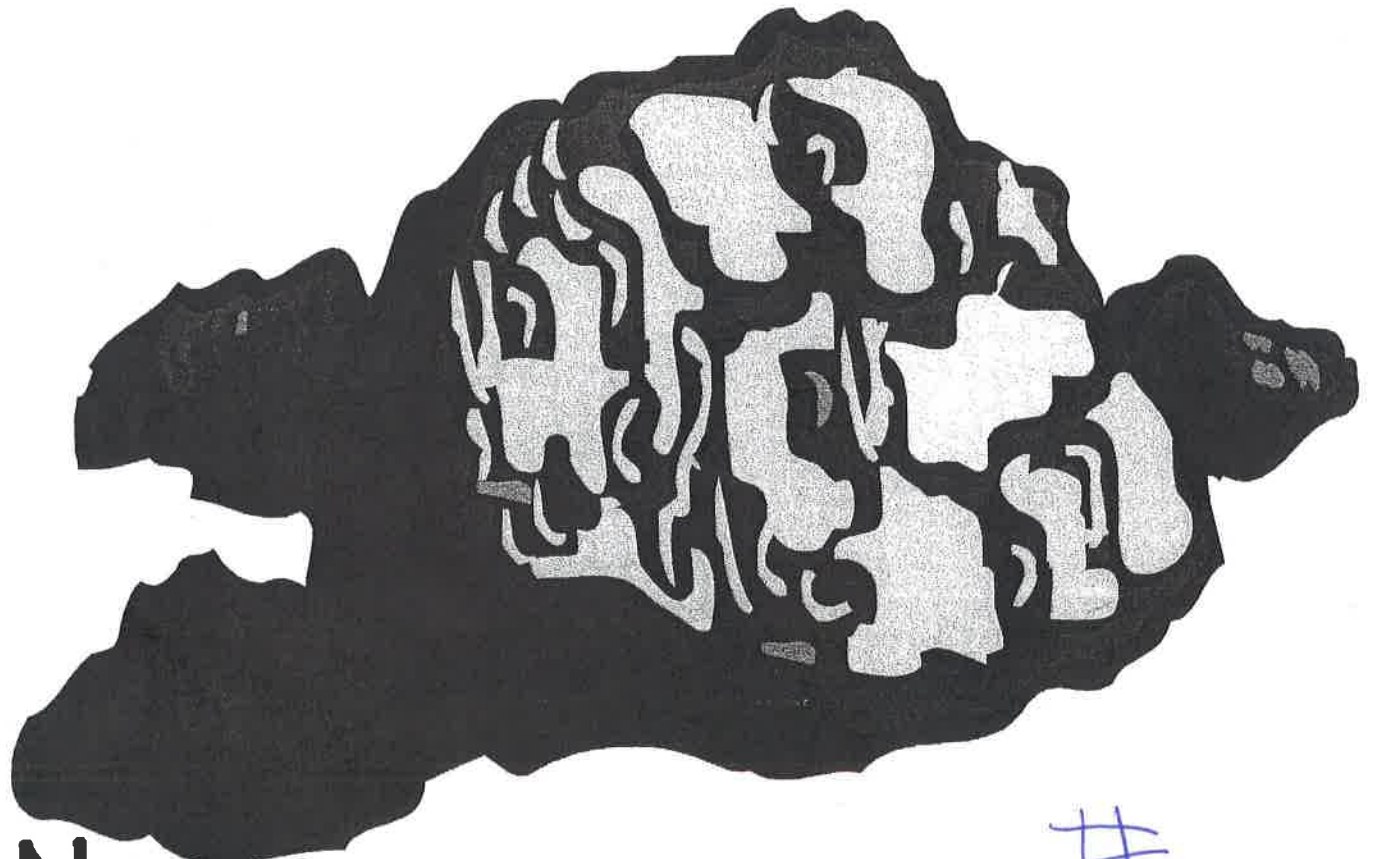


Rocks & Minerals



Name _____



Earth Materials

The earth is made of solids, liquids, and gases. Geologists call these earth materials. These earth materials are nonliving and make up the earth's interior, surface, or atmosphere. Geologists mainly study the solid materials called rocks. Geologists have discovered many kinds of rock.

