



Science Exemplary Text Student Handout

Geology is the scientific study of Earth. Geologists study the planet—its formation, its internal structure, its materials, its chemical and physical processes, and its history. Mountains, valleys, plains, sea floors, minerals, rocks, fossils, and the processes that create and destroy each of these are all the domain of the geologist. Geology is divided into two broad categories of study: physical geology and historical geology.

Physical geology is concerned with the processes occurring on or below the surface of Earth and the materials on which they operate. These processes include volcanic eruptions, landslides, earthquakes, and floods. Materials include rocks, air, seawater, soils, and sediment. Physical geology further divides into more specific branches, each of which deals with its own part of Earth's materials, landforms, and processes. Mineralogy and petrology investigate the composition and origin of minerals and rocks. Volcanologists study lava, rocks, and gases on live, dormant, and extinct volcanoes. Seismologists use instruments to monitor and predict earthquakes and volcanic eruptions.

Historical geology is concerned with the chronology of events, both physical and biological, that have taken place in Earth's history. Paleontologists study fossils (remains of ancient life) for evidence of the evolution of life on Earth. Fossils not only relate evolution, but also speak of the environment in which the organism lived. Corals in rocks at the top of the Grand Canyon in Arizona, for example, show a shallow sea flooded the area around 290 million years ago. In addition, by determining the ages and types of rocks around the world, geologists piece together continental and oceanic history over the past few billion years. Plate tectonics (the study of the movement of the sections of Earth's crust) adds to Earth's story with details of the changing configuration of the continents and oceans.

(2007). "Geology." *U*X*L Encyclopedia of Science*. Edited by Rob Nagel. Farmington Hills, Mich.: Gale Cengage Learning.

This is an example of exemplary text found in *Common Core Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects: Appendix B Text Exemplars and Sample Performance Tasks*. Retrieved from http://www.corestandards.org/assets/Appendix_B.pdf

Science Exemplary Text Teacher Resource

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Teacher introduces the text with minimal commentary and students read it independently. Teacher then reads passage aloud. Give a brief definition to words students would likely not be able to define from context (underlined in text). Teacher guides the students through a series of text-dependent questions. Complete the performance task as a cumulative evaluation of the close-reading.

Text-Dependent Questions

1. In the first paragraph, the author explains geology. What do you think would be most difficult about being a geologist? Give an example from the text that led you to this conclusion.
2. What is the definition the text gives for geology?
3. Describe physical geology and explain how it is different from historical geology?
4. Do you think that if you were studying fossils, you would need both types of geology? Why or why not?
5. How could the study of fossils teach us about evolution?
6. What is one reason the text gives for why it is important to study geology? What might happen if we didn't understand how it worked?

Performance Tasks for Informational Texts

Compare and contrast physical and historical geology. Cite specific passages as you argue about the important points of each and why that particular fact is important. [RI.6.8]

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