

Phoenix Christian Jr High School

SCI0800 Earth Science

Course Scope & Sequence (2010)

Earth Science will cover the various aspects of Earth; our place in the Solar system, its composition, its energy and motion, its resources and how we can preserve it. Thinking processes and reasoning skills will be developed.

Textbook: *Science Explorer: Earth Science*, Prentice Hall (2007)

COURSE SCOPE AND SEQUENCE

First Semester

Nature of Science 5 ½ Weeks

Key Concepts: Observing Facts, Identify the Steps in Scientific Inquiry/Method, Hypothesize Possible Solutions to a Problem, Basic Activities of Science, Describing Objects Using Physical Properties, Compare and Contrast a Given Set of Objects, Following Lab Safety Procedures, Defining Earth Science and its Branches, Distinguishing Between Fact, Theory, and Law. Gathering, Organizing and Presenting Data in Graph Form, Explaining the Difference between Mass and Weight, Using Metric Tools for Measurement.

Assessments: Directed Reading, Quizzes, Homework, Labs, Review, Test.

Bible Integration: Psalms 90:2 teaches us to number our days. "Number" means to measure them to see if they are up to God's standards.

Mapping Our World 4 Weeks

Key Concepts: Comparing and Contrasting Longitude and Latitude, How Time Zones Vary, Analyzing Topographic Maps, Map Characteristics such as Scales and Legends, Comparing and Contrasting the Different Forms of Radiation in the Electromagnetic Spectrum.

Assessments: Directed Reading, Quizzes, Homework, Map Work, Labs, Review, Test.

Bible Integrations: The orderliness of God is revealed through maps. A map is for directions like the Bible is for our directions for life.

Introduction to Chemistry 4 Weeks

Key Concepts: Distinguishing Between Physical and Chemical Properties, The Phases and Forms of Matter, Naming and Describing the Three Main Parts of the Atom, Drawing a Model of An Atom, Relating Molecular Motion to Phase Changes, Distinguishing Between Atoms and Ions.

Assessments: Directed Reading, Quizzes, Homework, Labs, Review, Test.

Atmosphere 4 1/2 Weeks

Key Concepts: The Composition of the Atmosphere, The Importance of the Atmosphere, The Different Layers of the Atmosphere, Properties of Air and Air Pressure, Measuring Air Pressure, and List the Factors Affecting It,
Assessments: Directed Reading, Quizzes, Homework, Project, Labs, Review, Test.
Bible Integration: Psalms 8 – The glory of God is magnified by examining His work.

Second Semester

Weather Factors and Patterns 5 Weeks

Key Concepts: How Atmosphere Is Heated, Thermal Energy, Heat Transfer: Radiation, Conduction, and Convection, Causes of Global and Local Winds, Humidity, How Clouds Form, Draw and Label the Water Cycle, Types of Clouds, Types of Precipitation, Types of Air Masses, How a Front Forms, Weather Map Symbols, Read and Interpret Weather Maps, The Formation of Cyclones and Anticyclones, Dangers Associated With Storms, The Causes of Major Storm Phenomena, Atmospheric Events That Cause Recurring Weather Patterns.
Assessments: Directed Reading, Quizzes, Homework, Weather Map Work, Labs, Balloon Project, Review, Test
Bible Integration: Storms and the weather are under God's control as we see in the ministry of Jesus. God also leads us through the "storms" we face in life. We can have victory in those trials if we trust in Him.

Physical Oceanography / Marine Environment 4 Weeks

Key Concepts: Major Oceans, The Difference Between An Ocean and a Sea, Relating the Role of the Oceans to the Water Cycle, Characteristics of Ocean Water, Three Temperature Zones of Ocean Water, Compare and Contrast Ocean Floor Topography to Continental Topography, The Continental Slope and Shore, Locate On a Map the Major Features of the Ocean Floor, Factors that Affect Ocean Life, Three Major Groups of Ocean Life, The Major Life Zones of Oceans, The Cause and Effect of Tides.
Assessments: Directed Reading, Quizzes, Homework, Map Work, Labs, Review, Test.
Bible Integration: Explain and show evidence of the truth of Noah's flood; dry land formations were submerged after the flood.

Volcanic Activity (with Earthquakes) 4 Weeks

Key Concepts: Factors that Affect the Formation of Magma, Compare and Contrast the Different Types of Magma, How Magma Affects Overlying Crustal Rocks, The Major Parts of a Volcano, Compare and Contrast Shield, Cinder-Cone, and Composite Volcanoes, Contrast the Volcanism That Occurs At Plate Boundaries.
Assessments: Directed Reading, Quizzes, Homework, Labs, Review, Test.
Bible Integration: Volcanoes reveal the Earth as a "living" part of God's creation.

The Sun-Earth-Moon System

2 Weeks

Key Concepts: Electromagnetic Radiation, Space Exploration, Features on the Moon, the Relative Positions and Motions of Earth, the Sun, and the Moon, the Phases of the Moon, Eclipses of the Sun and Moon.

Assessments: Directed Reading, Quizzes, Homework, Labs, Review, Test

Bible Integration: Explain and show how God designed this system to work together to give us our seasons and our calendar system. Show how many species of animals are dependant on this cycle.

Our Solar System

3 Weeks

Key Concepts: The Modern Heliocentric Model of Our Solar System, The Planets In Order, Relating Gravity to Motions of Celestial Bodies, The Properties of the Terrestrial Planets, Comparing Earth With Other Terrestrial Planets, The Properties of the Gas Planets, Learning Three Facts About the Nine Known Planets In Our Solar System.

Assessments: Directed Reading, Quizzes, Homework, Labs, Review, Test

Bible Integration: Reinforce the orderliness of God's creation, How the planets work together to support our position with the sun. Explain how Earth was created for us and that no other planet or moon would work.