

By MrsGeology

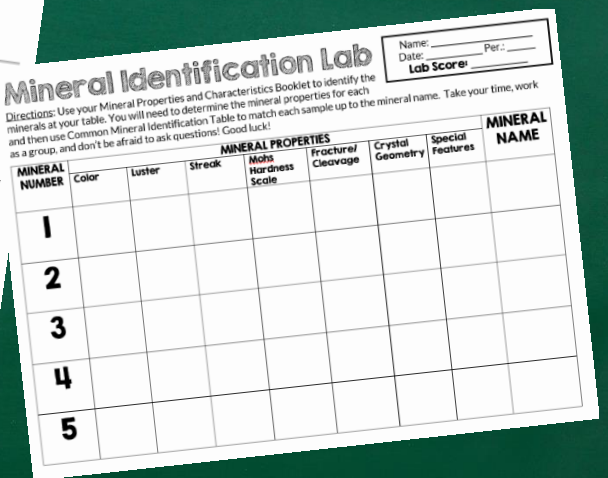
# Student-Centered Mineral Properties & Identification



27  
PowerPoint  
Slides



Foldable  
Mineral  
Booklet



Mineral ID Lab  
& Common  
Mineral ID  
Table



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## Instructions/Guidelines for The Mineral Property Booklet

1. Print the following 4 pages of the booklet double-sided. I would print pages 1-2 and then 3-4 separately.
2. Provide each table or small group with a sample of sulfur, feldspar, and galena as well as mineral ID supplies: streak plate, penny, glass plate, and a metal nail.
3. Give each student a set of the pages and a pair of scissors. Demonstrate the directions for making a booklet shown here: [http://www.ehow.com/how\\_4829281\\_booklet-out-paper.html](http://www.ehow.com/how_4829281_booklet-out-paper.html). You will likely need to physically assist some of your students with construction of the booklet.
4. Utilize the included Mineral Property presentation or a textbook to provide students with the basic definitions and/or examples of each mineral property.
5. After the presentation of each mineral property, each table or small group of students will need a sample of sulfur, feldspar and galena in order to practice identifying mineral properties. For example, I would review a mineral hardness and then let students use their tools to identify the properties for the three sample minerals.
6. Take the time to go over the correct mineral properties with students after they have practiced with sulfur, feldspar, and galena to help them understand their mistakes and to build confidence in their ability to identify minerals.

**Notes:** I typically use this activity prior to students identifying minerals independently in the included Mineral Identification Lab. This booklet provides a reference that they are invested in and can utilize when identifying additional minerals.

## Mineral Property #4: Luster

Definition: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Examples: glassy, pearly, earthy, metallic

Mineral	Luster
Sulfur	
Feldspar	
Galena	

# Mineral Properties and Characteristics



By: \_\_\_\_\_



# What is a mineral?

Definition: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## 5 Characteristics of a Mineral

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

Why is it important to understand the characteristics of minerals?

\_\_\_\_\_  
\_\_\_\_\_

# Mineral Property #3: Streak

Definition: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How do you figure this out? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Mineral	Streak
Sulfur	
Feldspar	
Galena	



## Mineral Property #6: Crystal Structure

Definition: \_\_\_\_\_

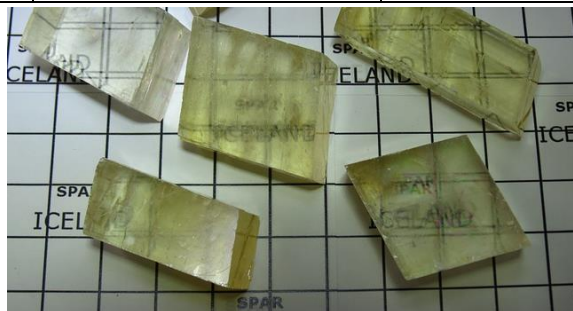
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Examples: cubic, hexagonal, massive, prism, trigonal (rhombus), etc.

Mineral	Crystal Structure	Illustration
Sulfur		
Feldspar		
Galena		



## Mineral Property #1: Hardness

Definition: \_\_\_\_\_

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### Mohs Hardness Scale

1 Talc	6 Microcline
2 Gypsum	7 Quartz
3 Calcite	8 Topaz
4 Fluorite	9 Corundum
5 Apatite	10 Diamond

How do you use Mohs Hardness Scale? \_\_\_\_\_

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**Tools: Fingernail (2.5), Copper coin (3), Glass (5.5), Nail (6.5)**

Mineral	Hardness
Sulfur	
Feldspar	
Galena	

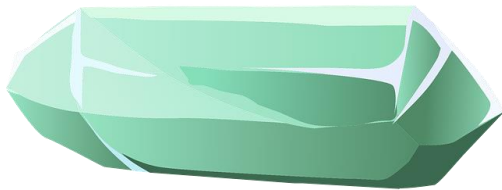
## Mineral Property #2: Color

Definition: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### True or False:

**Color is the most reliable mineral property.**

Mineral	Color
Sulfur	
Feldspar	
Galena	

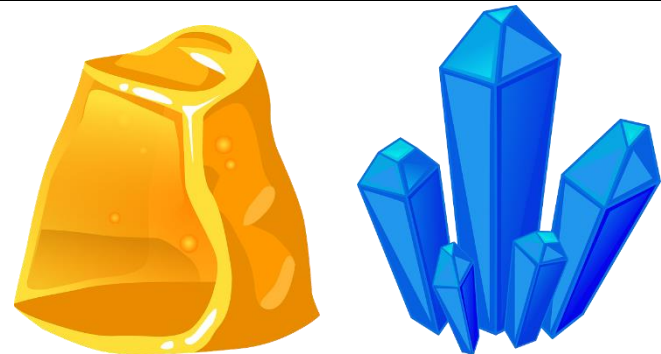


## Mineral Property #5: How a Mineral Breaks

Cleavage Definition: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Fracture Definition: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Mineral	Cleavage or Fracture?
Sulfur	
Feldspar	
Galena	



