# ELEMENTARY ACTIVITY: Insulators & Conductors

An Energy Ball is a hollow ball that contains a light and a sound device, both of which are attached by wires in series to two metal electrodes that are attached to the outside of the ball as shown in the diagram on the right. When both electrodes are touched by one person or by several people in contact with each other, the circuit is closed and the ball lights and makes a noise. An Energy Ball can be purchased from most science supply stores, by emailing NEED at info@need.org or by calling 800-875-5029.
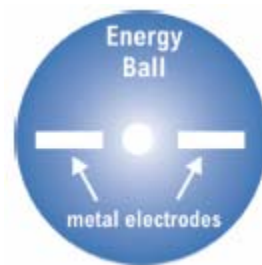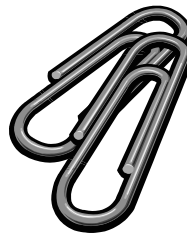
Thanks to Linda Fonner, New Martinsville, WV for developing and sharing this activity.

Objectives
Students will be able to define insulator and conductor.
Students will classify objects as insulators and conductors.

Materials
1 Energy Ball per group of four-five students
Objects made of metal, glass, wood, paper, fabric and plastic

Procedure
1. Review open and closed circuits as needed. Put students in groups of four or five. Have each group make closed and open circuits using an Energy Ball and their hands.

2. Have two students in the circuit hold a large paper clip or other metal object between their hands instead of touching hands. The Energy Ball should light and sound. Ask students why they think it does this. Lead a short discussion of the characteristics of conductors and insulators.

3. Show students the other objects and have them predict whether they are insulators or conductors. Have them test their predictions in their circuits. Make sure students stand still as they test objects. A discharge of static electricity may produce inaccurate results.

4. Let students explore other objects that are in the classroom to see if they are insulators or conductors. Make sure the students realize that many objects contain both insulators and conductors. For example, a wooden pencil has a rubber eraser (insulator) surrounded by a metal tip (conductor).

5. End the activity with a discussion about the uses of insulators and conductors. Have students develop their own definitions for the words.