



Light the Bulb!

Supplies: (for each team)

- 1 flashlight battery
- 1 flashlight bulb
- 1 piece of lightweight electrical wire, 4 to 6 inches, with the insulation stripped off the ends.

Directions:

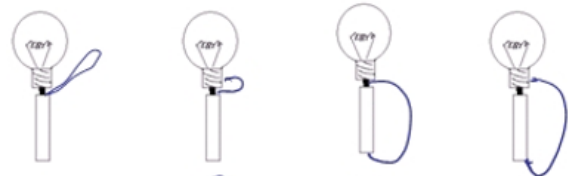
Connect the bulb, battery and wire to light the bulb. If your first try doesn't work, try a different arrangement. Keep trying until the bulb lights.

- If the battery starts getting hot, disconnect it at once. Otherwise you will burn out the battery and may even get burned.
- If the bulb is intended for a flashlight that uses 2 batteries, it won't be as bright as in normal use.

FAQ: The point of this activity is to show that for the light bulb to work it must be part of a COMPLETE CIRCUIT. That means there must be a closed, conducting path *through* the battery and *through* the bulb. The two points of the battery that must be connected are the metal at the bottom and the metal bump at the top. The two points of the bulb which must be connected are the bump on the bottom and the metal around the sides of the base (which may be threaded).

Here are some arrangements that don't work and one that does. Can you tell which one will work?

- You frequently see the equivalent circuit drawn with 2 wires. It is easier to draw with 2 wires, but much more difficult to hold together with 2 hands.



STE(A)M Subject(s):

Physics and Engineering: Electrical circuits.

Related Badge(s) or Journey(s):

(B) Home Scientist, Innovation (J) Product Designer (C) Innovation

Additional Resources:

Circuits:

http://www.bbc.co.uk/bitesize/ks2/science/physical_processes/electrical_circuits/read/1/

Electricity: <http://www.explainthatstuff.com/electricity.html>

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