

# Course Description

## Sixth Grade

### 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 a variety of areas within the field of science including earthquakes, volcanoes, erosion, cells, plants, animals, atoms, the solar system, genetics, and body systems. The student will enjoy learning about science through presenting things that they can see, observe, and understand in their world around them.

**Textbook:** *Science 6* (BJU Press)

#### **Materials:**

Student textbook  
Bible  
Activity sheets  
Experiments and projects  
Science Journal

**Time Allotment:** 45 minutes per day, 1 ½ hours 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: Ch. 1 - Earthquakes and Volcanoes - I can:**

- recognize the interrelationship between science concepts, and explain that ideas about science change, but that God never changes.
- explain the theory of plate tectonics.
- describe earthquakes and the different types of faults they cause.

### **Week 2: Ch. 1 - Earthquakes and Volcanoes - I can:**

- compare and contrast body waves and surface waves.
- explain the differences between the Mercalli scale and the Richter Scale. I can describe disasters related to earthquakes.
- practice the scientific method.

### **Week 3: Ch. 1 - Earthquakes and Volcanoes - I can:**

- model the effects of an earthquake, analyze and record information, and identify variables.
- explain the causes of a volcanic eruption, identify the parts of a volcano, and describe the ways in which volcanoes are classified.
- identify the effects and products of volcanoes.

### **Week 4: Ch. 1 - Earthquakes and Volcanoes - I can:**

- identify the dangers and difficulties associated with exploring volcanoes and design a piece of equipment that would help in volcano research.
- use a graphic organizer to compare volcanoes and earthquakes.

### **Week 5: Ch. 2 - Weathering and Erosion - I can:**

- explore and understand the Grand Canyon.
- identify the 3 kinds of rocks and explain how they are formed, differentiate between chemical and mechanical weathering, and give examples of chemical weathering.
- give examples of chemical weathering, and describe how acid rain forms.

### **Week 6: Ch. 2 - Weathering and Erosion - I can:**

- measure mass, length, and volume.
- compare and describe different kinds and features of soil.
- differentiate between chemical and mechanical weathering.

### **Week 7: Ch. 2 - Weathering and Erosion - I can:**

- analyze the features and types of soil.
- analyze a soil sample.

Week 8: Ch. 2 - Weathering and Erosion - I can:

- predict the amount of particles needed for a specific soil sample.
- differentiate between weathering and erosion.
- identify kinds of mass wasting, and describe how stream erosion occurs.

Week 9: Ch. 2 - Weathering and Erosion - I can:

- record and analyze data and discover how the steepness of a slope affects erosion.
- understand and compare the effects of erosion.
- use the PQ3R Method to read a science text.

Week 10: Ch. 3 - Natural Resources - I can:

- explain how God's mercy and wisdom are demonstrated in natural disasters.
- differentiate between renewable and nonrenewable resources.
- explain how fossil fuels are formed and identify their sources and uses.
- demonstrate different methods of cleaning up an oil spill.

Week 11: Ch. 3 - Natural Resources - I can:

- compare and contrast renewable sources of energy.
- identify uses of metals.
- identify soil as a natural resource and several ways to conserve it.

Week 12: Ch. 3 - Natural Resources - I can:

- identify water as a natural resource,
- explain how the ocean is the source of most fresh water and identify locations of freshwater.
- describe different kinds of ice and what it means to reduce, reuse and recycle.

Week 13: Ch. 3 - Natural Resources - I can:

- compare differences between water accessibility in Bible times and now.
- identify several ways to conserve water.
- identify examples of technology.

Week 14: Ch. 4 (Partial) - Cells - I can:

- understand different parts of God's living creation.
- identify 5 characteristics of living things and understand cell theory.

Week 15: Ch. 4 (Partial) - Cells - I can:

- explain the parts of a microscope.
- identify cell structures.
- explore the parts of a cell.

Week 16: Ch. 6 - Plant Classification - I can:

- begin to explore plant classification.
- understand how scientists classify plants.

