Kid's Corner

Mineral Streak

Have you ever picked up a pretty rock and wondered if it contained precious gems? Have you ever thought that your sharp eyes could make you a millionaire? How can you tell for sure that you found a gold nugget?

Rocks are made of combination of minerals. If you visit Yosemite National Park, you will find lots of rocks with clear, white, and black flecks. This type rock is called **granite**, and consists of three minerals: quartz, feldspar, and mica. **Minerals** have a uniform chemical composition and occur naturally in the Earth's crust. When geologists try to identify a mineral, they investigate several properties. They might test how hard a mineral is (Talc can be scratched with a fingernail, while a diamond can scratch glass).

Geologists also look at the color of the mineral, but they know that color can be misleading! The mineral quartz, for example, is commonly seen in clear, pink, and brown forms. Sometimes, the outer surface of a rock can react with air, giving it a different color. The **streak** of a mineral is the color of the powdered form of the mineral, and is often a more useful clue than the apparent color of the mineral alone.

Problem: What is streak and how can it be used to identify a mineral?

Materials

- Piece of unglazed white porcelain (back of tile would work fine)
- Assorted metallic and non-metallic minerals. good choices include:
  - Iron pyrite
  - Hematite
  - Mica
  - Talc
  - Halite
  - Magnetite

Procedure

1. Make a table similar to the one on the following page.

2. Record the color of the mineral sample in your data table.

3. Rub the mineral sample across the streak plate. Record the color of the powder on the plate. If your mineral sample is very hard, the powder you see might be that of the streak plate rather than the mineral itself.

Results

Minerals that contain metals tend to make a streak at least as dark as the mineral itself, while nonmetallic minerals tend to make clear or white streaks. Iron pyrite makes a greenish-black streak, while hematite makes a reddish brown one. Talc, mica, and halite all make white streaks.

Why?

Minerals are made of **elements,** or compounds that have distinctive properties. Some of the most valuable minerals contain metals. Metals, like gold, iron, copper, and silver are easily shaped. Many can be used for cooking and carrying electricity. In their pure form, metals often appear shiny. Powdered metals often appear dark. Iron pyrite and hematite both contain metals; talc, mica and halite do not.

Going Further

There are many other tests you can do to identify minerals. Since both gold and iron pyrite contain metals, streak alone can't help you tell a gold nugget from a pyrite nugget—but measuring **density** can. Find the volume and mass of your sample. Divide the mass by the volume. Pure gold has a density of 19 g/mL, while Iron pyrite has a density of 5 g/mL.

Mineral	Outer Color	Streak

Source: www.education.com