

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

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

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

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

700		Unit 5: Health and Disease	
Science	700	Assignments	
		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
		7. Project: Radiation Therapy	17. Review
		8. Degenerative Diseases	18. Special Project
		9. Vaccinations and Immunizations	19. Test
		10. Project: Public Health	20. Alternate Test
		11. Quiz 2	21. Glossary and Credits

700		Unit 6: Genetics	
Science	700	Assignments	
		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

700		Unit 7: Ecology And The Environment	
Science	700	Assignments	
		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
			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

700	Unit 8: Earth Science	
	Assignments	
	1. The Earth	14. Effects of the Sun
	2. The Lithosphere	15. Quiz 2
	3. The Rock Cycle	16. Constructive Forces
	4. Project: The Rock Cycle	17. Destructive Forces
	5. The Atmosphere	18. Natural Disasters
	6. Quiz 1	19. Project: Geologic Map
		20. Fossils
	8. The Water Cycle	21. Quiz 3
	9. Project: Water Cycle	22. Review
	10. Groundwater	23. Special Project
	11. Weather	24. Test
	12. Measuring Weather	25. Alternate Test
13. Project: Measuring Weather	26. Glossary and Credits	

700	Unit 9: Life over Time	
	Assignments	
	1. Evolution	12. Taxonomy
	2. Question Pool	13. Plantae Kingdom
	3. Evidence of Evolution	14. Animalia Kingdom
	4. Project: Morphology	15. Project: Metamorphosis
	5. Mutation	16. Quiz 3
		17. Review
	7. Quiz 1	18. Special Project
	8. Other Methods of Evolution	19. Test
	9. Project: Natural Selection	20. Alternate Test
	10. Extinction	21. Glossary and Credits
	11. Speciation	

Science 700	Unit 10: Course Review and Exam	
	Assignments	
	1. Review	3. Final Exam Alternative
	2. Exam	