



2012 Curriculum Catalog

General Science II

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Course Overview

General Science II is a basic intermediate course intended to expose students to the designs and patterns in God's physical universe. This course expands on the Science 600 and General Science I courses, providing a set of basic scientific skills and a broad survey of the major areas of science. Some of the areas covered in General Science II include the history of science, structure and properties of matter, health and nutrition, types of energy, electricity and magnetism, work, energy, forces, simple machines, balance in nature, natural cycles and resources.

The course seeks to develop the student's ability to be aware of 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 show understanding of interrelationships between organisms and the environment, recognize patterns in systems, and expand their knowledge of 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.
- Define science and describe its history.
- Demonstrate a knowledge of the different changes in matter.
- Describe elements and compounds in the terms of atoms and molecules.
- Know how to develop good health habits.
- Explain and give examples of the different types of energy.
- Describe different types of simple machines.
- Discuss the balance in nature regarding the different cycles.

UNIT 1: SCIENCE AND SOCIETY

Assignment Titles

- | | |
|-----------------------------|---------------------|
| 1. Course Overview | 9. Essay: Da Vinci |
| 2. Science Today | 10. Limitations |
| 3. Post-Renaissance Science | 11. Quiz 3 |
| 4. Essay: Mendel | 12. Special Project |
| 5. Quiz 1 | 13. Test |
| 6. Today's Scientist | 14. Alternate Test |
| 7. Quiz 2 | 15. Reference |
| 8. Science and Technology | |

UNIT 2: STRUCTURE OF MATTER (PART 1)

Assignment Titles

- | | |
|------------------------------------|--------------------------|
| 1. Properties of Matter (1) | 10. Compounds |
| 2. Experiment: Determining Volume | 11. Mixtures |
| 3. Experiment: Metric Measurements | 12. Experiment: Mixtures |
| 4. Properties of Matter (2) | 13. Quiz 3 |
| 5. Quiz 1 | 14. Special Project |
| 6. Atoms and Molecules | 15. Test |
| 7. Molecules | 16. Alternate Test |
| 8. Quiz 2 | 17. Reference |
| 9. Elements | |

UNIT 3: STRUCTURE OF MATTER (PART 2)
Assignment Titles

- | | |
|--------------------------------|-------------------------|
| 1. Matter and Change | 10. Bases |
| 2. Experiment: Phase Changes | 11. Experiment: Cabbage |
| 3. Solutions | 12. Quiz 3 |
| 4. Chemical Changes | 13. Salts |
| 5. Experiment: Forms of Change | 14. Quiz 4 |
| 6. Nuclear Changes | 15. Special Project |
| 7. Quiz 1 | 16. Test |
| 8. Acids | 17. Alternate Test |
| 9. Quiz 2 | 18. Reference |

UNIT 4: HEALTH AND NUTRITION
Assignment Titles

- | | |
|----------------------------|---------------------|
| 1. Foods and Digestion | 8. Quiz 3 |
| 2. Quiz 1 | 9. Hygiene |
| 3. Diet | 10. Quiz 4 |
| 4. Experiment: Food Record | 11. Special Project |
| 5. Quiz 2 | 12. Test |
| 6. Nutritional Diseases | 13. Alternate Test |
| 7. Essay: Nutrition | 14. Reference |

UNIT 5: ENERGY (PART 1)
Assignment Titles

- | | |
|--------------------------|----------------------------------|
| 1. Mechanical Energy | 8. Energy Conversion and Entropy |
| 2. Potential Energy | 9. Essay: Entropy |
| 3. Quiz 1 | 10. Quiz 3 |
| 4. Other Forms of Energy | 11. Special Project |
| 5. Chemical Energy | 12. Test |
| 6. Atomic Energy | 13. Alternate Test |
| 7. Quiz 2 | 14. Reference |

UNIT 6: ENERGY (PART 2)
Assignment Titles

- | | |
|------------------------------|-------------------------------|
| 1. Magnetism | 8. Energy for the Future |
| 2. Experiment: Magnetism | 9. Experiment: Hot Dog Cooker |
| 3. Electricity and Magnetism | 10. Quiz 3 |
| 4. Quiz 1 | 11. Special Project |
| 5. Electricity | 12. Test |
| 6. Electrical Circuits | 13. Alternate Test |
| 7. Quiz 2 | 14. Reference |

UNIT 7: MACHINES (PART 1)
Assignment Titles

- | | |
|-----------------------|---------------------|
| 1. Distance | 8. Work |
| 2. Essay: Scientists | 9. Work and Energy |
| 3. Measuring Distance | 10. Quiz 3 |
| 4. Quiz 1 | 11. Special Project |
| 5. Force | 12. Test |
| 6. Force Vectors | 13. Alternate Test |
| 7. Quiz 2 | 14. Reference |

UNIT 8: MACHINES (PART 2)
Assignment Titles

- | | |
|---------------------------------------|--------------------------------------|
| 1. Friction | 9. Quiz 3 |
| 2. Types of Friction | 10. Inclined Plane, Wedge, and Screw |
| 3. Experiment: Friction Investigation | 11. Quiz 4 |
| 4. Quiz 1 | 12. Special Project |
| 5. Levers | 13. Test |
| 6. Quiz 2 | 14. Alternate Test |
| 7. Wheel and Axle, Pulleys, and Gears | 15. Reference |
| 8. Experiment: Pencil Sharpener | |

UNIT 9: BALANCE IN NATURE**Assignment Titles**

- | | |
|----------------------------|---------------------|
| 1. Photosynthesis and Food | 8. Resources |
| 2. Food | 9. Quiz 3 |
| 3. Quiz 1 | 10. Special Project |
| 4. Natural Cycles | 11. Test |
| 5. The Water Cycle | 12. Alternate Test |
| 6. Quiz 2 | 13. Reference |
| 7. Balance and Disruption | |

UNIT 10: SCIENCE AND TECHNOLOGY**Assignment Titles**

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|-------------------------------|---|
| 1. Basic Science | 10. Life Science |
| 2. Characteristics of Matter | 11. Quiz 3 |
| 3. Matter in Change | 12. Vocations in Science and Technology |
| 4. Quiz 1 | 13. Quiz 4 |
| 5. Energy | 14. Special Project |
| 6. Chemical and Atomic Energy | 15. Test |
| 7. Magnetism and Electricity | 16. Alternate Test |
| 8. Machines at Work | 17. Reference |
| 9. Quiz 2 | |