

TEACHER FEATURE

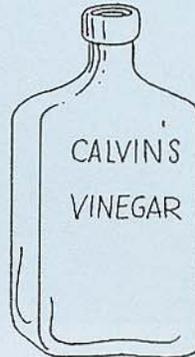
MINERAL EXPERIMENTS

These mineral experiments are designed for children ages 8 through 12. Young children will be able to successfully complete them with adult supervision. Older children can easily follow the step-by-step instructions and complete the experiments with little or no adult help.

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BUBBLES

Purpose: To demonstrate a positive test for limestone.



Materials:

- 3 seashells
- vinegar
- glass

Procedure:

- Fill a glass one-quarter full with vinegar
- Add the seashells

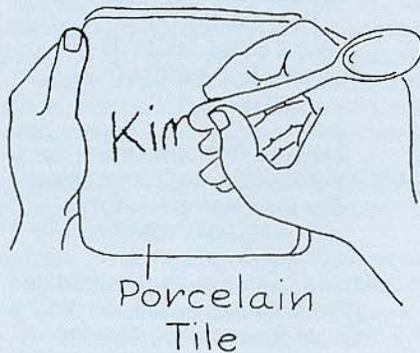
Result:

Bubbles start rising from the seashells.

Why? Vinegar is an acid and seashells are made of limestone, a mineral. Limestone chemically changes into new substances when in contact with an acid. One of the new substances formed is carbon dioxide gas. The bubbles you see rising in the glass of vinegar are the bubbles of this gas. Acid can be used to test for the presence of limestone in rocks. If limestone is present in a rock, bubbles form when an acid touches it.

SPOON PEN

Purpose: To demonstrate a mineral streak test.



Materials:

- Unglazed porcelain tile (The back of any porcelain tile will work.)
- Metal spoon (stainless steel)

Procedure:

Rub the handle of the spoon across the back of the porcelain tile.

Write your name on the back of the tile with the spoon handle.

Results:

The spoon makes a dark gray mark on the white tile.

Why? A streak test is made by rubbing a mineral sample across a piece of unglazed porcelain. The color of the streak made is the same color of the powdered mineral. Grinding the spoon into a powder would produce the same dark gray as seen on the porcelain streak plate. The color of the streak made by a mineral can be an important clue in identifying the mineral.

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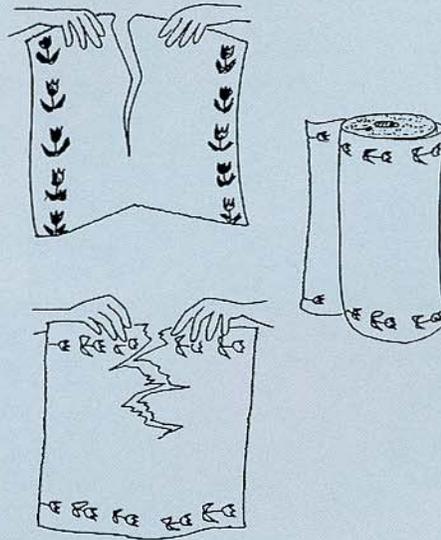
LINE-UP

Purpose: To demonstrate that some minerals have a definite cleavage line.

Materials:
Paper towels

Procedure:
Try to rip a single sheet of paper towel from top to bottom. Turn another sheet of paper towel and try to tear it from side to side.

Results:
The paper will tear easily in one direction but not in the other.



Why? Paper towels are made on a wire screen, creating a straight line in one direction. Pulling on the paper attacks the weakest point. The parallel lines on the paper made by the wire screen are thinner than the rest of the paper, and so the paper rips easily down one of these lines. Jagged and irregular tears result when the paper is pulled in the opposite direction. This is similar to cutting minerals, such as diamonds, along cleavage lines. The mineral splits smoothly and easily along the lines where the molecules line up, but it can smash into irregular pieces if hit across the cleavage line.

SINKERS

Purpose: To demonstrate how placer ore deposits form.

Materials:

- Glass jar with lid, 1 quart (1 liter)
- 5 paper clips
- 1 cup (250 ml) soil

Procedure:

- Fill the jar half full with water
- Add the soil and paper clips
- Close the lid and shake the jar vigorously
- Allow the jar to stand undisturbed for 5 minutes

Results:
The paper clips fall quickly to the bottom of the jar, and the slower-moving soil settles on top of the clips.

Why? Most of the soil falls more slowly than the heavier paper clips, and thus a layer of soil forms on top of the paper clips. In nature, rain beats on top of the soil, shaking and softening it. The heavier materials in this wet mixture sink lower and lower as the years pass. Heavy grains of metal continue to sink until they reach a hard rock layer. Particles of metal that combine in this method are called placer ore deposits. These deposits are rich in metals.

