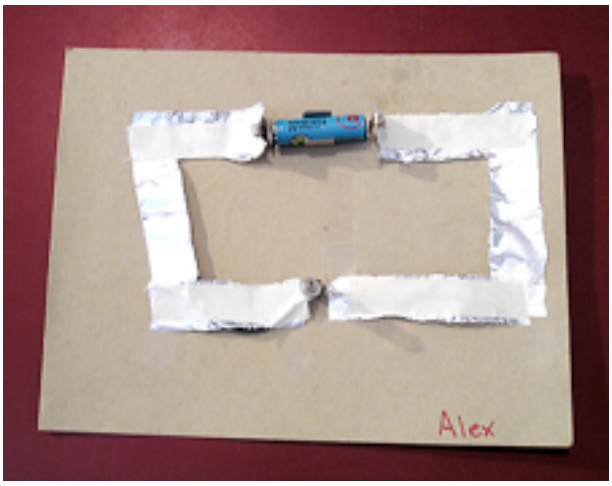
# Circuit Board Model

*Create a model of a circuit board.*

**Related Exhibits:** Circuits
**Time:** 20 minutes
**Ages:** 10 and up who have an understanding of a basic circuit
**Staff:** Floor staff or volunteer
**Safety:** Give general warning about experimenting with electricity. Experimenting with an AA battery is ok, but is not ok to experiment with the electricity from an outlet or car battery. In case of an electrical short or an object getting hot, disconnect immediately.

**Materials:**

- A real circuit board from a toy or other electronic item
- Box board or cardboard
- Aluminum foil
- Masking tape
- Motor, light or LED
- Battery (AA)
- Glue sticks




**Procedure:**

1. Make aluminum foil wires by applying strips of masking tape to a sheet of foil. Rip the foil along the tape edge to make a long strip of reinforced foil. Leave a little extra foil on each end of the strip for connection points.
2. Cut the strip into shorter lengths and arrange the aluminum wire strips to connect the battery to the motor or light to complete a circuit.
3. Glue the strips to the cardboard backing. Remember that to make a complete circuit that you must make a connected loop of conductive materials. At all corners aluminum foil must be touching aluminum foil with good contact. (This might be a good time to test whether masking tape is conductive.) Even a layer of glue can break the circuit. Try folding back edges to get good aluminum to aluminum contact.
4. Test with your battery to see if you have created a circuit.

**Science Content:**
A circuit board is layers of copper wires embedded onto a substrate that create circuits. The first circuit board was created in the mid 1930s and used in a radio. It wasn't until the mid 1950s that circuit boards became common in the United States. Today every electronic toy has some sort of circuit board inside. The boards have become smaller and more complicated as technology has developed. Integrated circuits are basically miniature circuit boards.