

3.4

MINERAL STREAK, LUSTER, COLOR, CLARITY

What are some of the other properties scientists use to identify mineral types?

BACKGROUND

Luster is the property of minerals that indicates how much the surface of a mineral reflects light. The luster of a mineral is affected by the brilliance of the light used to observe the mineral surface. Luster of a mineral is described in the following terms:

- **Metallic (M):** The mineral is opaque and reflects light as a metal would.
- **Submetallic (SM):** The mineral is opaque and dull. The mineral is dark colored with some metallic luster.
- **Nonmetallic (NM):** The mineral does not reflect light like a metal. The mineral is light/dark colored with no metallic luster. Nonmetallic minerals are described using modifiers that refer to commonly known qualities.

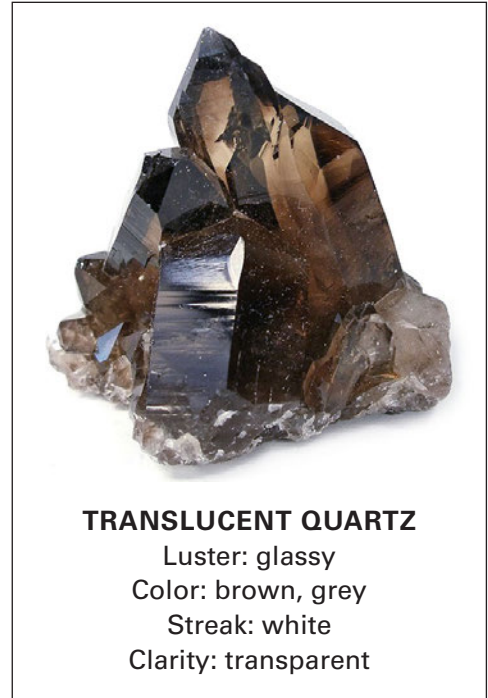
Color: Most minerals have a distinctive color that can be used for identification. In opaque minerals, the color tends to be more consistent, so learning the colors associated with these minerals can be very helpful in identification. Translucent to transparent minerals have a much more varied degree of color due to the presence of trace minerals. Therefore, color alone is not reliable as a single identifying characteristic.

Streak: The color of the mineral in powdered form. In large solid form, trace minerals can change the color and appearance of a mineral by reflecting the light in different ways. The porcelain streak plate shows the true color of the mineral.

Clarity: *Transparent* (TP) materials let light pass through them in straight lines, so that you can see clearly through them. Glass is an example of a transparent material. *Translucent* (TL) materials let some light through, but they scatter the light in all directions, so that you cannot see clearly through them. Tissue paper is an example of a translucent material. Opaque (O) materials do not allow light to pass through them. Wood is an example of an opaque material.

MATERIALS

- Mineral Samples 2A, 4A, 5A, 7A, 9A, 15A, 18A and 21A
- 3.4 Student Worksheet (see next page)
- Streak plate
- Flashlight



3.4 MINERAL STREAK, LUSTER, COLOR, CLARITY: STUDENT WORKSHEET

DIRECTIONS

1. Choose a mineral sample from the list above.
2. With the streak plate on the table (**not in hand**) rub the mineral across the surface of the plate and record the observed color of the powdered mineral in the streak column.
3. Hold the mineral up to the light source and see if any light penetrates it to determine the transparency as opaque, translucent, or transparent.
4. Describe the mineral's visual color(s).
5. Determine the mineral's luster as metallic, submetallic, or nonmetallic.
6. Complete the data table on the Streak, Luster, Color, Clarity Student Sheet.

Sample	Luster (M, SM, NM)	Color	Clarity (TP, TL, O)	Streak
2A				
4A				
5A				
7A				
9A				
15A				
18A				
21A				

REFLECTION

Describe a method you could use to distinguish between a mineral that is translucent versus a mineral that is transparent.