



**Switched-On**  
SCHOOLHOUSE

# Course 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 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 different 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				
Assignment Titles				
SCIENCE 400	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				
SCIENCE 400	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				
SCIENCE 400	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				
SCIENCE 400	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				
SCIENCE 400	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**

SCIENCE 400

**Assignment Titles**

- |                             |                            |
|-----------------------------|----------------------------|
| 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**

SCIENCE 400

**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**

SCIENCE 400

**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**

SCIENCE 400

**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

SCIENCE 400

## Assignment Titles

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		

(\*) Indicates alternate assignment