



Dear Parent,

Your child is beginning a unit developed by the Battle Creek Area Mathematics and Science Center. This unit was designed to promote science and engineering literacy and integrate reading and writing skills into high-interest science content. During the next twelve weeks, your child will be actively involved with the *Processes that Shape Earth* unit. This unit is geared for fourth-grade students and focuses on the following big ideas:

1. Obtain information through research, models, and investigations to discover how local, regional, and global patterns of rock formations reveal changes over time due to earth forces.
2. Generate and evaluate a plan to reduce the impact of natural hazards (e.g., earthquakes, tsunamis, and volcanic eruptions).
3. Research topographical maps to analyze how plate tectonics and large-scale interactions are evident, based on their geographical location.
4. Investigate how living things affect the physical characteristics of their regions.
5. Use research to understand how water, ice, wind, living organisms, and gravity break rocks, soil, and sediments into smaller particles and then move them around.
6. Determine how the use of fossil fuels affects the shape of the land and environment.

Fourth-grade students are also encouraged to think and act like scientists and engineers and continue to develop observation and communication skills in science. Your student will be engaged in exploring the effects of weathering, erosion, earthquakes, tsunamis, and volcanic eruptions. He or she will develop models of rock layers and fossils that demonstrate how scientists use patterns to determine the history of Earth. The unit includes students exploring and designing solutions to reduce the impact of geological events and solutions to the effect of the use of fossil fuels on the land.

In this unit the activities are geared to build on students' inherent knowledge and provide experiences in which they can use and apply their knowledge in a wider range of tasks. Students will be given the opportunity to examine, measure, reflect upon, describe, and discuss how geological events change the land. Suggestions for activities to do at home are included with this letter. These activities will reinforce the concepts taught during this unit instruction.

May you enjoy quality time with your child while discussing the concepts involved with the *Processes that Shape Earth* unit. Let us know if we may be of assistance.

The Outreach Staff

Battle Creek Area Mathematics and Science Center
(269) 213-3904 or (269) 213-3905

ACTIVITIES TO DO AT HOME

1. Start a rock or fossil collection with your student. Search for rocks with interesting markings and possible imprints.
2. Visit a museum with a dinosaur/fossil exhibit.
3. Keep a record of earthquakes around the world using Internet data. Chart earthquakes on a world map using the United States Geological Society website.
4. Take your child to a glass manufacturing plant or a paper manufacturing plant. Help them interview the plant managers to see the process involved in making the products and to learn what kind of natural materials are involved in the production.
5. Take your child to a mine to help him/her learn how ores are taken from the earth. Discuss with your child the natural resources needed for the mining process and the transportation of the ore to a place where metals are removed from it.
6. Set up a plan in your home to make an effort to reduce, reuse, and recycle materials. Choose packaging of material that is environmentally friendlier. Make a list with your child of ways the family can save natural resources.
7. Take your child to the library to find books about weathering and erosion, volcanoes, glaciers, landslides, earthquakes, fossils, natural resources, and fossil fuels. Sample book titles:

The Street Beneath My Feet by Charlotte Guillain and Yuval Zommer

Volcanoes by Anne Schreiber

Earthquakes by Seymore Simon

Volcanoes by Seymore Simon

Fossil by Bill Thompson

Rocks, Fossils, and Arrowheads by Laura Evert

Curious About Fossils by Kate Waters

Buried Sunlight: How Fossil Fuels Have Changed the Earth by Molly Bang and Penny Chisholm

The Story of Fossil Fuels by William B. Rice