

Building a Simple Circuit

4th Grade

SC.4.P.10.1

Observe and describe some basic forms of energy, including light, heat, sound, electrical, and the energy of motion.

Big Idea: Forms of Energy

A. Energy is involved in all physical processes and is a unifying concept in many areas of science.

B. Energy exists in many forms and has the ability to do work or cause a change.

Problem Statement:

How can you make a light bulb turn on using only the materials provided in this inquiry lab?

Materials:

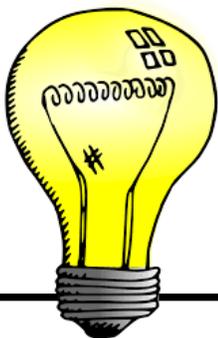
- D batteries
- Small light bulbs
- Pieces of Wires (2 per Group)
- Battery Holder
- Lamp Holder

Procedure:

- 1) This is intended to be an inquiry lab. Therefore, the students should be placed into groups and given the materials with the problem statement in clear view.

Solution:

- 1) Place a "D" cell battery in a battery holder. The battery holder will allow you to attach wires to the positive and negative ends of the battery.
- 2) Now, screw a small light bulb (mini lamp) into a lamp holder. Like the battery holder, the lamp holder will allow you to attach the wires to the light bulb (your load).
- 3) To complete the circuit, you will need two wires. Use one wire to connect the negative side of the battery to the lamp holder. It does not matter which side of the lamp holder the wire is attached. Connect the positive side of the battery to the lamp holder using the second wire. This wire will attach to the opposite side of the lamp holder. The light bulb should be lit.



(Remember, the voltage of the battery and light bulb should be similar. If the battery voltage is too much larger than the voltage capacity of your bulb, the bulb will burn out. A "D" cell battery provides 1.5V.)