



Movements of Earth's Crust Lessons

Websites

Mountains and Volcanoes

[Inside the Earth](#)

These sites detail the structure of the earth, including its layers, and provide background information on plate tectonics.

(<http://www.enchantedlearning.com/subjects/astronomy/planets/earth/Inside.shtml>)

[Earth Floors: Spheres](#)

Learn all about the earth's structure and plate boundaries. The text is easy to read and there are great photos.

(<http://www.cotf.edu/ete/modules/mseese/earthsysflr/spheres.html>)

[Mountain Building Plate Tectonics Activity](#)

This mountain building activity allows children to move tectonic plates in various directions and see how folded mountains form.

(<http://www.pbs.org/wgbh/aso/tryit/tectonics/#>)

[This Dynamic Earth: The Story of Plate Tectonics](#)

Learn about the earth's structure, plate tectonics, hotspots, and plate motions. View stunning images.

(<http://pubs.usgs.gov/publications/text/dynamic.html>)

[When Continents Collide](#)

See an animation of folded mountain formation.

(<http://www.clearlight.com/~mhieb/WVFossils/collision.html>)

[Birth of the Himalaya](#)

Explore photos and information on the geology, formation, and ecology of the Himalayas and Mount Everest. View an animation of the formation of the Himalayas.

(<http://www.pbs.org/wgbh/nova/everest/earth/birth.html>)



[Images of Earth's Folded Crust \(Folded Mountains\) from Space](#)

Space imagery, or mega geomorphology, provides an additional tool to reinforce that the compression of the earth's crust results in folded mountains.

(http://rst.gsfc.nasa.gov/Sect17/Sect17_3.html)

[World Mountains Encyclopedia: Highest Peaks](#)

Information on the highest mountain peaks in the world.

(<http://www.peakware.com/encyclopedia/highest.htm>)

[Highest Peaks of the World](#)

An additional site with information on the highest mountain peaks in the world.

(<http://www.infoplease.com/ipa/A0001771.html>)

[Mountains on the Earth](#)

A photo gallery of mountains found throughout the world.

(<http://www.igf.fuw.edu.pl/hill/photo.html>)

[Mountains in North America: Appalachian Mountains](#)

Includes detailed information and pictures about the Appalachian Mountains.

(<http://www.igf.fuw.edu.pl/hill/nappal.html>)

[Mountain Arts and Crafts](#)

This site introduces you to several of the crafts and craftspeople of the Blue Ridge Mountains.

(<http://www.mtnlaurel.com/Crafts/crafts.htm>)

[Structure of a Composite Volcano](#)

View diagrams of the parts of a volcano.

(<http://www.enchantedlearning.com/subjects/volcano/>)

[Franklin Institute Science Museum: Earth Force](#)

Learn about forces inside the earth that cause motion like volcanic eruptions and earthquakes.

(<http://sln.fi.edu/earth/earth.html>)

[Volcano Animation](#)

See an animation of several eruptive stages of a composite volcano (stratovolcano).

(<http://www.pbs.org/wnet/savageearth/animations/volcanoes/index.html>)



[Photo Glossary of Volcanic Terms](#)

Photographic glossaries of volcanic terminology.
(<http://volcanoes.usgs.gov/images/pglossary/index.php>)

[Types of Volcanoes](#)

Compare diagrams of fissure, dome, composite, ash-cinder, shield, and caldera volcanoes.
(<http://library.thinkquest.org/C003124/en/fullvolcano.htm>)

[How Volcanoes Work](#)

This website is an educational resource that describes the science behind volcanoes and volcanic processes. Scroll down the left side of the page for links to a wide variety of different volcanic topics, including volcanic landforms and products of eruptions.
(http://www.geology.sdsu.edu/how_volcanoes_work/)

[The Eruptive History of Mount Vesuvius](#)

This site provides a chronological history of the eruptions of Mount Vesuvius with associated artistic renderings and animations.
(http://vulcan.fis.uniroma3.it/vesuvio/79_eruption.html)

[The Destruction of Pompeii](#)

An informative web site outlining the events surrounding the eruption of Mt. Vesuvius.
(<http://www.eyewitnesstohistory.com/pompeii.htm>)

[Volcanic Phenomena at Pompeii](#)

This site provides Brief Chronology of Pompeii frozen in time by the 79 A.D. eruption of Mount Vesuvius.
(<http://urban.arch.virginia.edu/struct/pompeii/volcanic.html>)

[Legends of Volcanoes](#)

Read about the legends behind some of Earth's volcanoes.
(<http://www.chevroncars.com/learn/wondrous-world/volcano-legends>)

[Mount St. Helens VolcanoCam](#)

Take a virtual trip to Mount St. Helens.
(<http://www.fs.fed.us/gpnf/volcanocams/msh/>)



[USGS: Cascades Volcano Observatory](#)

This site has excellent information on Mount St. Helens, other volcanoes in the U.S., volcano hazards, monitoring, and much more. There are excellent maps, photos, and a detailed glossary.

