

# Electric Circuits

- Electric current is the continuous flow of electric charges.
- To do work, electric current must have a path to move along.

- Electric current is measured in amperes or amps (A).
- Potential difference results from different electric charges in two locations.
- The measured of the potential difference is called Voltage or volts (V).

# Brain Pop Video: BATTERIES

- <http://www.brainpop.com/science/energy/batteries/>

# Batteries

- A battery is made stored chemical energy and has a positive terminal and a negative terminal.
- In a battery, the voltage results from the negative end of the battery repelling negatively charged electrons through a wire.

# Circuits

- The electrons then push electric current down a pathway called a circuit.
- How hard the push has to be depends on the type of material the current is flowing through.
- The amount of resistance is a measure of how easy or hard it is for the current to flow.

# Brain Pop Video: CIRCUITS

- <http://www.brainpop.com/science/energy/electriccircuits/>

# Circuits

- An electric circuit is a pathway for electric current.
- Circuits are composed of an energy source, loads, conductors and switches.



# Circuits

- A circuit needs an energy source to push a charge through the circuit.
- In a battery the electric charges are repelled by one terminal and attracted toward the other.
- The charges will run through the circuit until they hit a switch or until they re-enter the battery through the positive terminal.

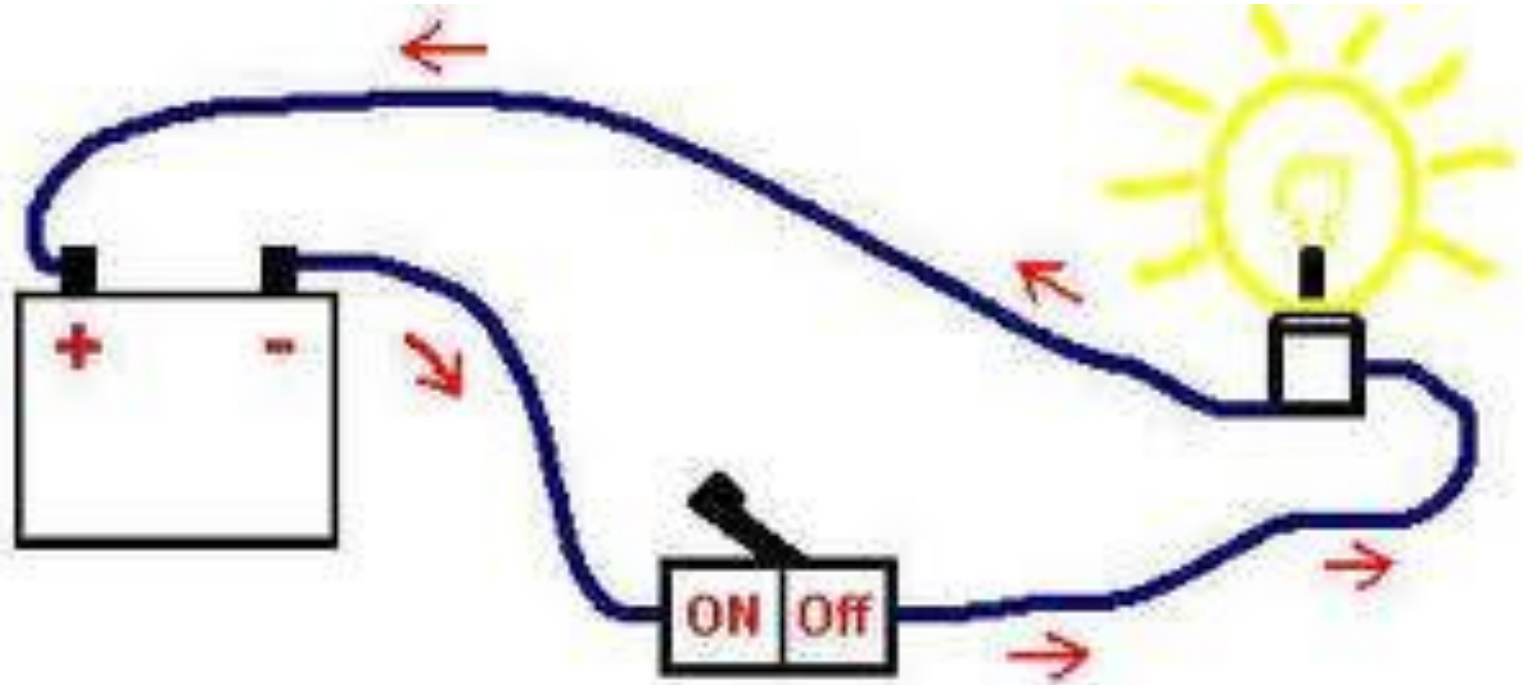
# Circuits

- A load is a device in a circuit that operates using electricity, like a light bulb.
- A conductor is a material, like a wire, that allows current to flow through it easily.
- Conductors carry electric current from the energy source all the way through a circuit and back to the power source.
- Conductors (wire) are covered with material called insulators (made of plastic or rubber) so the electricity is contained within the wire.
- Watch out if the insulation on a wire is cut because the electricity can leave the wire and shock you.

