



Switched-On
SCHOOLHOUSE

Course Catalog

Science 500

Table of Contents

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

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	
SCIENCE 500	Assignment Titles
1.	Course Overview
2.	The Basic Unit of Living Things: A Cell
3.	Viewing Cells
4.	Experiment: Skin Cells
5.	Quiz 1
6.	The Life and Activity of Cells
7.	Plants and Unicellular Organisms
8.	Experiment: Onion Cells
9.	Experiment: Pond Water Examination
10.	Experiment: Cheek Cells
11.	Experiment: Blood Cells
12.	Tissue
13.	Quiz 2
14.	Cells: Energy and Growth of Cells
15.	Cell Reproduction
16.	Quiz 3
17.	Special Project*
18.	Review Game
19.	Test
20.	Alternate Test*
21.	Reference

UNIT 2: PLANTS: LIFE CYCLES	
SCIENCE 500	Assignment Titles
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

UNIT 3: ANIMALS: LIFE CYCLES

SCIENCE 500

Assignment Titles

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

UNIT 4: BALANCE IN NATURE

SCIENCE 500

Assignment Titles

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

UNIT 5: TRANSFORMATION OF ENERGY

SCIENCE 500

Assignment Titles

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

UNIT 6: RECORDS IN THE ROCK: THE FLOOD

SCIENCE 500

Assignment Titles

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

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

UNIT 8: RECORDS IN ROCK: GEOLOGY				
Assignment Titles				
SCIENCE 500	1.	Features of the Earth	12.	Causes of Surface Change
	2.	Project: Compare an Orange and the Earth	13.	Earthquakes and Volcanoes
	3.	Layers of the Earth	14.	Project: Volcano Summary*
	4.	Rocks on the Earth's Surface	15.	Results of Forces
	5.	Project: Examine a Mineral*	16.	Quiz 2
	6.	Kinds of Rocks	17.	Special Project*
	7.	Report: Rocks*	18.	Review Game
	8.	Project: Rock Hunt*	19.	Test
	9.	Quiz 1	20.	Alternate Test*
	10.	Changes in the Earth: Surface Change	21.	Reference
	11.	Experiment: Erosion*		

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

(*) Indicates alternate assignment