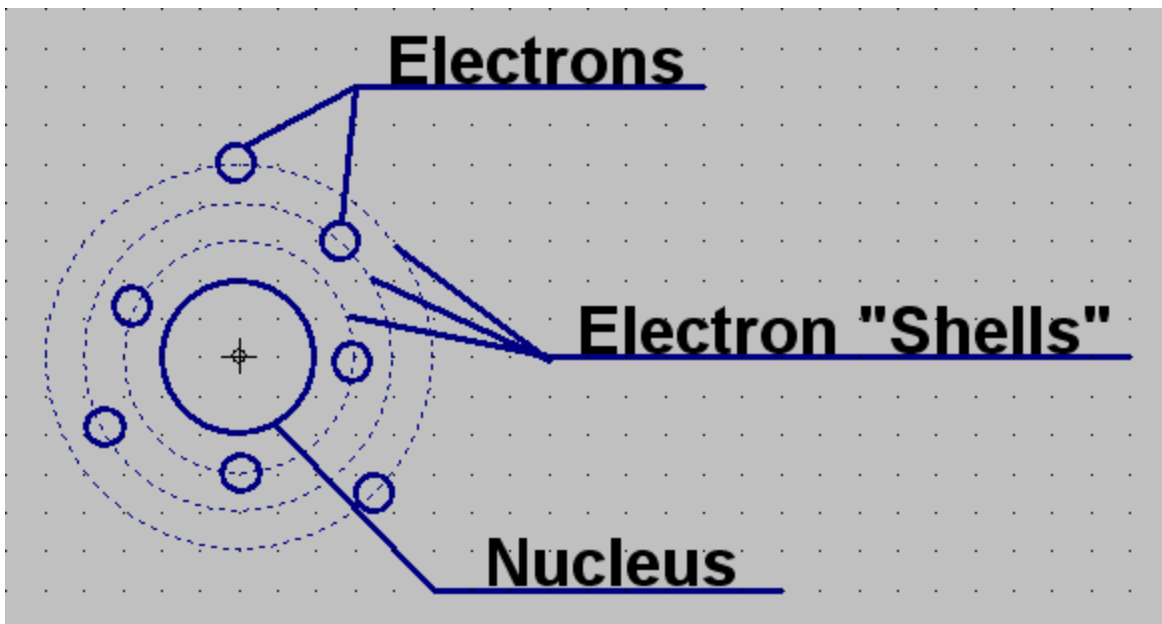


# Basic Electronic Components, Equations, and Properties.

## Electrons

Here is a little Atom diagram to start up this strange "electron" stuff.



I cannot guarantee the accuracy of these diagrams on a detailed scale. In all actuality, the last electron shell is the only one that can hold more than two electrons - just a friendly disclaimer. :)

## "What are electrons and what do they want with us?"

First of all, electrons are a part of our life, so deal with it.

Now, An Atom is what we usually refer to as the "**basic building brick of matter**". An Atom is what we breath, smell, think, feel, use, and want. If we go get something at a grocery store, chances are, it is made up of atoms. Atoms make up objects just as bricks make up Mausoleums. If we didn't have Atoms, we wouldn't have people, or anything.

Okay, now for some more serious stuff.

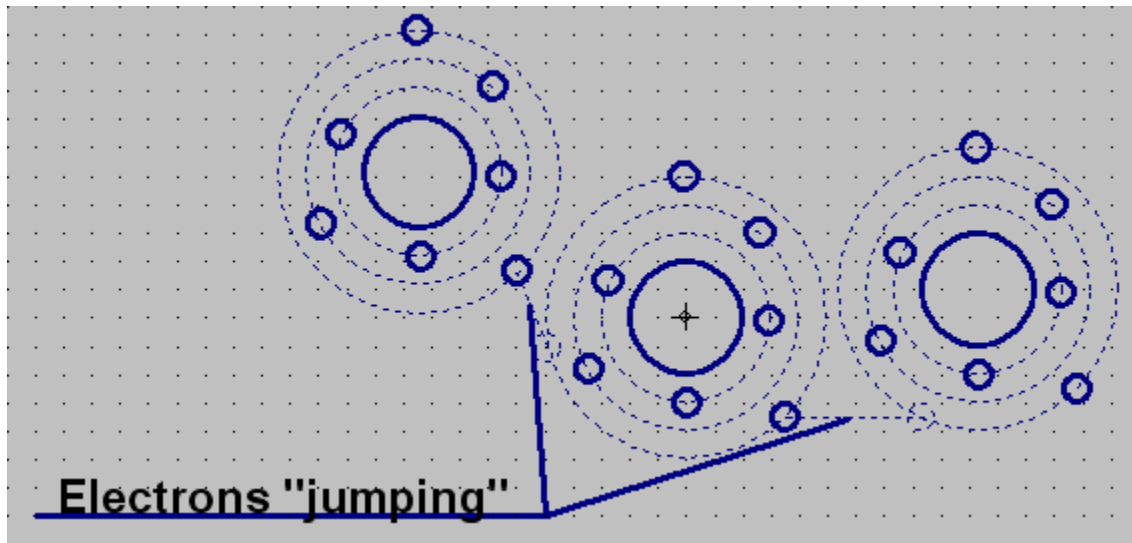
An atom consists of three basic parts; the Protons, Neutrons, and **electrons**. The Protons and Neutrons are contained within the Nucleus, all stuck together in a small little ball. But we don't care about the Protons and Neutrons, so we'll just refer to the little ball as the **nucleus**.

