

# 8<sup>th</sup> Grade Earth Science – 1<sup>st</sup> Semester

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## Course Description

Earth Science is the study of the Earth and all its systems, including geology, oceanography, meteorology, and astronomy. Together, these branches allow us to understand our physical home within the universe. The processes that shape the Earth above and below the surface will be studied and applied to future inquiry using the scientific method. The scientific area defines the idea that explanations of nature are developed and tested through the scientific method. Logical thinking and inquiry skills at this level include organization and mathematical analysis of data, variable manipulation, and identification of an experimental error.

## Common Core Standards

Students will:

- Explain and apply the concepts of order and organization to a given system of science.
- Develop scientific explanations based on knowledge, observation, logic, and analysis along with and understanding of scientific inquiry and the development of critical thinking skills.
- Understand and synthesize information of consistency, change, and measurement.
- Understand and apply the Theory that Evolution is a process that relates to the gradual changes in the universe and of equilibrium as a physical state.
- Understand and synthesize theories of origin and subsequent changes in the Universe and Earth systems.
- Understand and recognize geochemical cycles and energy in the Earth system.
- Understand and apply knowledge of common environmental quality issues, both natural and human induced.
- Understand and demonstrate an understanding of the relationship between science and technology.
- Understand the importance of natural resources and the need to manage and conserve those resources.

## Instructional Materials

Textbook: Holt, Rinehart, and Winston Modern Earth Science, Videos, Websites, and Guest Speakers

## Class Expectations

- Be Prepared – always have your pencil, paper, notebook, book(s), and completed assignments – **Each day an assignment is late your grade will be reduced by 10%.**  
I **DO NOT** give ZEROS (0), if you do not turn in an assignment you will be given an incomplete until it is finished. This is your education, your future, you are expected to complete each assignment.
- Be Respectful – to teacher, classmates, and visitors; respect all school rules (dress code, etc...); raise hand before speaking; respect others' opinions.
- Be Actively Engaged – pay attention, participate, take notes, ask questions, and provide answers.
- Take Care of the textbooks given to you, desks you sit in, items you borrow from others and any other class materials presented.
- Be Responsible for Your Actions
- THIS CLASS WILL BE PROJECT ORIENTED AND HANDS ON LEARNING; I EXPECT THAT YOU WILL DO YOUR PART IN MAKING THIS CLASS SUCCESSFUL.

## Lab Expectations and Safety

Lab work is important to science! Not only are labs a part of your grade, but labs also contribute to your understanding of the concepts presented. When you participate in a lab, SAFETY is the number one priority. I expect that you will behave or your lab privileges will be taken away from you, not only will this be boring, but it will affect your grade – greatly!!

## Class Materials Needed

All your writing will be in pencil or typed and one notebook specifically for Earth Science.

