

Lemon Battery

HOW DOES A BATTERY WORK?

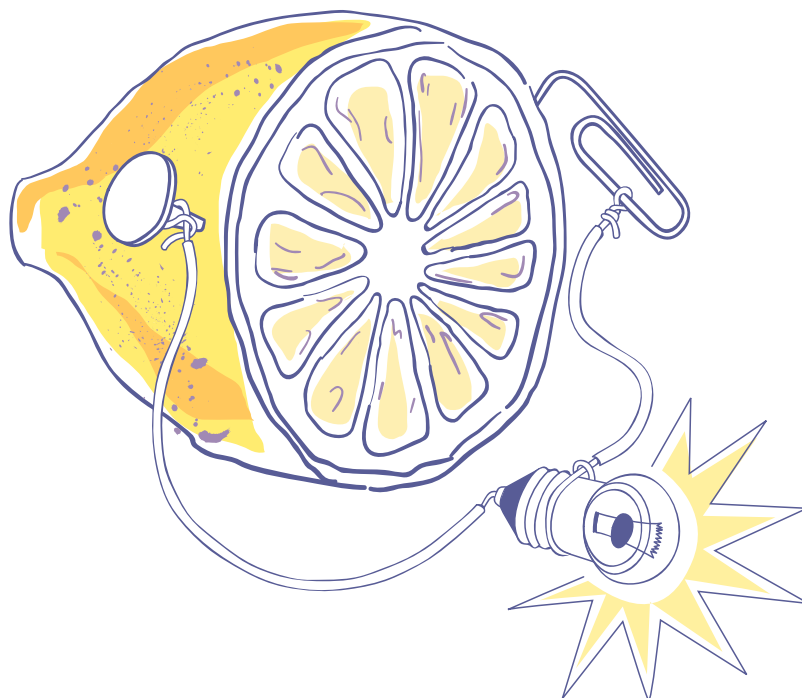
Dry-Cell Batteries usually contain chemicals in paste form. They're used when small amounts of electricity are needed, such as in flashlights and radios.



Wet-Cell Batteries are used when larger amounts of electricity are needed, such as car batteries. Wet-Cell Batteries contain a liquid chemical called an electrolyte. When the electrolyte is put in contact with two electrodes, there is a chemical reaction that creates electricity. See if you can create electricity by making this simple wet-cell battery.

TRY THIS

1. Soften the lemon by rolling it on a hard surface.
2. Stick a brass thumbtack and a solid steel paperclip into opposite ends of the lemon.
3. Connect two pieces of electrical wire to the low-voltage light bulb.
4. Take the two loose ends of wire and attach one to the thumbtack, and the other to the paperclip to complete the circuit.
5. If your lemon doesn't have enough juice to light the bulb, you can tape the wires to the two ends of a size D battery.



THINGS YOU NEED

- Unripe lemon
- Brass thumbtack
- Solid steel paper clip
- Low-voltage (3 volts or less) bulb, from a flashlight, or miniature holiday lights.
- 2 short pieces of electrical wire

POWER WORDS

Circuit is the path the electricity takes. For example, the path from the power plant to your house is a circuit.

Conductor is a material whose electrons are free to move around and allow electricity to pass through it. Copper, aluminum and water are all excellent conductors.

Electrode is a conductor through which electric current enters or leaves an electric device. Most electrodes are made of metal. A battery has two electrodes, one positively charged and one negatively charged. Electrodes collect the current and permit it to be drawn out of the battery.

Electrolyte is a solution that is able to conduct electric current. Electrolytes contain charged particles, or ions, which allow a free flow of current from one terminal through a solution to the other terminal.

WHAT DO YOU THINK?

What if you pulled the paper clip out of the lemon? What happens? Does this suggest why it's called an electrical *circuit*?

What is the electrolyte in this experiment?

What are the electrodes?

Try this with other fruits or vegetables. Which do you think might work? Why?