Part of a geologist work is to find out the ingredients in different kinds of rocks. Many earth materials combine to make rocks, just as you combine the ingredients in a kitchen to make a cookie or raisin bread. Once a geologist knows a rock's ingredients, he or she can think of ideas about how the rock was formed.

In the field, geologist make careful observations and keep detailed records of the rock's appearance. Color, size, shape, texture, and mass (weight) are some of the properties a geologist records in his observations.



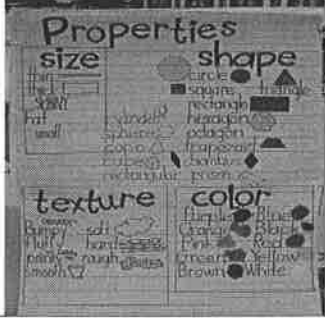



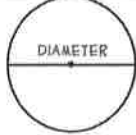
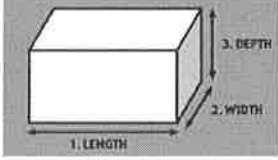
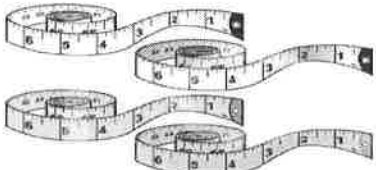
After observing the whole rock, a geologist makes breaks a sample of it into is different components (parts). To make more observations of the special materials that make up the rock the geologist may use lab equipment to perform chemical tests. Knowing what materials make up a rock gives clues about how the rock was formed and how we can use them.










Discoveries geologists have made about rocks help man to determine how we will use these earth materials for the things we build and use.

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Vocabulary

Word	Picture	Definition
1. Geology		<hr/> <hr/> <hr/>
2. Geologist		<hr/> <hr/> <hr/>
3. Property		<hr/> <hr/> <hr/>
4. Rock		<hr/> <hr/> <hr/>
5. Mineral		<hr/> <hr/> <hr/>
6. Circumference		<hr/> <hr/> <hr/>
7. Diameter		<hr/> <hr/> <hr/>
8. Depth		<hr/> <hr/> <hr/>
9. Meter tape		<hr/> <hr/> <hr/>

10. Balance		<hr/> <hr/> <hr/>
11. Mass		<hr/> <hr/> <hr/>
12. Texture		<hr/> <hr/> <hr/>
13. Luster		<hr/> <hr/> <hr/>
14. Dissolve		<hr/> <hr/> <hr/>
15. Crystal		<hr/> <hr/> <hr/>
16. Evaporate	 <p>And just as soon as he thought those words, he was flying! Up, up, up in the sky to his cloud. Drippy was evaporating!</p>	<hr/> <hr/> <hr/>
17. Evidence		<hr/> <hr/> <hr/>
18. Vinegar		<hr/> <hr/> <hr/>

19. acid



Properties

size

thin

thick

SKINNY

Fat

small

shape

circle

square

rectangle

hexagon

octagon

trapezoid

rhombus

rectangular prism

cylinder

sphere

cone

cube

triangle

texture

Bumpy

fluffy

pointy

smooth

soft

hard

rough

color

Purple

Orange

Pink

Green

Brown

Blue

Black

Red

Yellow

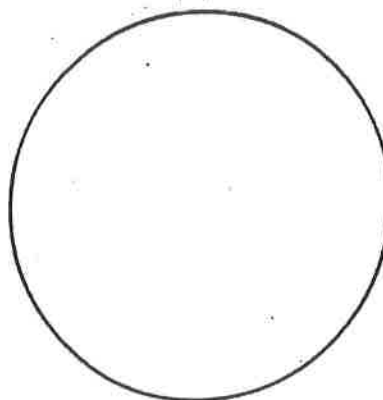
White

Date _____

MOCK ROCKS: What are the properties **PAGE 2**
of my mock rock?

