

Earth Science

Earth Science is a basic science course intended to further explore the designs and patterns of our planet. This course covers such areas as the origin, history, and structure of the earth. It also covers forces that cause change on the earth and features of the earth including the crust, water, atmosphere, weather, and climate. Earth science wraps up with astronomy and a study of all the planets, the solar system, and galaxies. The course strives to teach that each feature of the earth interacts with the others in many critical ways, and the study of these relationships is important to humanity.

Students at this level should show development in their understanding of scientific inquiry. Some of the units contain experiments and projects that seek to develop meaning and to actively engage the student. The continued exposure to science concepts and scientific inquiry will serve to improve the students' skill and understanding.

Upon completion of the course, students should be able to do the following:

- Gain increased awareness about where Earth came from, how Earth functions and sustains life, and how the many systems and processes of Earth rely on and balance one another.
- Improve scientific evaluation skills and apply them to the study of Earth's physical geography and dynamic processes.
- Discover tools that allow for the study of Earth and its further exploration.

Unit 1: Origin of the Earth		
Assignments		
Earth Science	1. Course Overview	12. Ability to Orbit
	2. Introduction to Earth Science	13. Project: Newton's Law
	3. Scientific Method	14. Quiz 2: Motion of Planets
	4. Project: Research a Career	15. A Unique Planet
	5. Experiment: Measuring in Science	16. Project: Earth Comparisons
	6. Competing Perspectives	17. Quiz 3: Earth, a Unique Planet
	7. Science Weighs In	18. Special Project*
	8. Project: Doppler Effect	19. Review
	9. Quiz 1: An Introduction	20. Test
	10. A Sequence of Events	21. Alternate Test*
	11. Planetary Motion	22. Glossary and Credits

Unit 2: History of the Earth		
Assignments		
Earth Science	1. Determining Earth's Age	10. Paleoclimatic Changes
	2. Relative Dating	11. Project: Greenhouse Effect
	3. Project: Relative Dating	12. Quiz 2: Study of Earth's History
	4. Absolute Dating	13. Special Project*
	5. Quiz 1: History of Life on Earth	14. Review
	6. Geologic Time	15. Test
	7. Project: The Clock of Eons	16. Alternate Test*
	8. Mass Extinctions	17. Glossary and Credits
	9. Project: Before, During, and After a Mass Extinction	

Unit 3: Dynamic Structure of Earth		
Assignments		
Earth Science	1. Layers of the Earth	13. Geochemical Cycles: Cycles of Earth Materials
	2. Earth's Structure	14. Biochemical Cycles: Cycles of Life Materials
	3. Project: Building a Model of the Earth	15. Project: The Story of the Spheres
	4. Earth's Cooling and Tectonics	16. Flow of Energy in Ecosystems
	5. Continental Drift	17. Project: Flow of Energy
	6. Plate Tectonics	18. Quiz 2: Earth's Dynamic External Structure
	7. Project: Mantle Convection	19. Special Project*
	8. Plate Boundaries	20. Review
	9. Project: Plate Boundaries	21. Test
	10. Quiz 1: Earth's Dynamic Internal Structure	22. Alternate Test*
	11. The Spheres of Earth	23. Glossary and Credits
	12. Project: Sphere Interaction Lab	

Unit 4: Forces and Features of Earth		
Assignments		
Earth Science	1. Force of Earthquakes	12. Quiz 2: Volcanoes
	2. Measuring The Force of Earthquakes	13. Using Geologic Maps
	3. Features of Earthquakes	14. Using Topographic Maps
	4. Project: Earthquake Features Lab	15. Project: Mapping
	5. Project: Scientific Tools of the 21 st Century	16. Project: Create a Topographic Map*
	6. Quiz 1: Earthquakes	17. Quiz 3: Identifying Features of Earth
	7. Force of Volcanoes	18. Special Project*
	8. Impact of Volcanoes	19. Review
	9. Prediction of Volcanoes	20. Test
	10. Features of Volcanoes	21. Alternate Test*
	11. Project: Volcanic Features Lab	22. Glossary and Credits

Unit 5: Features Of Earth's Crust		
Assignments		
Earth Science	1. Minerals	12. Renewable Resources
	2. Project: Crystal Systems	13. Project: The RE's of Earth Science
	3. Mineral Identification	14. Nonrenewable Resources
	4. Project: Identifying a Mineral	15. Project: Nuclear Energy
	5. Quiz 1	16. Quiz 3
	6. Igneous Rocks	17. Special Project*
	7. Sedimentary Rocks	18. Review
	8. Metamorphic Rocks	19. Test
	9. The Rock Cycle	20. Alternate Test*
	10. Project: Identifying a Rock	21. Glossary and Credits
	11. Quiz 2	