## Tentative Units with Instructional Dates

### Quarter 1

<ul style="list-style-type: none"> <li>▪ <b>Week 1</b> – Chapter 1, The Nature of Earth Science and science in general, Vocabulary, “Mystery Powders” Activity, Chapter 1 Assessment</li> </ul>	<p><b>Standard:</b> Develop scientific explanations based on knowledge, observation, logic, and analysis along with the understanding of scientific inquiry and the development of critical thinking skills.</p> <p><b>Objectives:</b> Name the four main branches of earth science, distinguish between a hypothesis, a theory, and a scientific law, describe the Doppler effect, and summarize the big bang theory of the origin of the universe.</p>
<ul style="list-style-type: none"> <li>▪ <b>Week 2</b> – Chapter 2, Earth structure and orientation in space, Seasons, Vocabulary</li> </ul>	<p><b>Standard:</b> Understand and synthesize theories of origin and subsequent changes in the Universe and the Earth systems.</p> <p><b>Objectives:</b> Explain how studies of seismic waves have provided information about the earth’s interior, summarize Newton’s law of gravitation, and describe the earth’s revolution and rotation.</p>
<ul style="list-style-type: none"> <li>▪ <b>Week 3</b> – Continue Chapter 2, Satellites, Vocabulary, “Earth-Sun Motion” Activity, Chapter 2 Assessment</li> </ul>	<p><b>Standard:</b> Understand and demonstrate an understanding of the relationship between science and technology.</p> <p><b>Objectives:</b> Tell why the seasons change, discuss ways in which satellites are used to study the earth, and compare two types of satellites orbits.</p>
<ul style="list-style-type: none"> <li>▪ <b>Week 4</b> – Chapter 3, Topographic maps, Latitude, Longitude, Declination, Map Projections, Vocabulary, “Constructing a Contour Map”, Chapter 3 Assessment</li> </ul>	<p><b>Standard:</b> Understand and demonstrate an understanding of the relationship between science and technology.</p> <p><b>Objectives:</b> Distinguish between latitude and longitude, explain how a magnetic compass can be used to locate places on the earth, describe the characteristics and uses of three types of map projections, and interpret a topographic map.</p>
<ul style="list-style-type: none"> <li>▪ <b>Week 5</b> – Chapter 4, Tectonic theory &amp; Plate Boundaries, Vocabulary, “Plate Tectonic Internet”</li> </ul>	<p><b>Standard:</b> Understand and synthesize theories of origin and subsequent changes in the Universe and Earth systems.</p> <p><b>Objectives:</b> Explain and list evidence for Wegener’s continental drift theory, summarize the theory of plate tectonics, and compare the characteristic geologic activities that occur along the three types of plate boundaries.</p>
<ul style="list-style-type: none"> <li>▪ <b>Week 6</b> – Continue Chapter 4, Mechanism of Plate Tectonics, “Convection Currents”, Chapter 4 Assessment</li> </ul>	<p><b>Standard:</b> Understand and synthesize theories of origin and subsequent changes in the Universe and the Earth systems.</p> <p><b>Objectives:</b> Explain the possible role of convection currents in plate movements and summarize the theory of microplate terranes.</p>
<ul style="list-style-type: none"> <li>▪ <b>Week 7</b> –Chapter 5, Crustal folding, faulting and Mountain Building, Vocabulary, Chapter 5 Assessment</li> </ul>	<p><b>Standard:</b> Understand and synthesize theories of origin and subsequent changes in the Universe and Earth systems.</p> <p><b>Objectives:</b> Predict isostatic adjustments that will result from changes in the thickness of the earth’s crust, identify sources of stress in crustal rock, describe the four types of faults, and identify four types of mountains and discuss the forces that shaped them.</p>
<ul style="list-style-type: none"> <li>▪ <b>Week 8</b> – Chapter 1-5 Exam, Chapter 6, Seismicity, Vocabulary, Earthquakes, “Earthquake Waves” Activity</li> </ul>	<p><b>Standard:</b> Understand and recognize geochemical cycles and energy in the Earth system.</p> <p><b>Objectives:</b> Explain the elastic rebound theory, explain why earthquakes generally occur at plate boundaries, compare three types of seismic waves, discuss the method most commonly used to measure the magnitude of earthquakes.</p>
<ul style="list-style-type: none"> <li>▪ <b>Week 9</b> – Continue Chapter 6, Earthquake preparedness, shake out drill</li> </ul>	<p><b>Standard:</b> Understand and recognize geochemical cycles and energy in the Earth system.</p> <p><b>Objectives:</b> Describe possible effects of a major earthquake on buildings, list safety rules to follow when an earthquake strikes, and identify changes in the earth’s crust that may signal an earthquake.</p>