Draw or trace your mock rock.

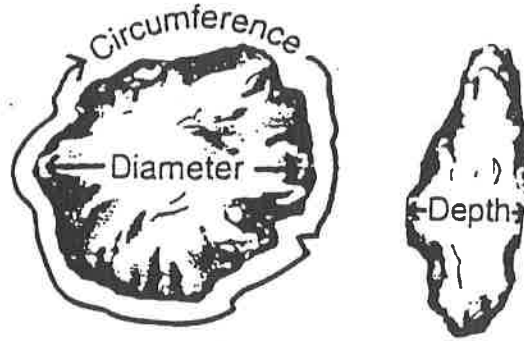
Observations



Magnified
view of
your rock

MOCK ROCKS

MOCK ROCK MEASUREMENTS DIMENSIONS



1. Diameter _____ cm

Tool used Measuring Tape

2. Circumference _____ cm

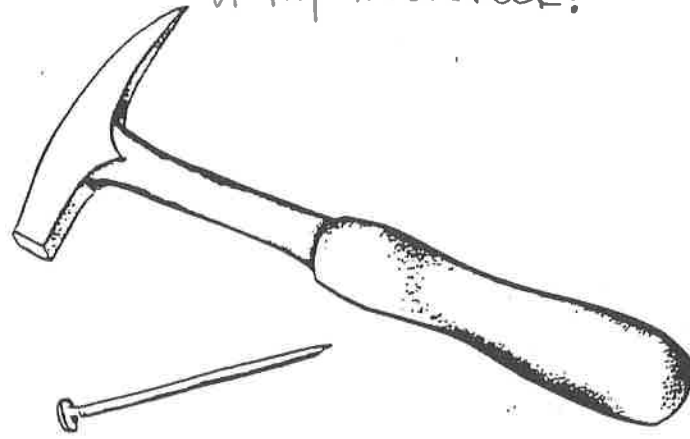
Tool used Measuring Tape

3. Depth _____ cm

Tool used Measuring Tape

4. Other measurements _____

MOCK ROCKS: What are the properties of my mock rock? **PAGE 4**



Observations about taking rocks apart with a "pick".

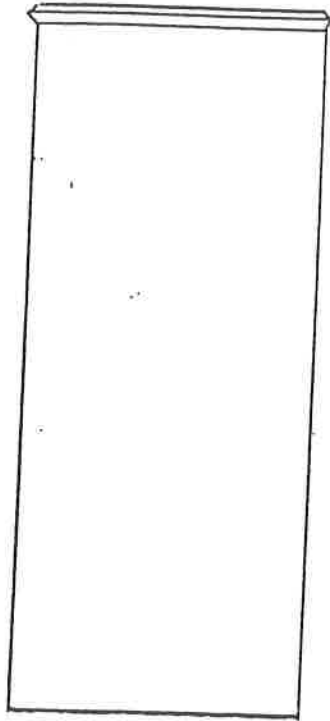
I have evidence to show the mock rocks contain these "minerals:"

