

## Science 700

Science 700 is a basic intermediate course intended to expose students to the designs and patterns in the physical universe. This course expands on the Science 600 course, providing a set of basic scientific skills and a broad survey of the major areas of science. Some of the areas covered in Science 700 include the scientific method, overview of the four major areas of science, mathematics in science, astronomy, the atmosphere, natural cycles, weather and climate, human anatomy and physiology, and careers in science.

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, 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:

- Identify connections between science and other disciplines.
- Explain the steps of the scientific method.
- Describe atoms, molecules, and compounds and their properties.
- Understand the relationships between the different types of energy.
- Explain how energy is transformed.
- Identify the necessary components of living organisms.
- Develop a plan to prevent and treat common diseases through proper health.
- Demonstrate an understanding of the resources of the Earth and what is needed to conserve those resources.
- Describe the universe in terms of size and composition.
- Explain the differences in the stars and constellations.
- Identify various types of geological changes.
- Explain the cycles of nature.
- Understand the mechanisms of evolution.

Unit 1: Scientific Inquiry		
Assignments		
Science 700	1. Course Overview	12. Project: Ethics Case Study
	2. What is Science?	13. Quiz 2
	3. Project: Make a Model	14. Science and Society
	4. Scientific Method	15. Science and Technology
	5. Lab Safety	16. Careers in Science
	6. Observation and Questioning	17. Quiz 3
	7. Data Collection, Analysis, and Communication	18. Review
	8. Project: Design an Experiment	19. Special Project
	9. Project: Conduct an Experiment	20. Test
	10. Quiz 1	21. Alternate Test
	11. Ethics and Bias	22. Glossary and Credits

Unit 2: Matter		
Assignments		
Science 700	1. Atoms, Molecules, and Compounds	11. Chemical Reactions
	2. Elements	12. Experiment: Chemical Reactions
	3. Essential Elements	13. Chemical Application
	4. Quiz 1	14. Petroleum Uses
	5. Ions	15. Quiz 3
	6. Mixtures and Solutions	16. Review
	7. Experiment: Chromatography	17. Special Project
	8. States of Matter	18. Test
	9. Quiz 2	19. Alternate Test
	10. Phase Change	20. Glossary and Credits

Unit 3: Energy and Motion		
Assignments		
Science 700	1. Energy	13. Force
	2. Heat	14. Experiment: Air Resistance
	3. Experiment: Heat Transfer	15. Gravity
	4. Light	16. Newton's Laws of Motion
	5. Quiz 1	17. Project: Newton's Laws
	6. Sound	18. Quiz 3
	7. Electricity and Magnetism	19. Review
	8. Experiment: Electric Motor	20. Special Project
	9. Energy Transformation	21. Test
	10. Experiment: Energy Efficiency	22. Alternate Test
	11. Quiz 2	23. Glossary and Credits
	12. Motion	

Unit 4: Biology		
Assignments		
Science 700	1. Organic Chemistry	13. Quiz 2
	2. Living Organisms	14. Organ Systems (Part 1)
	3. Cells	15. Organ Systems (Part 2)
	4. Reproduction of Cells	16. Project: Systems
	5. Animal Organelles	17. Homeostasis
	6. Plant Organelles	18. Quiz 3
	7. Project: Cell	19. Review
	8. Quiz 1	20. Special Project
	9. Plant Tissue	21. Test
	10. Animal Tissue	22. Alternate Test
	11. Organs	23. Glossary and Credits
	12. Project: Organ Transplants	

Unit 5: Health and Disease		
Assignments		
Science 700	1. Pathogens	12. Medical Advances
	2. Immune System	13. Unhealthy Behaviors
	3. Project: Lupus	14. Healthy Living
	4. Communicable Diseases	15. Project: Personal Health Assessment
	5. Quiz 1	16. Quiz 3
	6. Chronic Diseases	17. Review
	7. Project: Radiation Therapy	18. Special Project
	8. Degenerative Diseases	19. Test
	9. Vaccinations and Immunizations	20. Alternate Test
	10. Project: Public Health	21. Glossary and Credits
	11. Quiz 2	

  

Unit 6: Genetics		
Assignments		
Science 700	1. Genetic Basics	11. Project: Ethics Essay
	2. Project: Karyotype	12. Forensic DNA
	3. Asexual Reproduction	13. Project: Solve the Case
	4. Sexual Reproduction	14. Quiz 3
	5. Quiz 1	15. Review
	6. Mendelian Genetics	16. Special Project
	7. Project: Punnett Squares	17. Test
	8. Patterns of Inheritance	18. Alternate Test
	9. Quiz 2	19. Glossary and Credits
	10. Genetic Engineering and Ethics	20. Project: Ethics Essay

  

Unit 7: Ecology And The Environment		
Assignments		
Science 700	1. Ecosystems	14. Quiz 2
	2. Project: Virtual Lab - Biome: Desert	15. Air and Water Pollution
	3. Project: Local Ecosystem	16. Project: Global Warming
	4. Biodiversity	17. Project: Environmental Policies
	5. Cycles and Energy Flow	18. Energy Sources
	6. Limiting Factors	19. Conservation
	7. Project: Virtual Lab - Biome: Coniferous	20. Experiment: Biodegradability
	8. Quiz 1	21. Quiz 3
	9. Food Chains and Webs	22. Review
	10. Project: Food Web	23. Special Project
	11. Competition and Cooperation	24. Test
	12. Project: Virtual Lab - Biome: Grassland	25. Alternate Test
	13. Symbiosis	26. Glossary and Credits

Unit 8: Earth Science																											
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