Course Description
Seventh Grade
Life Science

Philosophy Statement: Science for the Christian is the study of God's creation. The exploration of the creation should yield a direct appreciation for the creative work of God. All that can be known of God we know through the creation and science is the study of that work. Students will continually be called on to see the divine order of creation and its implications for other subjects and be stirred to think about the work of an infinitely loving, good God who has prepared a place for us to live temporally and eternally.

Course Objectives: The students will explore and experience several areas in science. Included in these areas are life, viruses, bacteria, protoctists, fungi, plants, animals, the human body, genetics and heredity. The students will enjoy learning about science through presenting things that they can see, observe, and understand in their world around them.

Textbook: Life Science- 5th Edition (BJU Press)

Materials:

Student textbook
Bible
Enrichment worksheets
Activity sheets
Experiments and projects

Time Allotment: 45 minutes per day, 1 and ½ hour on block schedule days

Biblical Integration -

"In the beginning, God created the heavens and the earth." - Genesis 1:1

"Since what may be known about God is plain to them, because God has made it plain to them. For since the creation of the world God's invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made, so that people are without excuse." -Romans 1: 19-20

"And God blessed them. And God said to them, "Be fruitful and multiply and fill the earth and subdue it, and have dominion over the fish of the sea and over the birds of the heavens and over every living thing that moves on the earth." - Genesis 1:28

Course Content:

Week 1:Unit One: Life (An Introduction to Life Science, Characteristics of Life, Cells, Taxonomy) - I can:

- understand why Christians should pursue scientific inquiries.
- understand and utilize the scientific method.

Week 2:Unit One: Life (An Introduction to Life Science, Characteristics of Life, Cells, Taxonomy) - I can:

- understand and apply metric units and metric conversions.
- explain and implement safe practices in a lab.

Week 3:Unit One: Life (An Introduction to Life Science, Characteristics of Life, Cells, Taxonomy) - I can:

- discount spontaneous generation, describe the characteristics of living things, and observe life processes.
- determine the basic needs of living things by understanding the importance of sun energy and water.

Week 4:Unit One: Life (An Introduction to Life Science, Characteristics of Life, Cells, Taxonomy) - I can:

- reflect on the needs of living things.
- understand how the concepts and compounds relate to the needs of living things.
- list several organic compounds needed by most living things.

Week 5:Unit One: Life (An Introduction to Life Science, Characteristics of Life, Cells, Taxonomy) - I can:

- can outline the history of cellular research.
- state the basic components of the cell theory.

Week 6:Unit One: Life (An Introduction to Life Science, Characteristics of Life, Cells, Taxonomy) - I can:

- examine cells from various things and become familiar with a microscope.
- state characteristics common to all cells.
- observe and describe differences between plant and animal cells.

Week 7:Unit One: Life (An Introduction to Life Science, Characteristics of Life, Cells, Taxonomy) - I can:

- state the functions of cell organelles.
- understand cellular functions, metabolic pathways, cellular respiration, and the purpose of enzymes.

Week 8: Unit One: Life (An Introduction to Life Science, Characteristics of Life, Cells, Taxonomy) - I can:

- observe and describe osmosis and diffusion.
- understand organisms grow by adding new cells, the requirements of cellular reproduction, and be introduced to mitosis and meiosis.

Week 9: Unit One: Life (An Introduction to Life Science, Characteristics of Life, Cells, Taxonomy) - I can:

- understand and utilize taxonomy and binomial nomenclature.
- recite and apply the 7 taxonomic categories and the 5 kingdoms.

Week 10: Unit One: Life (An Introduction to Life Science, Characteristics of Life, Cells, Taxonomy) - I can:

- understand organisms in unfamiliar kingdoms and observe bacteria, protoctists, and fungi.

Week 11: Unit Two: Viruses, Bacteria, Protoctists, and Fungi - I can:

- name characteristics viruses share with life forms, describe, and model a virus.
- describe how viruses replicate and infect host cells.

Week 12:Unit Two: Viruses, Bacteria, Protoctists, and Fungi - I can:

- understand characteristics of bacteriophages, the flu, and HIV.
- describe how vaccines work.

Week 13:Unit Two: Viruses, Bacteria, Protoctists, and Fungi - I can:

- understand bacteria's function and significance.
- explain bacterial reproduction.

Week 14: Unit Two: Viruses, Bacteria, Protoctists, and Fungi - I can:

- understand the many benefits of bacteria.

Week 15: Unit Two: Viruses, Bacteria, Protoctists, and Fungi - I can:

- understand the structure and economic importance of bacteria
- understand the diseases the bacteria causes.

Week 16: Unit Two: Viruses, Bacteria, Protoctists, and Fungi - I can:

- identify and define protoctists.