Date _____

MOCK ROCKS

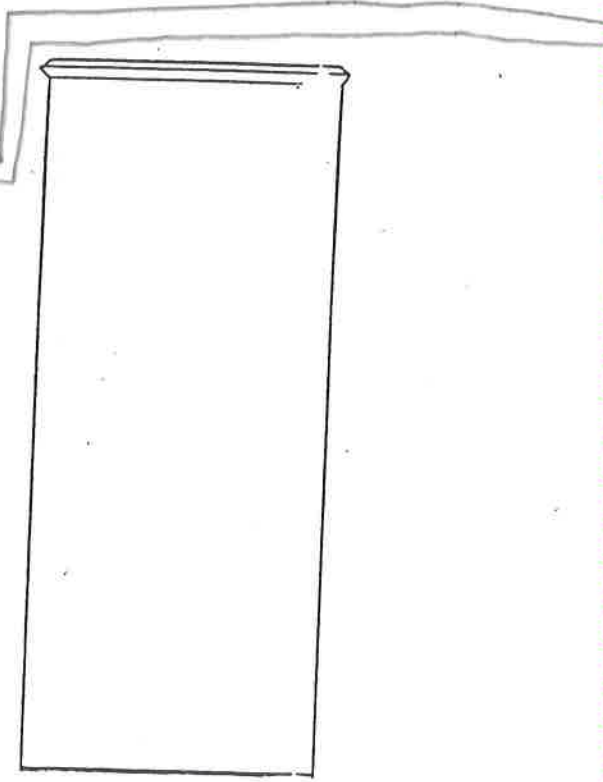
PAGE 5

ROCKS IN WATER



Observations after shaking

Date: _____



Observations after settling

Date: _____

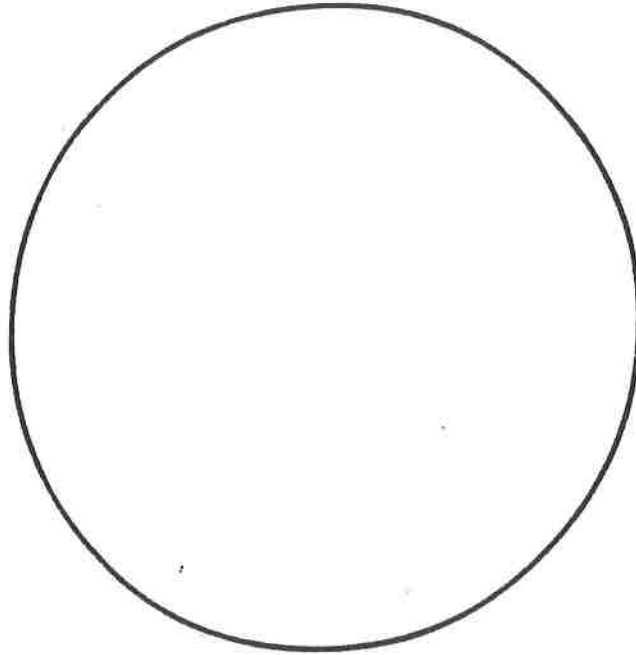
Date _____

MOCK ROCKS

PAGE 6

EVAPORATING DISH

Draw what you see in your evaporating dish.



Explain what you see and how it got there. (R.A.C.E. method)

MOCK ROCKS

.....

MOCK ROCK RECIPE

MOCK ROCK MINERAL INGREDIENTS

There is evidence to show all of the "minerals" listed below are in mock rocks.

How is a mock rock like a real rock? (RACE. method)

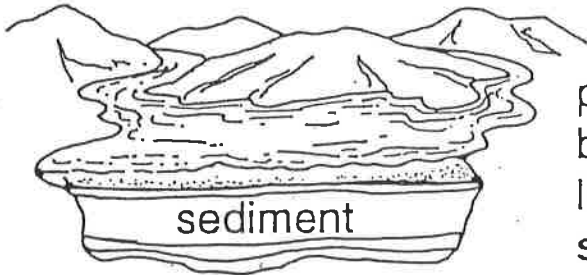
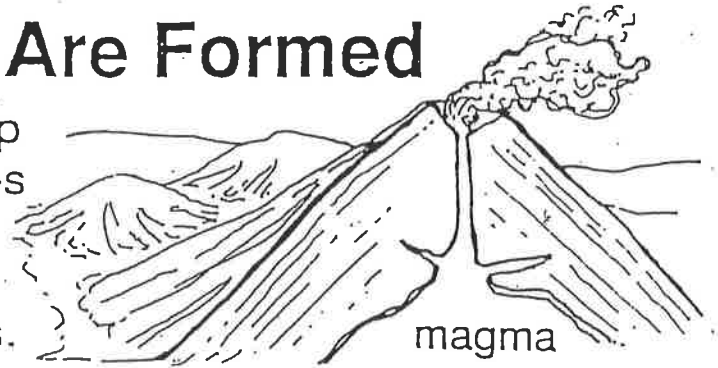
What types of rocks make up the Earth? How do they form? 7A

Name _____

Comprehension

How Rocks Are Formed

Melted rock called magma is deep within the earth. When magma comes up through openings in the earth's crust, it is called lava. Lava cools to form hard **igneous** (IG nee us) rocks.



