular and predictable motions of objects in the universe can be described and explained as the result of gravitational forces – Continued	
<b>C</b>	<b>Kindergarten</b>
<b>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</b>	<p><i>Scope and Sequence – Weather and Seasons</i></p> <p>a. Observe and describe the characteristics of the four seasons as they cycle through the year (summer, fall, winter, spring)</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>• Students will describe what they see during calendar outside (leaves falling, snow, rain, flowers blooming, etc.).</li> <li>• Identify different stages of a tree to show each season (no leaves = winter, few leaves = fall, green leaves = spring and a tree full of leaves = summer)</li> <li>• Use crafts (glue, glitter, paint, etc) to create trees in different seasons</li> </ul>
<b>DOK</b>	

## 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

	Kindergarten	First
<b>A</b>	<i>Scope and Sequence – All Units</i>	<i>Scope and Sequence – All Units</i>
<b>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</b>	a. Pose questions about objects, materials, organisms and events in the environment b. Conduct a simple investigation (fair test) to answer a question <div style="text-align: center;"><b>Curriculum</b></div> <ul style="list-style-type: none"> <li>• Generate questions regarding objects attracted to a magnet and objects that sink and float based on observations.</li> <li>• Plan and conduct simple investigations into objects that sink and float and objects that are attracted to magnets.</li> </ul>	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 <div style="text-align: center;"><b>Curriculum</b></div> <ul style="list-style-type: none"> <li>• Generate questions regarding objects attracted to a magnet and objects that sink and float based on observations.</li> <li>• Plan and conduct simple investigations into objects that sink and float and objects that are attracted to magnets.</li> </ul>
<b>DOK</b>		

<b>B</b>	<i>Scope and Sequence – All Units</i>	<i>Scope and Sequence – All Units</i>
<b>Scientific inquiry relies upon gathering evidence from qualitative and quantitative observations</b>	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 and mass using non-standard units d. Compare amounts/measurements <div style="text-align: center;"><b>Curriculum</b></div> <ul style="list-style-type: none"> <li>• Students will use the 5 senses to determine what is inside an Easter egg.</li> <li>• Students will write in journals any observations on experiments made or exercises performed.</li> <li>• Students will use measuring tools to measure length and mass.</li> <li>• Students will use measuring tools to compare measurements.</li> </ul>	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/measurements <div style="text-align: center;"><b>Curriculum</b></div> <ul style="list-style-type: none"> <li>• Students will use the 5 senses to determine what is inside an Easter egg.</li> <li>• Students will write in journals any observations on experiments made or exercises performed.</li> <li>• Students will use measuring tools to measure length and mass.</li> <li>• Students will use measuring tools to compare measurements.</li> </ul>
<b>DOK</b>		

## Strand 8: Impact of Science, Technology and Human Activity

<b>C</b>	<p><i>Scope and Sequence – All Units</i></p> <p>a. Use observations as support for reasonable explanations  b. Use observations to describe relationships and patterns and to make predictions to be tested  c. Compare explanations with prior knowledge</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>The phases of the moon... students predict the order of the phases, observe the moon and compare their predictions with their observations. Have students draw/write their prediction in their science journals.</li> </ul>	<p><i>Scope and Sequence – All Units</i></p> <p>a. Use observations as support for reasonable explanations  b. Use observations to describe relationships and patterns and to make predictions to be tested  c. Compare explanations with prior knowledge</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>The phases of the moon... students predict the order of the phases, observe the moon and compare their predictions with their observations. Have students draw/write their prediction in their science journals.</li> </ul>
<b>DOK</b>		
<b>D</b>	<p><i>Scope and Sequence – All Units</i></p> <p>a. Communicate observations using words, pictures, and numbers</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>Students will keep a journal. They will write and/or draw their observations.</li> </ul>	<p><i>Scope and Sequence – All Units</i></p> <p>a. Communicate simple procedures and results of investigations and explanations through:</p> <ul style="list-style-type: none"> <li>⇒ oral presentations</li> <li>⇒ drawings and maps</li> <li>⇒ data tables</li> <li>⇒ graphs (bar, pictograph)</li> <li>⇒ writings</li> </ul> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>Construct simple charts from data and observations regarding objects that sink and float and objects that are attracted to magnets</li> <li>Create drawings based on observations and write sentences to match pictures</li> <li>Demonstrate scientific concepts through various illustrations, performances, models exhibits and activities about describing objects by their properties, sink and float investigations, water as a solid and as a liquid, and objects that are attracted to magnets.</li> </ul>
<b>DOK</b>		

## 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		
	Kindergarten	First
<b>A</b>	<i>Scope and Sequence – Properties of Matter/Weather and Seasons</i>	<i>Scope and Sequence – Properties of Matter/Weather and Seasons</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. Observe and identify that some objects occur in nature (natural objects); others have been designed and made by people</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>Students will create KWL chart about things they KNOW are made in nature or man-made, what they WANT to know is made in nature or by man, and what they LEARNED is made by nature or man.</li> </ul>	<p>a. Observe and identify that some objects occur in nature (natural objects); others have been designed and made by people</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>Students will create KWL chart about things they KNOW are made in nature or man-made, what they WANT to know is made in nature or by man, and what they LEARNED is made by nature or man.</li> </ul>
DOK		
<b>B</b>	<i>Scope and Sequence – Properties of Matter/Plants and Animals</i>	<i>Scope and Sequence – Properties of Matter/Characteristics of Plants and Animals</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 (i.e., magnifiers)</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>Students will use and experiment with different scientific tools and describe their benefits.</li> </ul>	<p>a. Describe how tools have helped scientists make better observations (e.g., magnifiers, balances, thermometers)</p> <p style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>Students will use and experiment with different scientific tools and describe their benefits.</li> </ul>
DOK		

3. Science and technology affect, and are affected by, society-Integrating Faith by		
	Kindergarten	First
<b>A</b>	<i>Scope and Sequence - All Units</i>	<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 style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>Introduce Reduce, Reuse, Recycle to students.</li> <li>Ask “What is pollution?” and brainstorm ideas. Walk outside to an area where trash can be found. Give pairs of children a grocery bag gloves and have them pick up trash Hold up samples of what was found and discuss. Brainstorm ways some items littered could have been prevented and how to reduce waste. Create a poster to help remind how to reduce, reuse or recycle.</li> </ul>	<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 style="text-align: center;"><b>Curriculum</b></p> <ul style="list-style-type: none"> <li>Introduce Reduce, Reuse, Recycle to students.</li> <li>Ask “What is pollution?” and brainstorm ideas. Walk outside to an area where trash can be found. Give pairs of children a grocery bag gloves and have them pick up trash Hold up samples of what was found and discuss. Brainstorm ways some items littered could have been prevented and how to reduce waste. Create a poster to help remind how to reduce, reuse or recycle.</li> </ul>
DOK		