Unit 6: Semester Review and Exam		
Assignments		
Earth Science	1. Review (1)	4. Alternate Exam- Form A*
	2. Review (2)	5. Alternate Exam- Form B*
	3. Exam	

Unit 7: Shaping Earth's Crust		
Assignments		
Earth Science	1. Weathering	12. Natural Erosion
	2. Erosion	13. Constructive Forces
	3. Soil Formation	14. System Feedback
	4. Project: Soil Particles	15. Project: Water Erosion
	5. Quiz 1: Shaping the Surface	16. Quiz 3: Destructive and Constructive Forces
	6. Rivers and Waves	17. Special Project*
	7. Gravity and Glaciers	18. Review
	8. Project: Ice Erosion	19. Test
	9. Wind	20. Alternate Test*
	10. Quiz 2: Weathering and Erosion	21. Glossary and Credits
	11. Destructive Forces	

Unit 8: Earth's Water		
Assignments		
Earth Science	1. The Water Cycle	13. Ocean Water
	2. Project: Water Purification	14. Project: Ocean Temperature
	3. Water Basics	15. Experiment: Fresh Water vs. Saltwater
	4. Water Distribution	16. Waves and Tides
	5. Project: Water Distribution	17. Currents
	6. Quiz 1: The Basics of Water	18. Quiz 3: Saltwater
	7. Groundwater	19. Special Project*
	8. Experiment: Porosity and Permeability	20. Review
	9. Lakes and Rivers	21. Test
	10. Glaciers and Ice Caps	22. Alternate Test*
	11. Quiz 2: Fresh Water	23. Glossary and Credits
12. Eustatic Sea Levels		

Unit 9: Earth's Atmosphere		
Assignments		
Earth Science	1. Evolution of the Atmosphere	14. Air Pollution
	2. Project: Evolution of the Atmosphere	15. Project: Climate and Energy
	3. Structure of the Atmosphere	16. Nature and Human Activity
	4. Project: Layers of the Atmosphere	17. Human Impact on the Earth
	5. Quiz 1: Layers of the Atmosphere	18. Project: Greenhouse Effect
	6. Atmospheric Cycles	19. Project: Human Impact on Climate Change
	7. Solar Interaction	20. Quiz 3: Human Relationship
	8. Project: Solar Energy	21. Special Project*
	9. Alternate Project: Temperature*	22. Review
	10. Air Pressure and Winds	23. Test
	11. Project: Air Circulation	24. Alternate Test*
12. Alternate Project: Barometers*	25. Glossary and Credits	
13. Quiz 2: Earth-Sun Relationships		