## Quarter 2

<ul style="list-style-type: none"><li>▪ <b>Week 10</b> – Chapter 7, Volcanoes &amp; Volcanic rock, Possibility of Field Trip to Craters of the Moon</li></ul>	<p><b>Standard:</b> Explain and apply the concepts of order and organization to a given system of science.</p> <p><b>Objectives:</b> Describe the formation and movement of magma, list three locations where volcanism occurs, and summarize the relationship between lava types and the force of volcanic eruptions.</p>
<ul style="list-style-type: none"><li>▪ <b>Week 11</b> – Chapter 7, Volcanic eruptions, Chapter 7 Assessment,</li></ul>	<p><b>Standard:</b> Understand and synthesize information of consistency, change, and measurement.</p> <p><b>Objectives:</b> Describe the major types of pyroclastic material, identify the three main types of volcanic cones, and summarize the events that may signal a volcanic eruption.</p>
<ul style="list-style-type: none"><li>▪ <b>Week 12</b> – Continue Chapter 8, Compounds, Bonding, and Mixtures, Vocabulary, “Chemical Analysis” Activity, “Periodic Table” Activity, Chapter 8 Assessment</li></ul>	<p><b>Standard:</b> Develop scientific explanations based on knowledge, observation, logic, and analysis along with the understanding of scientific inquiry and the development of critical thinking skills.</p> <p><b>Objectives:</b> State the distinguishing characteristics of an element, describe the basic structure of an atom, define atomic number and atomic mass, and compare solids, liquids, and gases.</p>
<ul style="list-style-type: none"><li>▪ <b>Week 13</b> – Chapter 9, Minerals and Mineral Identification, Vocabulary, “Minerals” Activity Chapter 9 Assessment,</li></ul>	<p><b>Standard:</b> Understand and synthesize theories of origin and subsequent changes in the Universe and Earth systems.</p> <p><b>Objectives:</b> Define a mineral and distinguish between the two main mineral groups, identify the elements found most abundantly in common minerals, and list seven properties that help identify minerals.</p>
<ul style="list-style-type: none"><li>▪ <b>Week 14</b> – Chapter 10, Rocks &amp; the Rock Cycle, Vocabulary, “Rock” Song</li></ul>	<p><b>Standard:</b> Develop scientific explanations based on knowledge, observation, logic, and analysis along with the understanding of scientific inquiry and the development of critical thinking skills.</p> <p><b>Objectives:</b> Identify the three major types of rock, and explain how each is formed and summarize the steps in the rock cycle.</p>
<ul style="list-style-type: none"><li>▪ <b>Week 15</b> – Continue Chapter 10, Classification and Identification of Rocks, “Rocks” Activity, Chapter 10 Assessment</li></ul>	<p><b>Standard:</b> Understand the importance of natural resources and the need to manage and conserve those resources.</p> <p><b>Objectives:</b> Classify igneous rocks according to their mineral composition, name the three main types of sedimentary rock and give an example of each, and distinguish between foliated and nonfoliated metamorphic rocks and give an example of each.</p>
<ul style="list-style-type: none"><li>▪ <b>Week 16</b> – Earth Science project, review Chapters 7-10, Chapter 7-10 Assessment</li></ul>	<p><b>Standard:</b> Understand and apply knowledge of common environmental quality issues, both natural and human induced.</p> <p><b>Objectives:</b> Synthesize the information from chapters 7-10 and demonstrate knowledge retained.</p>
<ul style="list-style-type: none"><li>▪ <b>Week 17</b> –Review for Final Exam</li></ul>	<p><b>Standard:</b> Develop scientific explanations based on knowledge, observation, logic, and analysis along with the understanding of scientific inquiry and the development of critical thinking skills.</p>
<ul style="list-style-type: none"><li>▪ <b>Week 18</b> – Semester Final Exam</li></ul>	

### Assessment/Tests

See Instructional Units/Dates

### Grading Procedures

- Each assignment, assessment, project will be worth individual points.
- Homework will be due daily. Full points will not be given if the assignment is late.
- All assessments must be taken during the class period. If absent, the student should arrange a make-up time before or after school.
- Grades will be calculated by dividing the total points earned by a student by the total points possible.