# 8th Grade Earth Science – 2nd Semester

Teacher: Bridget Severe, Room 103
School Phone: 588-2262 Ext. 26
Home Phone: 589-3051
E-mail: Bridseve@mackayschools.org
Mrs. Severe's Website: www.mackayhs.weebly.com

**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 3**

| | |
|---|---|
| ▪ **Week 1** – Chapter 11, Mineral Resources, and Fossil Fuels, Vocabulary, research the current use of fossil fuels | **Standard:** Understand the importance of natural resources and the need to manage and conserve those resources.<br>**Objectives:** Explain what ores are and how they form, explain why coal is a fossil fuel and a nonrenewable resource, and summarize the process of nuclear fission and fusion. |
| ▪ **Week 2** – Chapter 11, Resources and Energy, alternative energy sources, "Make a solar panel" Activity, and Chapter 11 Assessment | **Standard:** Understand and recognize geochemical cycles and energy in the Earth system.<br>**Objectives:** Describe alternative energy sources |
| ▪ **Week 3** – Chapter 12, Weathering and Erosion, the weathering processes, rates of weathering, soil, and erosion, & Chapter 12 Assessment | **Standard:** Explain and apply the concepts of order and organization to a given system of science.<br>**Objectives:** Discuss the agents of mechanical and chemical weathering, describe the effects of climate on the rate of weathering, predict the type of soil produced in various climates, and define and list four agents of erosion. |
| ▪ **Week 4** – Chapter 13 & 14, Water and Erosion, The water cycle, river systems, stream deposition, and groundwater and erosion, Chapter 13-14 assessment | **Standard:** Understand and apply knowledge of common environmental quality issues, both natural and human induced.<br>**Objectives:** Outline the stages of the water cycle, describe the way in which a river develops, list two types of stream disposition, identify the two moisture zones below the earth's surface, describe an artesian formation, and explain how caverns and sinkholes form. |
| ▪ **Week 5** – Chapter 15, Glaciers and Erosion, video of glacier erosion, moving ice activity, and Chapter 15 assessment | **Standard:** Understand and synthesize information of consistency, change, and measurement.<br>**Objectives:** Describe how glaciers form, describe how glaciers move, name & describe five features formed by glacial deposition, & describe the climatic cycles that exist during an ice age. |
| ▪ **Week 6** – Chapter 16, Erosion by Wind and Waves, Beaches activity, Chapter 16 assessment | **Standard:** Understand and apply knowledge of common environmental quality issues, both natural and human induced.<br>**Objectives:** Describe two ways that the wind erodes the land, define a beach and discuss the way in which it is formed, and compare the types of coral reef. |
| ▪ **Week 7** – Chapter 17, The Rock Record, create a clay model showing the Law of Superposition, guest speaker on half-lives, and Chapter 17 Assessment | **Standard:** Understand and apply that Evolution is a process that relates to the gradual changes in the universe and of equilibrium as a physical state.<br>**Objectives:** State the principle of uniformitarianism, compare three types of unconformity, explain how the process of radioactive decay can be used to determine the absolute age of rocks, and list four examples of fossil traces of organisms. |
| ▪ **Week 8** – Chapter 18, A View of the Earth's Past, geologic time scale activity, Chapter 18 Assessment | **Standard:** Understand and synthesize theories of origin and subsequent changes in the universe and earth system.<br>**Objectives:** List the four major units of geologic time and explain what scientists have learned from the geologic record about life during the Paleozoic, Mesozoic, and Cenozoic eras. |
| ▪ **Week 9** – Chapter 19, The History of the Continents, create a Pangaea puzzle, form a Grand Canyon diagram with clay, Chapter 19 Assessment, Chapter 15-19 Assessment | **Standard:** Understand and synthesize theories of origin and subsequent changes in the universe and earth system.<br>**Objectives:** Identify the landmasses that made up Pangaea, summarize the changes in the North American continent that occurred during both the Precambrian and Cenozoic Era, and interpret the rock record of the Grand Canyon and state what it reveals about the geologic history of the canyon region. |

**Quarter 4**

| | |
|---|---|
| ▪ **Week 10** – Chapter 20, The Ocean Basins, global division of the oceans poster, sonar activity, Chapter 20 Assessment | **Standard:** Understand and demonstrate an understanding of the relationship between science and technology.<br>**Objectives:** Name the major divisions of the global ocean, describe the main features of the continental margin, and describe the formation of ocean-floor sediment. |
| ▪ **Week 11** – Chapter 21, Ocean Water, density factors lab, ocean resources research, Chapter 21 Assessment | **Standard:** Understand and apply knowledge of common environmental quality issues, both natural and human induced.<br>**Objectives:** Describe the chemical and physical properties of ocean water, explain why plankton can be called the foundation of life in the ocean, and describe three important resources of the ocean. |
| ▪ **Week 12** – Chapter 22, Movements of the Ocean, ocean currents map, waves investigation, Chapter 22 Assessment, Chapter 20-22 Assessment | **Standard:** Explain and apply the concepts of order and organization to a given system of science.<br>**Objectives:** Discuss how wind patterns affect surface currents, describe the formation of waves & the factors that affect wave size, and describe the various focuses that cause tides. |
| ▪ **Week 13** – Chapter 23, The Atmosphere, research local wind patterns, measure barometric pressure lab, Chapter 23 Assessment | **Standard:** Develop scientific explanations based on knowledge, observation, logic, and analysis along with and understand of scientific inquiry and the development of critical thinking skills.<br>**Objectives:** Discuss the composition of the earth's atmosphere, explain how barometric pressure works, describe the layers of the atmosphere, explain how radiant energy reaches the earth, and describe global and local wind patterns. |
| ▪ **Week 14** – Chapter 24, Water in the Atmosphere, relative humidity lab, create a poster showing types cloud, Chapter 24 Assessment | **Standard:** Understand and synthesize information of consistency, change, and measurement.<br>**Objectives:** Explain how water vapor enters the air, identify the types of clouds and list the conditions that must exist for a cloud to form, and describe the various types of liquid & solid precipitation. |
| ▪ **Week 15** – Chapter 25, Weather, types of weather lab, weather forecast presentation, Chapter 25 Assessment | **Standard:** Understand and recognize geochemical cycles and energy in the Earth system.<br>**Objectives:** Explain how an air mass forms, compare the characteristic weather patterns of cold fronts with those of warm fronts, describe the types of instruments used to measure air temperature and wind speed, and describe the steps involved in preparing a weather forecast. |
| ▪ **Week 16** – Chapter 26, Climate, Evaporation lab, climate map, Chapter 26 Assessment, Chapter 23-26 Assessment | **Standard:** Understand and recognize geochemical cycles and energy in the Earth system.<br>**Objectives:** Explain how latitude determines the amount of solar energy received on earth, name and describe the polar, mid-latitude, & high-latitude climates, & explain why city/rural climates may differ. |
| ▪ **Week 17** – Review for final exam | **Standard:** Develop scientific explanations based on knowledge, observation, logic and analysis along with the understanding of scientific inquiry and the development of critical thinking skills. |
| ▪ **Week 18 – Semester Final Exam** | |

**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.