



2017-2018 Curriculum Catalog

Science 500

Table of Contents

SCIENCE 500 COURSE OVERVIEW.....	1
UNIT 1: CELLS.....	1
UNIT 2: PLANTS: LIFE CYCLES.....	2
UNIT 3: ANIMALS: LIFE CYCLES.....	2
UNIT 4: BALANCE IN NATURE	2
UNIT 5: TRANSFORMATION OF ENERGY	3
UNIT 6: RECORDS IN THE ROCK: THE FLOOD.....	3
UNIT 7: RECORDS IN THE ROCK: FOSSILS	3
UNIT 8: RECORDS IN ROCK: GEOLOGY	4
UNIT 9: CYCLES IN NATURE.....	4
UNIT 10: LOOK AHEAD	4

Science 500 Course Overview

Science 500 is a basic elementary course intended to expose students to the designs and patterns in God’s physical universe. This course expands on the Science 300 and Science 400 courses, providing a broad survey of the major areas of science. Some of the areas covered in Science 500 include the study of cells, plants and animals, ecology, energy, geology, properties of matter, and the natural cycles of life.

The course seeks to develop the student’s ability to understand and participate in scientific inquiry. The units contain experiments and projects to capitalize on the students’ natural curiosity. The student will explore, observe, and manipulate everyday objects and materials in their environment. Students at this level should begin to understand interrelationships between organisms, recognize patterns in ecosystems, and become aware of the cellular dimensions of living systems. Collectively, this should help students develop and build on their subject-matter knowledge base.

Upon completion of the course, students should be able to do the following:

- Use their main senses for observation of the world around them.
- Demonstrate an understanding of cells and their structure, both plant and animal.
- Differentiate between plants, animals, fungi, protozoa, and algae.
- Explain interactions between different life forms.
- Discuss different energy transformations.
- Describe geology and how it relates to the Flood.
- Demonstrate an understanding of fossil types and the formation of fossils.
- Understand natural cycles.

Unit 1: Cells																							
Assignments																							
Science 500	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">1. Course Overview</td> <td style="width: 50%; padding: 2px;">12. Tissue</td> </tr> <tr> <td style="padding: 2px;">2. The Basic Unit of Living Things: A Cell</td> <td style="padding: 2px;">13. Quiz 2</td> </tr> <tr> <td style="padding: 2px;">3. Viewing Cells</td> <td style="padding: 2px;">14. Cells: Energy and Growth of Cells</td> </tr> <tr> <td style="padding: 2px;">4. Experiment: Skin Cells</td> <td style="padding: 2px;">15. Cell Reproduction</td> </tr> <tr> <td style="padding: 2px;">5. Quiz 1</td> <td style="padding: 2px;">16. Quiz 3</td> </tr> <tr> <td style="padding: 2px;">6. The Life and Activity of Cells</td> <td style="padding: 2px;">17. Special Project*</td> </tr> <tr> <td style="padding: 2px;">7. Plants and Unicellular Organisms</td> <td style="padding: 2px;">18. Review Game</td> </tr> <tr> <td style="padding: 2px;">8. Experiment: Onion Cells</td> <td style="padding: 2px;">19. Test</td> </tr> <tr> <td style="padding: 2px;">9. Experiment: Pond Water Examination</td> <td style="padding: 2px;">20. Alternate Test*</td> </tr> <tr> <td style="padding: 2px;">10. Experiment: Cheek Cells</td> <td style="padding: 2px;">21. Reference</td> </tr> <tr> <td style="padding: 2px;">11. Experiment: Blood Cells</td> <td></td> </tr> </table>	1. Course Overview	12. Tissue	2. The Basic Unit of Living Things: A Cell	13. Quiz 2	3. Viewing Cells	14. Cells: Energy and Growth of Cells	4. Experiment: Skin Cells	15. Cell Reproduction	5. Quiz 1	16. Quiz 3	6. The Life and Activity of Cells	17. Special Project*	7. Plants and Unicellular Organisms	18. Review Game	8. Experiment: Onion Cells	19. Test	9. Experiment: Pond Water Examination	20. Alternate Test*	10. Experiment: Cheek Cells	21. Reference	11. Experiment: Blood Cells	
1. Course Overview	12. Tissue																						
2. The Basic Unit of Living Things: A Cell	13. Quiz 2																						
3. Viewing Cells	14. Cells: Energy and Growth of Cells																						
4. Experiment: Skin Cells	15. Cell Reproduction																						
5. Quiz 1	16. Quiz 3																						
6. The Life and Activity of Cells	17. Special Project*																						
7. Plants and Unicellular Organisms	18. Review Game																						
8. Experiment: Onion Cells	19. Test																						
9. Experiment: Pond Water Examination	20. Alternate Test*																						
10. Experiment: Cheek Cells	21. Reference																						
11. Experiment: Blood Cells																							

Unit 2: Plants: Life Cycles**Assignments**

- | | |
|--|--|
| 1. Classifying Living Things and Plants
2. Parts of Plants
3. Quiz 1
4. Seed Bearing Plants
5. Flowering Plants
6. Experiment: Flower Dissection
7. Fertilization
8. Experiment: Seed Dissection
9. Cone-Bearing Plants
10. Project: Examining Cones
11. Project: Seed Hunt*
12. Quiz 2
13. Spore Bearing Plants and Fungi | 14. Fern Plants
15. Report: Walking Fern*
16. Fungi
17. Experiment: Mold
18. Quiz 3
19. One-celled Living Things
20. Quiz 4
21. Special Project*
22. Review Game
23. Test
24. Alternate Test*
25. Reference |
|--|--|

