

# LETTER TO PARENTS

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*Cut here and paste onto school letterhead before making copies.*

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## SCIENCE NEWS

Dear Parents,

Our class is beginning a new science unit using the **FOSS Earth Materials Module**. We will investigate a selection of the most common rocks and minerals that make up Earth’s crust, and learn some techniques used by geologists to identify them.



Geology requires analysis. To develop analytical skills and techniques, we will first take apart a simulated rock called a Mock Rock. We will observe them, break them apart, dissolve them in water, and evaporate the liquid to discover the ingredients from which our rocks are made. We will then move on to real **rocks and minerals**, using scratch tools and acid (vinegar) to test for specific minerals. Finally we will look at granite, the base rock from which continents are made, and analyze it to discover the minerals it contains.

You can increase your child’s understanding and interest in earth materials by asking him or her to talk about the investigations we are doing at school. Rocks, which appear so commonplace, may become objects that inspire questions and promote close observation. You and your child may want to start a rock collection, or visit the library or (if possible) a rock and mineral display to expand your rock and mineral knowledge. A visit to a landscape materials center or a jewelry store (gems are minerals) can expose the broad range of uses for earth materials.

Watch for Home/School Connections sheets that I will be sending home from time to time. These activities describe ways the whole family can look more closely at rocks and minerals around your home. Your child will be asked to bring a rock or mineral to class for a few weeks to begin a class collection. He or she may choose to bring a special sample you picked up on a family outing, or a rock collected right around the neighborhood.

We’re looking forward to weeks of fun with rocks and minerals! If you have questions or comments, or have expertise you would like to share with the class, please drop me a note.

Comments: \_\_\_\_\_

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# FOSS EARTH MATERIALS MODULE

## PROJECT IDEAS

- Make a batch of cookie rocks to share with the class. Be sure to list the “minerals” you used to make the cookie rocks.
- Bring in your own rock and mineral collection. In your presentation be ready to tell the class about each sample.
- Write a letter to the U.S. Geological Survey. See the teacher for the address and what to order.
- Interview a geologist. Write a list of questions, then interview a geologist in person or over the phone. Tell what you learn to the class.
- Seriate a set of rocks or minerals by a property such as weight, diameter, circumference, or other property. Explain your methods to the class.
- Research the Mohs’ scale. Make a poster to show a mineral for each hardness, 1 through 10.
- Find some other rocks that you can test for calcite. Show what rocks you used, how you tested them, and what your results were.
- Use warm vinegar to see if you get different results in the fizz test.
- Check with the U.S. Department of Agriculture or a garden supply company to find out how limestone and its products are used in farming.
- Research the uses of Portland cement. What is it and how is it used?
- What is your state rock or mineral? Why was that one selected?
- Each county has a Natural Resources Conservation Service unit, part of the U.S. Department of Agriculture. Find out what information on local rocks and minerals is available from the NRCS.
- Take a survey around the neighborhood about how different earth materials are used for construction of buildings, sidewalks, roads, decoration, and so forth.
- Library Research. Find the answer to one of the questions below and present information to the class.
  - How do caves form?
  - How many forms of calcite are there?
  - How do rocks such as limestone and marble form?
  - What is a sinkhole? How does one form?
  - Where do geologists look for petroleum?
  - How are some of the rocks and minerals we studied used?
  - What is spelunking? Would you like to try doing it?
  - What is a fossil? What kinds of rocks are fossils found in?
  - Where is most of the basalt or granite on Earth?
- Look in the *Science Stories* or books in the library for ideas about projects you might like to present to the class.
- What kind of rocks and minerals were found on the moon?

Name \_\_\_\_\_

Date \_\_\_\_\_

# **FOSS EARTH MATERIALS MODULE**

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## **PROJECT PROPOSAL**

1. What is the question or the project that you are proposing?

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2. What materials or references will you need to complete the project?

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3. What steps do you need to take to complete the project?

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Name \_\_\_\_\_

Date \_\_\_\_\_

## PRESENTATION GUIDELINES

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You will have exactly 3 minutes to present your project to the class. In those 3 minutes you should answer these questions.

- What were you trying to find out (your question)?
- What materials or references did you need to do your project?
- What procedure did you follow to complete your project?
- What did you learn from doing your project?

