

Curriculum Guide for 3rd Grade Science

Unit 1: Life Science

9 weeks

S3.1, S3.2, S3.3

Biblical Worldview Essential Questions

How does the ecosystem relate to all other aspects of creation? (How does a Christian view of the ecosystem tie together with the rest of what God has made?)

How does the design of plants reveal the Designer? What does it tell us about Him? What is He saying to us through it?

Objectives	Methods	Resources	Assessment
<p>The students will</p> <p><u>Ecosystems</u></p> <ol style="list-style-type: none"> 1. Examine interactions/relationships of an ecosystem. 2. Classify things as living or nonliving. 3. Distinguish between producers, consumers, and decomposers. 4. Describe orally how they interact within an ecosystem. 5. Describe orally/ writing the roles of predator, prey, and scavenger. 6. Describe the importance of balance within an ecosystem. 7. Demonstrate how animals compete with one another for food. 8. Describe in writing the niche an organism fills in the ecosystem. 9. Identify and describe three ways animals adapt to their environment. 10. What takes place during hibernation, migration, and camouflage 11. Name perish & relocate as ways animals respond to dramatic environmental changes. 12. Identify animals likely to respond in each way. <p><u>Life of plants</u></p> <ol style="list-style-type: none"> 13. Identify in writing parts of a plant. 14. Identify function of each part of a plant. 15. Read about gas exchange and photosynthesis. 16. Observe plants and record observations. 17. Identify parts of a plant cell. 18. Write about the microscope's importance to scientific 	<ul style="list-style-type: none"> • Lecture • Guided class discussion • Group reading • Completing BLM worksheets individually, in groups, and within classroom discussion • Decomposer Activity • Earthworm's Niche Activity/ Observation • Competition Activity • Hide and Seek Activity • Habitat Activity • Oxygen in Plants Activity • Flower Model Activity • Apple Activity • Carnation Activity 	<ul style="list-style-type: none"> • Teacher and student text (Purposeful Design, Science Level 3) • Purposeful Design, Science Blackline Masters Transparencies/Posters Level 3 • Apple slices, slice of wheat bread, zippered plastic bags (Decomposer Act.) • Sandwich: wheat bread, ham, cheese, lettuce. BLM 1.2A • Transparency T-01 A-C • Ecosystem poster • Need 1 foot piece of yarn, and lined writing paper. BLM1.3A & 1.3B • Earthworms, jar, soil, and breadcrumbs. BLM 1.0D • CD player, music CD six chairs, orange & gray construction paper, yarn, BLMs 1.4A-C • Different colors of construction paper, crayons, markers, scissors, glue, squiggly eyes, chenille stems of a variety of colors, brown paper bags • Cones, construction paper cards, index cards, masking tape, whistles, BLMs 1.6A-B • Clear bowls, plant leaf cuttings, water, hand lens, BLM 2.2A • Modeling clay, twist ties, tape, colored stems, tissue paper, BLMs 2.4C-D • 4 different types of apples, ziplock bags, knife, marker, index cards, BLMs 	<ul style="list-style-type: none"> • Chapter Reviews (Student Science text Level 3) • Blackline worksheets • Response to classroom questions. • Chapter tests.

<p>investigation.</p> <ol style="list-style-type: none"> 19. Order the steps of pollination, and identify specific flower parts. 20. Distinguish ways plants can produce more plants. 21. Order the steps in the life cycle of a plant. 22. Identify hybrid plants and describe how they are formed. <p><u>Plant Variety</u></p> <ol style="list-style-type: none"> 23. Compare and contrast a variety of plants. 24. Link form and function of plant characteristics to specific habitats. 25. Compare and contrast a variety of stems and roots. 26. Match stem and root forms to specific functions. 27. Compare and contrast various types of leaves. 28. Describe how leaf form helps the plant survive in its habitat. 29. Compare and contrast various types of flowers. 30. Match flower characteristics to pollinators. 31. Observe and identify the Characteristics of simple plants. 32. Differentiate plant parts and identify the two parts that simple plants do not have. 33. Describe the purpose of plant classification. 34. List the similar characteristics of plants classified in a specific group. 35. Review stem, root, leaf, and flower forms. 36. Will differentiate plant parts and describe the purpose of the scientific classification system. 		<p>2.6A-B</p> <ul style="list-style-type: none"> • Blue food coloring, 2 clear glasses, 2 white carnations with stems, sharp knife 	
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Unit 2: Physical Science

9 weeks

S3.4, S3.5, S3.6

Biblical Worldview Essential Questions

- Is there more to properties of matter than meets the eye?**
Although matter is not eternal, what is truly real about matter?
How does God’s view of discoveries differ from man’s view?
How does electricity reveal God’s hand at work in the world?

