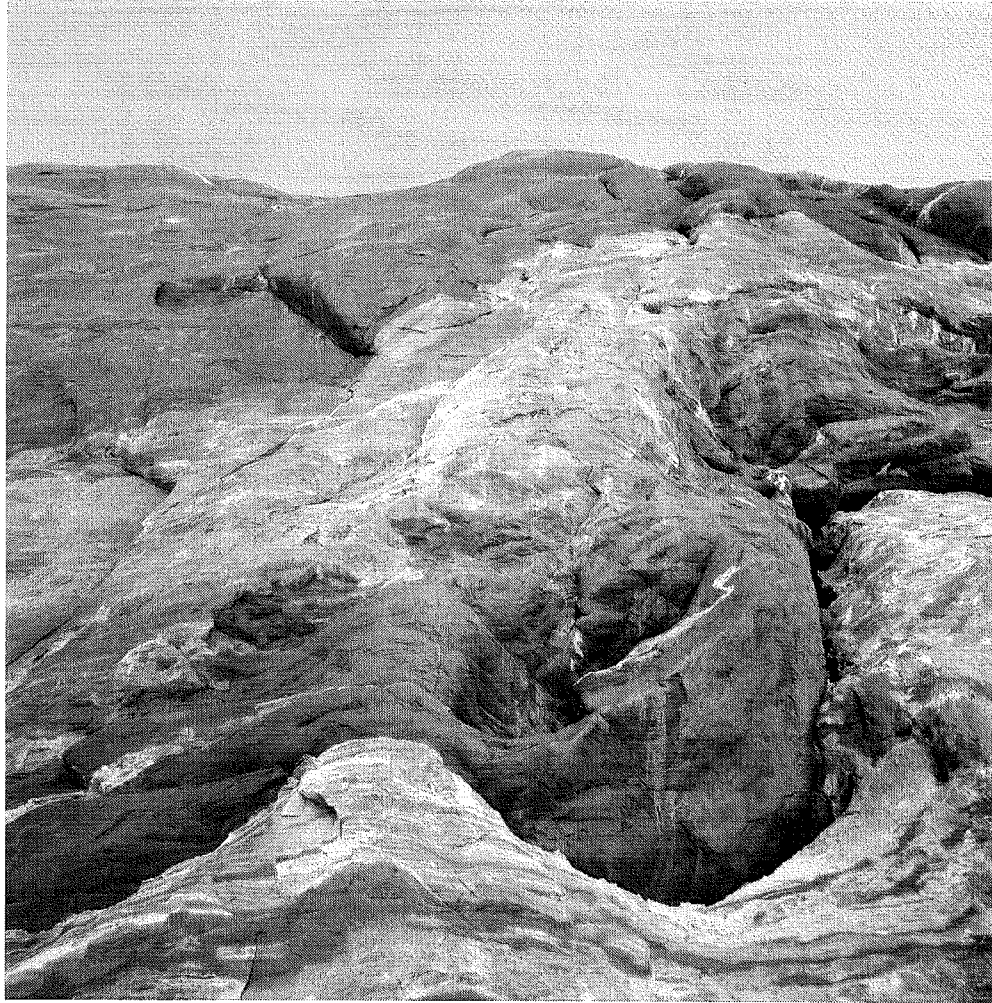


Rocks and Minerals



Name: _____

Name _____

Rock and Mineral Properties

Record the properties of your rock and mineral specimens.

Specimen Number	Color	Shape	Texture	Odor	Weight
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Name _____

Rock and Mineral Properties

Record the properties of your rock and mineral specimens.

Specimen Number	Color	Shape	Texture	Odor	Weight
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

Name _____

Making a Rock

Write the definition of each term below.

Sedimentary Rock: _____

Igneous Rock: _____

Metamorphic Rock: _____

Petrified Rock: _____

The Luster of Minerals

Write the name of the mineral next to its specimen number. Examine each specimen with a magnifier. Place an X in each column that applies.

