



Question: What is an electric circuit?

1 Building circuits with a battery, a bulb, and a wire

- a. Using *only* one battery, one bulb, and one wire, find four different ways you can arrange these three parts to make the bulb light. As you work, determine the kinds of connections that are needed to make the circuit work.

- b. Record all your circuit attempts. Draw both successful and unsuccessful attempts. The drawing at right shows a simple way to draw the bulb, battery, and wire.
- c. Make sure your drawings show the difference between the two ends of the battery. Also show exactly where the bulb is touching the wire and the battery.
- d. Explain why you think some configurations work and others do not. Record your first thoughts and impressions—and don't worry if they are right or wrong.

2 Using the electric circuits set

There are no questions to answer in Part 2.

3 Drawing circuit diagrams

There are no questions to answer in Part 3.

4

Observing how a switch works

- a. Examine the switch as it turns the bulb on and off. Explain how the switch works. You may use both words and drawings.

5

What did you learn?

- a. Water can travel through air but cannot travel through a solid. Using what you learned in this Investigation, describe some materials that electricity can and cannot travel through.

- b. The word *circuit* comes from the same root as the word “circle.” Describe the similarities between a circle and the circuits that you built.

- c. A circuit that is on and working is sometimes called a *closed circuit*. Based on your observations of the switch, explain what *closed* means in a circuit.

- d. A circuit that is off or that is not working is sometimes called an *open circuit*. Based on your observations of the switch, explain what *open* means in a circuit.