Science 500

Unit 3: Animals: Life Cycles**Assignments**

- | | |
|---|---|
| 1. Invertebrates: Life Cycles
2. One-celled Animal-like Protists
3. Report: Protozoa*
4. Egg-Laying Invertebrates
5. Experiment: Mealworm*
6. Report: The Spider*
7. Report: Insect Study*
8. Worms and Mollusks
9. Quiz 1
10. Vertebrates: Life Cycles
11. Egg-Laying Vertebrates
12. Egg-Laying Vertebrates (Part 2) | 13. Egg-Laying Vertebrates (Part 3)
14. Experiment: Chicken Egg*
15. Live-Bearing Vertebrates
16. Report: Mammals*
17. Essay: God and Animals*
18. Quiz 2
19. Special Project*
20. Review Game
21. Test
22. Alternate Test*
23. Reference |
|---|---|

Science 500

Unit 4: Balance in Nature**Assignments**

- | | |
|---|--|
| 1. Balance of Nature: Physical Environment
2. Project: Cycles*
3. Ecosystems
4. Project: Terrarium Project
5. Quiz 1
6. The Prairie: Web of Life
7. Project: Prairie Land*
8. The Prairie: Web of Life (Part 2)
9. Report: Prairie Birds*
10. The Prairie: Food Chains
11. Project: Prairie Food Chain* | 12. Project: Special Environments*
13. Quiz 2
14. Humans and the Web of Life
15. Humans and the Web of Life (Part 2)
16. Quiz 3
17. Special Project*
18. Review Game
19. Test
20. Alternate Test*
21. Reference |
|---|--|

Science 500

Unit 5: Transformation of Energy	
Assignments	
Science 500	1. Energy
	2. Work
	3. Quiz 1
	4. Work From Energy
	5. Experiment: Heat From the Sun*
	6. Forms of Energy
	7. Experiment: Heat from Bending*
	8. Experiment: Heat Energy from a Chemical Reaction*
	9. Chemical Energy
	10. Quiz 2
11. Energy in the Future	
12. Future Sources of Energy	
13. Experiment: Solar Energy for Heat	
14. Quiz 3	
15. Special Project*	
16. Review Game	
17. Test	
18. Alternate Test*	
19. Reference	

Unit 6: Records in the Rock: the Flood	
Assignments	
Science 500	1. Before the Flood: The Bible Record
	2. Before the Flood: The Physical Record
	3. Quiz 1
	4. The Flood: The Bible Record
	5. Project: Interview with Noah*
	6. The Flood: The Physical Record
	7. Report: Ancient Flood Stories*
	8. Quiz 2
	9. After the Flood: The Bible Record
	10. After the Flood: The Physical Record
	11. Quiz 3
	12. Special Project*
	13. Review Game
	14. Test
	15. Alternate Test*
	16. Reference

Unit 7: Records in the Rock: Fossils	
Assignments	
Science 500	1. Fossil Formation
	2. Project: Mold Fossil Copy
	3. Project: Cast Fossil Copy*
	4. Fossil Formation Part 2
	5. Fossil Locations
	6. Quiz 1
	7. Reading Fossils: Identification
	8. Reading Fossils: Earth's Age
	9. Project: Plant and Animal Fossils*
	10. Reading Fossils: Difficulties
	11. Project: Fossil Clues*
	12. Reading Fossils: Reconstruction
	13. Project: Fill in the Skeleton*
	14. Project: Be Creative*
	15. Quiz 2
	16. Special Project*
	17. Review Game
	18. Test
	19. Alternate Test*
	20. Reference

Unit 8: Records In Rock: Geology		
Assignments		
Science 500	1. Features of the Earth	11. Causes of Surface Change
	2. Project: Compare an Orange and the Earth	12. Earthquakes and Volcanoes
	3. Layers of the Earth	13. Project: Volcano Summary*
	4. Rocks on the Earth's Surface	14. Results of Forces
	5. Project: Examine a Mineral*	15. Quiz 2
	6. Kinds of Rocks	16. Special Project*
	7. Report: Rocks*	17. Review Game
	8. Project: Rock Hunt*	18. Test
	9. Quiz 1	19. Alternate Test*
	10. Changes in the Earth: Surface Change	20. Reference
	11. Experiment: Erosion*	

Unit 9: Cycles in Nature		
Assignments		
Science 500	1. Properties of Matter	14. Comets
	2. Properties of Matter (Part 2)	15. Report: Famous Comets*
	3. Experiment: Volume	16. Life
	4. Changes in Matter	17. Experiment: Water Evaporation*
	5. Experiment: Water Container*	18. Quiz 2
	6. Experiment: Types of Changes*	19. God's Order
	7. Conservation of Matter	20. Quiz 3
	8. Experiment: Conservation of Matter*	21. Special Project*
	9. Structure of Matter	22. Review Game
	10. Quiz 1	23. Test
	11. The Four Seasons	24. Alternate Test*
	12. The Cause of Seasons	25. Reference
	13. Project: Globe*	

Unit 10: Look Ahead		
Assignments		
Science 500	1. Living Things: Plants, Fungi, Protists, and Monerans	10. Energy and Work
	2. Living Things: Animals and Animal-Like Protists	11. Matter
	3. Living Things: Balance of Nature	12. Quiz 3
	4. Quiz 1	13. Special Project*
	5. The Earth: Records of Life	14. Review Game
	6. The Earth: Fossils	15. Test
	7. The Earth: Records in Rock	16. Alternate Test*
	8. Quiz 2	17. Reference
	9. Order in Creation	

(*) Indicates alternative assignment