Specimen Number	Luster					
	Metallic	Nonmetallic				
		glassy	pearly	greasy	silky	dull
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

The Hardness of Minerals

Test the hardness of your mineral specimens. Use the following objects: your fingernail, a copper penny, a steel nail, and a glass plate.

Write *yes* or *no* in the boxes. Write the Mohs scale rank in the last column.

Write the name of the mineral next to its specimen number.

Specimen Number	is scratched by			scratches glass	Mohs Scale Number
	fingernail	penny	nail		
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Mohs Scale of Hardness	
Mohs Scale Number	Common Tests
1	scratched by fingernail
2	
3	scratched by copper penny
4	scratched by steel nail
5	
6	scratches glass
7	
8	
9	
10	scratches all common materials

The Streak Test

Predict what color streak each of the mineral specimens will leave. Then test your specimens on the streak plates. Write your observations. Some colors you will observe are greenish black, gray, white, and colorless.

Specimen Number	Predictions	Observations
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Name _____

WARNING — This set contains chemicals that may be harmful if misused. Read cautions on individual containers carefully. Not to be used by children except under adult supervision.

(The chemical used in this activity is vinegar.)

The Acid Test

Perform the acid test on all 10 specimens and record your observations.
Possible observations will include *no reaction*, *bubbles formed*, and *dissolved*.

Specimen Number	Observations
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Name _____

Mineral Data Sheet

Calcite Specimen No. _____

Physical Characteristics: looks glassy, has smooth surface, can be scratched by steel, powder bubbles in vinegar

Mohs Number 3

Crystal Shape: hexagonal

Copper Sulfide Specimen No. _____

Physical Characteristics: has a metallic brassy, gray, or bluish shine, can be scratched by steel

Mohs Number 5.5–6

Crystal Shape: tetragonal

Feldspar Specimen No. _____

Physical Characteristics: usually white or pink, has a pearly shine, breaks into flat pieces

Mohs Number 6

Crystal Shape: triclinic

Galena Specimen No. _____

Physical Characteristics: is heavy, has a bright, silvery-gray, metallic shine, is a soft mineral, can be scratched by steel

Mohs Number 2.5

Crystal Shape: cubic

Halite Specimen No. _____

Physical Characteristics: usually transparent and colorless, feels sticky, can stand up on any side, dissolves easily in water

Mohs Number 2.5

Crystal Shape: cubic

Mica Specimen No. _____

Physical Characteristics: has pearly shine, splits into thin, transparent sheets

Mohs Number 2–2.5

Crystal Shape: monoclinic

Pyrite Specimen No. _____

Physical Characteristics: has a shiny brassy color, cannot be scratched by steel

Mohs Number 6–6.5

Crystal Shape: cubic

Quartz Specimen No. _____

Physical Characteristics: looks glassy, is very hard, cannot be scratched by steel

Mohs Number 7

Crystal Shape: hexagonal

Sulfur Specimen No. _____

Physical Characteristics: in pure form, is usually light yellow, crystals are almost transparent; other pieces glisten and look greasy, can be scratched with a fingernail, has an identifiable, pungent odor

Mohs Number 1–1.5

Crystal Shape: orthorhombic

Talc Specimen No. _____

Physical Characteristics: usually apple-green, white, or gray, has a pearly shine, feels greasy, is fine-grained, is so soft it can be scratched with a fingernail

Mohs Number 1

Crystal Shape: monoclinic

WARNING — This set contains chemicals that may be harmful if misused. Read cautions on individual containers carefully. Not to be used by children except under adult supervision.

(The chemicals used in this activity are ammonia, bluing, and salt.)

