

1st Paragraph - Google Docs - 11/4/16

3-4 ~~■~~ Sentences to introduce experiment → "use P. 80-81."

Next 3 sentences in this Order:
- Compose your own ideas

- P. 83 -

Sec. 2
information

Problem question

Purpose Stmt.

Hypothesis Stmt.

Do Not Use:

1. Any word or Group of words

Repeatedly - "I"

2. "It", "they", "and" "because"

Transition words:

1. Look in ~~the~~ Thesaurus

2. Writing Tools

* For Sentence Starters and Endings

3. White Board in Class

Data Table Headings: 1/5/16

Requirements: "OR" → Capitals

Sample #	Hardness {Moh's } {Scale }	Cleavage OR Fracture	Luster (Metallic) OR (Non-Metallic)	Streak (color)	Color
				<div>Note: Do Not Simply Primary Colors.</div>	
				<div>"13h"</div>	
				<div>Use Several color word combinations</div>	

My test Results

Pick 1 Mineral you tested
From the Data table -
(correctly or Incorrectly ID)

Sample #11 - Chert ~~Barite~~
Color: blackish-Dark reddish
Hardness: 4.2-4.9 ✓

Cleavage

Luster: Non Metallic

Streak: creamy white

Sp. Gr.: 1.2 g/cm³

Professional Mineral

Identification Manual (Book)

OR

Online Professional

Mineral Site

~~Barite~~ Barite ✓

Color: White ✓

Hardness: 2.0-2.5 ✓

Fracture

Luster: Non Metallic

Streak: Colorless to

white

Sp. Gr.: 2.58-2.6

Conclusion:

1/21/14

1. In 2-3 Sentences, explain how your Hypothesis was correct or Incorrect.

Idea to consider about why your educated guess/hypothesis was incorrect or correct.

- a.) Testing errors
- b.) Careless Measurements
- c.) Using your Data incorrectly while looking in the Mineral Identification book to find the sample identity
- d.) Did not Repeat Trials

2) Explain how you could have named (or did name correctly) the Mineral in your comparison

Paragraph (Para. #2) by changing some testing methods OR

How you named correctly

EXAMPLE: Please Do Not Copy.

Investigation focused on identifying unknown minerals by analyzing physical properties. 1/13/16

The issue focused on in the following comparison is identifying unknown minerals. As a result of my experimentation, I identified

mineral #13 as Chert. However, the correct name of #13 was Barite. I

analyzed several physical properties of sample #13. For example, the

color observed ^{for} of #13 was blackish, greyish, white. On the other

hand, the color of Barite in the Mineral Identification Book stated the

color as colorless, white, ~~black~~, blue, red, green, or brown. Next, I

examined the hardness for sample #13. I evaluated the sample #13

compared to Moh's scale of Hardness. I acquired a hardness of 4.2 to

4.9 for #13. Similarly, the hardness of Barite is 4.3 to 4.6. That aside, I

analyzed whether Sample #13 demonstrated Cleavage or Fracture.

The evidence suggests that #13 demonstrates Cleavage. This is in

contrast to Barite which is observed to be defined as Fracture.

Furthermore, sample #13 has a non-metallic luster. In contrast to

Barite which has a metallic luster. Equally important is a Mineral's

streak color. Sample #13 proved to have a creamy white streak color.

Whereas Barite exhibits a colorless streak. Another essential

physical property I evaluated was the Specific Gravity or Density of

#13. The outcome of my testing produced a density of 7.2 g/cm³ for

Mineral Identification

Goals

- **Hypothesize** which properties of each mineral are most useful for identification purposes.
- **Test** your hypothesis as you attempt to identify unknown mineral samples.

Materials

mineral samples
magnifying lens
pan balance
graduated cylinder
water
piece of copper
*copper penny
glass plate
small iron nail
steel file
streak plate
5% HCl with dropper
Mohs scale of hardness
Minerals Appendix
*minerals field guide
safety goggles
*Alternate materials

Safety Precautions



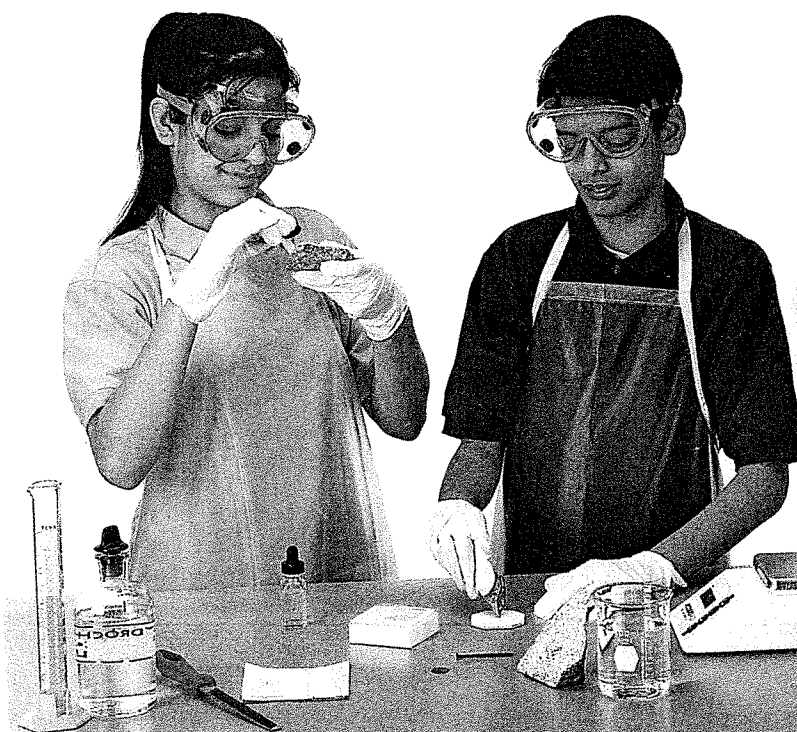
WARNING: If an HCl spill occurs, notify your teacher and rinse with cool water until you are told to stop. Do not taste, eat, or drink any lab materials.