When you begin speaking you will see the *green card* held up. When you see the *yellow card*, you have 30 seconds left. When you see the *red card*, it means you can finish your sentence, but you must stop within the next few seconds.

Practice your presentation so you will be sure it is at least 2 1/2 minutes long, but not more than 3 minutes long. Be sure you have included all of the information asked for above.

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Name \_\_\_\_\_

Date \_\_\_\_\_

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Name \_\_\_\_\_

Date \_\_\_\_\_

# **MATH EXTENSION—PROBLEM OF THE WEEK**

## **INVESTIGATION 1: MOCK ROCKS**

On his vacation Jay hunted for special rocks for his collection. On the first day he found two rocks. The next day he found four rocks. On each day of his vacation Jay found two more rocks than he had found the day before. On what day did Jay have 42 rocks in his collection?

Name \_\_\_\_\_

Date \_\_\_\_\_

# **MATH EXTENSION—PROBLEM OF THE WEEK**

## **INVESTIGATION 2: SCRATCH TEST**

Cheryl and Vincent were testing minerals for their hardness. After working all day they had tested 57 minerals. Cheryl tested nine more minerals than Vincent. How many minerals did each student test?

Name \_\_\_\_\_

Date \_\_\_\_\_

# **MATH EXTENSION—PROBLEM OF THE WEEK**

## **INVESTIGATION 3: CALCITE QUEST**

Josiah and Parisa were playing a game. They had agreed that, at the end of each round, the loser would give the winner a rock from his or her collection. After playing the game for a while, Josiah had won three games. Parisa had three more rocks than she did when they began. What is the fewest number of rounds they could have played?

Name \_\_\_\_\_

Date \_\_\_\_\_

# **MATH EXTENSION—PROBLEM OF THE WEEK**

## **INVESTIGATION 4 TAKE IT FOR GRANITE**

Anders, Catherine, Dustin, Yelda, Rocky, and Maren are rock collectors. Each collector has chosen some rocks from his or her collection to trade. Each collector is going to trade with every other collector. How many different pairs of collectors will trade with each other?



Name \_\_\_\_\_

Date \_\_\_\_\_

# HOME/SCHOOL CONNECTION

## INVESTIGATION 2: SCRATCH TEST

### BIRTHSTONES

Tell your family what you learned about birthstones from the FOSS Science Stories book. Tell them about the difference between rocks and minerals.

Ask family and friends when their birthday is and see if they know their birthstone. (If they don't, you can tell them!) Then complete the chart below and make a bar graph to show which month among your family and friends has the most birthdays.

Month	Birthstone	Name of person	Birthday month
January	Garnet	1. _____	_____
February	Amethyst	2. _____	_____
March	Aquamarine	3. _____	_____
April	Diamond	4. _____	_____
May	Emerald	5. _____	_____
June	Alexandrite	6. _____	_____
July	Ruby	7. _____	_____
August	Peridot	8. _____	_____
September	Sapphire	_____	_____
October	Opal	_____	_____
November	Topaz	_____	_____
December	Turquoise	_____	_____

Garnet	Amethyst	Aquamarine	Diamond	Emerald	Alexandrite	Ruby	Peridot	Sapphire	Opal	Topaz	Turquoise



Name \_\_\_\_\_

Date \_\_\_\_\_

# HOME/SCHOOL CONNECTION

## INVESTIGATION 4: TAKE IT FOR GRANITE

### EARTH MATERIALS HUNT

Use the clues to find items around your house that are made of earth materials.

1. See if you can find something made from bauxite. Bauxite (aluminum) can be refined into a very thin metal good for packaging liquids. \_\_\_\_\_

2. See if you can find something beautiful that someone might wear, made from an earth material. \_\_\_\_\_

3. Sometimes people use earth materials to make lamps and other decorative items for the home. Can you find something? \_\_\_\_\_

4. Look at the thermometer you use to find out if you have a fever when you're sick. Which part of the thermometer do you think is made from earth materials? \_\_\_\_\_

5. Look outside. Can you find something that you walk on everyday that is made from earth materials? \_\_\_\_\_

6. Can you think of a place that you have visited that had some interesting rocks or minerals? What is the name of the place? What was so interesting? \_\_\_\_\_

7. There is an earth material that most people eat all the time. Imagine that! Its mineral name is halite. It's shaped like little white cubes, and you use it a lot in cooking. \_\_\_\_\_