Week 17: Ch. 6 - Plant Classification - I can:

- research products that come from plants.

Week 18: Ch. 6 - Plant Classification - I can:

- identify and describe angiosperms and gymnosperms

Week 19: Ch. 6 - Plant Classification - I can:

- classify plants.

Week 20: Ch. 6 - Plant Classification - I can:

- identify functions of root systems, vascular tissue, and plant stems.

Week 21: Ch. 7 – Atoms and Molecules - I can:

- explore atoms and molecules.
- describe the properties of an atom.

Week 22: Ch. 7 – Atoms and Molecules - I can:

- understand the properties and organization of the periodic table.
- write about an element based on research.

Week 23: Ch. 7 – Atoms and Molecules - I can:

- demonstrate and explain a chemical change and chemical formula.
- compare and contrast ionic and covalent bonding.
- collect data to identify a reaction as endothermic or exothermic.

Week 24: Ch. 7 – Atoms and Molecules - I can:

- compare and contrast acids and bases and describe the purpose of an indicator.
- identify a solution as an acid or base by using a pH indicator.

Week 25: Ch. 8 – Electricity and Magnetism - I can:

- explain electricity and characteristics of conductors, insulators, and resistors.
- can design and build an unbreakable circuit.

Week 26: Ch. 8 – Electricity and Magnetism - I can:

- differentiate between series and parallel circuits, distinguish how to measure electricity, and explain a battery.
- use circuit notation. I can understand the relationship between magnetism and electricity.

Week 27: Ch. 8 – Electricity and Magnetism - I can:

- make an electromagnet.
- research a famous inventor.
- understand how electromagnets work in a maglev.
- understand the importance of scientific discovery for the invention of modern electronics.

Week 28: Ch. 8 – Electricity and Magnetism - I can:

- design a parallel circuit and explore what is conductive.

Week 29: Ch. 8 – Electricity and Magnetism - I can:

- present an invention in circuitry.
- recognize how God values creativity.

Week 30: Ch. 9 – Motion and Machines - I can:

- identify the relationship between potential and kinetic energy, differentiate between speed and velocity, and describe how mass and velocity relate to momentum.
- identify and describe Newton's Laws.
- explore and develop a demonstration of Newton's Laws.
- identify and describe various levers, various pulleys, a wheel and axle, an inclined plane, a wedge, and a screw.

Week 31: Ch. 9 – Motion and Machines - I can:

- apply vocabulary on motion and machines.
- calculate work with hands-on experience.
- design a compound machine.

Week 32: Ch. 9 – Motion and Machines - I can:

- engage an audience with a creative compound machine invention.

Week 33: Ch. 10 – Stars - I can:

- recognize how God's Glory is reflected in the vastness of the stars.
- Identify and classify stars.
- Explain how stars produce light.
- Explain variable stars, novae, supernovas, neutron stars, and black holes.

Week 34: Ch. 10 – Stars - I can:

- Identify constellations
- Differentiate between reflecting and refracting telescopes

Week 35: Ch. 10 – Stars - I can:

- Make a model of a constellation
- Identify how many stars are in a binary star group and a multiple star group
- Differentiate between an open star cluster and a globular cluster.

- Describe asteroids, meteors, meteorites, and comets.

Week 36: Ch. 10 – Stars - I can:

- Interpret and use a star chart.
- Measure and test factors that affect the size and depth of craters.

Week 37: Ch. 11 - Solar System - I can:

- Explain how a rocket uses thrust.
- Describe characteristics of space exploration tools.
- Describe and understand types of inflatable spacecrafts
- Apply Newton's 3rd Law to spacecrafts.

Week 38: Ch. 11 - Solar System - I can:

- Identify parts of the sun and the relationship between the sun and the planets
- Summarize why Earth has seasons.
- Identify the planets

Week 39: Review all content

**Areas to Be Evaluated:**

- \*Classwork assignments
- \*Homework assignments
- \*Quizzes
- \*Tests
- \*Projects
- \*Participation in experiments
- \*Daily participation grades