

CURRICULUM OVERVIEW

Science 400



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Science 400 Course Overview

Science 400 is a basic elementary course intended to expose students to the designs and patterns in the 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, the solar system, and the different spheres of earth.

The curriculum seeks to develop the students' ability to understand and participate in scientific inquiry. The units contain experiments and projects to capitalize on children's natural curiosity. The students 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 various animals act.
- Understand how people are 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 properties of water.
- Observe weather and how it affects people.
- 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	
Assignments	
1. Course Overview	10. Parts of a Plant: Roots and Stems
2. Plant Life	11. Experiment: Celery
3. Plants: Food and Shelter	12. Parts of a Plant: Leaves
4. Project: Things Made of Wood	13. Parts of a Plant: Flowers
5. Project: Fruit*	14. Quiz 2: Plant Parts
6. Plant Products	15. Special Project*
7. Project: Plant Products*	16. Test
8. Quiz 1: Plant Life	17. Alternate Test*
9. Parts of a Plant	18. Glossary and Credits

Unit 2: Animals	
Assignments	
1. Animal Kingdom	10. Inherited and Learned Traits
2. Insects and Arachnids	11. Endangered and Extinct Animals
3. Project: Insects	12. Conservation
4. Worms and Mollusks	13. Project: Endangered Species
5. Fish, Amphibians, and Reptiles	14. Quiz 2: Animals
6. Project: Reptiles*	15. Special Project*
7. Birds and Mammals	16. Test
8. Quiz 1: Animals	17. Alternate Test*
9. Animal Adaptation	18. Glossary and Credits

Unit 3: The Environment		
Science 400	Assignments	
	1. Ecology	15. Project: Terrarium or Diorama*
	2. Project: Your Environment*	16. Project: Land Community*
	3. Resources	17. Quiz 2: Water and Land Communities
	4. Ecosystem Communities	18. Carelessness
	5. Consumers	19. Project: Endangered Species*
	6. Decomposers	20. Conservation
	7. Food Chain	21. Project: How to Save Energy*
	8. Project: Populations*	22. Preservation
	9. Balance of Nature	23. Project: Special Treasures*
	10. Project: Balance of Nature*	24. Quiz 3: Conservation and Preservation
	11. Quiz 1: Ecology	25. Special Project *
	12. Water Communities	26. Test
	13. Experiment: Still Water Life*	27. Alternate Test*
	14. Land Communities	28. Glossary and Credits
Science 400	Unit 4: Machines	
	Assignments	
	1. Machines: Work	12. Experiment: Screw and Nail*
	2. Report: Galileo*	13. Simple Machines: Wheel and Axle
	3. Experiment: Gravity*	14. Simple Machines: Pulleys
	4. Machines: Energy	15. Experiment: Pulleys*
	5. Quiz 1: Machines Are Needed	16. Quiz 2: Simple Machines
	6. Simple Machines: Lever	17. Compound Machines
	7. Experiment: Hammer and Nail	18. Quiz 3: Simple and Compound Machines
	8. Experiment: Seesaw*	19. Special Project*
	9. Simple Machines: Inclined Plane	20. Test
	10. Experiment: Inclined Plane*	21. Alternate Test*
	11. Simple Machines: Wedge and Screw	22. Glossary and Credits
Science 400	Unit 5: Electricity and Magnetism	
	Assignments	
	1. Electricity	12. Experiment: Use a Magnet
	2. Project: Thomas Edison	13. Experiment: Make a Magnet
	3. Experiment: Static Electricity	14. Experiment: Magnetic Poles*
	4. Currents and Circuits	15. Experiment: Testing a Magnet*
	5. Project: Conductors	16. Experiment: Generate Electricity*
	6. Experiment: Wet Cell*	17. Experiment: Electromagnet*
	7. Project: Electric Objects*	18. Quiz 2: Magnetism
	8. Electrical Use and Safety	19. Special Project *
	9. Project: Fuses	20. Test
	10. Quiz 1: Electricity	21. Alternate Test*
	11. Magnetism	22. Glossary and Credits

Unit 6: Matter and Water		
Science 400	Assignments	
	1. Water as a Solid	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: Matter
	6. Water as a Gas	16. Special Project*
	7. Experiment: Forming Dew*	17. Test
	8. The Water Cycle	18. Alternate Test*
	9. Experiment: Make a Cloud	19. Glossary and Credits
	10. Quiz 1: Water	

Unit 7: Weather		
Science 400	Assignments	
	1. The Atmosphere	10. Project: Hurricanes*
	2. Experiment: Air and Space*	11. Weather Instruments
	3. Temperature	12. Project: Thermometers*
	4. Experiment: Temperature	13. Quiz 2: Weather
	5. Air Pressure	14. Special Project*
	6. Experiment: Air Pressure	15. Test
	7. Quiz 1: The Atmosphere	16. Alternate Test*
	8. Thunderstorms and Hurricanes	17. Glossary and Credits
	9. Tornadoes and Snowstorms	

Unit 8: The Universe and Solar System		
Science 400	Assignments	
	1. A Trip Through Space	11. Our Moon
	2. Astronomy Tools	12. Project: Moon Phases
	3. Project: Astronomy Tools	13. Quiz 2: The Sun and Planets
	4. Project: Astronomy*	14. Stars and Space
	5. Quiz 1: Astronomy	15. Beyond the Milky Way
	6. The Sun	16. Quiz 3: The Stars and Space
	7. Project: Sun Myths*	17. Special Project*
	8. Gravity and Motion	18. Test
	9. Project: Isaac Newton*	19. Alternate Test*
	10. Planets and Other Celestial Bodies	20. Glossary and Credits

Unit 9: The Planet Earth		
Science 400	Assignments	
	1. The Air (Atmosphere)	10. Experiment: Shadows
	2. Experiment: Condensation	11. Earth's Land Formations
	3. Gases in the Atmosphere	12. Earth's Rotation and Revolution
	4. Quiz 1: The Air (Atmosphere)	13. Quiz 3: The Land (Lithosphere)
	5. The Water (Hydrosphere)	14. Special Project *
	6. Salt Water	15. Test
	7. Experiment: Currents*	16. Alternate Test*
	8. Quiz 2: The Water (Hydrosphere)	17. Glossary and Credits
	9. The Land (Lithosphere)	

Unit 10: Review		
Science 400	Assignments	
	1. The Solar System	11. Work and Machines
	2. Plants and Animals	12. Quiz 3: Review
	3. Quiz 1: Review	13. The Environment
	4. Matter	14. Conservation
	5. Water	15. Project: Passenger Pigeon*
	6. Weather	16. Quiz 4: Review
	7. Project: Weather Scrapbook*	17. Special Project*
	8. Quiz 2: Review	18. Test
	9. Electricity and Magnetism	19. Alternate Test*
	10. Project: Alessandro Volta*	20. Glossary and Credits

(*) Indicates alternative assignment