

Science 800

Science 800 is a basic intermediate course intended to expose students to the designs and patterns in the physical universe. This course expands on Science 600 and Science 700, providing a set of basic scientific skills and a broad survey of the major areas of science. Some of the areas covered in Science 800 include the structure and properties of matter, measurement and mathematics of science, geology, oceanography, natural cycles and resources, science today and tomorrow, and astronomy.

The curriculum seeks to develop the students' ability to be aware of and participate in scientific inquiry. The units contain experiments and projects to capitalize on the students' natural curiosity. The students 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.
- Describe the atomic structure of different elements.
- Calculate and measure volume, mass, and density for various objects.
- Identify different types of geological changes.
- Discuss how the layers of the earth's crust can show history.
- Describe the different parts of the ocean, both living and non-living.
- Explain the differences in the stars and constellations.
- Discuss the balance in nature regarding the various cycles.
- Demonstrate an understanding of the resources of the Earth and what is needed to conserve those resources.

Unit 1: Our Atomic World	
Assignments	
Science 800	1. Course Overview
	2. Scientific Method
	3. Science Safety
	4. Project: Scientific Inquiry
	5. Project: Descriptive Statistics
	6. Quiz 1: Science and Chemistry
	7. Chemistry Review
	8. Project: Chemical Reactions
	9. Structure of Matter
	10. Radioactivity
	11. Quiz 2: Matter and Radioactivity
	12. Energy and Temperature
	13. Calorimetry
	14. Experiment: Calorimetry
	15. Quiz 3: Thermodynamics
	16. Atomic Nuclei
	17. Nuclear Energy
	18. Project: Reactors
	19. Quiz 4: Atomic Nuclei and Nuclear Energy
	20. Applications and Environmental Hazards
	21. Quiz 5: Applications and Environmental Hazards
	22. Review
	23. Special Project*
	24. Test
	25. Alternate Test*
	26. Glossary and Credits

Unit 2: Perceiving Things	
Assignments	
80 0	1. Measurement: The Metric System
	2. Measurement: Size and Distance
	3. Measurement: Area
	4. Quiz 1: Measurement
	5. Graphs: Uses, Bar, and Line
	6. Graphs: Pictographs and Pie Charts
	8. Quiz 2: Graphing Data
	9. Volume
	10. Experiment: Determining Volume
	11. Measurement: Volume
	12. Quiz 3: Volume
	13. Mass
	14. Experiment: Mass of Gas
15. Measurement: Mass	
16. Quiz 4: Mass	
17. Density	
18. Buoyancy and Specific Gravity	
19. Quiz 5: Density, Buoyancy, and Specific Gravity	
20. Perceiving Things	
21. Review	
22. Special Project*	
23. Test	
24. Alternate Test*	
25. Glossary and Credits	

Unit 3: Physical Geology	
Assignments	
e 800	1. Earth Structures
	2. Internal Structures
	3. Igneous Structures
	4. Project: Volcanoes
	5. Mountains
	6. Quiz 1: Earth Structure
	7. Earth Changes
	8. Erosion and Sediment
	9. Oceans
	10. Quiz 2: Earth Changes
11. Earth Movements	
12. Experiment: Specific Gravity	
13. Experiment: Gravity	
14. Plate Tectonics	
15. Quiz 3: Earth Movements	
16. Review	
17. Special Project*	
18. Test	
19. Alternate Test*	
20. Glossary and Credits	

Unit 4: Historical Geology	
Assignments	
Scie nce 800	1. An Observational Science
	2. Sedimentary Rock
	3. Fossils
	4. Fossil Formation: Location and Local Deposits
	5. Crustal Changes
	6. Quiz 1: An Observational Science
	7. Determining the Earth's Age
	8. Geography and Time (Part 1)
9. Geography and Time (Part 2)	
10. Project: Relative Dating	
11. Quiz 2: Measuring Time	
12. Review	
13. Special Project*	
14. Test	
15. Alternate Test*	
16. Glossary and Credits	

