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# What is a Battery and How Does it Work?

Batteries are used everyday, to prove electricity to portable devices. But, do you ever wonder how batteries work, and why do they run out of energy? This paper gives a basic definition of what a battery is as well as its components and how it works.

First, what we call a battery is referred to by another word in the scientific and industrial world. It is called a cell. A battery is an electrochemical device that contains two power sources, or cells. These cells are connected electronically, so that the chemical energy that is produced can be converted into electrical energy.

Every battery has two electrodes. These electrodes react with a chemical that, in turn, releases energy. A battery has two metal ends that are called terminals. One terminal is known as the positive end and the other as the negative end. The negative end is usually flat, while the positive end looks more like a button. Most cells have a center core, or rod, which is connected to the positive terminal.

Each battery consists of four main parts: a positive electrode, a negative electrode, an electrolyte, and a separator. The positive and negative electrodes are the active materials that allow the electric current to be generated. The electrolyte is a paste-like substance, or solution, that contains charged particles which can move or conduct an electrical current. The separator is the material that provides separation and insulation of the electrical current from the consumer. This is the casing of the battery.

Electricity is created inside the battery. Tiny particles called electrons flow from one metal end to the other metal end. This flow is called a circuit. When the circuit is closed and flowing consistently, we call the flowing electrons a current. Electricity can only flow from one terminal to another. When closed, the circuit flows from the higher electrical potential to the lower potential. This difference in potentials is what provides the movement of the electrons. When there is not a difference, there will be no current and no more electricity produced. This is what happens when your battery stops working. Electricity also has another property that it can only pass through certain materials. Materials that let the electricity flow are called conductors. Metals are good conductors. Other materials that do not let electricity flow are called insulators. Plastic is a good insulator.

Remember that Electricity is only produced if the circuit is closed. That means that one terminal is connected to the other battery terminal. If not, the electrons cannot flow. This is why we are not shocked when we touch one terminal of the battery. However, if we touch both terminals, we can be shocked. Also to note, our bodies are not good conductors, but are better insulators, so are fingers cannot produce enough flow for a batter to produce electricity. However, with help of a good conductor or solution can promote the flow of electricity and the circuit can become complete.