Circuits

In order for charges to flow continuously, two things must be true:

1. There must be an energy source capable of generating an Electromotive Force (EMF).

...and...

2. There must be a continuous conducting loop current to flow which contains the voltage source (EMF).

If these two conditions are met, then we have a "closed circuit." If the continuous loop is broken, we get an "open circuit," and the current flow stops through the loop.

Closed Circuit

[Diagram of a closed circuit with current flow]

Open Circuit

[Diagram of an open circuit with no current flow and a break in the circuit]
DC vs AC

A battery, by its design, is only capable of inducing current flow in one direction. This is called "Direct Current" or "DC".

A simple DC circuit

The electric company doesn't use batteries to supply electricity. Rather, it uses large generators which provide current which oscillates back and forth at 60 cycles/second. This is called "Alternating Current" or "AC". An AC source is shown in a diagram by this symbol: ʘ

A simple AC circuit

Light bulb is lit no matter which way the current flows

current (½ the time)

current (the other ½ the time)