

Mineral Streaks

Streak is closely related to color, but is a different property because the color of the mineral may be different than the color of the streak. Streak is actually the color of the powder of a mineral. It is called streak because the proper way to test for streak is to rub a mineral across a tile of white unglazed porcelain and to examine the color of the "streak" left behind. It has proven to be a powerful property because it is generally very consistent from specimen to specimen for a given mineral.

Two minerals that have similar outward color may have different colors when powdered. For instance, the minerals hematite and galena can be confused when both have a gray color. However, hematite's streak is blood-red, while galena's streak is lead gray. Hematite is probably the most well known example of streak with its completely surprising streak color.

Unfortunately for collectors, translucent minerals have, usually, a rather undiagnostic white streak. Many opaque minerals similarly have a rather unhelpful black streak. However, there are about 20% of minerals that have unique shades of red, orange, yellow, blue, green, gray and even purple streaks and in many cases these streaks are very diagnostic.

There are many reasons why a mineral might have a different streak color than its outward color. First, there are translucent minerals that are colored by trace elements. These minerals require a large amount of travel time for light to pick up the coloring effects of these trace elements. As a result, small crystals are typically paler than large crystals and extrapolating down to a speck of powder will remove all coloring effects of a trace element and result in a white streak. A translucent mineral that has variable colors will almost certainly have a white streak.

Secondly, a mineral's structure and/or coatings can affect the outward color of a mineral and the streak in many ways is the true color of the mineral. Pyrite (known as "Fool's Gold") is always brassy yellow when found in crystals, even broken crystals, of any size; but when powdered, produces a black streak. It is the structure and chemistry of pyrite that produces the brassy yellow color, but only when enough structure is there. Gold's streak by the way is yellow! One note of caution, a streak plate is only about 6.5 in hardness and a mineral harder than 6.5 will not leave a streak on a streak plate but might scratch the plate leaving a white powder of porcelain, not the mineral! Fortunately, most minerals harder than 6.5 will have a white streak.

Answer the following questions. The information can be found in the article. Some questions will ask you to use your book to find the answer.

1. How is streak different from the color of a mineral? _____

2. Why is streak a powerful way to identify a mineral? _____

3. Why is streak not always helpful in identifying translucent minerals?

4. Why can you not do a streak test (with a streak plate) with a mineral that has a hardness above 6.5? _____

5. On page 196 of your book, list three minerals that have a completely different streak color than their mineral color. (For example, you may not say sphalerite because it is brown to light yellow, and its streak is brown to yellow.) _____

6. On page 198 of your book, look at the luster column. Most of these minerals have a glassy luster. If a mineral has a glassy luster, what streak color is the mineral most likely to be? _____
7. On pages 196–198, are there any examples where a mineral with a glassy luster does not produce the color you wrote in number 7? If so, what are they? _____