Unit 5: Oceanography	
Assignments	
800	1. History of Oceanography
	2. Techniques for Investigation
	3. Submersible and Satellite Research
	4. Project: The Moon and Tides
	6. Geology of the Ocean
	7. Turbidity, Sedimentation, and Currents
	8. Quiz 2: Geology of the Ocean
	9. Commercial Fishing
	10. Chemistry of the Ocean
11. Physical Properties of the Ocean	
12. Project: Marine Report	
13. Quiz 3: Fishing and Ocean Properties	
14. Review	
15. Special Project	
16. Test	
17. Alternate Test	
18. Glossary and Credits	

Unit 6: Balance in Nature	
Assignments	
800 e Scienc	1. Photosynthesis and Food
	2. Cellular Respiration
	3. Food
	4. Quiz 1: Photosynthesis and Food
	5. Natural Cycles
	6. The Water Cycle
	7. Other Natural Cycles
	8. Quiz 2: Natural Cycles
	9. Balance and Disruption
	10. Human Disruption
	11. Resources
	12. Humans and Genes
	13. Project: Impact of Humans
	14. Quiz 3: Balance and Disruption
15. DNA	
16. Project: Genetics	
17. Mutations	
18. Experiment: Seed or Seedless	
19. Experiment: Pea Pod	
20. Historical Genetics	
21. Evolutionary Genetics	
22. Quiz 4: DNA, Mutations and the Environment	
23. Review	
24. Special Project*	
25. Test	
26. Alternate Test*	
27. Glossary and Credits	

Unit 7: Science and Tomorrow	
Assignments	
800 e Scienc	1. The Biosphere
	2. Agriculture and Waste
	3. Population
	4. Quiz 1: People and Their Land
	5. Energy Sources
	6. Nuclear Power
	7. Industry and Transportation
	8. Quiz 2: People and Their Work Environment
	9. Outer Space
	10. Inner Space
11. Quiz 3: People and Their New Frontiers	
12. Project: Digital Transmissions	
13. Quantum Theory	
14. Quiz 4: Modern Technology	
15. Review	
16. Special Project*	
17. Test	
18. Alternate Test*	
19. Glossary and Credits	

Unit 8: The Solar System	
Assignments	
800 e Scienc	1. Our Solar System
	2. Project: Solar System Model
	3. The Sun
	4. Ability to Orbit
	5. Quiz 1: The Solar System
	6. Earth and the Moon
	7. Moon and Lunar Cycles
	8. Earth Orbit and Seasons
	9. Quiz 2: The Earth
	10. Mercury, Venus, and Mars
11. Jupiter and Saturn	
12. Uranus, Neptune, and Pluto	
13. Project: Planet Comparison	
14. Quiz 3: The Planets	
15. Review	
16. Special Project*	
17. Test	
18. Alternate Test*	
19. Glossary and Credits	

Science 800	Unit 9: Astronomy	
	Assignments	
	<ol style="list-style-type: none"> 1. History of Astronomy 2. Astronomy and Measurement 3. The Universe 4. Measuring the Universe 5. Quiz 1: The Universe 6. Asteroids, Comets, and Meteors 7. Stars and Constellations 8. Project: Beyond Our Solar System 9. Space Explorations 10. Project: Astronomy Timeline 	<ol style="list-style-type: none"> 11. Quiz 2: Beyond Our Solar System 12. Gathering Light with Telescopes 13. Other Types of Telescopes 14. Project: Telescopes 15. Quiz 3: Telescopes and Optics 16. Review 17. Special Project* 18. Test 19. Alternate Test* 20. Glossary and Credits
Science 0	Unit 10: Final Exam	
	Assignments	
	<ol style="list-style-type: none"> 1. Final Exam 	<ol style="list-style-type: none"> 2. Alternate Exam*