Honors Earth Science: Geology

Dates: September 11, 2013 - October 23, 2013 (7 weeks)

Instructor: Sharon Saile

Objective: Students will study Honors Earth Science at the high school level, covering topics in geology, meteorology, environmental science, and astronomy. Each individual class will require pre-reading in order to participate in a facilitated discussion among the students and a hands-on lab activity. Students will be required to take notes during the discussion and document their lab work in a notebook during class, and students will be assigned written homework activities that will require critical thinking. Each quarter students to learn how to interpret data-rich graphs and diagrams, perform some analytical work in an Excel spreadsheet, and complete a long-term project. One optional field trip will be scheduled outside of Compass each quarter to reinforce concepts studied. Each quarter is independent of the others. Students will be asked to purchase a textbook. Students should have access to a computer with internet connection and spreadsheet software, such as Excel.

For Geology, it is assumed that the students already have an understanding of rock types, minerals, and the rock cycle. The students will study plate tectonics in depth, including the topics of volcanoes, earthquakes, sea floor spreading, and documentation of magnetic pole reversals through time. Students will use computers to analyze real earthquake data in order to triangulate the location of an earthquake, and a spreadsheet to analyze radioactive decay data. Students will also study the principals of uniformitarianism, including weathering, erosion, glaciation, and soil formation. If available, students should bring a laptop to class for Weeks 4 and 8; students may work in pairs, if needed.

Preliminary Course Outline

Week	Theme/Topic
1.	Plate Tectonics – Overview; Candle Observation
2.	Sea Floor Spreading - Magnetic Pole Reversals Lab
3.	Volcanoes –Lava Flow Model Lab
4.	Earthquakes – P-S Waves, Interior Layers of the Earth, Computer Lab
5.	Earthquakes: Richter Scale, Earthquake Resistant Structures Lab
6.	Mountain Building – Stratification lab and Compression Demonstration
7.	Weathering, Erosion, - Karst/Cave Formation Lab
8.	Geologic Time, Glaciation Lab or Half-Life Radioactive Dating Lab

Quarter Project:

Create a Travel Brochure, highlighting geological features based on research

Optional Friday Field Trip:

Great Falls National Park Geological Features

Compass Homeschool Enrichment LLC
PO Box 21, Centreville, VA 20122
Office: 703-544-5332 Fax: 703-562-1930
E-mail: admin@compassclasses.com Website: www.compassclasses.com