

Sunshine State Standards



SC.D.1.2.1.3.1 – The student knows that smaller rocks come from the breaking away and weathering of bedrock and larger rocks.



SC.D.1.2.2.3.1 – The student knows that approximately 75% of the surface of the Earth is covered by water.



SC.D.1.2.3.3.1 – The student understands the stages of the water cycle (for example, evaporation, condensation, and precipitation).



SC.D.1.2.4.3.1 – The student understands the processes of weathering and erosion.



SC.D.1.2.5.3.1 – The student knows that landforms change over time (for example, earthquakes, volcanoes).



SC.H.1.2.5.3.1 – The student uses sketches, diagrams, and models to understand scientific concepts.



SC.H.3.2.1.3.2 – The student uses reference materials to obtain information related to science concepts.

Vocabulary Words and Meanings
(For the Big Word Wall)

Model - A representation, generally in miniature, of a system, object, or process is a model. Models are different from the real thing, but can be used to learn something about the real thing.

Sketch - A simple drawing or painting that shows the main features but not the essential details is a sketch.

Diagram - A drawing or plan that outlines and explains the parts or operation of something is a diagram. Diagrams usually include labels.

Weathering - Weathering is the process that causes rocks on Earth's surface to crumble, crack, and break. Weathering is usually a slow process.

Erosion - Erosion is the process of weathered material being moved or carried away. Erosion is usually a slow process.

Cycle – A process that occurs over and over again is called a cycle.

Landform - A feature on the surface of the Earth is called a landform. (For example: plains, mountains, valleys, and hills)

Pangaea – Pangaea is a large land mass that scientists think all the continents made a long time ago.

Plate – A plate is a giant piece of the Earth’s crust.

Fault line - A large crack in the Earth’s crust made when two plates are forced away from each other is called a fault line.

Bedlam – Bedlam is a state of uproar.

Bedrock – The bottom layer of solid rock that makes up the Earth’s crust is called bedrock.

Crust – The thin outer layer of the Earth is its crust. It is solid rock. The land of the continents and the floors of the oceans form the Earth’s crust.

Mantle – Mantle is the inner layer of the Earth made up of thick liquid rock called magma.

Core – The center layer of the Earth is the core. It has two layers. Its outer layer is hot liquid metal and its inner layer is a solid metal center.

Evaporation - The process of changing a liquid to a vapor or gas is called evaporation.

Condensation - The process of changing a gas or vapor to a liquid or solid state is condensation.

Precipitation - Rain, snow, sleet, or hail are precipitation.

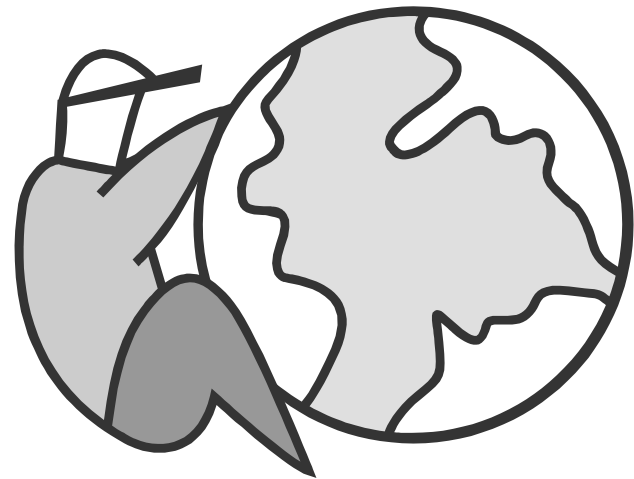
Tsunami - A giant wave or series of waves caused by an earthquake under an ocean is a tsunami.

Fault - A fault is a crack in the Earth's crust.

Volcano - A volcano is an opening in the surface of the Earth. When a volcano becomes active, hot magma flows out of it.

Earthquake – Sudden movements in the rocks of the Earth's crust are caused from earthquakes. The breaking rock makes the ground shake.