Wind and water break rocks into small pieces. The small pieces settle at the bottom of rivers and oceans. These layers of sediment harden to form **sedimentary** (sed uh MEN tuh ree) rocks.

Heat and pressure deep inside the earth can cause igneous and sedimentary rocks to change. Rocks that are changed are called **metamorphic** (met uh MOR fik) rocks.

Write the correct word from the Word Box in each sentence below.

Word Box

rivers
Heat

changed
harden

pressure
Lava

Melted
pieces

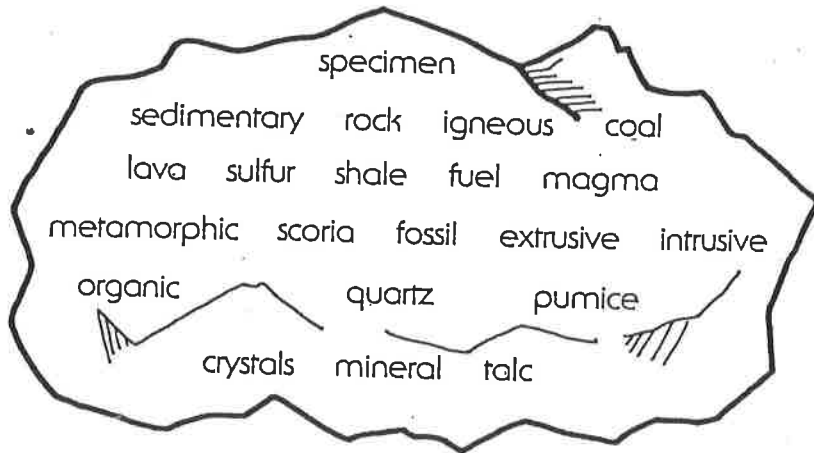
- _____ rock is called magma.
- _____ cools to form hard igneous rocks.
- Wind and water break rocks into small _____.
- Pieces of rock settle at the bottom of _____ and oceans.
- Layers of sediment _____ to form sedimentary rocks.
- _____ and _____ deep inside the earth can cause igneous and sedimentary rocks to change.


ROCKHOUND WORD HUNT

713



Be a rockhound. Find these words hidden in the puzzle.



Digging Deeper  Hidden in this puzzle are five mystery gems. Circle them and write their names here.

Name _____

Date _____

7C

RESPONSE SHEET

MOCK ROCKS

A student wrote in her journal, "A rock is like a chocolate chip cookie." What do you think she meant when she wrote that sentence? *(Make a connection and Use R.A.C.E.)*

SCRATCH TEST

What properties help me identify one mineral from **PROPERTIES** another mineral?

MINERAL 1

MINERAL 2

MINERAL 3

MINERAL 4

SCRATCH TEST

How does the scratch test help identify minerals?

HARDNESS

MINERAL	TOOL			How many tools could scratch this mineral?
	Paper clip	Penny	Fingernail	
1				
2				
3				
4				

List the minerals in order of hardness.

(Hardest)