Week 17:Unit Two: Viruses, Bacteria, Protoctists, and Fungi - I can:

- describe and identify plant-like protoctists.

Week 18: Unit Two: Viruses, Bacteria, Protoctists, and Fungi - I can:

- identify and describe animal-like protoctists.
- identify and describe sporozoans and fungus-like protoctists.
- describe fungi.

Week 19: Unit Two: Viruses, Bacteria, Protoctists, and Fungi - I can:

- understand the purpose of fungus.
- identify the 3 basic forms in which fungi are created.

Week 20: Unit Two: Viruses, Bacteria, Protoctists, and Fungi - I can:

- appreciate the role of fungi in the ecosystem.

Week 21:Unit Three: Plants (An Introduction to Plants, Plant Activity) - I can:

- Classify plants
- Identify four basic needs of plants: soil, water, sun and air.
- Identify basic characteristics of non-vascular plants and vascular plants
- Describe asexual reproduction processes in non-vascular.

Week 22: Unit Three: Plants (An Introduction to Plants, Plant Activity) - I can:

- Distinguish between ferns, horsetails, and club mosses.
- Identify structures similar to leaves, stems, and roots in non-vascular plants.
- Compare and contrast the structures of monocots and dicots.

Week 23: Unit Three: Plants (An Introduction to Plants, Plant Activity) - I can:

- Identify the functions of each plant structure.
- Compare tap roots and fibrous roots.

Week 24: Unit Three: Plants (An Introduction to Plants, Plant Activity) - I can:

- Identify the raw materials and products of photosynthesis.
- Recognize the role of leaves and chlorophyll in photosynthesis.
- Explain the process of transpiration and the ways that plants adapt to reduce water loss.
- Identify the structures and processes involved in transport within a plant.

Week 25: Unit Three: Plants (An Introduction to Plants, Plant Activity) - I can:

- Identify the male and female reproductive structures of angiosperms.
- Describe the conditions necessary for seed germination.
- List the ways seeds are dispersed and the adaptations that make this possible.
- Explain the tropisms of plants.
- Design and perform experiments to demonstrate plant movements.

Week 26: Unit Four: Animals (Simple Invertebrates and Echinoderms, Arthropods, Vertebrates) - I can:

- Distinguish between invertebrates and vertebrates.
- Understand differences in sexual and asexual reproduction
- Learn 3 basic groups of invertebrates
- Compare and describe invertebrates
- Describe the differences in ectotherms and endotherms

- Explain the differences in reptiles, amphibians, birds, fish and mammals
- Give examples of reptiles, amphibians, birds, fish and mammals

Week 27: Unit Four: Animals (Simple Invertebrates and Echinoderms, Arthropods, Vertebrates) - I can:

- Distinguish between invertebrates and vertebrates.

Week 28: Unit Four: Animals (Simple Invertebrates and Echinoderms, Arthropods, Vertebrates) - I can:

- Understand differences in sexual and asexual reproduction

Week 29: Unit Four: Animals (Simple Invertebrates and Echinoderms, Arthropods, Vertebrates) - I can:

- Learn 3 basic groups of invertebrates

Week 30: Unit Four: Animals (Simple Invertebrates and Echinoderms, Arthropods, Vertebrates) - I can:

- Compare and describe invertebrates

Week 31: Unit Four: Animals (Simple Invertebrates and Echinoderms, Arthropods, Vertebrates) - I can:Understand and differentiate between arthropods.

- Describe the differences in ectotherms and endotherms

Week 32: Unit Four: Animals (Simple Invertebrates and Echinoderms, Arthropods, Vertebrates) - I can:

- Explain the differences in various vertebrates.

Week 33: Unit Four: Animals (Simple Invertebrates and Echinoderms, Arthropods, Vertebrates) - I can:

- Give examples of reptiles, amphibians, birds, fish and mammals

Week 34: Unit Five: Human Body - I can:

- Explain the difference between a system and a function

Week 35: Unit Five: Human Body - I can:

- Name body systems, organs, and tissues with which they are already familiar.
- Distinguish between organs and tissues.

Week 36: Unit Five: Human Body - I can:

- Observe and sketch cells from various tissues and organs.

Week 37: Unit Five: Human Body - I can:

- Describe the roles of protein, carbohydrates, and fats as producers of energy and building blocks for growth repair.
- Observe flavor changes in crackers as they begin to digest in the mouth.

Week 38: Unit Five: Human Body - I can:

- Understand the functions of the digestive, skeletal, muscular and respiratory system

Week 39: Review

Areas to Be Evaluated:
*Class work assignments
*Homework assignments
*Quizzes
*Tests
*Projects
*Participation in experiments
*Dissection
*Daily Participation grades