

chemical properties:

specific gravity:

fracture:

cleavage:

hardness:

streak:

luster:

inorganic:

crystal:

mineral:

VOCABULARY:

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

INTRODUCTION: Of some 3,000 known minerals, only about a dozen called "common rock-forming minerals" make up most of 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 by which minerals can be identified.

LAB 2-2: PROPERTIES OF MINERALS

UNIT 2: Earth Materials

NAME _____
INSTRUCTOR _____
PERIOD _____
DATE _____
PARTNER _____

HARDNESS OF SOME COMMON OBJECTS	
6.5	Streak plate
5.5	Glass plate
4.5	Iron nail
3.5	Penny or copper wire
2.5	Fingernail

HARDNESS SCALES		
Mohs Hardness Scale	Mineral	Simple Test
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
*7	quartz	it scratches window glass
8	topaz	it scratches steel and hard glass
9	corundum	harder than any common mineral
10	diamond	(scratches quartz) it scratches topaz hardest of all minerals

*quartz is the hardest common mineral

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 charts in the Appendix.

REPORT SHEET

DATA CHART FOR MINERAL IDENTIFICATION

Sample	Hardness Range	Type of Fracture or No. of Cleavage Planes	Specific Gravity (Lt., Med., Hvy.)	Color	Streak	Type of Luster	Any Special Notes	Name of Mineral
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

b) Why are other mineral properties less useful for identification?

a) List the properties which are most useful in identifying minerals.

CONCLUSION:

6. A mineral has a specific gravity of 7.0. What does this mean?

5. What mineral is usually identified by using the acid test?

4. How is the hardness range for a mineral determined?

3. Why is streak a more reliable property than color in mineral identification?

2. Why is color alone not a reliable means of identifying a mineral?

1. What is the distinction between cleavage and fracture?

DISCUSSION QUESTIONS: (Answer in Complete Sentences)