



SCIENCE 500 ONLINE  
**NFC ACADEMY**

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**ACADEMIC  
INSTRUCTIONAL  
LIBRARY**  
*HOME TEACHER*



# SCIENCE 500 ONLINE

## COURSE OVERVIEW

Science 500 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. Download a copy of the [Science 500 Course Overview](#). You will find the goals for the course and the grading components and the grading scale for all NFC Academy courses.

## HOME TEACHER LABS

Labs for the Homeschool Edition program are those contained in the Ignitia Online Curriculum. No expensive equipment is required with only several requiring the purchase of small items or household items to conduct the experiments.

It is always advisable to be familiar with your surroundings and wear protective equipment when conducting any experiment. Never allow yourself to be distracted when completing an experiment.

## **Unit 1 – CELLS**

- 1. Course Overview**
- 2. The Basic Unit of Living Things: A Cell**
- 3. Viewing Cells**
- 4. Experiment: Skin Cells - *Complete the Virtual Lab in your assignment. It is not necessary to do the experiments, but observe the video experiment and complete the assignment.***
- 5. Quiz 1**
- 6. The Life and Activity of Cells**
- 7. Plants and Unicellular Organisms**
- 8. Experiment: Onion Cells - *Complete the Virtual Lab in your assignment. It is not necessary to do the experiments, but observe the video experiment and complete the assignment.***
- 9. Experiment Cheek Cells: *Complete the Virtual Lab in your assignment. It is not necessary to do the experiments, but observe the video experiment and complete the assignment.***
- 10. Tissue**
- 11. Quiz 2**
- 12. Cells: Energy and Growth of Cells**
- 13. Cell Reproduction**
- 14. Quiz 3**
- 15. Review Game**
- 16. Test**
- 17. Alternate Test**
- 18. Reference**

## **Unit 2 - PLANTS: LIFE CYCLES**

- 1. Classifying Living Things and Plants**
- 2. Parts of Plants**
- 3. Quiz 1**
- 4. Seed Bearing Plants**
- 5. Flowering Plants**
- 6. Experiment: Flower Dissection – *Watch the Virtual Lab in your assignment and write about what you see. It is not necessary to do the experiments, but observe the video experiment and describe what you see.***
- 7. Fertilization**
- 8. Experiment: Seed Dissection – *Complete the Virtual Lab in your assignment. It is not necessary to do the experiments, but observe the video experiment and complete the assignment.***
- 9. Cone-Bearing Plants**
- 10. Quiz 2**
- 11. Spore Bearing Plants and Fungi**
- 12. Fern Plants**
- 13. Fungi**
- 14. Experiment: Mold – *Complete the Virtual Lab in your assignment. It is not necessary to do the experiments, but observe the video experiment and complete the assignment.***
- 15. Quiz 3**
- 16. One-celled Living Things**
- 17. Quiz 4**
- 18. Review Game**
- 19. Test**

**20. Alternate Test**

**21. Reference**

**Unit 3 - ANIMALS: LIFE CYCLES**

**1. Invertebrates: Life Cycles**

**2. One-celled Animal-like Protists**

**3. Egg-Laying Invertebrates**

**4. Experiment: Mealworm – *Watch the video in your assignment and the video Mealworm to Darkling Video in Under Two Minutes: It is not necessary to do the experiments but observe the videos and complete the assignment.***

**5. Report: The Spider – *Complete this report as listed in your assignment.***

**6. Worms and Mollusks**

**7. Quiz 1**

**8. Vertebrates: Life Cycles**

**9. Egg-Laying Vertebrates**

**10. Egg-Laying Vertebrates (Part 2)**

**11. Egg-Laying Vertebrates (Part 3)**

**12. Live-Bearing Vertebrates**

**13. Report: Mammals – *Complete this report as listed in your assignment.***

**14. Quiz 2**

**15. Review Game**

**16. Test**

**17. Alternate Test**

**18. Reference**

## **Unit 4 - BALANCE IN NATURE**

- 1. Balance of Nature: Physical Environment**
- 2. Ecosystems**
- 3. Quiz 1**
- 4. The Prairie: Web of Life**
- 5. Project: Prairie Land – Complete this project as listed in your assignment.**
- 6. The Prairie: Web of Life (Part 2)**
- 7. The Prairie: Food Chains**
- 8. Project: Prairie Food Chain – *Complete this project as listed in your assignment.***
- 9. Food Chains, Food Webs, Energy Pyramid in Ecosystems – [Video for Kids](#)**
- 10. Quiz 2**
- 11. Humans and the Web of Life**
- 12. Humans and the Web of Life (Part 2)**
- 13. Quiz 3**
- 14. Review Game**
- 15. Test**
- 16. Alternate Test**
- 17. Reference**

