**ROCKS, EROSION AND WEATHERING**

# SECTION 3-USING THE STREAK TEST TO IDENTIFY ROCKS

From *Hands on Elementary School Science by Linda Poore, 2003*

## STANDARDS:

*Students will* conduct multiple trials to test a prediction and draw conclusions about the relationships between predictions and results.

*Students know* how to identify common rock-forming minerals (including quartz, calcite, feldspar, mica, and hornblende) and ore minerals by using a table of diagnostic properties.

# MATERIALS:

*For Each Pair*: Rocks:

tray galena

1 glazed tile hematite

magnifier pyrite

chalk sulfur

pencil(graphite) shale

student work sheet feldspar

**Westminster College**

# EXPLORE:

## ROCKS CAN BE IDENTIFIED BY THEIR STREAK!

1. Have students rub their pencil and the chalk across the tile. Why do they leave a mark? (They are soft rocks. A pencil is usually graphite, a form of carbon.)

## SORTING ROCKS: LUSTER AND CLEAVAGE

1. Pass out trays with materials.

Sort rocks into 2 groups by one property using a Venn diagram. → → → →

Ask students what property they sorted by. (Example: shiny/not shiny)

Introduce the words luster (Shiny) and cleavage

(layered, flat planes with smooth surfaces). Ask all students to sort rocks into shiny and not shiny and then sort each group (shiny/not shiny) again into 2 sets: cleavage/no cleavage. Discuss and compare groups.

## MAKING PREDICTIONS

1. *Have students:* Predict what color streak each rock will make. Write down their predictions on a piece of paper.

## TESTING FOR STREAKS

1. Have the students rub each rock across the tile to make a streak.

Compare the color of the streak to the color of the rock.

Make several different streaks next to each other to compare the colors. Make a streak with your pencil (graphite).

Compare it’s color to other streaks.

Decide on a name for each color. Which streak is *greener? redder? brownish? grayish?*

*Identifying Rocks by the Streak they Make* worksheet.

1. Pass out the student worksheet (at the end of section) *Have students:*

Match rock streaks to streak colors on the work sheet. Complete the work sheet except for the rock name.

Place the rock on the name square.

There is no space of the work sheet for feldspar.

*(Work Sheet answers:* Streak colors for rocks: Galena: lead/gray, Sulfur, yellow, Pyrite: greenish/black, Hematite: reddish, Shale: gray/brown, Feldspar: pink/white streak)

## NAMING THE ROCKS:

1. Tell the name of each rock by saying, “Hold up the rock that makes the

 streak.” (e.g., yellow) Is it shiny or dull?

Name another property of this rock. (rough) Its name is . (e.g., sulfur)

Which rock was the softest? (streak made with little effort.)

Which rock was the hardest? (Force used to make a streak or does not make a streak.)

1. Allow students to test for streak color with other minerals in the kit or rocks they bring from home.

Hard rocks will not leave a streak.

Students can rub the tile with a finger to erase all the streaks after the lesson.

## IDENTIFYING ROCKS BY THE STREAK THEY MAKE

|  |  |  |  |
| --- | --- | --- | --- |
| **ROCK** | **SHINY OR DULL** | **DESCRIPTION** | **STREAK COLOR** |
| **Name**  |  |  | Lead/gray |
| **Name**  |  |  | Yellow |
| **Name**  |  |  | Greenish/black |
| **Name**  |  |  | Reddish |
| **Name**  |  |  | Gray/Brown |

What type of rocks make a streak?

Which rocks are too hard to leave a streak?

Why do scientists use the streak test?

# PROPERTIES OF MINERALS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **MINERAL** | **COLOR** | **LUSTER** | **STREAK** | **HARDNESS** | **PROPERTIES** |
| Calcite | White/clear | Glassy | White | 3 | Fizzes with acid |
| Feldspar | White/pink | Glassy | White/pink | 6 | Cleavage |
| Galena | Lead gray | Metallic | Lead gray | 2.5 | Cleavage, an ore |
| Gold | Bright Yellow | Metallic | Yellow | 2.5-3 | Conducts electricity, an ore |
| Graphite | Black | Shiny | Gray black | 1-2 | In pencils, an ore |
| Halite (rock salt) | Colorless | Glassy | White | 2.5 | Salty taste |
| Hematite | Gray/red | Dull | Dark red | 6 | Found in lava |
| Hornblende | Green/black | Glassy | Pale gray | 5.5 | Cleavage |
| Magnetite | Iron black | Metallic | Black | 6 | Magnetic, an ore |
| Malachite | Bright Green | Dull | Pale green | 3.5 | Cleavage |
| Mica | Silvery black | Glassy | White | 2.5 | Flaky |
| Olivine | Olive green | Glassy | White gray | 6.5 | Stubby crystals |
| Pyrite | Gold | Metallic | Green black | 6.5 | Looks like gold, an ore |
| Quartz | Milky White | Glassy | White | 7 | Looks like glass |
| Sulfur | Yellow | Shiny | Yellow | 2 | Deposits in hot springs |

1. You have a mineral with no luster. Using the chart, list the minerals it could be.
2. Name two minerals on the chart that look glassy and have a hardness of 2.5.
3. Name the 3 green rocks on the chart:

Describe 2 things you would do to find out the name of a green rock you found. 1.

2.

1. You are given a chunk of ‘gold’. How will you tell that it is not pyrite?
2. Which rock on the chart is the hardest?
3. Which rock on the chart is the softest?