

ELECTRIC CIRCUIT EXPLORATION

Objective: Learn about electricity and circuits by building a simple circuit to light up a bulb.

Materials Needed:

- 1 small light bulb (LED or incandescent)
- 1 battery (9V)
- Electrical tape or alligator clips
- 2-3 pieces of copper wire
- Paper clips
- A small switch (optional)

Instructions:

- 1. Introduction:** Introduce students to the basic concepts of electricity, circuits, and conductors. Discuss how electric current flows through a circuit and how a switch can control the flow of electricity.
- 2. Build the Circuit:** Start by connecting the battery, light bulb, and wires. Attach the wires to the terminals of the battery and the light bulb (using electrical tape or alligator clips). If a switch is available, add it into the circuit.
- 3. Test and Troubleshoot:** Turn on the circuit and observe if the light bulb lights up. If it doesn't, have students troubleshoot by checking the connections, ensuring the battery has charge, and verifying the light bulb is working.
- 4. Experiment Phase:** Encourage students to experiment by changing the components. For example, what happens if they use a different battery or add more bulbs in series or parallel? Discuss the difference between series and parallel circuits.

Learning Goals:

- Understand how electrical circuits work and the roles of components like batteries, light bulbs, and switches.
- Develop troubleshooting and problem-solving skills.

These activities engage students with hands-on learning, introduce them to key STEM concepts, and foster creativity, critical thinking, and problem-solving.