**Nucleus:** The very center of an atom.

**Electrons:** Small particles that fly around the nucleus of an atom at amazing speeds. These little "golf balls" are the basis of what we know as "Electricity".

**Electron Shells:** These are the paths in which electrons orbit the atom. An electron can jump between shells depending on its energy level.

Electrons can "jump" from atom to atom just like you would jump from rock to rock to get across a river of lava. However, only electrons from the outermost shell can jump. When this happens in mass quantities, it is called **electron Flow**, or **electricity**.



Electron shells have a limit to how many electrons they can carry; coherently, atoms have a limit on how many shells they can contain - and this means that overall, atoms themselves have a limit to how many electrons they can carry. The closer they are to this limit, the more likely they are to lose an electron. When an atom loses an electron, then another atom will receive the electron. If the receiving atom is near or at its limit, then it will lose an electron as it receives one. This chain reaction is what makes **electron flow**.

Your late to work. You throw your leather jacket on and make a bold lunge for the door. As you reach for the doorknob, a small spark jumps from your finger and illuminates the golden lustrous ball that you now grasp in your hand. The tingling sensation in your finger leaves you dazed in awe until you regain awareness and open the door only to hit your head. What happened? You have just experienced the transition of **voltage** to **current**. These two properties of electrical flow are defined as follows:

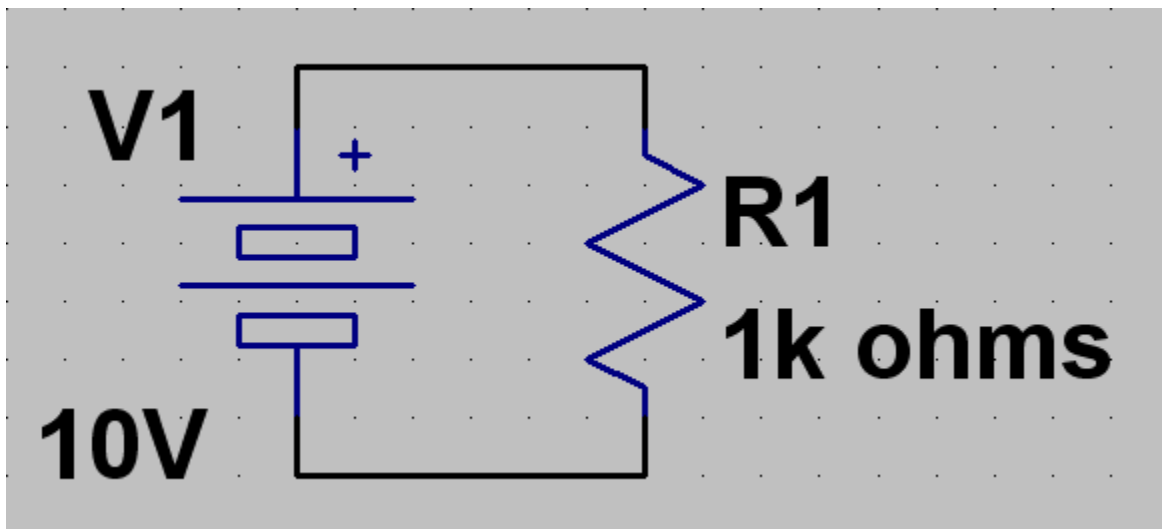
**Voltage:** The Electromotive Force that pushes electrons to make them flow. Voltage is the stored form of current; it is potential energy, meaning that it can be released by certain means.

**Current:** This is the speed of the electron flow within a wire or **Voltage Source**. Current is the moving form of Voltage; it is Kinetic Energy, which is the released form of Potential Energy.

**Voltage Source:** A source of voltage. A battery, for example.

This is the most basic part of Electronics - these are the facts. Everything else you will encounter is comprised of these simple building blocks that maintain the base of modern technology. Learn these basics and **you can learn anything**.

Okay, lets start with a simple battery and resistor.



Now, to explain what this diagram is. This is what you call an **Electrical Schematic**. This picture is what Electrical Engineers use to write down all their circuits. The blue symbol on the right stands for a **Battery**. The symbol on the right is a **Resistor**. The black lines connecting the symbols are **Wires**.

I need Pictures!

I need real-world pictures depicting a battery connected to a resistor, about 600X250 is around the size I need. Thanks in advance.