Earth Explorer Journal



Name _____

Bibliography

NOTE: SUNLINK, a database of media resources for schools in Florida, may be used to locate books and other resource materials that might facilitate this unit. SUNLINK is located at <http://www.sunlink.ucf.edu>.

Fiction

Argueta, Manlio, et al, *Magic Dogs Of The Volcanoes: Los Perros Magicos De Los Volcanes*, 1990, Children's Book Press, ISBN: 0892390646.

Baylor, Byrd, *Everybody Needs A Rock*, 1985, Aladdin, ISBN: 0689710518.

Garland, Michael, *The Big Stone*, 1999. The Millbrook Press, Brookfield, Connecticut. ISBN: 0-7613-1261-7

(Father carries around a large stone all his life. One day when he's old the son takes it from him. The father rose up into the clouds. The son dropped the stone and it broke. There was a shiny diamond in the middle. He went to a nearby village and married and had kids and lived happily ever after.)

Hurst, Carol Otis, *Rocks In His Head*, Greenwillow Publishers, 2001, ISBN: 0060294035.

McDermott, Gerald, *The Stone-Cutter*, a Japanese folk tale, Puffin Books, NY, NY, 1975.

Steig, William, *Sylvester And The Magic Pebble*, Windmill Books/Simon and Schuster, New York, NY, 1969, ISBN 0-671-66512-X

Nonfiction

Berger, Melvin, *The Restless Earth*, Newbridge Educational Publishing, New York, NY, 1995, ISBN 1-56784-212-7.

Blobaum, Cindy, *Geology Rocks! 50 Hands-On Activities To Explore The Earth*, Williamson Publishing, 1999, ISBN: 1885593295.

Berger, Melvin, *The Mighty Ocean*, Newbridge Educational Publishing, New York, NY, 1996, ISBN 1-56784-218-6.

Branley, Franklyn Mansfield, *Earthquakes*, Harper Collins, New York, 1990, ISBN: 069004661-8.

Conlon, Laura, *Floods*, Rourke, Vero Beach, FL, 1993, ISBN: 086593245x.

Conlon, Laura, *Earthquakes*, Rourke, Vero Beach, FL, 1993, ISBN: 086593247-6.

Curry, Don L., *The Water Cycle*, Yellow Umbrella Books, Mankato, Minn., 2001.

Dorros, Arthur, *Follow The Water From The Brook To The Ocean*, HarperCollins, New York, NY, 1991.

Field, Nancy, *Discovering Earthquakes*, Dog Eared Publications, 1995, ISBN: 094104212X.

Field, Nancy, *Discovering Volcanoes*, Dog Eared Publications, 1996, ISBN: 0941042030.

Frost, Helen, *The Water Cycle*, Pebble Books/Capstone Press, Mankato, Minn., 2000.

Hale, James Graham, *Down Comes The Rain (Let's Read-And-Find-Out Science. Stage 2)*, Harper Trophy; 1997, ISBN: 00644516661997.

Hiscock, Bruce, *The Big Rock (Aladdin Picture Books)*, Aladdin Paperbacks, 1999, ISBN: 0689829582.

Hooper, Meredith, *The Pebble In My Pocket: A History Of Our Earth*, Vikings Childrens Books, 1996, ISBN: 0670862592.

Hooper, Meredith and Coady, Chris, *The Drop In My Drink*, 1998, the Penguin Group, Penguin Putnam Books Ltd. ISBN0-670-87618-6.
This book details the story of water from the perspective of a single water drop. It also explains the water cycle.

Jenkins, Steve. *Hottest, Coldest, Highest, Deepest*. 1998. New York: Houghton Mifflin Company. ISBN: 0-395-89999-0.

Here's a great book for introducing the concept of research, and turning it into a guessing game at the same time.

Jennings, Terry, *Rocks*, Garrett Educational Corporation, Ada, OK, 1991, ISBN: 1560740000.

Knowlton, Jack, *Geography From A To Z: A Picture Glossary*, HarperCollinsPublishers, USA, 1988.

