

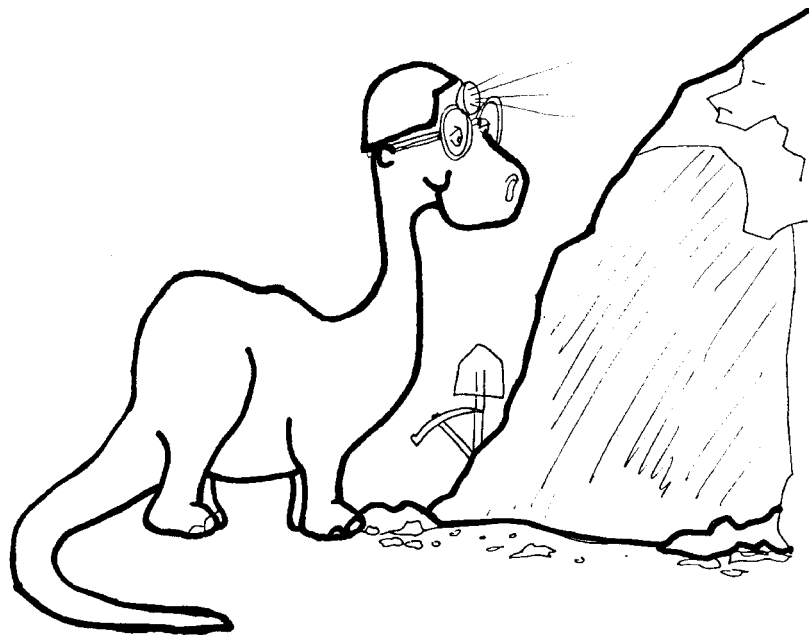


Rock Cycle

Understanding the Earth's Crust



FIFTH GRADE WORKBOOK



students _____

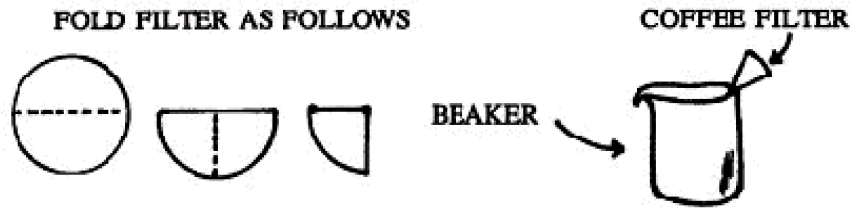
ROCK CYCLE - CHEMISTRY (5)
LAB

PROBLEM: How do substances dissolve?

PREDICTION: _____

PROCEDURE:

Exercise 1. beaker, water, salt, coffee filter (filter paper).
 Put about 300-400 ml of water in a beaker. Wrap 4 ml of salt in the coffee filter. Barely wet the tip of the filter on the surface of the water, as shown in the diagram, and observe what happens. Draw what you see in the space below.



Record what happens.

Exercise 2. salt, sugar, hot water, cold water, spoon

Measure 200 ml of cold water in a beaker. Measure 1 ml of salt and mix it into the liquid. Record whether or not it dissolves. Keep adding and mixing salt into the solution until it stops dissolving. Fill in the chart below as you go. Repeat the process using hot water. Repeat the entire process using sugar.

NUMBER OF ml								
	1	2	3	4	5	6	7	8
salt(cold)								
salt(hot)								
sugar(cold)								
sugar(hot)								

CONCLUSION: What have you observed?

ROCK CYCLE - CHEMISTRY (5)
POST

Log of your crystal growing experiment. Under day, record the type of conditions in the classroom and outside. Draw a picture or describe what the salt and/or sugar crystals look like on that day.

Day	Salt Solution	Sugar Solution
1		
2		
3		
4		

ROCK CYCLE - MINERALS (5A) LAB

PROBLEM: How can you tell if a mineral is hard or not?

PREDICTION:

PROCEDURE: Let's try to figure out the hardness of the minerals in your collection. We will develop a hardness scale by using a fingernail, a copper penny, and a steel nail as standards. State whether the following minerals are softer than or harder than the fingernail, copper penny and the steel nail.

	SOFTER THAN	HARDER THAN
galena		
gypsum		
feldspar		
copper		
hematite		
dolomite		
mica		
quartz		
pyrite		
calcite		

CONCLUSION:

Make a scale from the softest mineral (1 is the softest) to the hardest (10 is the hardest).

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

ROCK CYCLE - MINERALS (5B)
LAB

PROBLEM: Why are some minerals used in everyday products?

