



## **MINERAL IDENTIFICATION: BE A ROCKIN' DETECTIVE**

*Detectives must gather facts and physical evidence to deduce the events that took place during a crime. Much like detectives, geologists gather physical evidence to better understand Earth processes. First, minerals are identified, and then their histories sometimes can be interpreted.*

### **Real-World Problem**

How is it possible to distinguish similar-looking rocks and minerals from each other?

**Goals: Observe and record** physical properties of minerals.

**Determine** mineral names using your observations and identification keys.

### **Materials**

- *mineral samples*
- *copper penny*
- *5% HCl with dropper (we will use vinegar)*
- *magnifying lens*
- *glass plate*
- *Mohs scale of hardness*
- *small iron nail*
- *streak plate*

### **Procedure**

Observe several rocks. Complete the tests below to determine what minerals each rock is composed of. Use the table provided to record your data.

#### **Test for Luster**

Does it look like metal?

If so, it has a metallic luster. If not, it has a nonmetallic luster.

#### **Test for Hardness**

If the mineral will scratch a glass plate or if it is difficult to scratch it with a nail, then it is hard.

If a nail, penny, finger nail will scratch it easily, then it is soft.

#### **Test for Cleavage**

Does the mineral have flat sides that reflect light? If so, the mineral has cleavage.

**Test for Streak**

Rub the mineral on the streak plate. What color is the streak?

**Tests for Special Properties**

- Does it fizz with HCl acid?
- Is it really heavy for its size?
- Will it break into thin sheets?
- Is it magnetic?
- Does it taste salty?
- Does it write on paper?

Using your observations, follow the flow chart. When the students reach the bottom of the flow chart, they will have identified the mineral.

<b>Sample #</b>	<b><u>Luster</u> (Metallic or Nonmetallic)</b>	<b><u>Hardness</u></b>	<b><u>Streak</u></b>	<b><u>Cleavage</u></b>	<b><u>Special Properties</u></b>	<b><u>Mineral Name</u></b>
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

**Data and Observations: Conclude and Apply**

Which properties were most useful in identifying your sample? Which properties were the least useful?

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**Explain** why certain minerals seemed to be easy to identify.

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