

## Introduction

The accompanying theme unit was written with the "one-room-school" in mind, though it could easily be used in any multi-grade setting. It is meant to support the Science Management and Resource Tool (SMART) which enables teachers to provide instruction on a particular science topic across grades 1-8. Topics are organized in a four-year cycle which provides for larger blocks of instructional time (a quarter per topic), allowing time to fully develop the subject. The objectives have been taken from the curriculum guide developed by the NAD. Lower grade (1-4) objectives have been meshed with upper grade (5-8) objectives when possible to do so without compromising the expectations of the older students. Some activities have been predicated on the belief that older students will often participate in activities for the benefit of younger children which they would otherwise think age-inappropriate. An advantage of this is that older students whose skills or knowledge is insufficient have an opportunity to review or learn for the first time what they may have missed in the past without the stigma of being "held back". Additionally, younger students whose knowledge or interest is advanced have opportunities to be exposed to more sophisticated material.

Cooperative learning structures have been integrated throughout the unit and explanations of these are provided in the Appendix A. The science text *Discover God's Creation* is used as a resource for the upper grade students. Cross-curricular resources and activities, including theme-related worship ideas, are provided and may be used as the teacher sees fit.

This particular unit relies heavily on projects and experiments. It is suggested that these activities be done as cooperative group projects, though under particular circumstances the teacher may wish to assign them to individuals.





## Advance Preparation

Brain research suggests that it is best to conduct a field trip or hands-on experience at or near the beginning of a new unit. This provides students with a "hook" on which to "hang" the information which they are learning. Additionally, it provides a common experience to which the teacher may refer. See the resource section for field trip ideas and plan one prior to the beginning of the unit.

Design a bulletin board which will help to reinforce the concepts being learned. One possibility is provided in the resource section of this unit.

Gather materials which may be needed. One which is not readily available is bluing for growing crystals. It may be purchased on-line at:  
[www.kilianhardware.com/mrsstewlaunb.html](http://www.kilianhardware.com/mrsstewlaunb.html).

Seek out relevant guests who may come to the class to share their expertise in the field of geology. These might include someone who has witnessed an earthquake, volcanic eruption or tsunami, as well as amateur and professional rock collectors. Ask them to discuss with students the academic preparation required for any job they might do in the field as well as positive character traits ("light-skills") which help to make them successful.

Schedule an end-of-the-unit exhibition and have students begin planning for it early on in the unit. As far as possible, they should save demonstrations and other products to be displayed at this event.



## SCI Geology Resources

### Related Materials

\* Be advised that many of the following books contain references to evolution. If their use is deemed appropriate, use such references as an opportunity to challenge students to think critically and to build their faith.

### Read Aloud Books:

#### ***Lower Grades:***

- Caves: Mysteries beneath Our Feet* by Harrison (excellent, easy picture book)
- Detective Zack and the Secret of Noah's Flood* by Jerry Thomas
- Earthquakes* by Dussling (All Aboard Science Reader)
- How to Dig a Hole to the Other Side of the World* by McNulty
- If You Lived at the Time of the Great San Francisco Earthquake* by Levine
- The Magic School Bus Blows Its Top* by Gail Herman
- Mountains and Volcanoes* by Curran
- The Rock Quarry Book* by Kehoe
- Rocks in His Head* by Hurst (picture story book)
- The Sun, the Wind and the Rain* by Peters (evolutionary references)
- I Can be a Geologist* by Sipierra (simple text- needs to be read with pizzazz!)
- If You Find a Rock* by Christian (delightful picture book w/ simple text)
- What's Under the Bed* by Manning

#### ***Upper Grades:***

- Grand Canyon Journey: Tracing Time in Stone* by Anderson
- The Rockhound Mystery* by Duplex (Pacific Press)
- Banner in the Sky* by Ullman

### Guided Reading Books:

- I am a Rock* by Marzolla (Hello Reader Level 1)
- Earthquakes* by Branley (Let's Read and Find Out Science) (2-4)
- Eruption: The Story of Volcanoes* by Ganeri and Martin (2-4)
- Let's Go Rock Hunting* by Gans (Let's Read and Find Out Science) (2-4)
- Pompeii...Buried Alive* by Kunhardt (Step into Reading- Step 3) (2-3)
- Tsunamis* by Thompson (high interest low level reader)
- Volcanoes* by Wood (Scholastic Science Readers) (2-4 and up)
- Volcanoes: Mountains that Blow Their Tops* by Nirgiotis
- Volcanoes and Earthquakes* by Barbato (3-4)





Support Books:

*All That Glitters* by Magruder

*America's Mountains* by Staub

*Antarctica: World's Biggest Glacier* by Mattern

*Avalanches and Landslides* by Walker

*Crumbling Earth* by Ganeri

*Crystal Magic* by David

*Earthquakes and Volcanoes* by Watt

*Earthquake: On Shaky Ground* by Duden

*Earthquake! San Francisco, 1906* by Wilson

*Fascinating Facts about Volcanoes* by Walker

*Gems and Jewelry* by Arem (identification guide)

*Geology Rocks!: 50 Hands-on Activities to Explore the Earth*, Vol. 6 by Blobaum  
and Kline

*Geology* by Rhodes (identification guide)

*Geology Crafts for Kids* by Anderson (helpful ideas for activities)

*Icebergs, Ice Caps and Glaciers* by Fowler

*Planet Earth* by McRae Books

*Rocks and Minerals* by Parker

*Rocks and What They Tell Us* by del Rey

*Science Close Up: Rocks* by Bass

*Science Close up: Volcanic Rocks* by Bell

*Volcanic Rocks* by Bell

*Volcano: the Eruption and Healing of Mt. St. Helens* by Lauber

*What If We Run Out of Fossil Fuels?* by Miller

\*\*\* *The Earth: Origins and Early History* by Webster (NAD resource- highly  
recommended)

Videos:

*The Magic School Bus Blows Its Top*

*The Magic School Bus Inside the Earth*

*Eyewitness Rock and Mineral*



Field Trips:

In New York state:

Herkimer Diamond Mines (315) 717-0077 or 1-866-717-GEMS

Hanson Aggregates in Skaneateles (rock quarry- very accommodating, set up a "blasting" for students to see. Students enjoyed the trip very much.)

General:

Local mines and quarries of various types

Parks containing interesting land features or examples of various types of rocks

People:

Amateur Rock Collector

Geologist

Hydrologist

Jeweler

Land Surveyor

Seismologist

Soil Scientist

Volcanologist

Bulletin Board:

See back of this section.

# Additional Resources

More information in the area of Geology can be found on the Internet at the *Mineral Information Institute* webpage.

<http://www.mii.org/teacherhelpers.php>

Please check their site often for materials specifically created for teachers.