PREDICTION: _____

MATERIALS: silica gel, lead weight, wall paper, penny, concrete, porcelain, iron tie, landscape rock(s)

PROCEDURE: Look at the following substances and try to predict which mineral(s) are found in these products. Explain your answer.

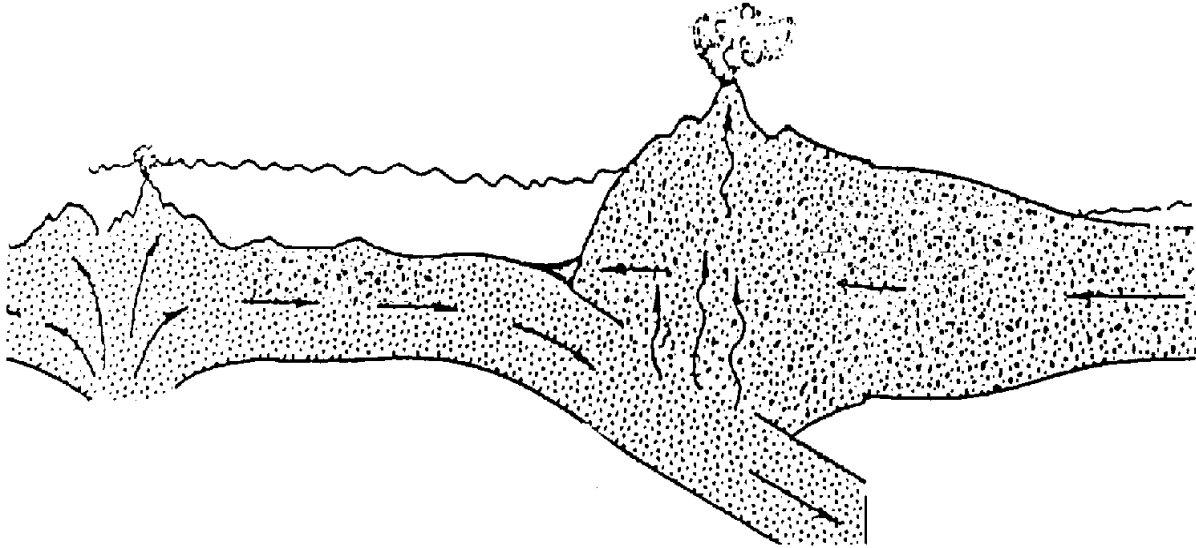
	MINERAL	REASON
silica gel		
gypsum board		
lead weight		
wall paper		
penny		
porcelain		
iron tie		
landscape material		
concrete		

CONCLUSION: Which of the minerals are easy to identify? Which are hard?

ROCK CYCLE - ROCKS (5A)

PRE LAB

Locate where igneous, sedimentary, and metamorphic rocks are formed. Color the igneous rock areas red, the sedimentary rock areas yellow, and the metamorphic rock areas green.



Where are sedimentary rocks usually created? Give examples of areas.

Where are igneous rocks usually created? Give examples of areas.

Where are metamorphic rocks usually created? Give examples of areas.

ROCK CYCLE - ROCKS (5A)
LAB

PROBLEM: Where do sand particles come from?

PREDICTION: _____

PROCEDURE: Examine the sand samples and describe their key characteristics. Use the sand chart to help measure the size of the grains, their sorting, and roundness. Look at the display rocks. Find which MOTHER ROCK(S) or minerals make up the sands. MOTHER ROCKS include chert, serpentinite, basalt, and granite.

SAND LOCALITY	DESCRIPTION OF SAND (size, sorting, roundness)	MOTHER ROCKS
HALF MOON BAY CENTRAL CALIF.		
BODEGA BAY, NORTHERN CALIF.		
MONTARA CENTRAL CALIFORNIA		
RODEO BEACH, MARIN NORTHERN CALIF.		

