

Earth Science

<p>Standard #1 Scientific Investigation Students applied the process of scientific investigation and design, conducted, communicated about, and evaluated investigation.</p>
<p>Standard #2 Physical Science Students understood common properties, forms and changes in matter and energy.</p>
<p>Standard #3 Life Science Students understood the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment.</p>
<p>Standard #4 Earth and Space Science Students understood the processes and interactions of Earth's systems and the structure and dynamics of Earth and other space objects.</p>
<p>Standard #5 Scientific Method Students understood that the nature of science involves a particular way of building knowledge and making meaning of the natural world.</p>

Description

This course is designed to provide the student with the basic concepts of earth science, which includes the disciplines of geology, meteorology, astronomy, and hydrology. Students are introduced to the identification, properties, formation, and occurrence of rocks and minerals, to the earth's physical processes (earthquakes, volcanoes, mountain building, weathering, erosion), land forms, groundwater, the oceans, the interpretation of the history of the earth based on fossil evidence, and to the exploitation of natural resources. Students will also learn about the earth's atmosphere, climate, and weather processes; the other planets, stars, galaxies, and the universe.

Time Allocation
 Ninety minutes daily

Texts/References
Modern Earth Science, Sager, Holt, Rinehart and Winston, 2002
 PBwiki class website (pchs-earthscience.pbwiki.com)

Themes /Topics

- The Big Bang, Elements, and Minerals
- How the Earth Turns
- Igneous Rocks and Volcanoes
- The Early Atmosphere
- Water on the Planet
- Snowball Earth and Global Warming
- Rodinia, Geomagnetism, and GeoDating
- Geologic Time Scale
- Cambrian Explosion
- Reconstructing Life and Environments
- Earthquakes
- Pangaea and Plate Tectonics
- Extinctions
- Changing Landscape

Assessments
 Performance Assessments – inquiry lab reports
 Formative Assessments – daily quizzes
 Summative Assessments – teacher constructed tests

Grades and Achievement Levels
 Grades are based on class activities, quizzes, tests, and projects.

Essential Learning: Earth Science

<p>Standard # 1 Scientific Investigation Students applied the process of scientific investigation and design, conducted, communicated about, and evaluated investigation.</p>	<p>Standard # 2 Physical Science Students understood common properties, forms and changes in matter and energy.</p>	<p>Standard # 3 Life Science Students understood the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment.</p>	<p>Standard # 4 Earth and Space Science Students understood the processes and interactions of Earth's systems and the structure and dynamics of Earth and other space objects.</p>	<p>Standard # 5 Scientific Method Students understood that the nature of science involves a particular way of building knowledge and making meaning of the natural world.</p>
<ul style="list-style-type: none"> • Concepts of the scientific method and deductive/inductive reasoning and the communication of results 	<ul style="list-style-type: none"> • Structure, composition and interactions of matter 	<ul style="list-style-type: none"> • Change that organisms have undergone through time and the relationships between the organisms and their environment 	<ul style="list-style-type: none"> • Earth's structure and composition • Mechanisms and factors that shape the structure and appearance of the Earth and their interrelationships • Interrelationships within and between the atmosphere, hydrosphere, lithosphere, and biosphere • Reconstruction of the history of the Earth and its life forms through geologic evidence • Forces that shape the structure and composition of the solar system • Renewable and nonrenewable resource benefits, costs, and consequences 	<ul style="list-style-type: none"> • Process of building scientific knowledge through critique and consensus

Expectations: Earth Science

Standard #1	Standard #2	Standard #3	Standard #4	Standard #5
<ol style="list-style-type: none"> 1. Apply the scientific method to a variety of situations and problems 	<ol style="list-style-type: none"> 1. Explain the origin of the Universe, the formation of atoms, and the evidence that supports these events 2. Understand the structure of matter (atoms) and how it interacts and combines to form compounds 	<ul style="list-style-type: none"> • Recognize that organisms have undergone changes through time and the factors that influence those changes 	<ol style="list-style-type: none"> 1. Use latitude and longitude for locating or describing a location on the planet. 2. Describe the overall structure of the Earth, how it formed, and the evidence supporting that understanding 3. Explain the interrelationships between volcanoes, earthquakes and the deep ocean structures using the theory of Plate Tectonics 4. Understand the mechanisms and factors that influence weather and climate patterns 5. Describe the formation of the solar system, the factors and mechanisms that controlled its structure, and the forces involved 6. Understand how scientific evidence can be used to reconstruct past life, environments, and ecosystems 7. Use scientific principles to investigate the feasibility and limitations of predicting and controlling natural disasters 8. Explained interactions between water and other Earth systems (for example, the biosphere, lithosphere, and atmosphere) 	<ol style="list-style-type: none"> 1. Utilize graphs, equations and models to explain and analyze geologic systems