Real-World Question

Although certain minerals can be identified by observing only one property, others require testing several properties to identify them. How can you identify unknown minerals?

Procedure

1. Copy the data table into your Science Journal. Obtain a set of unknown minerals.
2. Observe a numbered mineral specimen carefully. Write a star in the table entry that represents what you hypothesize is an important physical property. Choose one or two properties that you think will help most in identifying the sample.
3. Perform tests to observe your chosen properties first.
 - a. To estimate hardness:
 - Rub the sample firmly against objects of known hardness and observe whether it leaves a scratch on the objects.
 - Estimate a hardness range based on which items the mineral scratches.
 - b. To estimate specific gravity: Perform a density measurement.
 - Use the pan balance to determine the sample's mass, in grams.



4. With the...
to ident...
more pl...
sample.

Physical

Sample
Number

1

2

etc.

Analysis

1. Which...
ties we...
2. Comp...
for oth...

Conclusion

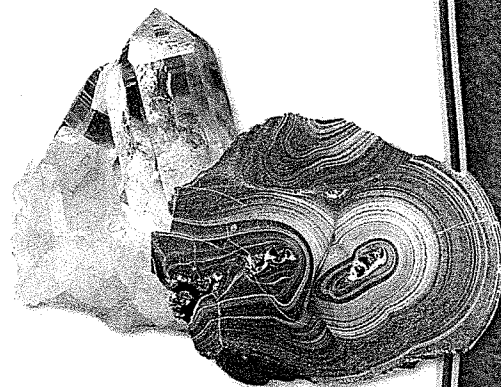
1. Deter...
transp...
2. Which...
specim...



For thr...
that w...
For mo...
Handb...

Using Scientific Methods

- Measure its volume using a graduated cylinder partially filled with water. The amount of water displaced by the immersed sample, in mL, is an estimate of its volume in cm^3 .
 - Divide mass by volume to determine density. This number, without units, is comparable to specific gravity.
4. With the help of the Mineral Appendix or a field guide, attempt to identify the sample using the properties from step 2. Perform more physical property observations until you can identify the sample. Repeat steps 2 through 4 for each unknown.



Physical Properties of Minerals

Sample Number	Hardness	Cleavage or Fracture	Color	Specific Gravity	Luster and Streak	Crystal Shape	Other Properties	Mineral Name
1								
2			Do not write in this book.					
etc.								

Analyze Your Data

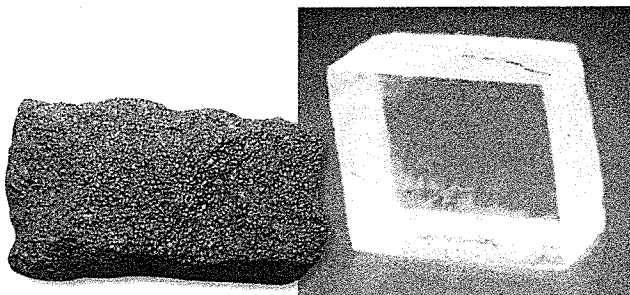
- Which properties were most useful in identifying your samples? Which properties were least useful?
- Compare** the properties that worked best for you with those that worked best for other students.

Conclude and Apply

- Determine** two properties that distinguish clear, transparent quartz from clear, transparent calcite. Explain your choice of properties.
- Which physical properties would be easiest to determine if you found a mineral specimen in the field?

Communicating Your Data

For three minerals, list physical properties that were important for their identification. For more help, refer to the Science Skill Handbook.



Reviewing Main Ideas

Section 1 Minerals

- Much of what you use each day is made at least in some part from minerals.
- All minerals are formed by natural processes and are inorganic solids with definite chemical compositions and orderly arrangements of atoms.
- Minerals have crystal structures in one of six major crystal systems.

- 3. Streak is the color of the powder left by a mineral on an unglazed porcelain tile.
- 4. Minerals that break along smooth, flat surfaces have cleavage. When minerals break with rough or jagged surfaces, they are displaying fracture.
- 5. Some minerals have special properties that aid in identifying them. For example, magnetite is identified by its attraction to a magnet.

Section 2 Mineral Identification

- 1. Hardness is a measure of how easily a mineral can be scratched.
- 2. Luster describes how light reflects from a mineral's surface.

Section 3 Uses of Minerals

- 1. Gems are minerals that are more rare and beautiful than common minerals.
- 2. Minerals are useful for their physical properties and for the elements they contain.

Visualizing Main Ideas

Copy and complete the following concept map about minerals. Use the following words and phrases: the way a mineral breaks, the way a mineral reflects light, ore, a rare and beautiful mineral, how easily a mineral is scratched, streak, and a useful substance mined for profit.