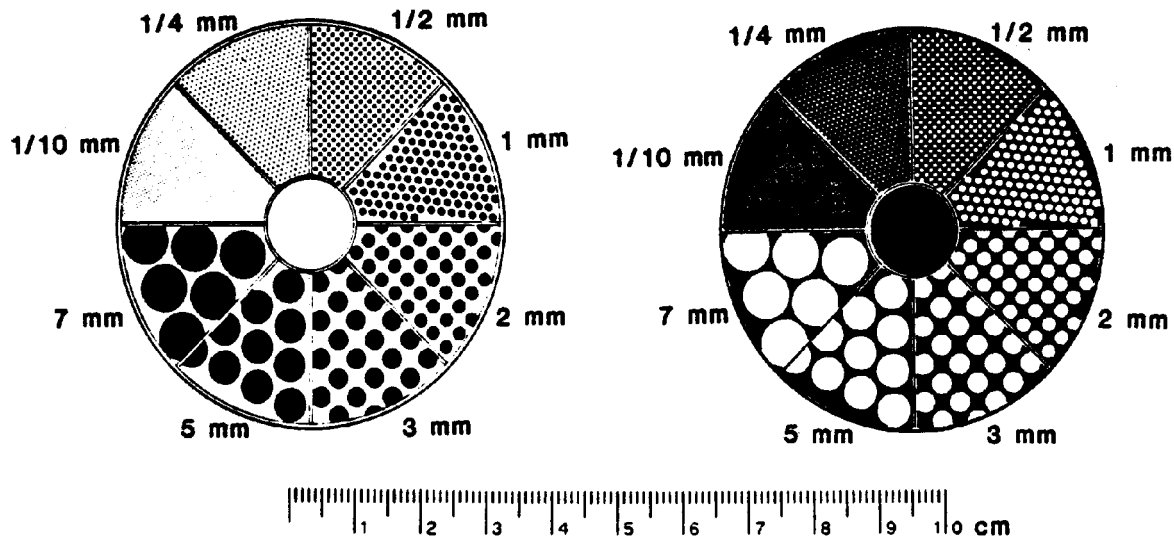
CONCLUSION: How can describing the sand reveal the rock from where it started?

ROCK CYCLE - ROCKS (5A)

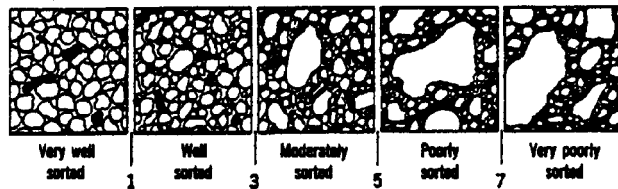
LAB

SAND IDENTIFICATION CHART

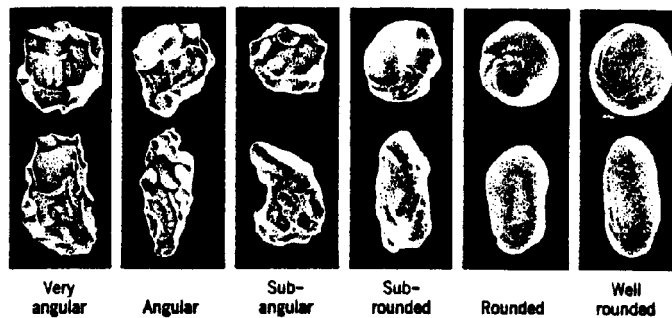
Sorting is the variety of grain sizes in a sample. Sands may be well sorted (all the same size) or poorly sorted (many different sizes). Roundness is the shape of the sand particle including angular, rounded or in between.



sorting



roundness



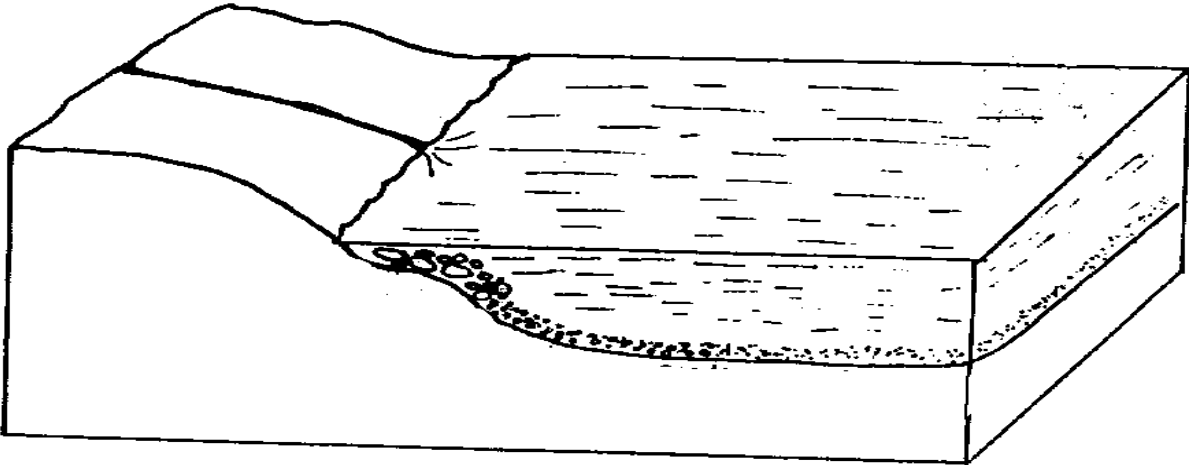
ROCK CYCLE - ROCKS (5A)

POST LAB

WHERE ARE SEDIMENTARY ROCKS FORMED?

