



Newsletter

Testing Aluminum

Almost every kitchen in America contains a box of aluminum foil. But did you ever think about where your box of flexible inexpensive metal came from? In this activity, your child will test aluminum to discover some of its properties. Let's take a closer look at this useful material.

Aluminum is the most abundant metallic element, comprising eight percent of the Earth's crust. The light, tough, silver-colored metal is found in many manufactured goods such as cans, pans, cookie tins, appliances, lawn chairs, cars, and airplanes. A favorite of drink manufacturers, it doesn't rust and is recyclable. Although it's common, you won't find chunks of pure aluminum scattered on the ground. In its natural form, it occurs mixed with other elements and must be separated to form the familiar metal. Mined primarily as bauxite, it's refined into aluminum in huge factories called refineries. Used alone or mixed with other metals, it has become a valuable and useful construction material.

Useful words that describe aluminum:

- **Malleable**—Can be pounded or bent into different shapes. Aluminum can be rolled into thin foil.
- **Ductile**—Can be drawn into a thin strand or wire. Aluminum can be drawn into wire.

- Conductor—A substance that transmits heat, light, or sound. Aluminum conducts heat and electricity well.
- Oxidize—To combine with oxygen. When iron oxidizes it rusts; aluminum also oxidizes, but the oxide forms a tough film that protects the metal from further decay.

 **What You Need:**

Aluminum foil, water, candle or gas flame, toothpick, small rocks or other weights, cooking tongs

☆ **Activity 1:**

How strong is aluminum? Invite your child to try these experiments with a piece of aluminum foil:

1. Hold two opposite edges and pull it apart. Does it stretch?
2. Try ripping it from a corner. Does it tear?
3. Roll it, bend it, twist it. Does it change shape easily?
4. Poke it slowly with your finger. Poke it quickly with a sharp pencil. What happens?

☆ **Activity 2:**

1. Fold a sheet of foil into quarters and shape it into a small cup. Fill it with water. Is it waterproof?
2. (Caution: adult do this!) To see if aluminum conducts heat well, grasp the water-filled cup with tongs and hold it over the flame from a candle or gas burner. Does the water warm quickly, or does the aluminum insulate the water from the heat?