Circuits and Switches
Group Activities

Organize students into groups to complete the following activities. In them, students will model the flow of electrical current. Students will play the role of atoms and use tokens (paper, cardboard, plastic, pennies, etc.) to represent electrons.

1. **Current**
   Have students form a circle. Give each student a token. At any point in the circle, put a small table between two of the students. To model the flow of electric current, any person beside someone without a token must pass the token to that person. Start by having the first person place his token on the table. Since he no longer has a token, the person beside him must give him one. Now the next person must pass along a token. This continues until the last person is reached. This person has no one to give him a token, so the movement stops.

2. **Using Current**
   Remove one student from the circle and place her in the center with a flashlight. When the first token changes hands the person turns on the flashlight. When the last token changes hands the person turns off the flashlight. This activity models the fact that when electrons flow, light is produced, but when the electron flow stops, the light is not produced.

3. **Power Source**
   Place a box of tokens on the table that is part of the circle. This acts as a battery or source of electrons. Have the first person put his token in the box. Any time a person doesn't have a token, the next person in the circle must give him one. When the person beside the box gives away his token, he can take one from the box. As long as the box holds a token, the action can continue.

   To model a battery running out of power, you might have the last person toss her token at the box. Only tokens landing in the box can be used again. Eventually, there will be no more tokens to pass around the circle. At this point, the battery has no more power.