



2012 Curriculum Catalog

Science 400

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Course Overview

Science 400 is a basic elementary course intended to expose students to the designs and patterns in God's physical universe. This course builds on concepts taught in Science 300, providing a broad survey of the major areas of science. Some of the areas covered in Science 400 include the study of plants and animals, ecology, work and simple machines, electricity and magnetism, properties of water and matter, weather, solar system, and the different spheres of earth.

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 children's natural curiosity. The student will explore, observe, and manipulate everyday objects and materials in their environment. 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.
- Describe different uses for plants.
- Discuss the differences among the ways that different animals act.
- Understand how man is responsible for preserving and conserving nature.
- Explain the different types of simple machines.
- Describe an electrical current and how it relates to magnetism.
- Demonstrate an understanding of the different properties of water.
- Observe weather and how it affects man.
- Describe our solar system.
- Discuss the three different spheres of the earth and how they interact.
- Explain the changes in seasons and time.

UNIT 1: PLANTS

Assignment Titles

1. Course Overview	11. How Plant Parts Function
2. Plant Life	12. Experiment: Celery
3. Plants Used As Food and Shelter	13. How Plant Parts Function (Part 2)
4. Project: Things Made of Wood	14. How Plant Parts Function (Part 3)
5. Report: Read and Write	15. Quiz 2
6. Plants Used For Enjoyment and Symbols	16. Special Project
7. Report: Flowers as State Symbols	17. Review Game
8. Report: Flower Paragraph	18. Test
9. Quiz 1	19. Alternate Test
10. Parts of Plants	20. Reference

UNIT 2: ANIMALS

Assignment Titles

1. How Animals are Structured	14. How Animals Act: Insects
2. Whales	15. Report: Honeybee Habits
3. Report: Types of Whales	16. Quiz 2
4. Birds	17. Animal Instinct
5. Reptiles and Fish	18. Man Protects Animals
6. Report: Writing about Fish	19. Project: Animal Scrapbook
7. Project: Observing Fish	20. Quiz 3
8. How Animals Eat and Digest Food	21. Special Project
9. How Animals Breathe	22. Review Game
10. Quiz 1	23. Test
11. How Animals Act: Mammals	24. Alternate Test
12. How Animals Act: Salmon	25. Reference
13. How Animals Act: Birds	

UNIT 3: MAN AND HIS ENVIRONMENT
Assignment Titles

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|-----------------------------------|--------------------------------|
| 1. Ecology | 17. Report: Forest Community |
| 2. Project: Your Environment | 18. Quiz 2 |
| 3. Resources | 19. Misuse of the Environment |
| 4. Food Chains | 20. Project: Ask an Expert |
| 5. Ecosystem Populations | 21. Report: Endangered Species |
| 6. Project: Populations | 22. Resource Conservation |
| 7. Balance of Nature | 23. Report: How to Save Energy |
| 8. Project: Make a Pyramid | 24. Environmental Preservation |
| 9. Report: Rabbits in Australia | 25. Report: Special Treasures |
| 10. Quiz 1 | 26. Quiz 3 |
| 11. Water Communities | 27. Special Project |
| 12. Experiment: Still Water Life | 28. Review Game |
| 13. Land Communities | 29. Test |
| 14. Project: Human Communities | 30. Alternate Test |
| 15. Report: Read and Write | 31. Reference |
| 16. Project: Terrarium or Diorama | |

UNIT 4: MACHINES
Assignment Titles

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|--------------------------------------|-------------------------------------|
| 1. Machines Are Needed: Work | 13. Simple Machines: Wheel and Axle |
| 2. Report: Galileo | 14. Simple Machines: Pulleys |
| 3. Experiment: Gravity | 15. Experiment: Pulleys |
| 4. Machines Are Needed: Energy | 16. Quiz 2 |
| 5. Quiz 1 | 17. Compound Machines |
| 6. Simple Machines: Lever | 18. Quiz 3 |
| 7. Experiment: Hammer and Nail | 19. Special Project |
| 8. Experiment: Seesaw | 20. Review Game |
| 9. Simple Machines: Inclined Plane | 21. Test |
| 10. Experiment: Inclined Plane | 22. Alternate Test |
| 11. Simple Machines: Wedge and Screw | 23. Reference |
| 12. Experiment: Screw and Nail | |

