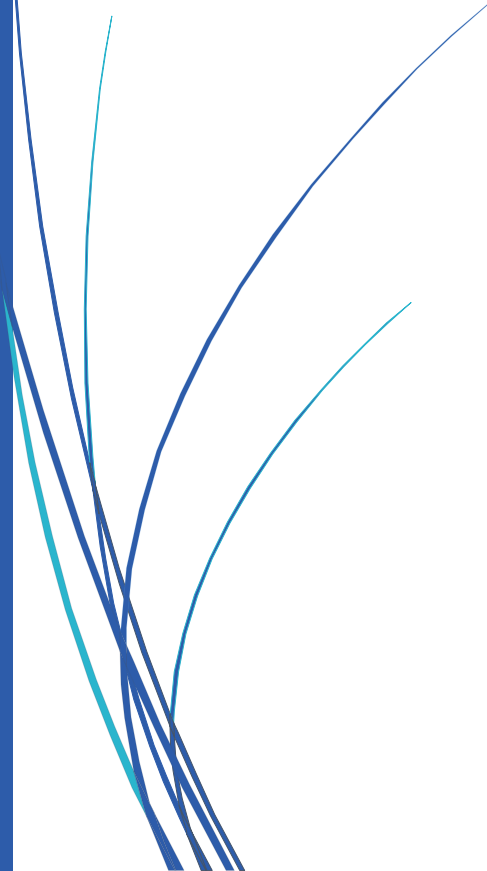




2019-20

# CALVERT HOMESCHOOL™ CURRICULUM CATALOG

## Science 800



## Table of Contents

<b>SCIENCE 800 COURSE OVERVIEW.....</b>	<b>1</b>
UNIT 1: OUR ATOMIC WORLD.....	1
UNIT 2: PERCEIVING THINGS .....	2
UNIT 3: PHYSICAL GEOLOGY.....	2
UNIT 4: HISTORICAL GEOLOGY .....	2
UNIT 5: OCEANOGRAPHY.....	2
UNIT 6: BALANCE IN NATURE .....	3
UNIT 7: SCIENCE AND TOMORROW .....	3
UNIT 8: THE SOLAR SYSTEM.....	3
UNIT 9: ASTRONOMY.....	4
UNIT 10: REVIEW.....	4

## Science 800 Course Overview

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.

- **Our Atomic World:** Students will use their main senses for observation of the world around them and describe the atomic structure of different elements.
- **Perceiving Things:** Students will explore different quantities and how to measure them and use graphs to display and analyze data.
- **Physical Geology:** Students will identify different types of geological changes.
- **Historical Geology:** Students will discuss how the layers of the Earth's crust can show history.
- **Oceanography:** Students will describe the different parts of the ocean, both living and non-living.
- **Balance in Nature:** Students will discuss the balance in nature regarding the various cycles.
- **Science and Tomorrow:** Students will explore the relationship between science and society and its possible effects on the future.
- **The Solar System:** Students will explore the solar system and its components.

**Astronomy:** Students will explore celestial bodies and describe how to make distance measurements and make observations of objects in the universe.

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

Unit 2: Perceiving Things		
Assignments		
Science 800	1. Measurement: The Metric System	14. Experiment: Mass of Gas
	2. Measurement: Size and Distance	15. Measurement: Mass
	3. Measurement: Area	16. Quiz 4: Mass
	4. Quiz 1: Measurement	17. Density
	5. Graphs: Uses, Bar, and Line	18. Buoyancy and Specific Gravity
	6. Graphs: Pictographs and Pie Charts	19. Quiz 5: Density, Buoyancy, and Specific Gravity
	7. Project: Making Graphs	20. Perceiving Things
	8. Quiz 2: Graphing Data	21. Review
	9. Volume	22. Special Project*
	10. Experiment: Determining Volume	23. Test
	11. Measurement: Volume	24. Alternate Test*
	12. Quiz 3: Volume	25. Glossary and Credits
	13. Mass	

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

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

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

Unit 6: Balance in Nature	
Assignments	
Science 800	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	
Science 800	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	
Science 800	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	

Unit 9: Astronomy	
Assignments	
1. History of Astronomy	11. Quiz 2: Beyond Our Solar System
2. Astronomy and Measurement	12. Gathering Light with Telescopes
3. The Universe	13. Other Types of Telescopes
4. Measuring the Universe	14. Project: Telescopes
5. Quiz 1: The Universe	15. Quiz 3: Telescopes and Optics
6. Asteroids, Comets, and Meteors	16. Review
7. Stars and Constellations	17. Special Project*
8. Project: Beyond Our Solar System	18. Test
9. Space Explorations	19. Alternate Test*
10. Project: Astronomy Timeline	20. Glossary and Credits

Unit 10: Review	
Assignments	
1. Final Exam	3. Glossary and Credits
2. Alternate Exam*	

(\*) Indicates alternative assignment