Objectives	Methods	Resources	Assessment
<p>The students will</p> <p><u>Properties of Matter</u></p> <ol style="list-style-type: none"> 1. Identify and compare the properties of common objects. 2. Identify the various instruments used to measure properties of matter. 3. Observe and describe how matter is exchanged between materials but is never created or destroyed. 4. Differentiate between three common states of matter 5. Differentiate the processes by which matter changes from one state to another. 6. Investigate mixtures of two different states of matter.. 7. Separate mixtures into pure substances. 8. Students will experiment with combining different forms of matter in a chemical reaction to make new forms of matter. <p><u>Motion and Force</u></p> <ol style="list-style-type: none"> 9. Define linear motion and measure velocity using toy car . 10. Define angular motion and distinguish between rotational and periodic motion. 11. Differentiate between the forces of friction and gravity. 12. Distinguish between work and power. 13. Analyze work and power and their role in common tasks. 14. Investigate Newton’s first law of motion. 15. Identify simple machines and how they help our efforts to complete work. 16. Review properties of motion, forces, work, power, and machines. <p><u>Electricity</u></p> <ol style="list-style-type: none"> 17. Observe and describe static electricity. 18. Diagram how opposite charges attract and like charges repel. 19. Discuss how electric charges 	<ul style="list-style-type: none"> • Lecture • Guided class discussion • Group reading • Completing BLM worksheets individually, in groups, and within classroom discussion • Properties of Candy Activity • Volume Activity • Saltwater Activity • Strange Matter Activity • Reaction Activity • Toy Car Activity • Ramp Activity • Machines Activity • Static Electricity Activity • Make a Magnet Activity • Magnet Propelled Car Activity 	<ul style="list-style-type: none"> • Teacher and student text (Purposeful Design, Science Level 3) • Purposeful Design, Science Blackline Masters Transparencies/Posters Level 3 • Various kinds of candy, ziplock bags. • 2-cup measuring cup, rocks the size of your fist • Glasses, salt, teaspoon, water, pot, hot plate • Dry or liquid starch, white craft glue, salt, food coloring • Baking soda, white vinegar, empty water bottles, medium balloons, spoon • Toy die-cast cars, meter stick, stopwatch, calculators, boards • Stopwatch, large box • Hammer, screwdriver, broken compound machines • Balloons, string, wool cloths, plastic wrap, tape, large plastic trash bag • Donut magnets, large nail (non-galvanized), paper clips • Plastic toy care, small bar magnet, tape 	<ul style="list-style-type: none"> • Chapter Reviews (Student Science text Level 3) • Blackline Worksheets • Response to classroom questions. • Chapter Tests

<p>can move from one object to another.</p> <p>20. Classify objects as either conductors or insulators.</p> <p>21. Demonstrate how electricity flows by constructing a circuit containing a switch.</p> <p>22. Identify in writing the difference between series circuits and parallel circuits.</p> <p>23. Discuss how we use electricity in our homes.</p> <p>24. Compare and contrast incandescent and fluorescent bulbs.</p> <p>25. Distinguish between safe and unsafe uses of electricity.</p> <p>26. Illustrate attraction and repulsion of electric charges.</p> <p>27. Identify objects as insulators or conductors, label circuits.</p> <p><u>Magnets</u></p> <p>28. Distinguish between materials that are magnetic and nonmagnetic.</p> <p>29. Identify different types of magnets, and locate poles.</p> <p>30. Describe in writing the interaction of north and south poles.</p> <p>31. Investigate how magnetic materials can produce magnetism.</p> <p>32. Distinguish the lines of force in two like poles and two unlike poles.</p> <p>33. Construct a compass to detect the earth's magnetic field.</p> <p>34. Describe in writing how magnets are useful to people.</p> <p>35. Review the basic concepts of magnetism.</p>			
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Unit 3: Earth and Space Science

9 weeks

S3.3, S3.7, S3.8, S3.9

Biblical Worldview Essential Questions

How can God’s design of rocks and minerals meet the needs of plants, animals, and people?

What do the changes on the earth continually reveal about God and His creation?

What does the universe and everything in it tell us about the Designer?