This figure shows that heavy and/or large particles, moved by a river to the ocean, drop out first to the ocean bottom. The smaller the particles the longer it takes to settle out of the water. Sedimentary rocks form when particles (broken down rocks) are cemented together by minerals like calcite or quartz. Place a number on the diagram where you would find these sedimentary rocks:

1. SILTSTONE
2. CLAYSTONE
3. SANDSTONE
4. CONGLOMERATE (hint: cemented together gravel)

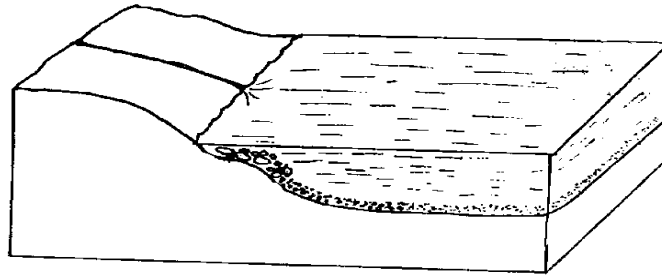


ROCK CYCLE - ROCKS (5B)
LAB

PROBLEM: Where are sedimentary rocks found?

PREDICTION: _____

PROCEDURE: Examine each of the sedimentary rock samples. On the chart below, describe each sample, and record where you think it formed on the picture below.



	DESCRIPTION	WHERE FORMED
sand		
sandstone		
diatomite		
mudstone		
conglomerate		

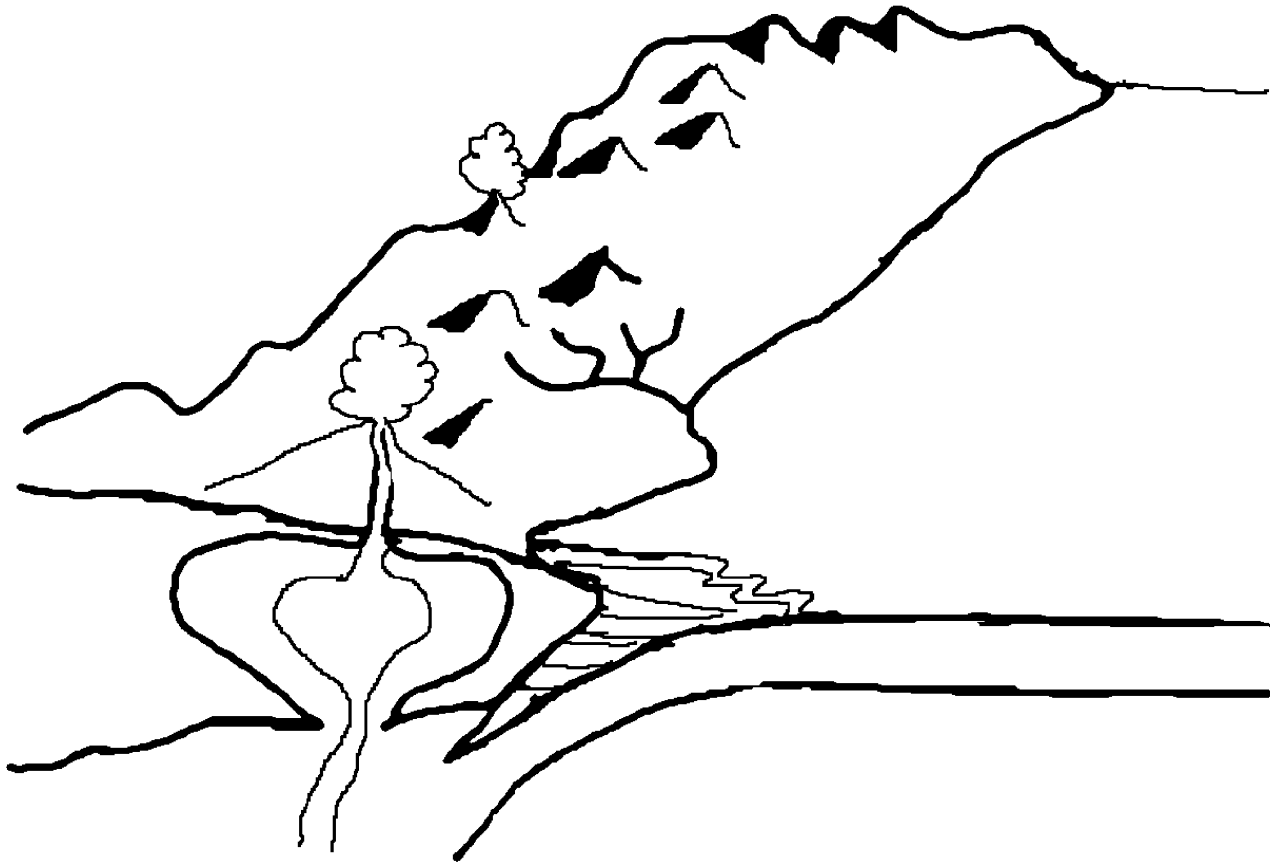
Chert and limestone are also sedimentary rocks. How do they differ from the samples above?