Llewellyn, Claire, *Islands*, Heinemann Library, Chicago, IL, 2000, ISBN 1-57572-206-2

Llewellyn, Claire, *Volcanoes*, Heinemann Library, Chicago, IL, 2000, ISBN 1-57572-207-0

Llewellyn, Claire, *Caves*, Heinemann Library, Chicago, IL, 2000, ISBN 1-57572-202-X

Lunis, Natalie, *Rocks & Soil*, Newbridge Educational Publishing, New York, NY, 1998, ISBN 1-56784-383-2.

Mansfield, Franklyn, *Earthquakes (Let's Read And Find Out Science)*

Martin, Jacquelin Briggs. *Snowflake Bentley*. 1998. New York: Houghton Mifflin. ISBN: 0-395-86162-4. This is the true story of Wilson Bentley, who made the study of snowflakes his life's work.

McKinney, Barbara Shaw, *A Drop Around The World*, Dawn Pubns, 1998, ISBN: 1883220726.

McMorrow, Catherine, *Quakes!* Random House Publishers, 2000, ISBN: 067986945X.

Nye, Bill. *Bill Nye The Science Guy's Big Blue Ocean*. 1999. New York: Hyperion Books for Children. ISBN: 078685063-9.

Relf, Patricia, *The Magic School Bus Wet All Over: A Book About The Water Cycle*, Scholastic Trade, 1996, ISBN: 0590508334.

Sattler, Helen Roney, *Our Patchwork Planet: The Story Of Plate Tectonics*, Lothrop Lee & Shepard, 1995, ISBN: 0688093124.

Silver, Donald M., Patricia J. Wynne, and Inc. Staff Scholastic, *THE Amazing Earth Model Book (Grades 3-6)*, Scholastic Prof Book Div., 1999, ISBN: 0590930893.

Simon, Seymour, *Earthquakes*, Mulberry Books, 1991, ISBN068814022X

MOUNTAINS, STORMS, VOLCANOES

Simont, Marc, *Volcanoes (Let's Read And Find Out)*, Harper Trophy, 1986, ISBN: 0064450597.

Taylor, Barbara, *The Earth: The Geography Of Our World*, Kingfisher Publications, 2001, ISBN: 0753454254.

Wick, Walter, *A Drop Of Water: A Book Of Science And Wonder*, Scholastic Trade Publishers, 1997, ISBN: 0590221973.

Winner, Cherie, *Erosion (Earth Watch)*, Carolrhoda Books, 1999, ISBN: 1575052237.

Wood, Jenny, *Wonderworks Nature: Volcanoes, Fire From Below*, Gareth Stevens Children's Books, 1991, Milwaukee, Wisconsin.

Wood, Lily, *Volcanoes (Scholastic Science Readers)*, 2001, Scholastic Reference, ISBN: 0439295858.

Zoehfeld, Kathleen Weidner, *How Mountains Are Made (Let's Read-And-Find-Out Science)*, Harper Trophy, 1995, ISBN: 0064451283.

Videos (Available from the Bay District Media Center)

Our Changing Earth, Rainbow Educational Video, Barcode #816927.

Dynamic Earth: Changes in its Surface, Coronet Film and Video, Barcode #815093.

The Geology of the Earth: of Forces, Rocks, and Time, Great Pacific Media, Barcode #824031

The Earth Series, Coronet

Earthquake, Disney

Understanding the Earth Series, Coronet

The Magic School Bus Blows Its Top, Scholastic, Inc.

