NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Minerals Notes

Standards:

[3.3.8.A2: Describe renewable and nonrenewable energy resources](http://www.pdesas.org/Standard/StandardsBrowser/24955)

[3.3.8.A3: Explain how matter on earth is conserved throughout the geological processes over time.](http://www.pdesas.org/Standard/StandardsBrowser/24956)

3.3.8.A1: Distinguish between physical and chemical weathering. Compare and contrast the types of energy that drive Earth’s systems.

**Minerals: How to identify them…**

 **YOU AND A PARTNER will come up with 3 ways you can think of to identify a mineral**

**1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**A MINERAL’S APPEARANCE HELPS IDENTIFY IT**

* In order to identify a mineral you need to observe it properties-the things that identify it.
* There are 5 main properties that we use to identify.
There are many minor properties that can also help id a mineral.

**Mineral Property #1**
Color and Streak

The first thing we notice about a mineral is color

Many people collect minerals based on appearance and color

Color \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a good indicator of the type of mineral

Many minerals have different colors

Color will send you along the right path to identify minerals, though ☺

Since color isn’t a reliable source, geologists \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Streak is the color of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a mineral.

To test a mineral’s streak (powder color), you rub or drag a mineral over a tile of unglazed porcelain (white or black).

Hematite's streak is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Galena's streak is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Pyrite (Fool’s Gold) is always \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when found in crystal form, but when powdered produces a black streak

Gold’s streak is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

WHAT IS YOUR MINERAL’S COLOR:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

WHAT IS YOUR MINERAL’S STREAK:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Mineral Property #2-Luster**

Luster is the way in which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from the surface

The two types of luster are:

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

WHAT IS YOUR MINERAL’S LUSTER:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Quick Check-With your partner on a white marker board.**.

What is the first thing someone notices about a mineral?\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What do we call the color of the powdered mineral?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Which is more reliable: streak or color?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What are the two types of luster?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Mineral Property #3-How a mineral breaks**

When a mineral breaks it does so either by **fracturing** or by **cleaving.**

**Cleavage**-the tendency of a mineral to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Crystal cleavage is a smooth break producing what appears to be a flat face

**Fracture** is the tendency of a mineral to break into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

HOW DOES YOUR MINERAL BREAK:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Mineral Property #4-Hardness**

A mineral’s hardness is its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to being scratched.

A scale known as the Moh’s scale is often used.

WHAT IS YOUR MINERAL’S HARDNESS:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Mineral Property #5-Density**

Each mineral has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Density is the mass of a given space or in. Scientific terms mass per unit of volume

Geologists go even more in depth. They measure\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 The specific gravity of a mineral is it's mass divided
 by the mass of an equal volume of water.

Geologists measure density by the following:

First they use a balance to determine the mass of a sample

Second, they place the mineral in water to see how
 much water it displaces.

The volume of displace water = the volume of the sample

Third they use the following formula:
 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Some Minerals Have Specific Properties



Answer these questions…

Bob found this mineral. He wants to know what it is and if it is valuable.

What properties can Bob use to
 determine what this mineral is?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

SLCDFH
SOME LLAMAS CLIMB DOWN FUNNY HILLS

Streak-Powdered color

Luster-How Shiny?

Cleavage-Breaks in sheets or blocks

Density-How much mass in a given volume

Fracture-Just crumbles or breaks

Hardness-Can be scratched by



CONCLUSION:

1. **Explain** why certain minerals seemed to be easy to identify. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. **Determine** two properties that distinguish clear, transparent quartz from clear, transparent calcite. Explain your choice of properties. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. **Which physical properties would be the easiest to determine if you found the mineral specimen in the field?**

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