

Sec: _____ Name: _____

Experiment: Mineral Identification Experiment
(E. Science 9-3-2a)

Purpose: To identify minerals by looking at their physical properties.

Materials: **Part A** mineral samples hand lens
pan balance graduated cylinder water
copper penny glass slide steel file
5% hydrochloric acid in dropper
streak plate goggles

Mohs Scale of Hardness Appendix M & N

Part B: transparent samples of muscovite,
gypsum, halite or quartz, and calcite

Methods:

Part A: Mineral Identification

1. Use the hand lens to examine the mineral samples. Determine and record the luster, hardness, streak, cleavage or fracture, and color of each sample.
2. Test the samples for special properties such as reaction to hydrochloric acid.
CAUTION: HCl may cause burn. If spillage occurs, rinse with water. **Wear your goggles.**
3. Record all observable characteristics in the results table.
4. Use appendix M & N to help you identify the type of mineral tested. Record name.

Part B: Unique test for calcite

1. Select any mineral sample except calcite. Place sample over print on this page.
2. Note your observations on the chart in part B of results.
3. Repeat these steps with each mineral.
4. Repeat the experiment with the sample of calcite.

Results:

Part A: Mineral Identification

Mineral	Luster	Hardness	Streak	cleavage/		other	Mineral Name
				fracture	color		
A							
B							
C							
D							
E							

Part B: Unique test for calcite

mineral	Comments
muscovite	
gypsum	
halite/quartz	
calcite	

Conclusions:

1. What property was most useful to you in mineral identification? Why?
2. Which test was most difficult to perform? Why?
3. What property was least helpful in identifying minerals? Why?
4. Describe any differences that you observed in part B of the experiment.
5. What happens to light as it passes through these minerals (question 4)?

Discussion:

1. How are minerals identified.
2. Do Applying Science on page 70 and write the answer here.
 - 1a.
 - 1b.
 - 2a.
 - 2b.
 - 3.

3. Match the terms in column I with the phrases in column II. Write the letter of the correct phrase in the blank.

Column I

- _____ 1. cleavage
- _____ 2. diamond
- _____ 3. fracture
- _____ 4. hardness
- _____ 5. mica
- _____ 6. luster
- _____ 7. Mohs
- _____ 8. quartz
- _____ 9. streak
- _____ 10. talc

Column II

- a. The measure of how easily a mineral can be scratched.
- b. Name given to the scale of hardness.
- c. One of the softest known minerals.
- d. The hardest known mineral.
- e. Reflection of light from a mineral's surface.
- f. Color left by powdered mineral on unglazed porcelain.
- g. Tendency to break along smooth, flat surfaces.
- h. A common mineral that breaks along smooth, flat surfaces.
- i. Tendency to break with rough or jagged edges.
- j. A common mineral that breaks with rough or jagged edges.

4. Gold is mentioned 416 times in the Bible. Read I Peter 1: 3 - 9. What is of greater value than gold?

5a. So much money is spent in our society trying to make our outward appearance look good or wearing a lot of jewelry. Read I Sam 16:7, Matthew 23:27-28 and comment on what should be our emphasis in our appearance

5b. Read I Peter 3:3-4. Be specific as you comment on what is "precious in the sight of God"?

6. Read Rev. 21: 19 - 20. Record the twelve foundation stones of the New Jerusalem.

- | | | | |
|----|----|----|----|
| a. | b. | c. | d. |
| e. | f. | g. | h. |
| i. | j. | k. | l. |