## Instructions/Guidelines for The Common Mineral Identification Table and Mineral ID Lab

1. Print the following 4 pages double-sided. Each student will likely need their own copy of the lab, but you could save paper by printing class sets of the Common Mineral Identification Table.
2. Provide each table or small group with a supply of 12 minerals to identify and the appropriate supplies (including acid bottles). Make sure all 12 are on the Common Mineral Identification Table! I would also recommend including calcite, fluorite, and gypsum; students often have difficulty telling these apart and need practice.
3. Get out your Mineral Property Booklets and start identifying! Encourage students to identify all properties to the best of their ability using the tools provided before matching their information up to the Common Mineral Identification Table. You can do the first mineral or an example mineral together as a class.
4. Either have students work through the first 5 (front side) of the lab or all 12. I typically have students bring up their answers to be checked. The first time they bring them up, I simply tell them the names of the ones they got wrong and give them another opportunity to identify the mineral properties. The second time, I highlight the properties they have identified incorrectly and we practice identifying those properties together.

### Tips and Notes:

- The Common Mineral Identification Table includes a shorter list than many charts and also has minerals that are commonly found in Earth Science Store Rooms.
- Give minerals to students in **egg cartons!** They are cheap, easy to use, and ensure that students know each mineral has a distinct location to be placed. I label the inside of the carton with the numbers 1-12.
- *Do not hesitate to modify for your students.* Some may be ready to identify all of the minerals in your store room – let them! Some students may need modified or shortened assignments – this could be shortened to 6 or 9 minerals or you could pre-fill some of the blanks on their charts.



# COMMON MINERAL IDENTIFICATION TABLE

<b>Mineral Name</b>	<b>Color</b>	<b>Luster</b>	<b>Streak</b>	<b>Mohs</b>	<b>Fracture/ Cleavage</b>	<b>Crystal Structure</b>	<b>Special Features</b>
<b>Quartz</b>	any	glassy	white	7	Fracture	hexagonal	most common
<b>Muscovite Mica</b>	clear to brown	glassy/ pearly	white	2-2.5	Cleavage	sheet or book	none
<b>Biotite Mica</b>	black or brown	glassy	white	2.5-3	Cleavage	sheet or book	none
<b>Sulfur</b>	yellow	earthy	white or yellow	1.5-2.5	Fracture	massive	smell like rotten eggs
<b>Fluorite</b>	clear, purple	glassy	white	4	Cleavage	cubic	looks like quartz
<b>Feldspar</b>	white, pink, gray	glassy	white	6	Cleavage	prism	none
<b>Olivine</b>	green	glassy	white-yellow	6.5-7	Fracture	prism	none
<b>Galena</b>	lead gray	metal	lead gray	2.5	Cleavage	cubic	none
<b>Calcite</b>	clear to white	glassy	white	3	Cleavage	hexagonal	reacts with acid
<b>Gypsum</b>	clear to white	glassy/ pearly	white	2	Cleavage	massive	None

# COMMON MINERAL IDENTIFICATION TABLE

<b>Mineral Name</b>	<b>Color</b>	<b>Luster</b>	<b>Streak</b>	<b>Mohs</b>	<b>Fracture/ Cleavage</b>	<b>Crystal Structure</b>	<b>Special Features</b>
<b>Halite</b>	white	glassy	white	2.5	Cleavage	cubic	is salt
<b>Hematite</b>	reddish brown or black	earthy	red	5.5-6.5	Fracture	massive	none
<b>Copper</b>	copper red	metal	copper red	2.5-3	Fracture	cubic	none
<b>Magnetite</b>	black	metal	black	6	Fracture	prism	magnetic
<b>Graphite</b>	lead gray or black	metal	black	1-2	Cleavage	hexagonal	pencil lead
<b>Talc</b>	pale green, gray, white	pearly	white	1	Cleavage	massive	feels greasy
<b>Pyrite</b>	brassy	metal	greenish- black	6-6.5	Cleavage	cubic	Fool's Gold
<b>Beryl</b>	any	glassy	white	8	Cleavage	hexagonal	Can be emeralds
<b>Corundum</b>	brown, red, pink, etc.	glassy	white	9	Cleavage	hexagonal	Sapphires & rubies
<b>Barite</b>	white or gray	glassy, pearly	white	3-3.5	Cleavage	prism	none
<b>Tourmaline</b>	black, blue, green, red	glassy	White	7-7.5	Fracture	prism	none

# Mineral Identification Lab

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Per.: \_\_\_\_\_

**Lab Score:** \_\_\_\_\_

Directions: Use your Mineral Properties and Characteristics Booklet to identify the minerals at your table. You will need to determine the mineral properties for each and then use Common Mineral Identification Table to match each sample up to the mineral name. Take your time, work as a group, and don't be afraid to ask questions! Good luck!

MINERAL NUMBER	MINERAL PROPERTIES							MINERAL NAME
	Color	Luster	Streak	Mohs Hardness Scale	Fracture/Cleavage	Crystal Structure	Special Features	
1								
2								
3								
4								
5								

MINERAL NUMBER	MINERAL PROPERTIES							MINERAL NAME
	Color	Luster	Streak	Mohs Hardness Scale	Fracture/ Cleavage	Crystal Structure	Special Features	
<b>6</b>								
<b>7</b>								
<b>8</b>								
<b>9</b>								
<b>10</b>								
<b>11</b>								
<b>12</b>								