



monarch

2018 - 2019 Curriculum Catalog

Earth Science

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Earth Science Course Overview

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.

- **Origin of the Earth:** Students will explore the theories of the origin of the universe and the Earth.
- **History of the Earth:** Students will explore methods for determining the age of the Earth and its geologic history.
- **Dynamic Structure of Earth:** Students will explore the changes and cycles constantly affecting the Earth.
- **Forces and Features of Earth:** Students will learn about the forces at work on the Earth, such as earthquakes and volcanoes and how to use maps.
- **Features of Earth's Crust:** Students will learn about rocks, minerals and other resources.
- **Shaping Earth's Crust:** Students will explore the forces that shape the Earth's crust, such as weathering and erosion, and other constructive and destructive forces.
- **Earth's Water:** Students will explore the water cycle and the different bodies of water on the Earth.
- **Earth's Atmosphere:** Students will explore the make-up of the Earth's atmosphere and the impact of humans on the atmosphere.
- **Earth's Weather and Climate:** Students will explore weather and climate and how to measure and predict weather.
- **Astronomy:** Students will explore the solar system and other celestial bodies in the universe.

Unit 1: Dynamic Structure of Earth	
Assignments	
1. Course Overview	14. Quiz 2: Earth's Dynamic Internal Structure
2. Introduction to Earth Science	15. The Spheres of Earth
3. Project: Research a Career	16. Project: Sphere Interaction Lab
4. A Unique Planet	17. Geochemical Cycles: Cycles of Earth Materials
5. Project: Earth Comparisons	18. Biogeochemical Cycles: Cycles of Life Materials
6. Quiz 1: Introduction to Earth Science	19. Flow of Energy in Ecosystems
7. Layers of the Earth	20. Project: Flow of Energy
8. Project: Building a Model of the Earth	21. Quiz 3: Earth's Dynamic External Structure
9. Continental Drift	22. Special Project*
10. Plate Tectonics	23. Review
11. Project: Mantle Convection	24. Test
12. Plate Boundaries	25. Alternate Test*
13. Project: Plate Boundaries	26. Glossary and Credits

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

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

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

Unit 5: Semester Review and Exam		
Assignments		
Earth Science	1. Review (1)	3. Exam
	2. Review (2)	4. Alternate Exam*

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

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

Unit 8: Earth's Weather and Climate		
Assignments		
Earth Science	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 9: Astronomy		
Assignments		
Earth Science	1. Earth's Place in the Solar System	10. Galaxies
	2. Project: Scale of the Solar System	11. Project: Identifying Galaxies
	3. Planetary Motion	12. Quiz 2: Stars and Galaxies
	4. Ability To Orbit	13. Special Project*
	5. Project: Newton's Law	14. Review
	6. Earth's Motion, Seasons, and Moon	15. Test
	7. Quiz 1: Solar System	16. Alternate Test*
	8. Characteristics of Stars	17. Glossary and Credits
	9. Structure of the Sun	

Unit 10: Semester Review and Exam		
Assignments		
Earth Science	1. Review (1)	3. Exam
	2. Review (2)	4. Alternate Exam*

(*) Indicates alternative assignment