UNIT 5: ELECTRICITY AND MAGNETISM
Assignment Titles

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|-----------------------------------|--------------------------------------|
| 1. Electricity | 13. Experiment: Make a Magnet |
| 2. Report: Thomas Edison | 14. Experiment: Magnet Poles |
| 3. Experiment: Static Electricity | 15. Experiment: Testing a Magnet |
| 4. Currents and Circuits | 16. Experiment: Generate Electricity |
| 5. Project: Conductors | 17. Experiment: Electromagnet |
| 6. Experiment: Wet Cell | 18. Report: Explorers |
| 7. Project: Electric Objects | 19. Quiz 2 |
| 8. Electrical Use and Safety | 20. Special Project |
| 9. Project: Fuses in Use | 21. Review Game |
| 10. Quiz 1 | 22. Test |
| 11. Magnetism | 23. Alternate Test |
| 12. Experiment: Use a Magnet | 24. Reference |

UNIT 6: WATER AND MATTER
Assignment Titles

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|----------------------------|---------------------------|
| 1. Water | 11. Matter |
| 2. Experiment: Ice | 12. Molecules and Atoms |
| 3. Experiment: Ice Volume | 13. Experiment: Molecules |
| 4. Water as a Liquid | 14. Elements |
| 5. Experiment: Potato | 15. Quiz 2 |
| 6. Water as a Gas | 16. Special Project |
| 7. Experiment: Forming Dew | 17. Review Game |
| 8. Water as a Solvent | 18. Test |
| 9. Experiment: Solubility | 19. Alternate Test |
| 10. Quiz 1 | 20. Reference |

UNIT 7: WEATHER
Assignment Titles

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|------------------------------|---------------------------|
| 1. The Atmosphere | 11. Quiz 2 |
| 2. Experiment: Air and Space | 12. Prediction of Weather |
| 3. Temperature | 13. Project: Thermometers |
| 4. Experiment: Temperature | 14. Quiz 3 |
| 5. Air Pressure | 15. Special Project |
| 6. Experiment: Pressure | 16. Review Game |
| 7. Quiz 1 | 17. Test |
| 8. Forces of Weather | 18. Alternate Test |
| 9. Sand and Dust Storms | 19. Reference |
| 10. Report: Hurricanes | |

UNIT 8: OUR SOLAR SYSTEM AND THE UNIVERSE
Assignment Titles

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|------------------------------------|--------------------------------------|
| 1. A Trip Through Space | 12. Experiment: Moon Phases |
| 2. Our Big Universe | 13. Quiz 2 |
| 3. Report: Astronomy Instruments | 14. The Stars and Space |
| 4. Essay: Astronomy | 15. Essay: Astrology |
| 5. Quiz 1 | 16. The Milky Way and Other Galaxies |
| 6. The Sun | 17. Quiz 3 |
| 7. Essay: Ancient People | 18. Special Project |
| 8. Movements | 19. Review Game |
| 9. Report: Isaac Newton | 20. Test |
| 10. Heavenly Bodies Around the Sun | 21. Alternate Test |
| 11. Our Moon | 22. Reference |

UNIT 9: THE PLANET EARTH
Assignment Titles

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|-----------------------------|-------------------------------------|
| 1. The Air (Atmosphere) | 11. Experiment: Shadows |
| 2. Experiment: Condensation | 12. Earth's Land Formations |
| 3. Gases in the Atmosphere | 13. Earth's Rotation and Revolution |
| 4. Quiz 1 | 14. Quiz 3 |
| 5. The Water (Hydrosphere) | 15. Special Project |
| 6. Essay: Psalm 147 | 16. Review Game |
| 7. Salt Water | 17. Test |
| 8. Experiment: Currents | 18. Alternate Test |
| 9. Quiz 2 | 19. Reference |
| 10. The Land (Lithosphere) | |

UNIT 10: UNDERSTANDING GOD'S WONDERFUL CREATION
Assignment Titles

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|--------------------------------------|------------------------------|
| 1. Review: The Solar System | 12. Quiz 3 |
| 2. Review: The Earth | 13. Review: Ecology |
| 3. Quiz 1 | 14. Review: Conservation |
| 4. Review: Matter | 15. Report: Passenger Pigeon |
| 5. Review: Water | 16. Quiz 4 |
| 6. Review: Weather | 17. Special Project |
| 7. Project: Weather Scrapbook | 18. Review Game |
| 8. Quiz 2 | 19. Test |
| 9. Review: Electricity and Magnetism | 20. Alternate Test |
| 10. Project: Thomas Alva Edison | 21. Reference |
| 11. Review: Machines | |