



Science Activity

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Rubbing It In

Key words: metal, wire, ductile

Concept: Metal, including wire, is ductile.

In addition to being strong, wire is very bendable, or ductile. Something is ductile if it can be easily bent or shaped. Wire is ductile because it is made of metal and most metals are ductile. Explore the ductility of aluminum foil and wire.

Materials: thin wire (different types if possible) cut into pieces about 12" long (Choose soft wires that will not make a sharp point when cut. Check the ends after cutting and if necessary, use sandpaper to smooth them.), construction paper, tape, table or other flat surface, aluminum foil, paper towels, cardboard (optional)

Directions:

1. Have each student arrange pieces of thin wire on an 8.5 x 11-inch sheet of construction paper that has been taped down to a table. Have students bend and arrange the wire to make an appealing design or a picture, like a forest or a face. Encourage them to try overlapping some of the wires. Some of the wires may need to be taped down to hold everything in place. Also, have students tape down the ends of the wires so they don't poke through the aluminum foil when they make their rubbings.
2. Have students place a sheet of aluminum foil that is about 8.5 x 11 inches over the sheet of construction paper. Tape down the edges of the foil. Then students use a crumpled paper towel to gently rub across the surface of the foil. As they rub the foil, the foil will bend to match the shape of the wire. When finished have them remove the foil rubbing. The rubbings can be mounted onto cardboard for display.
3. Ask students the following questions about their rubbings:
 - What did you do to the wire? To the foil?
 - Which kinds of wire were easier to bend? Which were difficult?
 - What was similar about the wires and the foil?

Teacher Note: Introduce students to the word “ductile.” Explain that most metals are ductile meaning that they can be molded, bent, or shaped. Ask students to name some things that are ductile (clothes hangers, pipe cleaners, paper clips.) Ask them to name some things that are not ductile (string, dry sticks, shoelaces.)