

Phoenix Christian Jr High School

SCI0700 Life Science

Course Scope & Sequence (2010)

Life Science is a course that will cover the various aspects of Life; its structure and function. It starts with a single cell and works up to the most complex life forms. Thinking processes and reasoning skills will be developed.

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

COURSE SCOPE AND SEQUENCE

First Semester

Exploring and Classifying Life 4 1/2 Weeks

Key Concepts: Measure Using Metric Lab Tools (SI), What Biology Means, The Meaning of Science, Contrast the Difference Between Science and Biblical Science, the Definition of the Six Kingdoms and How to Use the Definition with Examples, The Scientific Method, How the Scientific Method Can Be Applied to a Problem-Solving Situation, Compare and Contrast the Nonliving and Living Characteristics, Tracing the Development and Change of Various Theories Over Time (Ex: Spontaneous Generation/Biogenesis), Using a Dichotomous Key.

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

Bible Integration: Man is to study creation and learn of God: Gen 1:28. God did not explain how He did everything in creation. We must realize that there are limitations to scientific observations and experimentation.

Cells 4 1/2 Weeks

Key Concepts: Compare and Contrast Differences Between Creation and Evolution, Differences Between a Living Organism and a Dead Organism, Characteristics and Needs of Living Things, Cell Theory, Anatomy of a Cell, Contrast and Compare the Anatomy of a Plant and Animal Cell, Compare Tissue, Organ, and Systems, Compare the Differences In a Compound Light Microscope and An Electron Microscope, How a Virus Makes Copies of Itself, Benefits of Vaccines and Their Uses.

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

Bible Integration: Man has the responsibility to carefully use, study, and learn God's world. 1 Tim. 6:17

Cell Processes

5 Weeks

Key Concepts: Differences Among Atoms, Elements, Molecules, and Compounds, The Relationship Between Chemistry and Life Science, How Organic Compounds are Different from Inorganic Compounds, The Function of a Selectively Permeable Membrane, How the Processes of Diffusion and Osmosis Move Molecules In a Living Cell, How Active Transport and Active Transport Differ, The Differences Between Producers and Consumers, How the Processes of Photosynthesis and Respiration Store and Release Energy, How Cells Get Energy From Glucose Through Fermentation.

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

Bible Integration: All things were created with a specific purpose: Gen 3:21. The orderliness of God's creation.

Cell Reproduction and Heredity

4 Weeks

Key Concepts: Why Mitosis Is Important, The Stages of Meiosis and How Sex Cells Are Produced, Naming the Cells That Are Involved In Fertilization, How Traits Are Inherited, Using a Punnet Square to Predict the Results of Crosses, Compare and Contrast the Difference Between and Individual's Genotype and Phenotype, How Traits Are Inherited By Incomplete Dominance, Compare Multiple Alleles and Polygenic Inheritance, Describing Two Human Genetic Disorders and How They Are Inherited, How Sex-Linked Traits Are Passed to Offspring.

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

Bible Integration: All forms of life reproduce after their own kind and all living things are characterized by common traits. This reinforces the design of creation not the randomness of evolution.

Second Semester

Fish, Amphibians, and Reptiles

4 Weeks

Key Concepts: The Characteristics of All Chordates, Characteristics Shared By Vertebrates, Differentiating Between Ectotherms and Endotherms, Characteristics of the Three Classes of Fish, How Fish Obtain Food and Oxygen and Reproduce, How Amphibian Design Enables Them to Live In Water and On Land, The Kinds of Amphibians and the Characteristics of Each, How Amphibians Reproduce and Develop Through Metamorphosis, The Characteristics of Reptiles, Determining How Reptile Design Enables Them to Live On Land, The Importance of the Amniotic Egg, Complete and Incomplete Metamorphosis.

Assessments: Directed Reading, Quizzes, Homework, Dissection, Practice Test, Test

Bible Integration: Every living thing experiences a life changing process: a life cycle as well as a change from infancy to adulthood. Spiritually, we also grow from immaturity to maturity.

Birds and Mammals

3 Weeks

Key Concepts: Characteristics of Birds and the Design That Birds Have For Flight, How Birds Reproduce and Develop, The Characteristics of Mammals and How They Help Them Live In Different Environments, Distinguish Among Monotremes, Marsupials, and Placentals, Threatened Or Endangered Species of Mammals.

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

Bible Integration: God created various life forms to show us His creativity, artistry, imagination, and character.

Human Structure and Movements

4 Weeks

Key Concepts: 10 Human Body Systems, Locating Major Body Organs, Five Functions of the Skeletal System, Compare and Contrast Movable and Immovable Joints, The Major Function of the Muscular System, Compare and Contrast the Three Types of Muscles, How Muscle Action Results In the Movement of Body Parts.

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

Bible Integration: Man is not related to the animals, but made in the image of God; who is the Author of all.

Nutrients and Digestion

4 Weeks

Key Concepts: The Six Classes of Nutrients, The Relationships Between Diet and Health, The Differences Between Mechanical and Chemical Digestion, The Organs of the Digestive System and What Takes Place In Each, How Homeostasis Is Maintained In Digestion.

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

Bible Integration: The human body is the temple of the Holy Spirit and is to be kept pure with care as to what goes in it and what one does with it.

Circulation and Respiration

2 Weeks

Key Concepts: Compare and Contrast Arteries, Veins, and Capillaries, How Blood Moves Through the Heart, The Parts and Functions of Blood, Identifying the Different Blood Types, The Functions of the Respiratory System, How Oxygen and Carbon Dioxide Are Exchanged In the Lungs.

Assessments: Directed Reading, Quizzes, Homework, Dissection, Practice Test, Test

Bible Integration: Respect for God's creation, including the animals. God created all things and God's creation is good. Gen. 1