

Name _____

How Can You Light A Bulb?

One way we will study energy transfer is through circuits. We will use the PhET simulation called *Circuit Construction (DC only)* to start exploring circuits.

Your goals for this lesson:

1. Build some working circuits.
2. Describe how energy is transferred in circuits.
3. Tell about the properties of materials that conduct electricity.

Directions

1. Drag wires, batteries, and bulbs into the box. Mess around for a few minutes. Try to build a circuit. You built a circuit if the light bulb glows. Move parts around to make your circuit work. If you start a fire, make a different circuit!

As you experiment, answer the questions on this page.

2. What happens when you right click on a piece? _____

3. What happens when you right click on a red dot? _____

4. What happens when you right click on the words "split junction"? _____

5. What does "split junction" mean? _____

6. You will build a few circuits on the next page. You will sketch each circuit. Make a key in the space below to show how you will draw wires, batteries, and bulbs.

Circuit and Parts to use	Sketch of your working circuit	What did you see?
Circuit #1 2 wires 1 light bulb 1 battery		
Circuit #2 3 wires 1 light bulb 2 batteries		
Circuit #3 1 wire 1 light bulb 1 battery		
Circuit #4 3 wires 1 light bulb 1 battery 1 switch		
Make a new and different circuit for #5. List the parts, draw it, and tell what you saw.		
Circuit #5		

7. What parts did every working circuit need?

8. What has to happen to get the light bulb to light up?

9. Where do the wires need to attach to the light bulb? What happens if the wires are not attached correctly?

10. What do you think the blue dots are in your circuits?

11. What forms of energy are transferred from battery to light bulb?

12. What does the switch do?

Build a working circuit. Put a "Grab Bag" item in the circuit. Report your results below.

Item	What happens in the circuit

13. Describe the property or properties of the "Grab bag" items that made the light bulb light up.
