

Phoenix Christian Sr High School

SCI200 Biology

Course Scope & Sequence

COURSE DESCRIPTION

Life is the most intricately designed and wonderful of God's creations. This Biology course is based upon a traditional study of life. Each of these living wonders is credited to God rather than to the chance processes of evolution. A vital part of the study of Biology is the actual student involvement obtained in biology lab, research projects and field investigative trips. God's Truth is integrated into the lesson plans and time is given for prayer.

REQUIRED TEXTS AND *KEY SUPPLEMENTAL MATERIALS

Biology, Kenneth R. Miller, Ph. D. and Joseph Levine, Ph. D. Prentice Hall

Biology - Guided Reading Work Book, Prentice Hall

Biology - Laboratory Manual A & B, Prentice Hall

COURSE SCOPE AND SEQUENCE

First Semester (First Nine weeks)

The Science of Biology 3 Weeks

Key Concepts: Define Science, Scientific Method, Biology and its Branches.

Learn to use the Tools of science and to understand standard lab procedures and how to write lab reports. Parts of the metric system applicable to Science.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: Biology is Defined as the Study of God's Living Creation. All Truth is God's Truth.

Chemistry Of Life 2.5 Weeks

Key Concepts: Nature of Matter, Properties of Water, Carbon Compounds, Chemical Reactions and Enzymes.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: A Believer is not Only Identified by the Inner Witness of the Holy Spirit, but His/Her Life Should Reflect this just as the Physical and Chemical Properties of Elements Define Them.

Biosphere 2.5 Weeks

Key Concepts: Ecology, Energy Flow, Cycles of Matter.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: God Holds the Whole Universe Together by His Sovereign Power.

Ecosystems And Communities 2 Weeks

Key Concepts: Climate, Ecosystem, Land Biomes, Aquatic Ecosystems

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: God is a God of Variety and Diversity.

First Semester (Second Nine Weeks)

Cell Structure And Function 2.5 Weeks

Key Concepts: Cellular Life, Cell Structures, Movements Through Membrane, Diversity of Cellular Life.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: The Bible Confirms the Cell Principle When it Declares Throughout Genesis 1 that all Living Things Reproduce After Their Own Kind.

Cell Growth And Division 2 Weeks

Key Concepts: Cell Growth, Cell Division, Cell Cycle.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: God's Process to Ensure Continuity of Life.

Introduction To Genetics 2.5 Weeks

Key Concepts: Work of Gregor Mendel, Probability and Punnett Squares, Mendelian Genetics, Meiosis, Linkage and Gene Maps.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: God Designed His Creation to Conserve Inheritable Characteristics, not to Diffuse Them. Left to Itself, the Living World Obeys this Design, yet God has Allowed Man Some Authority Over the Creation by Permitting Manipulation of the Gene Pool Within Certain Limits.

Human Genome 2 Weeks

Key Concepts: Human Heredity, Chromosomes, and Molecular Genetics.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: DNA is a Marvelous Molecule in the Glorious Design of Creation by Our All-Wise God. As Christians We Should be Defensive not Over Reactive. DNA Can and Does Change, just as Biological Systems have Changed and do Change. One of the Results of the Fall (Gen 3:17-19) is that Errors (Mutations) Do Occur During DNA Replication and Can Be Transmitted to Future Generations.

Second Semester (Third Nine Weeks)

Classification, Bacteria And Viruses 2.5 Weeks

Key Concepts: Order in Diversity, Modern Evolutionary Classification, Kingdoms and Domains, Prokaryotes, Bacteria in Nature, Viruses

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: Pathogenic Agents are on the Rise as Sin Continues to Grow in the World.

Protists 2.5 Weeks

Key Concepts: Kingdom Protista, Animallike Protists: Protozoans, Plantlike Protists: Unicellular Algae, Plantlike Protists: Red, Brown, and Green Algae, Funguslike Protists.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: Life Exists Even at the Microscopic Level and is God Designed.

Fungi 2 Weeks

Key Concepts: Kingdom Fungi, Classification of Fungi, Ecology of Fungi.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: Fungi are God's Natural Decomposers, Breaking Down Dead, Decaying Matter Thereby Maintaining Homeostasis in the Biosphere.

Plant Diversity, Roots, Stems, And Leaves 2 Weeks

Key Concepts: Plants, Bryophytes, Seedless Vascular Plants, Seed Plants, Angiosperms: Flowering Plants, Specialized Tissues in Plants, Roots, Stems, Leaves, Transport in Plants.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: Emphasizes the Concreteness of God's Living Creation. Fruit Production is not Only to Perpetuate the Species but also to Provide Food for God's Creatures, Including Man (Deut.20:19-20).

Second Semester (Fourth Nine Weeks)

Sponges And Cnidarians, Worms And Mollusks 3 Weeks

Key Concepts: Animal Kingdom, Sponges, Cnidarians, Flatworms, Roundworms, Annelids, Mollusks

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: The Variety of Invertebrate Life Emphasizes the Design in God's Creation.

Arthropods, Echinoderms, Nonvertebrate Chordates, Fishes, Amphibians 3 Weeks

Key Concepts: Arthropods, Groups of Arthropods, Insects, Echinoderms, Chordates, Fishes, Amphibians.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: Genesis 1: 20 – 25, Diversity Alone Testifies of a Creator.

Reptiles, Birds, and Mammals 3 Weeks

Key Concepts: Reptiles, Birds, Mammals, Diversity of Mammals, Primates and Human Origins.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: Same as Unit XIII and XIV

Alternate Units

Nervous System, Skeletal, Muscular, And Integumentary Systems 3 Weeks

Key Concepts: Human Body Systems, Nervous System, Divisions of Nervous System, Senses, Drugs and the Nervous System.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biblical Integration: The Physical Body of the Believer is the Temple of The Holy Spirit, Therefore the Body Should Be Well Cared For and Glorify God.

Circulatory, Respiratory, Digestive, and Excretory Systems 3 Weeks

Key Concepts: Circulatory System, Blood and Lymphatic System, Respiratory System, Food and Nutrition, Process of Digestion, Excretory System.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Endocrine And Reproductive Systems, Immune System And Disease

3 Weeks

Key Concepts: Endocrine System, Human Endocrine Glands, Reproductive System, Fertilization and Development, Infectious Disease, Immune System, Immune System Disorders, Cancer.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.