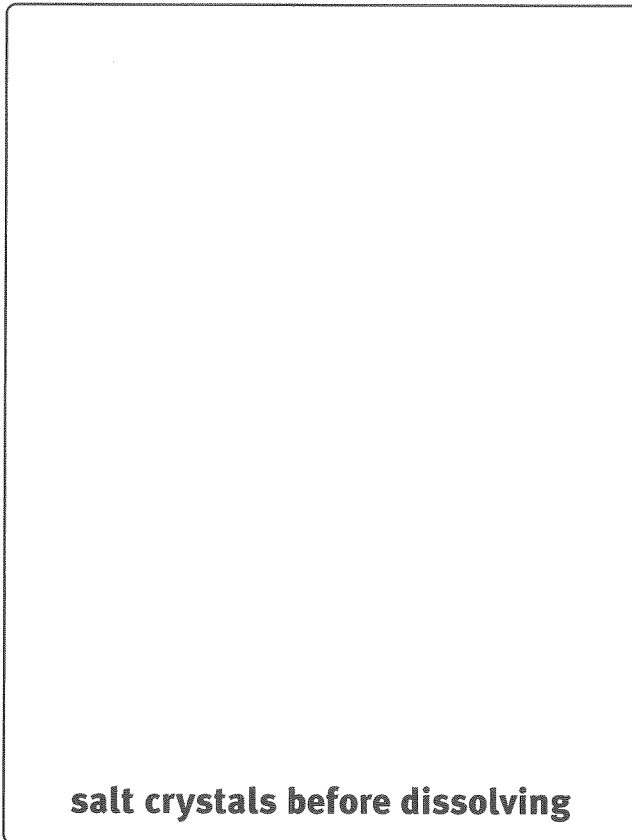
Growing Crystals

1. What shape do you think your salt crystals will be after you dissolve and recrystallize them?

Prediction: _____

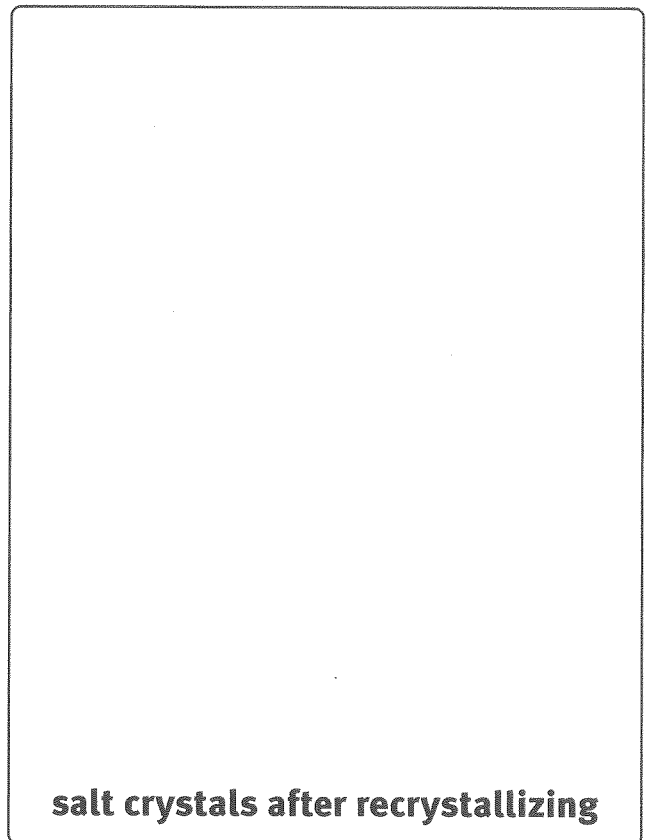
2. Draw how your crystals look before you dissolve them.
Then draw how they look after they recrystallize.

Before:



salt crystals before dissolving

After:



salt crystals after recrystallizing

3. What do you observe about the appearance of the crystals?

Observation: _____

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(The chemical used in this activity is vinegar.)

Investigating the Rock Models

Model rock ingredients: _____

Mineral Component	Luster	Hardness	Streak	Acid Test

Layers

Predictions	Observations

Crystals

Predictions	Observations

WARNING — This set contains chemicals that may be harmful if misused. Read cautions on individual containers carefully. Not to be used by children except under adult supervision.

(The chemical used in this activity is vinegar.)

