

Lesson 2 Simple Circuits II

Objectives: Students have more opportunity to experiment with electrical components.

Students will recognize that some (not all) components act differently when the direction of the battery is switched.

Students learn about switches and how to wire a switch to make a motor go in either direction.

Materials: Same as for Lesson 1 plus electrical wire, 1 double pole double throw knife switch per group, wiring diagram for DPDT switch.

Sponge: What is a circuit?

Initial

Discussion: What is a circuit? Draw a simple circuit on the board and discuss. Discuss how a switch works. Ask students if any of their electrical components behaved differently when the direction of the battery was switched.

Project: Students test each component and see if it acts differently depending on how the battery is placed.

Students create a circuit using a motor, battery, and single pole single throw (SPST) switch.

Students create a circuit using a motor, battery, and double pole double throw (DPDT) switch.

Students create a circuit containing a motor, battery, and DPDT switch, and experiment to see if they can figure out how to wire a switch so that the battery reverses itself.

Give students wiring diagram for DPDT switch and have them connect the switch.

Allow students to experiment with components.

Vocabulary: Switch – a device for changing the flow of electricity in a circuit
SPST switch – a simple on-off switch
DPDT switch – equivalent to two three-way switches connected with a single mechanism
(a pole is a set of contacts that belong to a single circuit; a throw is one of two or more positions that the switch can adopt)

Final

Discussion: Students show off their experiments and explain what is going on.

Clean up:

Home

Connection: Students draw a diagram of their most interesting circuit and take it home to explain to their families.