(<http://vulcan.wr.usgs.gov/home.html>)

[USGS: The Hawaiian Volcano Observatory](#)

Explore the volcanoes of the Hawaiian Islands. This site is comprehensive and filled with great photos.

(<http://hvo.wr.usgs.gov/howwork/>)

Cataclysmic Events

[NOAA: The Kid's Natural Hazards Quiz](#)

Explore thunderstorms, tornadoes, hurricanes, floods, winter storms, earthquakes, tsunamis, volcanoes, landslides, wildfires, and family disaster planning.

(<http://www.ngdc.noaa.gov/hazard/kqStart.shtml>)

[Kid's Earthquake Hazards Program – USGS](#)

Explore a wide range of information on earthquakes, including a glossary with excellent photos and definitions of earthquake terms.

(<http://earthquake.usgs.gov/4kids/>)

[“Earthquakes Learning Studio” — Exploratorium Museum](#)

Explore earthquake myths and legends, seismology, and personal perspectives. There are lots of hands-on activities.

(<http://www.exploratorium.edu/lc/pathfinders/earthquakes/>)

[Earthquake ABC book](#)

View an alphabet book about earthquakes with words that children illustrated and defined. There is a guide for parents and teachers.

(<http://earthquake.usgs.gov/learn/kids/abc/>)

[Understanding Earthquakes](#)

Read about how earthquakes happen and learn about historic earthquakes. There are earthquake quizzes and fact sheets.

(<http://www.crustal.ucsb.edu/understanding/>)



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Books

General

If you have a budget for purchasing books, the Science Companion development team especially recommends the following six titles to supplement the Earth's Changing Surface unit:

The Big Rock

By Bruce Hiscock. (1999, Aladdin Books)

This age-appropriate picture book tells the story of a rock and how it was shaped through time. It explains how the rock emerged from a volcano, ended up on the bottom of the ocean, was uplifted by a mountain, transported by a glacier, and finally weathered by wind and rain.

Earth (Eyewitness Books)

By Susanna Van Rose. (2005, DK Children)

An extraordinary visual guide to earth science and the forces that shape the earth, this book takes children on a visual journey of the earth's landscapes and highlights how the study of earth science has developed through the ages.

Erosion (A Carolrhoda Earth Watch Book)

By Cherie Winner. (1999, Carolrhoda Books, Inc.)

This book describes how water, glaciers, and wind shape our planet. Excellent photographs support age-appropriate text. A 2000 National Science Teachers Association Outstanding Trade Book for Children.

Our Planet Today (21st Century Science)

By Claude Lafleur. (2001, World Almanac Library)

This book is the perfect challenge for students who want to supplement their learning. The detailed computer-generated images use arrows, cut-aways, and enlargements to provide detailed explanations of the processes that shape the earth's surface. Other sections on map-making and the continents help teachers integrate social studies concepts with this unit.



Planet Earth (Visual Factfinder)

By Neil Curtis and Michael Allaby. (1993, Kingfisher Books)

Explores how the earth's landscapes are shaped through weathering, erosion, deposition, and forces such as mountain uplift and volcanoes. Includes hundreds of detailed color illustrations and photographs with interesting fact captions throughout. Although out of print, this book is well worth searching for in a local library.

Shaping the Earth

By Dorothy Hinshaw Patent; photography by William Munoz. (2000, Clarion Books)

This colorful and informative book shows how the earth's surface is shaped by shifting tectonic plates, mountain uplift, volcanoes, glaciers, rivers, and wind. It explains the role of living organisms in landscape formation and the profound influence of human beings on the landscapes of our planet. The text is splendidly illustrated with color photographs.

Picture Books and Read-Alouds

How Mountains Are Made (Let's-Read-and-Find-Out Science 2)

By Kathleen Weidner Zoehfeld; illustrated by James Graham Hale. (1995, Collins)

This fun picture book for early-elementary readers follows the journey of four children as they hike from their school up into the mountains. They learn about mountain formation, fossils, and the earth's structure along the way.

How Much Is a Million?

By David Schwartz; illustrated by Steven Kellogg. (1997, Perfection Learning)

This early-elementary book helps children conceptualize the immensity of numbers, such as a million, billion, and trillion, that come up when talking about how landforms change over long periods of time.

How to Dig a Hole to the Other Side of the World

By Faith McNulty; illustrated by Marc Simont. (1990, HarperCollins)

In this charming book, a boy offers step-by-step instructions on how to dig the deepest hole in the world. Readers will be amused by his uncanny imagination and rewarded with a wealth of information about the earth below our feet. The illustrator is a Caldecott Medal winner.



The Magic School Bus: Inside the Earth

By Joanna Cole; illustrated by Bruce Degen. (1989, Scholastic Inc.)

Miss Frizzle, her class, and their magic school bus journey into the center of the earth to study rocks and minerals. This book is packed with pictures and captions, and provides a simple introduction to the structure of the Earth. Also available in Spanish.