Suggested Weblinks:

Volcanoes

Slide show of Mt. St. Helen's eruption and the changes it made.

http://vulcan.wr.usgs.gov/Photo/SlideSet/ljt_slideset_old.html

Stories about volcanoes (Rocky's Adventures)

<http://volcano.und.nodak.edu/vw.html>

Effects of the eruption of Mt. St. Helens

<http://volcano.und.nodak.edu/vwdocs/msh/lhc/cs/eae.html>

Effects of lateral blast of Mt. St. Helens

<http://volcano.und.nodak.edu/vwdocs/msh/lhc/cs/ealb.html>

Volcano World

<http://volcano.und.nodak.edu/vw.html>

Legends about Volcanoes

<http://volcano.und.nodak.edu/vwdocs/kids/legends.html>

Volcano World Games and Stuff

<http://volcano.und.nodak.edu/vwdocs/kids/fun/fun.html>

Volcano Live

<http://www.volcanolive.com/contents.html>

Volcanoes Online

<http://library.thinkquest.org/17457/english.html>

<http://volcano.und.nodak.edu/vwdocs/vwlessons/atg.html>

Earth's Layers and Plate Tectonics

Diagram of Crust, Mantle, Core

http://volcano.und.nodak.edu/vwdocs/vwlessons/plate_tectonics/part1.html

http://volcano.und.nodak.edu/vwdocs/vwlessons/activities/p_number1.html

Why should continental drift matter to me?

<http://kids.mtp.eh.nasa.gov/archive/pangaea/conclusion.html>

Fault motion animated

<http://www.iris.washington.edu/seismic/events/faults.html>

Plate Tectonics

<http://www.moorlandschool.co.uk/earth/tectonic.htm>

Puzzles of the Earth

A comprehensive website dedicated to teaching the relatively young geography theory of Plate Tectonics which is responsible for many of the geographical features and events found in our lives.

<http://library.thinkquest.org/17701/high/index.html>

The Earth's Layers – An interactive site about the Earth's layers.

http://volcano.und.nodak.edu/vwdocs/vwlessons/lessons/Earths_layers/Earths_layers1.html

Fault Animations

<http://www.iris.washington.edu/seismic/events/faults.html>

Earth Like a Puzzle

http://www.sio.ucsd.edu/voyager/earth_puzzle/

Earthquakes

Student generated book about earthquakes

<http://pasadena.wr.usgs.gov/ABC/ca.html>

Earthquake pictures to color/types of faults

<http://earthquake.usgs.gov/4kids/4kids/games/onlinecolor/>

Earthquake site for home/parents

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

Weathering and Erosion

Grand Canyon and Erosion – This site tells how the Grand Canyon was formed through the process of erosion. Click on Geology.

<http://www.grand.canyon.national-park.com/info.htm>

Weathering and Erosion for kids

<http://www.marshfield.k12.wi.us/science/biology/eproject/erosion/ero~weather.htm>

Weathering

<http://www.prairiehill.org/Kids/7th/earth/WEATHER.HTM>

Weathering and Erosion (contains a wonderful PowerPoint on Erosion)

<http://powayusd.sdcoe.k12.ca.us/pusdmvms/Faculty/Downs/EarthScience/erosion/erosion.htm>

Weathering and Erosion

<http://vishnu.glg.nau.edu/people/jhw/GLG101/Weathering.html>

Slides of Weathering

<http://www.geo.duke.edu/geo41/wea.htm>

PowerPoint about the effects of weathering in cemeteries

http://www.eos.duke.edu/geo41/Cemetery_files/frame.htm

Tsunamis

Tsunamis – The Savage Earth

<http://www.pbs.org/wnet/savageearth/tsunami/index.html>

The Disaster Area

<http://www.fema.gov/kids/dizarea.htm>

Info about tsunamis

<http://ln.infoplease.com/ce6/sci/A0849598.html>

Pacific Tsunamis Museum

<http://www.tsunami.org/>

Ask Jeeves – tsunamis

<http://www.ajkids.com/kidsaskjeeves.com>

The Why Files/tsunamis

<http://whyfiles.org/068tsunami/>

Geology

Geology Potpourri

Animations of Pangaea separating

<http://www2.nature.nps.gov/grd/usgsnps/animate/mpegs.html>

Earth Science

<http://www.moorlandschool.co.uk/earth/index.htm>

The Savage Earth (PBS presentation)

<http://www.pbs.org/wnet/savageearth/index.html>

<http://www.pbs.org/wnet/savageearth/hellscrust/index.html> (plate tectonics)

Discovery Channel Online - Earth Journeys

<http://www.discovery.com/exp/earthjourneys/earthjourneys.html>

The Forces of the Earth (Created by third and fourth graders)

http://hammer.newton.mec.edu/earth_force/default.html

Parent Letter

Dear Parent,

We are beginning a new science unit entitled **BEDLAM IN BEDROCK**. We will explore ways the Earth's landforms change over time. It promises to be an exciting adventure!

