

Science Content Standards: Grade Six

Physical Sciences

1.0 God has set up physical laws which govern our universe. Elements and their combinations account for all the varied types of matter in the world. As a basis for understanding this concept.

- 1.a *Students know* all matter is made of atoms, which may combine to form molecules.
- 1.b *Students know* that each element is made of one kind of atom and that the elements are organized in the periodic table by their chemical properties.
- 1.c *Students know* scientists have developed instruments that can create discrete images of atoms and molecules that show that the atoms and molecules often occur in well-ordered arrays.
- 1.d *Students know* properties of solid, liquid, and gaseous substances, such as sugar (C₆H₁₂O₆), water (H₂O), helium (He), Oxygen (O₂), nitrogen (N₂), and carbon dioxide (CO₂).
- 1.e *Students know* living organisms and most materials are composed of just a few elements.
- 1.f *Students know* the common properties of salts, such as sodium chloride (NaCl).

2.0 God designed connections between physical objects through force and motion.

- 2.a *Students know* the motion of an object can be described by its position, direction of motion, and speed.
- 2.b *Students know* that an object that is not being subjected to a force will continue to move at a constant speed and in a straight line.
- 2.c *Students know* if more than one force acts on an object along a straight line, then the forces will reinforce or cancel one another, depending on their direction and magnitude. Unbalanced forces will cause changes in the speed or direction of an object's motion.

Plate Tectonics and Earth's Structure

3.0 God's plan for the structure of our Earth includes plate tectonics accounting for important features of Earth's surface and major geologic events. As a basis for understanding this concept:

- 3.a *Students know* evidence of plate tectonics is derived from the fit of the continents; the location of earthquakes, volcanoes, and mid ocean ridges; and the distribution of fossils, rock types, and ancient climatic zones.
- 3.b *Students know* Earth is composed of several layers: a cold, brittle lithosphere; a hot, convecting mantle; and a dense, metallic core.
- 3.c *Students know* lithospheric plates the size of continents and oceans move at rates of centimeters per year in response to movements in the mantle.
- 3.d *Students know* that earthquakes are sudden motions along breaks in the crust called faults and that volcanoes and fissures are locations where magma reaches the surface.
- 3.e *Students know* major geologic events, such as earthquakes, volcanic eruptions, and mountain building, result from plate motions.
- 3.f *Students know* how to explain major features of California geology (including mountains, faults, volcanoes) in terms of plate tectonics.
- 3.g *Students know* how to determine the epicenter of an earthquake and know that the effects of an earthquake on any region vary, depending on the size of the earthquake, the distance of the region from the epicenter, the local geology, and the type of construction in the region.

Life Sciences

4.0 God created an organization for living systems at all levels to demonstrate the complementary nature of structure and function. As a basis for understanding this concept:

- 4.a *Students know* important levels of organization for structure and function include cells, organs, tissues, organ systems, whole organisms, and ecosystems.
- 4.b *Students know* that all organisms are composed of cells – the fundamental unit of life.
- 4.c *Students know* cells carry on the many functions needed to sustain life, growing and dividing, thereby producing more cells.
- 4.d *Students know* that specialized cells perform specialized functions in multicellular organisms.

Resources	
5.0	God calls us to be good stewards, as sources of energy and materials differ in amounts, distribution, usefulness, and the time required for their formation. As a basis for understanding this concept:
5.a	<i>Students know</i> the utility of energy sources is determined by factors that are involved in converting these sources to useful forms and the consequences of the conversion process.
5.b	<i>Students know</i> different natural energy and material resources, including air, soil, rocks, minerals, petroleum, fresh water, wildlife, and forests, and know how to classify them as renewable or nonrenewable.
5.c	<i>Students know</i> the natural origin of the materials used to make common objects.
5.d	<i>Students know</i> most of Earth's water is present as salt water in the oceans, which cover most of Earth's surface.
Investigation and Experimentation	
6.0	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:
6.a	Develop a hypothesis.
6.b	Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
6.c	Construct appropriate graphs from data and develop qualitative statements about the relationships between variables.
6.d	Communicate the steps and results from an investigation in written reports and oral presentations.
6.e	Recognize whether evidence is consistent with a proposed explanation.
6.f	Read a topographic map and a geologic map for evidence provided on the maps and construct and interpret a simple scale map.
6.g	Interpret events by sequence and time from natural phenomena (e.g., the relative ages of rocks and intrusions).
6.h	Identify changes in natural phenomena over time without manipulating the phenomena (e.g., a tree limb, a grove of trees, a stream, and a hill slope).
6.i	Use a model to depict natural phenomena and predict the effects.
Health	
7.0	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:
7.1	<i>Students know</i> how the body grows and develops.
7.2	<i>Students know</i> the importance of a nutritious, active lifestyle.
7.3	<i>Students know</i> the importance of using precaution and recognizing risks to ensure safety.
7.4	<i>Students know</i> that God values the life of every person He creates (Sanctity of Life).
7.5	<i>Students know</i> their role in recognizing and affirming others (Social Justice).
7.6	<i>Students know</i> God's gifts of chastity, future marriage, and family (Purity).
7.7	<i>Students know</i> how the body grows and develops (Human Growth and Development).