Name _____

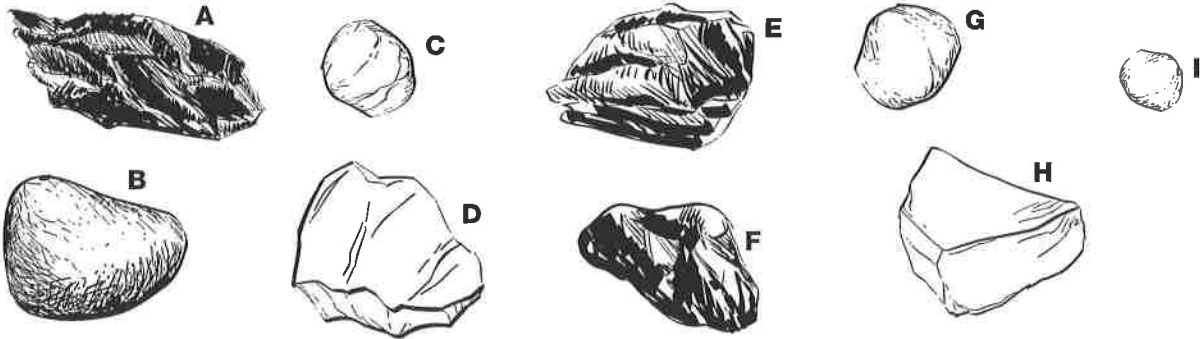
Date _____

FOSS EARTH MATERIALS MODULE

MINERAL PROPERTIES

9B

Look at the pictures of the minerals below.



TASK 1

Use the letters by the minerals to show which minerals could be placed in each group.



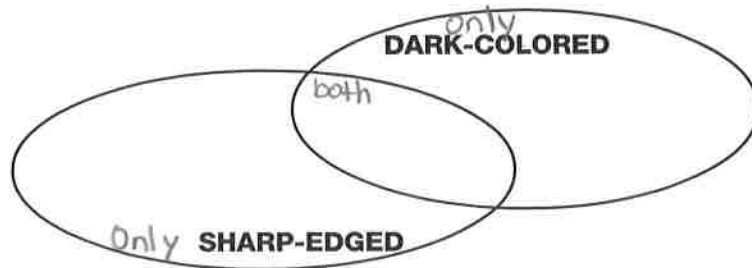
TASK 2

Use the letters by the minerals to show which minerals could be placed in each group.



TASK 3

Use the letters by the minerals to show which minerals could be placed in each group. Think carefully where you would put minerals that have more than one property.



TASK 4

On the back of this sheet, explain how you decided where to put the letters for task 3.

CALCITE QUEST

How does the Calcite Quest help identify rocks?
PROPERTIES

BASALT

LIMESTONE,

MARBLE

SANDSTONE

Date _____

CALCITE QUEST

PAGE 11

VINEGAR TEST

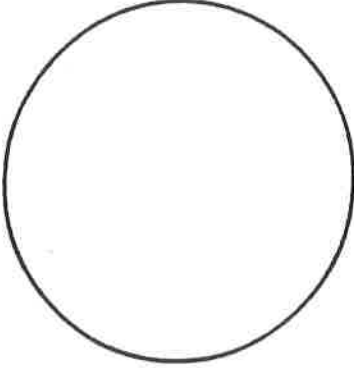
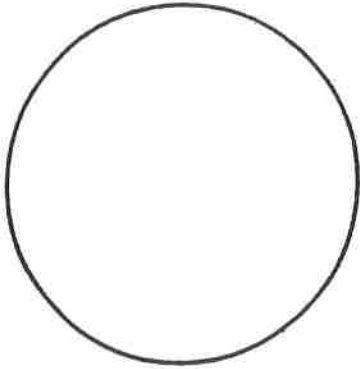
What did you observe when you put each rock in vinegar?
Write your observations below.

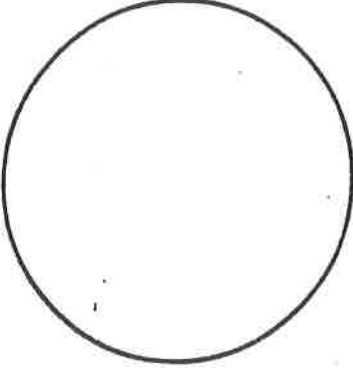
	Calcite
	Basalt
	Limestone
	Marble
	Sandstone

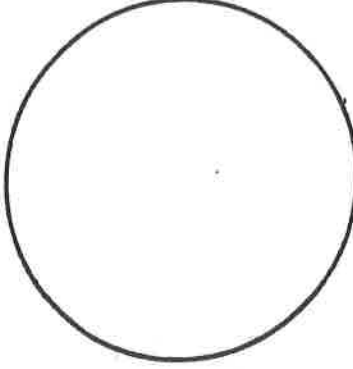
Put a check (✓) by the rocks that you think contain calcite.

