



2019-20

CALVERT HOMESCHOOL™ CURRICULUM CATALOG

Science 600



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Science 600 Course Overview

Science 600 is a basic intermediate course intended to expose students to the designs and patterns in the physical universe. This course expands on the Science 300-500 elementary courses, providing a broad survey of the major areas of science. Some of the areas covered in Science 600 include the study of plant and animal systems, plant and animal behavior, genetics, the structure of matter, light and sound, kinematics, planet earth, the solar system, and astronomy.

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. Students at this level should begin to understand interrelationships between organisms, recognize patterns in ecosystems, and become aware of the 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 different systems in plants and animals.
- Explain the various ways plants and animals behave.
- Explain how Mendel used observation to develop his theories.
- Demonstrate a basic knowledge of chemical structure and the periodic table.
- Discuss the layers of the atmosphere.
- Describe motion as it relates to force and work.
- Explain how time and season are related to the rotation and revolution of the earth.
- Explain the different forms of energy.

Unit 1: Plants		
Assignments		
Science 600	1. Course Overview	11. Experiment: Root Observation
	2. Lab Safety	12. Stems and Leaves
	3. Photosynthesis	13. Experiment: Celery
	4. Experiment: Anacharis	14. Growth Regulators
	5. The Leaf Factory	15. Experiment: Growing Roots*
	6. Experiment: Seeds	16. Quiz 2
	7. Products of Photosynthesis	17. Special Project*
	8. Experiment: Digestive Enzymes	18. Test
	9. Quiz 1	19. Alternate Test*
	10. Roots	20. Glossary and Credits

Unit 2: The Human Body		
Assignments		
Science 600	1. Digestive System	13. Experiment: Carbon Dioxide
	2. Mouth and Stomach	14. Project: Lungs*
	3. Experiment: Digesting Protein	15. Quiz 2
	4. Small and Large Intestines	16. Excretory System
	5. Experiment: Digesting Fat	17. Muscles
	6. Experiment: Absorbing Food	18. Bones and Joints
	7. Quiz 1	19. Quiz 3
	8. Circulatory System	20. Special Project*
	9. Experiment: Pulse Rate	21. Test
	10. Blood	22. Alternate Test*
	11. Project: Heart*	23. Glossary and Credits
	12. Respiratory System	

Unit 3: Animals, Plants, and Nature		
Assignments		
Science 600	1. Animals: The Brain	11. Nature: Biomes (Part 1)
	2. Project: The Cerebrum	12. Nature: Biomes (Part 2)
	3. Animals: The Nervous System	13. Project: Biomes
	4. Project: The Eye	14. Nature: Balance
	5. Animals: Response	15. Project: Symbiosis
	6. Experiment: Trial and Error	16. Quiz 3
	7. Quiz 1	17. Special Project*
	8. Plants: Tropisms (Part 1)	18. Test
	9. Plants: Tropisms (Part 2)	19. Alternate Test*
	10. Quiz 2	20. Glossary and Credits

Unit 4: Reproduction and Genetics		
Assignments		
Science 600	1. Flower Reproduction	11. Experiment: Taste Test
	2. Experiment: Flower Structure	12. Quiz 2
	3. Mitosis and Meiosis	13. DNA
	4. Experiment: Embryo Formation*	14. Genetic Mutation
	5. Quiz 1	15. Experiment: Albinism*
	6. Inheritance	16. Quiz 3
	7. Project: Traits	17. Special Project*
	8. Punnett Square	18. Test
	9. Experiment: Mendelian Genetics*	19. Alternate Test*
	10. Dominance and Multiple Genes	20. Glossary and Credits

Unit 5: Chemistry		
Assignments		
Science 600	1. Matter	13. Project: Element Organization
	2. States of Matter	14. Quiz 2
	3. Experiment: Solid, Liquid, Gas	15. Electron Arrangement
	4. Chemical Changes	16. Project: Atom Diagram
	5. Atoms and Elements	17. Acids and Bases
	6. Molecules and Compounds	18. Experiment: Acid or Base?
	7. Experiment: Make a Compound	19. Project: Cause and Effect*
	8. Experiment: Limewater*	20. Quiz 3
	9. Quiz 1	21. Special Project*
	10. Chemical Symbols	22. Test
	11. Atomic Number and Weight	23. Alternate Test*
	12. The Periodic Table	24. Glossary and Credits

Unit 6: Motion		
Assignments		
Science 600	1. Force	11. Newton's Second and Third Laws of Motion
	2. Work	12. Experiment: Newton's Laws
	3. Project: Calculating Work	13. Experiment: Force, Motion, and Energy Transfer
	4. Experiment: Work	14. Machines and Motion
	5. Power	15. Quiz 2
	6. Project: Horsepower	16. Special Project*
	7. Experiment: Calculating Horsepower	17. Test
	8. Quiz 1	18. Alternate Test*
	9. Newton's First Law of Motion	19. Glossary and Credits
	10. Experiment: Inertia	

Unit 7: Energy		
Assignments		
Science 600	1. Mechanical Energy	9. Project: Energy Conversion
	2. Heat Energy (Part 1)	10. Atomic Energy
	3. Heat Energy (Part 2)	11. Quiz 2
	4. Project: Minimizing/Maximizing Thermal Energy Transfer	12. Energy Conservation
	5. Quiz 1	13. Project: Energy Conservation
	6. Chemical Energy	14. Special Project*
	7. Project: Nuclear Power	15. Test
	8. Energy Conversion	16. Alternate Test*
	17. Glossary and Credits	

Unit 8: The Atmosphere		
Assignments		
Science 600	1. Atmospheric Gases	10. Pollution
	2. Atmospheric Layers	11. Project: Pollution
	3. Project: The Atmosphere	12. Quiz 2
	4. Solar Radiation	13. Project: Climate Change Research*
	5. Experiment: The Greenhouse	14. Project: Climate Change Presentation*
	6. Quiz 1	15. Special Project*
	7. The Atmosphere at Work	16. Test
	8. Water Cycle	17. Alternate Test*
	9. Gas Cycles	18. Glossary and Credits

Unit 9: Earth and Space		
Assignments		
Science 600	1. Earth's Shape	11. Eclipses
	2. Experiment: Earth's Shape*	12. Experiment: Making an Eclipse*
	3. Earth's Surface	13. Our Solar System
	4. Earth's Rocks	14. Project: Planets*
	5. Quiz 1	15. Asteroids, Comets, and Meteors
	6. Earth's Rotation	16. Quiz 3
	7. Earth's Revolution	17. Special Project*
	8. Experiment: Shadows	18. Test
	9. Time	19. Alternate Test*
	10. Quiz 2	20. Glossary and Credits

Unit 10: Review		
Assignments		
Science 600	1. Photosynthesis	13. Quiz 2
	2. Plant Systems	14. Motion
	3. Human Body Systems (Part 1)	15. Matter
	4. Human Body Systems (Part 2)	16. Chemistry
	5. Human Body Systems (Part 3)	17. Earth's Motion
	6. Project: Body System Interaction	18. Our Solar System
	7. Quiz 1	19. Quiz 3
	8. Genetics and Reproduction	20. Special Project*
	9. Ecological Systems	21. Test
	10. Project: Biomes*	22. Alternate Test*
	11. The Atmosphere	23. Glossary and Credits
	12. Work and Force	

(*) Indicates alternative assignment