As a means of facilitating learning for your child, I am sending a list of vocabulary words and meanings, Sunshine State Standards, and Key Concepts along with a daily calendar for suggested time management and study. Your child will be asked to complete two Earth Explorer Projects, one per week of the unit. Details are attached. I hope you will join us in this learning adventure.

Sincerely,

Day 2	Day 3	Day 4	Day 5	Day 6
Study vocabulary. Make a plan for Earth Explorer Project 1 Question of the Day – How much of the Earth's surface is covered by water?	Review vocabulary. Work on Earth Explorer Project 1 Question of the Day – What are the stages of the water cycle?	Review vocabulary. Work on Earth Explorer Project 1 Question of the Day – Where do smaller rocks come from?	Review vocabulary. Finish Earth Explorer Project 1 Question of the Day – What's the difference between weathering and erosion?	Earth Explorer Project 1 Due Study for Summative Assessment 2 which will be on the next day. Question of the Day – What is the difference between a sketch and a diagram?
Day 7	Day 8	Day 9	Day 10	Day 11
Make a plan for Earth Explorer Project 2. Summative Assessment 2 Question of the Day – What is a reference material? Give an example of one.	Review vocabulary and key concepts. Work on Earth Explorer Project 2. Question of the Day – How can a hard-boiled egg be used as a model of the Earth? Explain.	Review vocabulary and key concepts. Work on Earth Explorer Project 2. Question of the Day – In what ways do the Earth's landforms change over time?	Earth Explorer Project 2 Due Study for Final Unit Assessment Question of the Day – What forces can cause the weathering of rocks?	Final Unit Assessment

Vocabulary Words

Bedlam – A state of uproar

Bedrock – The bottom layer of solid rock that makes up the Earth's crust

Model - A representation, generally in miniature, of a system, object, or process
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SC.D.1.2.5.3.1 – The student knows that landforms change over time (for example, earthquakes, volcanoes).

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Key Concepts

- ❖ The surface of the Earth is in a continuous state of change.
- ❖ Larger rocks can be broken down into smaller rocks, which in turn can be broken down to combine with organic material to form soil.
- ❖ Some changes in the Earth's surface are due to slow processes such as weathering and erosion and others are due to rapid processes such as volcanic eruptions and earthquakes.
- ❖ Models, diagrams, and sketches can be used to understand science ideas.
- ❖ Reference materials can be used to obtain information related to science concepts.

Suggested Journal Writing Prompts

Day One – Students may color the cover of the journal. They may want to add a title page and/or “About the Author” page.

Day Two – Draw a rectangle shape in your journal. Divide the shape into four equal parts. Color part(s) of your shape blue to represent how much of the Earth’s surface is covered by water. Color part(s) of your shape brown to represent how much of the Earth’s surface is covered by land.

Day Three – Draw a sketch of a form of precipitation. Tell what you like to do on that kind of day.

Day Four – Make a list of things made from rocks.

Day Five – Write predictions and personal reflections about the experiments performed during the lesson. See the lesson plan entitled, A Rocky Situation.

Day Six – Write a paragraph to tell about your Earth Explorer Project.

Day Seven – You are a rock inside a volcano. You feel a sudden rumble. Write about what happened next.

Day Eight – Responses about puzzle pieces and how plates move (See “Changing Ways” lesson plan).

Day Nine – Would you rather live near a volcano or a fault line? Explain your answer.

Day Ten – The project I enjoyed most was _____. I liked this project because _____.

Day Eleven – Tell what you enjoyed most about the Bedlam in Bedrock unit. Tell what you enjoyed least.