

INSTRUCTOR \_\_\_\_\_ PERIOD \_\_\_\_\_ NAME \_\_\_\_\_  
PARTNER \_\_\_\_\_

## TOPIC XI: The Formation of Rocks

### LAB 11-1: PROPERTIES OF MINERALS

**INTRODUCTION:** Of some 2,200 known minerals, only about a dozen, called "common rock-forming minerals," make up most of the earth's crust. They are identified in the field with a few simple physical tests and observations. This is possible because the physical properties are remarkably constant in a mineral no matter how old it is or where it was formed. In addition to physical tests, there are also some useful diagnostic chemical tests which can be used in mineral identification.

**OBJECTIVE:** You will identify mineral samples by their physical and chemical properties.

#### VOCABULARY:

mineral:

crystal:

inorganic:

luster:

streak:

hardness:

cleavage:

fracture:

specific gravity:

chemical properties:

**PROCEDURE:**

1. Obtain a mineral tray and identification kit from your instructor.
2. Check that the twelve mineral samples are in the correct order by matching them to the model tray provided by your instructor.
3. Determine the properties for each of the minerals and record your observations on the Report Sheet.

**If you perform the acid test  
YOU MUST WEAR GOGGLES.**

4. Have your instructor check your Report Sheet after completing Procedure 3.
5. Find the name for each of the mineral samples using your Report Sheet and the reference chart provided by your instructor.

**HARDNESS SCALES**

<u>Mohs Hardness Scale</u>	<u>Mineral</u>	<u>Simple Test</u>
1	talc	fingernail scratches it easily
2	gypsum	fingernail scratches it
3	calcite	copper penny just scratches it
4	fluorite	steel nail scratches it easily
5	apatite	steel nail scratches it
6	feldspar	steel nail won't scratch it it scratches window glass
*7	quartz	it scratches steel and hard glass
8	topaz	harder than any common mineral (scratches quartz)
9	corundum	it scratches topaz
10	diamond	hardest of all minerals

\*quartz is the hardest common mineral

REPORT SHEET

Data Chart for Mineral Identification

Sample #	Hardness (harder or softer than glass)	Breakage (cleavage or fracture)	Streak (powder color)	Luster (metallic or nonmetallic)	Color of mineral	Special notes (if any)	Name of mineral
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

## **Discussion Questions**

1. What is the difference between cleavage and fracture?
2. Why is color not a reliable means of identifying a mineral?
3. Why is streak a more reliable property than color in mineral identification?
4. What determines a mineral's hardness?
5. What is the chief factor in distinguishing calcite from halite?