

Electricity



Micron Foundation
K-12 Program

Electricity

What is electricity?

Electricity is the movement of electrons.

Every single item in the whole world is made up of tiny, tiny things called atoms. Electrons are inside each of these tiny atoms circling around the nucleus.

**What items in your
classroom use electricity?**



Electrons

What type of a charge do electrons have?

- Electrons have a negative charge.
- Most electrons stay inside their own atoms, but sometimes they leave one atom and jump to the next. This is because their negative charge causes electrons to push away from, or repel, each other.
- Electrons then make a stream that runs from one atom to another. This stream is called an electric current.



Current

What does the word *current* mean?

- A current is defined as something that flows.
- You have probably observed water current in a river or stream.
- The flow of electrons through conductive material is known as an electric current.



Water Analogy

- ▶ Voltage is the difference in charge between two points, or the amount of potential energy.
- In our water analogy, the height of the tube in relation to the water level in the bottle, or the potential energy to push the water out, is like voltage.
- ▶ Current is the flow of electrons through a conductor per unit time. Electric current is measured in amperes (amps)
- In our water analogy, the amount of water flowing through the tube at a time (like gallons per second) is like electric current.



Conductivity

▶ **What does it mean for a material to be conductive?**

- It means that current runs through the material easily. The electrons are loosely bound.



▶ **Materials that conduct electricity are called *Conductors***

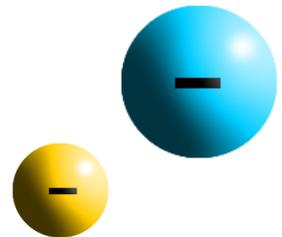
▶ **What types of materials are good conductors?**

- Gold, copper, aluminum, or other metals

▶ **Materials that do not conduct electricity are called *Insulators***

▶ **What types of materials would be insulators?**

- Rubber, plastic, wood, paper, others...



Activity Stations

- ⚡ Magnets
- ⚡ Static Electricity
- ⚡ Lemon Battery
- ⚡ Circuits



