Building Circuits PhET Inquiry Lab

Click: Here to open the Phet Virtual Lab

OR Use: This URL - https://tinyurl.com/msx4z895

Choose: Intro.

Drag: Items into the middle of the screen and begin building your circuits. If you want to compare the voltage, make sure to check the values on the right-hand side.

CIRCUIT A: "Simple closed circuit"

- Connect 1 battery and 1 bulb using just 2 wires.
- Record your observations of what you see in the space below:

- What happens if you connect two batteries at the same time? Why does this happen?

CIRCUIT B: "Series circuit"

- Make a circuit that lights two bulbs at the same time, but if either bulb is cut, the other bulb goes out too. Use only one battery.

- Which was brighter, circuit A (previous page) or circuit B (this one)?

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- What do you predict would happen if you added a third bulb? How about 4?

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CIRCUIT C: "Parallel circuit"

- Make a circuit that lights two bulbs at the same time. However, make it so this time if either bulb is unscrewed the other bulb stays on. Use only one battery.

- If you built this correctly, and if there is not too much resistance in the materials, the other bulb stays lit. Why do you think it stays lit?

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- Is this circuit brighter or dimmer than B? What do you think causes this?

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CIRCUIT D: "Series circuit with a switch"

- Make a circuit with two bulbs and two switches. Create this circuit so if both switches are closed, both bulbs stay on, but if either switch is opened, both bulbs go out.

- How many wires did you need to make the switch work?

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- What effect does the switch have on the electrons in the circuit? Why do you think that?

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CIRCUIT E: "Parallel circuit with a switch"

- Make a circuit with two bulbs and two switches. However, this time opening both switches turns off the bulbs but if either switch is closed, both of the bulbs stay on. You may only use one battery (or if you have multiple batteries they must be connected together in one location).

- How many wires did you need to make the switch work in this parallel circuit? Is this circuit brighter or dimmer than C? What do you think causes this?

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- Why might a set-up like this be more beneficial than the one you created with Circuit D?

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