	DESCRIPTION	HOW IT DIFFERS
chert		
limestone		

CONCLUSION: Describe the environments in which sedimentary rocks are found.

ROCK CYCLE - ROCKS (5B)
POST LAB

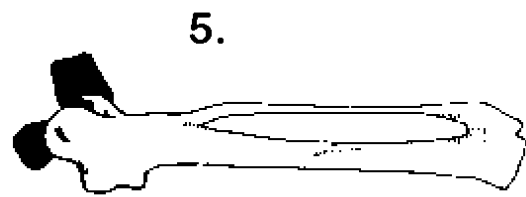
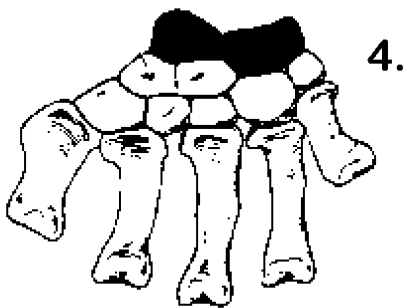
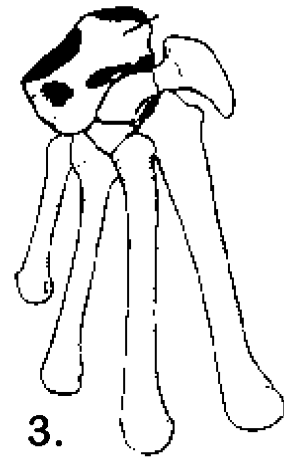
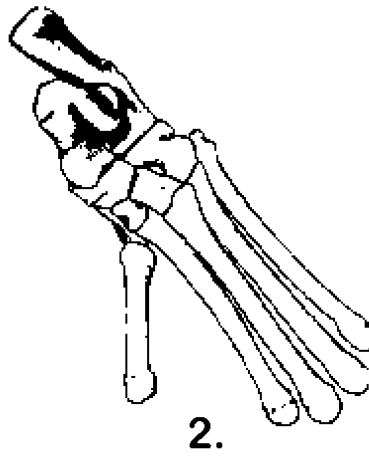
Create your own Rock Cycle. Use the following words in your "cycle." Weathering, Transportation, Deposition, Partial Melting, Uplift. Make sure you label areas where Sedimentary, Igneous (Plutonic and Volcanic), and Metamorphic Rocks are being produced.



ROCK CYCLE - PAST LIFE (5)
PRE LAB

Whose bones do the pictures belong to?

Choose your answer from: turtle, pelican, rhinoceros, lizard, or monkey



**ROCK CYCLE - PAST LIFE (5)
LAB**

PROBLEM: How can fossils be preserved?

PREDICTION: _____

PROCEDURE:

MATERIALS: two types of coral, scallop, snail, or other objects, plaster of Paris, clay, petroleum jelly, margarine dish, spoon

EXERCISE 1. Each group at a table will "fossilize" one organism. Your instructor will illustrate how to make the impression with plaster of Paris. However, BEFORE you make the impression, record what you think will be made by the impression.

ORGANISM	DRAW THAT YOU THINK THE IMPRESSION WILL LOOK LIKE	DRAW THE ACTUAL IMPRESSION

EXERCISE 2. Look at the fossils that were made by 5 different classmates. Can you determine what each object was before it became a fossil? Record what you think the fossil is, and then when your classmate states what it is, check your answer.

NAME OF CLASSMATE	WHAT ORGANISM IS IT AND WHY

CONCLUSION: Which "fossil" was preserved the best? Why?

The worst? Why?
