Course Description
Eighth Grade
Earth 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 of science. Included in these areas are: geology, the dynamic earth, water and water systems, meteorology, environment and astronomy. The students will enjoy learning about science through presenting things they can see, observe and understand in their world around them.

Textbook: *Earth and Space Science* (Purposeful Design Publications)

Materials:

Science Textbook
Student workbook
Enrichment worksheets
Experiments

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: The World of Earth Science - I can:

- explain how earth science helps Christians declare God's glory.
- understand why it is important for Christians to study and understand science.
- understand worldview and describe the differences between fact, law, hypothesis, theory, and belief.

Week 2:The World of Earth Science - I can:

- explain and utilize the scientific method.
- reflect on the importance of using a Biblical Worldview to study science

Week 3: Matter, Forces and Energy - I can:

- describe matter and the different forms it can take.
- understand what matter is and how it changes by transferring thermal energy.

Week 4: Matter, Forces and Energy - I can:

- describe the various kinds of forces and their properties.

Week 5: Matter, Forces and Energy - I can:

- understand and explain the different kinds of energy.

Week 6: Geology - I can:

- describe the characteristics of the structural layers of the earth and illustrate the structural layers of the earth.

Week 7: Geology - I can:

- differentiate between s-waves and p-waves.
- explore the properties of the asthenosphere
- reflect on the earth's structure through observing science fiction.

Week 8: Earth’s Rocky Materials - I can:

- share general knowledge of minerals.
- determine if a substance is a mineral.

Week 9: Earth’s Rocky Materials - I can:

- identify characteristics of minerals.
- explore the physical properties of minerals.

Week 10:Earth’s Rocky Materials - I can:

- describe and identify native minerals.
- describe and identify compound minerals.

Week 11: Earth’s Rocky Materials - I can:

- describe and understand mining and dominion.
- apply mining.

Week 12: Earth's Rocky Materials - I can:

- describe the rock cycle and different kinds of rocks.

Week 13: Earth's Rocky Materials - I can:

- describe igneous rocks.

Week 14: Earth's Rocky Materials - I can:

- describe sedimentary rocks.

Week 15: Earth's Rocky Materials - I can:

- describe metamorphic rocks and the rock cycle.

Week 16: Earth's Rocky Materials - I can:

- explore and understand characteristics of rocks.
- apply the rock cycle.

Week 17: Earth's Rocky Materials - I can:

- analyze the effects of weathering, erosion and deposition on the environment in ecoregions.

Week 18: Earth's Rocky Materials - I can:

- Identify fossils as evidence of past living organisms and classify the different types of fossilization.

Week 19: Earth's Rocky Materials - I can:

- utilize fossil evidence to make inferences.

Week 20: Earth's Rocky Materials - I can:

- use STEM processes to create an interactive fossil museum.

Week 21: The Water World - I can:

- understand the basic components of the ocean.
- explore the salinity of water and its properties.

Week 22: The Water World - I can:

- explore the features of estuaries, currents, and upwelling.

Week 23:The Water World - I can:

- identify the importance of ocean life

Week 24: The Water World - I can:

- explore the features of the ocean
- learn about and understand ocean zones and where ocean life likes to dwell according to their adaptations.

Week 25:The Water World - I can:

- Compare and contrast different types of streams

Week 26: The Water World - I can:

- Categorize lakes by their properties
- Summarize typical life phases of a lake

Week 27: The Water World - I can:

- Describe the water cycle

Week 28: The Water World - I can:

- Express the relationship between porous, non-porous, permeable and non-permeable when used to describe rocks
- Discuss geologic features, storage and movement of groundwater

Week 29: The Water World - I can:

- Relate the dissolving power of water to its physical and chemical properties
- Explain how the amounts and kinds of dissolved minerals in drinking water affect its hardness and usefulness

Week 30: The Water World - I can:

- Explain how we can use and conserve drinking water
- Identify ways drinking water can be polluted

Week 31: The Atmosphere - I can:

- Describe how people can affect the atmosphere
- Identify evidence of design in the atmosphere
- Sketch the atmosphere's composition, temperature and structure

Week 32: The Atmosphere - I can:

- Relate the special zones of the atmosphere to other layers
- Sketch the flow of energy in the atmosphere

Week 33: The Atmosphere - I can:

- Compare radiation, convection and conduction
- Describe the weather data that meteorologists collect
- Compare and contrast the different aspects of weather to each other

Week 34: The Atmosphere - I can:

- Explain what factors affect winds
- Explain how clouds form
- Compare and contrast different forms of precipitation

Week 35: The Heavens - I can:

- Describe the physical properties of the planets and their locations

Week 36: The Heavens - I can:

- Describe the movements of the sun, planets and Galilean moons

Week 37: The Heavens - I can:

- Model and illustrate how the tilted earth rotates on its axis causing day and night
- Model and illustrate how the tilted earth revolves around the sun causing changes in seasons

Week 38: The Heavens - I can:

- Demonstrate and predict the sequence of events in the lunar cycle
- Relate the position of the Moon and Sun to their effect on the ocean tides

Week 39: Review

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