Pele and the Rivers of Fire

By Michael Nordenstrom. (2002, Bess Press)

This children's book tells of Pele, the goddess of fire. Filled with stunning artwork and stories of Polynesian folklore, students will be captivated as they learn the mythology behind the formation of the Hawaiian Islands.

Nonfiction Books

Digging Deeper: Investigations into Rocks, Shocks, Quakes, and Other Earthy Matters

By Sandra Markle. (1987, Lothrop, Lee & Shepard Books)

This book discusses various aspects of geology, such as plate tectonics, erosion, and minerals. It includes experiments and other activities.

Earthquakes and Volcanoes: Reader's Digest Pathfinders

By Lin Sutherland. (2003, Readers Digest)

Exceptional images illustrate the science and history of volcanoes and earthquakes. Although the text is more appropriate for middle and high school aged children, this book is a great teacher reference for elementary classes.

Earth's Fiery Fury (Exploring Planet Earth)

By Sandra Downs. (2000, Millbrook Press)

Narration and photographs provide a comprehensive overview of volcanism and related geothermal activity. A unique feature is the descriptive vocabulary that helps the reader build a mental picture. A 2001 National Science Teachers Association Outstanding Trade Book for Children.



Mountains (Geography Detective)

By Philip Sauvain; illustrated by David Hogg. (1996, Carolrhoda Books)

This age-appropriate book highlights the major features seen in mountains around the world and describes the processes that form and shape them.

Planet Earth (Time-Life Student Library)

By Karin Kinney. (1998, Time-Life Books)

This age-appropriate resource book contains content on a wide variety of topics, including volcanoes, weather, rivers, and earthquakes. It also highlights the effect that earth forces have on humans around the world. There are hundreds of excellent photos and illustrations.

Probing Volcanoes (Science on the Edge)

By Laurie Lindop. (2003, 21st Century Books)

This book provides a captivating perspective of the scientists who venture into volcanic craters to learn the secrets of volcanoes. It features lively accounts and follows researchers into the field, providing students with an excellent glimpse into the rewarding and exciting careers of geologists and geochemists. A 2004 National Science Teachers Association Outstanding Trade Book for Children.

Other Recommended Reference Books for Teachers

Earth Story: The Shaping of Our World

By Simon Lamb and David Sington. (2003, Princeton University Press)

This book is a companion to the BBC-Learning Channel series. Vivid images and illustrations show the earth's structure and how the surface of the earth is shaped by an interacting system of atmosphere, water, tectonic plates in motion, and living organisms. The authors express a passion for planet Earth and the diverse life it supports.

Geology Crafts for Kids: 50 Nifty Projects to Explore the Marvels of Planet Earth

By Alan Anderson, Gwen Diehn, and Terry Krautwurst. (1998, Sterling Publishing)

A fun collection of 50 activities and craft projects that teach children about geology topics such as minerals, crystals, volcanoes, erosion, and fossils. Includes great full-color illustrations and easy-to-follow directions.



How the Earth Works (How It Works)

By John Farndon. (1999, Dorling Kindersley Publishers)

This exploration of earth science topics is designed for adults and children and offers a hands-on approach to learning. It has detailed instructions on how to build models and carry out experiments, as well as suggestions for how to record experimental data and draw conclusions.

Janice VanCleave's Earth Science for Every Kid: 101 Easy Experiments that Really Work

By Janice Pratt VanCleave. (1991, John Wiley & Sons, Inc.)

This book has 101 easy experiments that cover topics such as rocks and minerals, crust movements, erosion, mountain building, weather, and the oceans. There are detailed step-by-step instructions and illustrations, as well as a scientific explanation of the results. The experiments are fun and use inexpensive, easy-to-find materials.

Origins: The Evolution of Continents, Oceans, and Life

By Ron Redfern. (2002, Weidenfeld Nicolson Illustrated)

This coffee table-style book has extraordinary panoramic photographs that reveal how the earth was formed and how it evolved through time. The text examines the dynamic processes that have shaped and continue to shape the earth's surface. The text is advanced, but the stunning images could be a useful resource and reference.

DVDs

In the Shadow of Vesuvius: National Geographic

National Geographic, 2010

Mt. Vesuvius has been active for more than 17,000 years. In A.D. 79 an eruption ten times the size of Mt. St. Helen's destroyed the ancient cities of Pompeii and Herculaneum. The film observes archaeologists excavating Pompeii and explores the fascinating history of Vesuvius. (60 minutes)

Natural Disasters (Eyewitness Series)

DK Children, 2007

This film explores the cataclysmic forces that shape our planet and affect our lives, from hurricanes to volcanoes. Rare footage reveals the earth at its most violent. (35 minutes)



Volcano (Eyewitness Series)

DK Children, 2006

Mount Vesuvius is one of the volcanoes featured in this video offering excellent footage of volcanic eruptions and their aftermaths as well as related background information on volcanic structure and plate tectonics. (35 minutes)