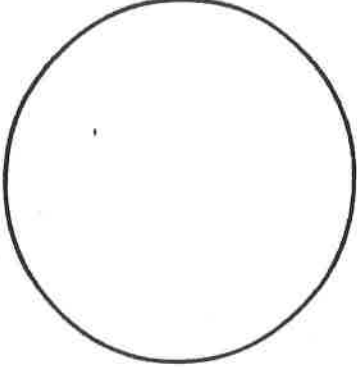
CALCITE QUEST

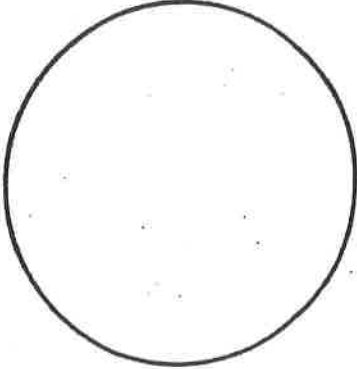
EVAPORATION RESULTS

	
Calcite	Vinegar


<input type="checkbox"/> Basalt


<input type="checkbox"/> Limestone


<input type="checkbox"/> Marble


<input type="checkbox"/> Sandstone

Put a check (✓) in the box next to the rocks that you are sure contain calcite.

Date _____

TAKE IT FOR GRANITE

PAGE 13

FELDSPAR Properties

Color _____

Hardness: Put a check (✓) after the tools that can scratch feldspar.

fingernail _____ penny _____ paper clip _____

Other observations

QUARTZ Properties

Color _____

Hardness: Put a check (✓) after the tools that can scratch quartz.

fingernail _____ penny _____ paper clip _____

Other observations

Date _____

TAKE IT FOR GRANITE

PAGE 14

MICA Properties

Color _____

Hardness: Put a check (✓) after the tools that can scratch mica.

fingernail _____ penny _____ paper clip _____

Other observations

HORNBLLENDE Properties

Color _____

Hardness: Put a check (✓) after the tools that can scratch hornblende.

fingernail _____ penny _____ paper clip _____

Other observations

Date _____

TAKE IT FOR GRANITE

PAGE 15

CALCITE Properties

Color _____

Hardness: Put a check (✓) after the tools that can scratch calcite.

fingernail _____ penny _____ paper clip _____

Other observations

GRANITE

Which minerals do you think are in granite? (B.A.C.E. method)

What's your evidence?

Mock Rocks

1. What are some of the properties of a mock rock?

2. How did you separate the ingredients in the mock rock? (List the steps.)

3. How were the mock rocks you took apart like real rocks?

4. How could you find out if there is salt in the ocean?

Scratch Test

1. Why do geologists do the scratch test?

2. What property are geologists focusing on when they do the scratch test?

3. Neither diamond nor quartz could be scratched with the hardest tool, the paper clip. What could you do to find out which is harder?

4. What would be a good use of very hard minerals like quartz?

Calcite Quest

1. What are some of the properties of calcite?

2. What property does calcite have that makes it different from other minerals?

3. How could you find out if calcite is used in the manufacture of bricks and cinder blocks?

4. Rain can sometimes be slightly acidic, like vinegar, depending on the air pollutants and other gases which it mixes. What effect do you think this acid rain can have on monuments and buildings made of limestone and marble?

Taking It for Granite

1. What is a mineral? Name 2.

2. What is a rock? Name 2.

3. How can you tell mica and hornblende apart?

4. What were the minerals found in granite?

5. If you found a new rock, how would you find out what minerals were in it?

6. Why do you think people use granite to construct bridges, buildings, and monuments?

7. What do you think is the most interesting property of a rock or mineral we have studied?

8. How do you think minerals get mixed together to make rocks?