Unit 10: Earth's Weather and Climate																										
Earth Science	Assignments																									
	<table border="0"> <tr> <td>1. Weather and Climate</td> <td>12. Project: Research Your Climate</td> </tr> <tr> <td>2. Project: Weather or Climate?</td> <td>13. Quiz 2: Causes of Weather and Climate</td> </tr> <tr> <td>3. Clouds and Precipitation</td> <td>14. Weird Weather</td> </tr> <tr> <td>4. Project: Clouds and Weather</td> <td>15. Measuring Weather</td> </tr> <tr> <td>5. Project: Clouds and Rain*</td> <td>16. Project: Predict the Weather</td> </tr> <tr> <td>6. Air Masses and Fronts</td> <td>17. Quiz 3: Predicting Weather</td> </tr> <tr> <td>7. Quiz 1: Weather Factors of the Sky</td> <td>18. Special Project*</td> </tr> <tr> <td>8. Solar Power</td> <td>19. Review</td> </tr> <tr> <td>9. Project: Control the Weather</td> <td>20. Test</td> </tr> <tr> <td>10. Geographical Effects</td> <td>21. Alternate Test*</td> </tr> <tr> <td>11. Climate Regulation and Change</td> <td>22. Glossary and Credits</td> </tr> </table>	1. Weather and Climate	12. Project: Research Your Climate	2. Project: Weather or Climate?	13. Quiz 2: Causes of Weather and Climate	3. Clouds and Precipitation	14. Weird Weather	4. Project: Clouds and Weather	15. Measuring Weather	5. Project: Clouds and Rain*	16. Project: Predict the Weather	6. Air Masses and Fronts	17. Quiz 3: Predicting Weather	7. Quiz 1: Weather Factors of the Sky	18. Special Project*	8. Solar Power	19. Review	9. Project: Control the Weather	20. Test	10. Geographical Effects	21. Alternate Test*	11. Climate Regulation and Change	22. Glossary and Credits			
	1. Weather and Climate	12. Project: Research Your Climate																								
	2. Project: Weather or Climate?	13. Quiz 2: Causes of Weather and Climate																								
	3. Clouds and Precipitation	14. Weird Weather																								
	4. Project: Clouds and Weather	15. Measuring Weather																								
	5. Project: Clouds and Rain*	16. Project: Predict the Weather																								
	6. Air Masses and Fronts	17. Quiz 3: Predicting Weather																								
	7. Quiz 1: Weather Factors of the Sky	18. Special Project*																								
	8. Solar Power	19. Review																								
	9. Project: Control the Weather	20. Test																								
	10. Geographical Effects	21. Alternate Test*																								
	11. Climate Regulation and Change	22. Glossary and Credits																								
	Unit 11: Astronomy																									
	Earth Science	Assignments																								
		<table border="0"> <tr> <td>1. The Earth's Place in the Solar System</td> <td>13. Quiz 2: Stars</td> </tr> <tr> <td>2. Protoplanet Formation</td> <td>14. Galaxies</td> </tr> <tr> <td>3. The Earth's Orbit and Seasons</td> <td>15. Project: Identifying Galaxies</td> </tr> <tr> <td>4. Nebular Disk Model</td> <td>16. Future Exploration</td> </tr> <tr> <td>5. Project: Scale of the Solar System</td> <td>17. Extra-Solar Planets</td> </tr> <tr> <td>6. The Moon</td> <td>18. Project: Evaluating Growth</td> </tr> <tr> <td>7. Quiz 1: Solar System</td> <td>19. Quiz 3: Galaxies and Further Exploration</td> </tr> <tr> <td>8. Characteristics of Stars</td> <td>20. Special Project*</td> </tr> <tr> <td>9. Structure of the Sun</td> <td>21. Review</td> </tr> <tr> <td>10. Star Life Cycle</td> <td>22. Test</td> </tr> <tr> <td>11. Stellar Evolution</td> <td>23. Alternate Test*</td> </tr> <tr> <td>12. Project: Life Histories of Stars</td> <td>24. Glossary and Credits</td> </tr> </table>	1. The Earth's Place in the Solar System	13. Quiz 2: Stars	2. Protoplanet Formation	14. Galaxies	3. The Earth's Orbit and Seasons	15. Project: Identifying Galaxies	4. Nebular Disk Model	16. Future Exploration	5. Project: Scale of the Solar System	17. Extra-Solar Planets	6. The Moon	18. Project: Evaluating Growth	7. Quiz 1: Solar System	19. Quiz 3: Galaxies and Further Exploration	8. Characteristics of Stars	20. Special Project*	9. Structure of the Sun	21. Review	10. Star Life Cycle	22. Test	11. Stellar Evolution	23. Alternate Test*	12. Project: Life Histories of Stars	24. Glossary and Credits
		1. The Earth's Place in the Solar System	13. Quiz 2: Stars																							
		2. Protoplanet Formation	14. Galaxies																							
		3. The Earth's Orbit and Seasons	15. Project: Identifying Galaxies																							
		4. Nebular Disk Model	16. Future Exploration																							
		5. Project: Scale of the Solar System	17. Extra-Solar Planets																							
		6. The Moon	18. Project: Evaluating Growth																							
7. Quiz 1: Solar System		19. Quiz 3: Galaxies and Further Exploration																								
8. Characteristics of Stars		20. Special Project*																								
9. Structure of the Sun		21. Review																								
10. Star Life Cycle		22. Test																								
11. Stellar Evolution		23. Alternate Test*																								
12. Project: Life Histories of Stars		24. Glossary and Credits																								
Unit 12: Semester Review and Exam																										
Earth Science		Assignments																								
		<table border="0"> <tr> <td>1. Review (1)</td> <td>4. Alternate Exam - Form A*</td> </tr> <tr> <td>2. Review (2)</td> <td>5. Alternate Exam - Form B*</td> </tr> <tr> <td>3. Exam</td> <td></td> </tr> </table>	1. Review (1)	4. Alternate Exam - Form A*	2. Review (2)	5. Alternate Exam - Form B*	3. Exam																			
		1. Review (1)	4. Alternate Exam - Form A*																							
		2. Review (2)	5. Alternate Exam - Form B*																							
3. Exam																										
Unit 13: Final Exam																										
Earth Science		Assignments																								
		<table border="0"> <tr> <td>1. Final Exam</td> <td>3. Alternate Final Exam-Form B</td> </tr> <tr> <td>2. Alternate Final Exam- Form A</td> <td></td> </tr> </table>	1. Final Exam	3. Alternate Final Exam-Form B	2. Alternate Final Exam- Form A																					
		1. Final Exam	3. Alternate Final Exam-Form B																							
2. Alternate Final Exam- Form A																										