## **Unit 5 - TRANSFORMATION OF ENERGY**

- 1. Energy**
- 2. Work**
- 3. Quiz 1**
- 4. Work From Energy**



5. Forms of Energy
6. Experiment: *Heat Energy from a Chemical Reaction - Complete the Virtual Lab in your assignment. It is not necessary to do the experiments, but observe the video experiment and complete the assignment.*
7. Chemical Energy
8. Quiz 2
9. Energy in the Future
10. Future Sources of Energy
11. Quiz 3
12. Review Game
13. Test
14. Alternate Test
15. Reference

#### **Unit 6 - RECORDS IN THE ROCK: THE FLOOD**

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 – *Complete this project as listed in your assignment.*
6. The Flood: The Physical Record
7. Quiz 2
8. After the Flood: The Bible Record
9. After the Flood: The Physical Record

- 10. Quiz 3**
- 11. Review Game**
- 12. Test**
- 13. Alternate Test**
- 14. Reference**

## **Unit 7 - RECORDS IN THE ROCK: FOSSILS**

- 1. Fossil Formation**
- 2. Project: Mold Fossil Copy - *Complete the project in your assignment. It is not necessary to do the experiments, but observe the video project and complete the assignment.***
- 3. Project: Cast Fossil Copy - *Complete the project in your assignment. It is not necessary to do the experiments, but observe the video project and complete the assignment.***
- 4. Fossil Formation Part 2**
- 5. Fossil Locations**
- 6. Quiz 1**
- 7. Reading Fossils: Identification**
- 8. Reading Fossils: Earth's Age**
- 9. Reading Fossils: Difficulties**
- 10. Project: Fossil Clues - *Complete the project as listed in your assignment.***
- 11. Reading Fossils: Reconstruction**
- 12. Quiz 2**
- 13. Review Game**
- 14. Test**
- 15. Alternate Test**



## 16.Reference

### Unit 8 - RECORDS IN ROCK: GEOLOGY

1. Features of the Earth
2. Layers of the Earth
3. Rocks on the Earth's Surface
4. Project: *Examine a Mineral* – *Complete your project as listed in the assignment using the video [Salt Crystals Forming](#)*
5. Kinds of Rocks
6. Quiz 1
7. Changes in the Earth: Surface Change
8. Experiment: Erosion - *Complete the Virtual Lab in your assignment. It is not necessary to do the experiments, but observe the video experiment and complete the assignment.*
9. Causes of Surface Change
10. Earthquakes and Volcanoes
11. Project: Volcano Summary – *Complete this report as listed in your assignment.*
12. Results of Forces
13. Quiz 2
14. Review Game
15. Test
16. Alternate Test
17. Reference

## **Unit 9- CYCLES IN NATURE**

- 1. Properties of Matter**
- 2. Properties of Matter (Part 2)**
- 3. Experiment: Volume - *Complete the Virtual Lab in your assignment. It is not necessary to do the experiments, but observe the video experiment and complete the assignment.***
- 4. Changes in Matter**
- 5. Experiment: Types of Changes - *Complete the Virtual Lab in your assignment. It is not necessary to do the experiments, but observe the video experiment and complete the assignment.***
- 6. Conservation of Matter**
- 7. Experiment: Conservation of Matter - *Complete the Virtual Lab in your assignment. It is not necessary to do the experiments, but observe the video experiment and complete the assignment.***
- 8. Structure of Matter**
- 9. Quiz 1**
- 10. The Four Seasons**
- 11. The Cause of Seasons**
- 12. Comets**
- 13. Report: *Famous Comets – Complete this report as listed in your assignment.***
- 14. Life**
- 15. Quiz 2**
- 16. God's Order**
- 17. Quiz 3**
- 18. Review Game**

**19.Test**

**20.Alternate Test**

**21.Reference**

**Unit 10 - LOOK AHEAD**

**1. Living Things: Plants, Fungi, Protists, and Monerans**

**2. Living Things: Animals and Animal-Like Protists**

**3. Living Things: Balance of Nature**

**4. Quiz 1**

**5. The Earth: Records of Life**

**6. The Earth: Fossils**

**7. The Earth: Records in Rock**

**8. Quiz 2**

**9. Order in Creation**

**10.Energy and Work**

**11.Matter**

**12.Quiz 3**

**13.Review Game**

**14.Test**

**15.Alternate Test**