Identifying Rocks

1. Look at the rock specimens (11–24). Four are sedimentary, four are igneous, four are metamorphic, and two are petrified. Use the data on the Classes of Rock chart and your observations to identify the sedimentary, igneous, and metamorphic rocks. Then identify the specimens that were formed by petrification. Fill in the specimen numbers. Write brief descriptions of the properties.
2. Compare the properties you have added below with the information on the Rock Data Sheet. Fill in the name of each specimen next to its number.

Specimen Number/Name

Specimen Properties

Sedimentary

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Igneous

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Metamorphic

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Petrified

_____	_____	_____
_____	_____	_____

Name _____

Rock Data Sheet

Basalt Specimen No. _____

Origin: igneous
Color: dark gray, dark green, brown, or black
Mineral Content: feldspar
Physical Characteristics: fine-grained, porous (caused by the formation of gas bubbles during solidification), relatively light weight

Chalk Specimen No. _____

Origin: sedimentary
Color: white
Mineral Content: calcium carbonate, quartz, pyrite
Physical Characteristics: soft, porous, powdery surface

Coal Specimen No. _____

Origin: metamorphic
Color: black
Mineral Content: metamorphism of vegetable matter
Physical Characteristics: leaves a black residue, shiny surface

Fossil Gastropods

Specimen No. _____

Origin: sedimentary
Color: multi-colored
Mineral Content: calcium carbonate (shells)
Physical Characteristics: surface is shell-marked, dull surface

Granite Specimen No. _____

Origin: igneous or metamorphic
Color: light pink or light gray
Mineral Content: quartz, feldspar, and mica
Physical Characteristics: visible crystals, coarse-grained, sparkling surface

Limestone Specimen No. _____

Origin: sedimentary
Color: light, but varies with composition
Mineral Content: calcium carbonate
Physical Characteristics: texture varies from fine to coarse (shells and shell pieces), dull surface

Marble Specimen No. _____

Origin: metamorphic
Color: uniform or streaks and swirls (this sample is white)
Mineral Content: metamorphism of limestone
Physical Characteristics: sparkling surface, coarse grained, mosaic pattern (marble cake)

Obsidian Specimen No. _____

Origin: igneous
Color: usually black
Mineral Content: cooled too quickly for mineral content to crystallize
Physical Characteristics: glassy surface, sharp edges

Petrified Wood

Specimen No. _____

Origin: result of petrification (to change into stone)
Color: red, yellow, or orange
Mineral Content: quartz, calcite, pyrite, volcanic ash
Physical Characteristics: varies depending on the organic matter petrified, smooth texture with sharp edges

Pumice Specimen No. _____

Origin: igneous
Color: light
Mineral Content: quartz, feldspar, and silica
Physical Characteristics: light weight (will float in water), silky glass fibers, porous (many air holes)

Sandstone Specimen No. _____

Origin: sedimentary
Color: uniform light gray
Mineral Content: quartz, feldspar, and smaller rock fragments
Physical Characteristics: grainy, gritty, sand-sized particles

Shale Specimen No. _____

Origin: sedimentary
Color: dark gray
Mineral Content: 25–50% quartz, feldspar
Physical Characteristics: splits into thin layers

Slate Specimen No. _____

Origin: metamorphic
Color: dark brown, dark gray
Mineral Content: metamorphism of shale
Physical Characteristics: splits into thin layers

Quartzite Specimen No. _____

Origin: metamorphic
Color: light
Mineral Content: metamorphism of sandstone
Physical Characteristics: sparkling surface

Applications—Past and Present

Prehistoric and Ancient Times	
Tools/Weapons	Research
Shelter/Buildings/Monuments	
Other	

Modern Times	
Construction	Research
Environmental Protection	
Tools/Weapons	
Electronics	
Health/Medicine	
Other	

Think of as many household uses of rocks and minerals as you can. List them on the back of this sheet.

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(The chemical used in this activity is vinegar.)

A Field Trip

Field Trip Notes

Description of Specimen	Test Performed (optional)	Predicted Identity	Actual Identity