

## Science Content Standards: Grade Four

### Physical Sciences

**1.0 God has set up physical laws which govern our universe. Electricity and magnetism are related effects that have many useful applications in everyday life. As a basis for understanding this concept:**

- 1.a *Students know* how to design and build simple series and parallel circuits by using components such as wires, batteries, and bulbs.
- 1.b *Students know* how to build a simple compass and use it to detect magnetic effects, including Earth's magnetic field.
- 1.c *Students know* electric currents produce magnetic fields and know how to build a simple electromagnet.
- 1.d *Students know* the role of electromagnets in the construction of electric motors, electric generators, and simple devices, such as doorbells and earphones.
- 1.e *Students know* electrically charged objects attract or repel each other.
- 1.f *Students know* that magnets have two poles (north and south) and that like poles repel each other while unlike poles attract each other.
- 1.g *Students know* electrical energy can be converted to heat, light, and motion.

**2.0 Changes occur in the properties of matter, due to various causes. As a basis for understanding this concept:**

- 2.a *Students identify* the basic characteristics of matter.
- 2.b *Students recognize* the effects of forces on an object.
- 2.c *Students identify* the results of friction.

### Life Sciences

**3.0 God planned for all created organisms to need energy and matter to live and grow. As a basis for understanding this concept:**

- 3.a *Students know* plants are the primary source of matter and energy entering most food chains.
- 3.b *Students know* producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem.
- 3.c *Students know* decomposers; including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.

**4.0 God planned for all living organisms to depend on one another and on their environment for survival. As a basis for understanding this concept:**

- 4.a *Students know* ecosystems can be characterized by their living and nonliving components.
- 4.b *Students know* that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.
- 4.c *Students know* many plants depend on animals for pollination and seed dispersal, and animals depend on plants for food and shelter.
- 4.d *Students know* that most microorganisms do not cause disease and that many are beneficial.
- 4.e *Students recognize* the relationship between the number of organisms and available resources.

### Earth Sciences

**5.0 God created/planned the waves, wind, water, and ice to shape and reshape Earth's land surface. As a basis for understanding this concept:**

- 5.a *Students know* some changes in the earth are due to slow processes, such as erosion, and some

	changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes.
5.b	<i>Students know</i> natural processes, including freezing and thawing and the growth of roots, cause rocks to break down into smaller pieces.
5.c	<i>Students know</i> moving water erodes landforms, reshaping the land by taking it away from some places and depositing it as pebbles, sand, silt, and mud in other places (weathering, transport, and deposition).
5.d	<i>Students construct</i> a model of the water cycle.
<b>Investigation and Experimentation</b>	
<b>6.0</b>	<b>Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:</b>
6.a	Differentiate observation from inference (interpretation) and know scientists' explanations come partly from what they observe and partly from how they interpret their observations.
6.b	Measure and estimate the weight, length, or volume of objects.
6.c	Formulate and justify predictions based on cause-and-effect relationships.
6.d	Conduct multiple trials to test a prediction and draw conclusions about the relationships between predictions and results.
6.e	Construct and interpret graphs from measurements.
6.f	Follow a set of written instructions for a scientific investigation.
6.g	Evaluate an experimental procedure and methods of reporting quantitative data.
6.h	Recognize the limits and advantages of science in society.
<b>Health</b>	
<b>7.0</b>	<b>God created the human body as His temple. As a basis for understanding this concept, students must demonstrate an understanding of the body's functions and proper care:</b>
7.a	<i>Students know</i> the identity and functions of the major components of the human skeletal, muscular and respiratory systems.
7.b	<i>Students know</i> the importance of good hygiene.
7.c	<i>Students know</i> the importance of using precaution and recognizing risks to ensure safety.
7.d	<i>Students know</i> that God values the life of every person He creates (Sanctity of Life).
7.e	<i>Students know</i> their role in recognizing and affirming others (Social Justice).
7.f	<i>Students know</i> God's gifts of chastity, future marriage, and family (Purity).