Objectives	Methods	Resources	Assessment
<p>The students will</p> <p><u>Rocks and Soil</u></p> <ol style="list-style-type: none"> 1. Describe rocks in writing. 2. Identify minerals and describe them in writing. 3. Examine a rock and classify it as either sedimentary, igneous, or metamorphic. 4. Explain orally how rocks change form through the rock cycle. 5. Illustrate the four components of soils and analyze various types of soil. 6. Locate and record uses of rocks, minerals, and soils around the school. 7. Describe characteristics of rocks and minerals, label parts of the rock cycle. <p><u>Earth’s Surface</u></p> <ol style="list-style-type: none"> 8. Describe in writing how environments affect the way people live. 9. Identify major mountain ranges of the earth. 10. Explain and illustrate how rain, wind, and moving water can change the shape of valleys. 11. Write about the characteristics of plains. 12. Illustrate and explain how lakes and rivers are useful to people. 13. Identify factors that affect coastlines. <p><u>Changes in the Earth’s Surface</u></p> <ol style="list-style-type: none"> 14. Explain in writing how erosion changes landforms. 15. Describe in writing how landslides, avalanches, and mudslides can change landforms. 16. Demonstrate how a volcano erupts. 17. Demonstrate the causes of earthquakes. 18. Examine how a tsunami forms. 	<ul style="list-style-type: none"> • Lecture • Guided class discussion • Group reading • Completing BLM worksheets individually, in groups, and within classroom discussion • Rocks Activity • Soil Activity • Travel Journal Activity • Glacier Activity • Coastline Activity • Mudslide Activity • Plate Movement Activity • Moon Phases Activity 	<ul style="list-style-type: none"> • Teacher and student text (Purposeful Design, Science Level 3) • Purposeful Design, Science Blackline Masters Transparencies/Posters Level 3 • Rocks, gallon-sized ziplock bags, hand lenses • Clay, potting soil, san, hand lenses, paper plates, marker, pots, seed • Colored pencils, spiral notebook • Sand, gravel, water, small paper cup, metal baking pan, freezer • Sand, rocks, water, metal baking pans, modeling clay, paper, plastic wrap • Sod, potting soil, shallow pans, two pitchers of water, large books • Bricks, potting soil, spray bottle with water, containers, newspapers • Moon model, floodlight 	<ul style="list-style-type: none"> • Teacher and student text (Purposeful Design, Science Level 3) • Purposeful Design, Science Blackline Masters Transparencies/ Posters Level 3 • Response to classroom questions. • Chapter tests.

<p>19. Identify instruments used to monitor landform changes.</p> <p><u>The Solar System</u></p> <p>20. Identify the different ways scientists explore space.</p> <p>21. Demonstrate and identify the characteristics of the planets and the sun in the solar system.</p> <p>22. Differentiate among the characteristics of the four planets closest to the sun.</p> <p>23. Identify the phases of the moon.</p> <p>24. Differentiate among the characteristics of the five outer planets.</p> <p>25. Describe in writing some of the challenges astronauts face.</p> <p><u>Astronomy</u></p> <p>26. Examine how tools help astronomers study the universe.</p> <p>27. Distinguish between asteroids, comets, and meteors.</p> <p>28. Identify characteristics of stars.</p> <p>29. Identify three types of galaxies.</p> <p>30. Identify several specific constellations.</p> <p>31. Describe in writing how stars and other celestial bodies have been used for tracking time and for navigation.</p>			
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Unit 4: Human Body

9 weeks

S3.5, S3.10

Biblical Worldview Essential Questions

Why do you think the human body is really important to God?

How does the design of the human musculoskeletal/nervous system reveal that we are created in God's image?

How do we know that we are more than just physical beings to God?

Objectives	Methods	Resources	Assessment
<p>The students will</p> <p><u>The Musculoskeletal System</u></p> <ol style="list-style-type: none"> Identify in writing the bones used for specific activities. Label the four layers of bones and discuss their functions. Identify and locate three types of joints. Describe the movement of skeletal muscles and name several specific major muscles. Identify the functions of smooth, cardiac, and facial muscles. Analyze how prosthetics improve people's lives. <p><u>The Nervous System</u></p> <ol style="list-style-type: none"> Explain how the three parts of the nervous system process information. Identify the functions of sensory and motor nerves. Orally identify the functions of the cerebrum, cerebellum, and brain stem. Discuss the functions of the brain's left and right hemispheres. Identify the functions of the autonomic nervous system. Discuss the differences between human and animal brains. <p><u>Health</u></p> <ol style="list-style-type: none"> Identify stages in the human life cycle. Identify the functions and sources of four nutrients. Plan a menu that provides the body with essential vitamins and minerals. Analyze their own diets and determine which aspects are healthy and unhealthy. Discuss the importance of adequate sleep and exercise. Analyze their lifestyles and identify healthy and unhealthy habits. 	<ul style="list-style-type: none"> Lecture Guided class discussion Group reading Completing BLM worksheets individually, in groups, and within classroom discussion Exercise Activity Chicken Bone Activity Two-point Discrimination Test Activity Vitamins and Minerals Activity 	<ul style="list-style-type: none"> Teacher and student text (Purposeful Design, Science Level 3) Purposeful Design, Science Blackline Masters Transparencies/Posters Level 3 Yellow highlighters, soccer balls, tennis balls White vinegar, 2 cleaned chicken bones, 2 glass jars with lids Rulers, chenille stems Carrots, oranges, glass of milk, spinach leaves, bananas 	<ul style="list-style-type: none"> Teacher and student text (Purposeful Design, Science Level 3) Purposeful Design, Science Blackline Masters Transparencies/Posters Level 3 Response to classroom questions. Chapter tests.