# Circuits

- A switch is a device that is used to control the flow of electric current through a circuit.
- An open switch will not allow electric current to flow and the circuit will be “off”.
- A closed switch allows electric current to flow and the circuit will be “on”.
- Any break in the circuit that stops the flow of electric current can act like a switch.
- Examples: blown light bulb and cut wire

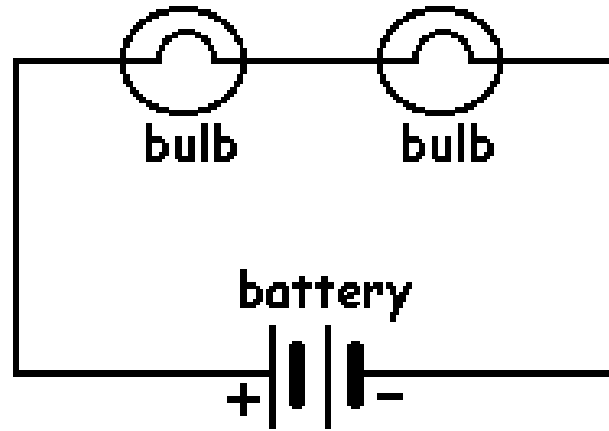
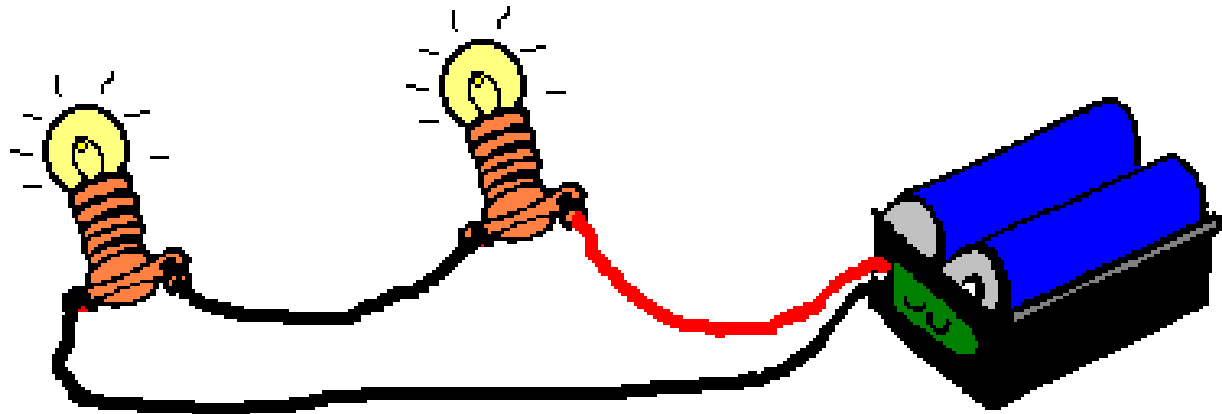
# Circuits



# Series Circuit

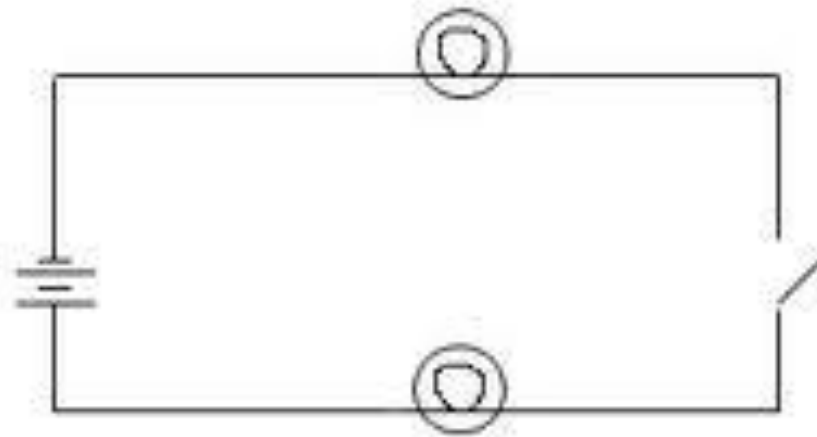
- A series circuit is a closed loop that has an energy source and at least one load.
- The parts of a series circuit are wired in one conductive path that the charges must follow.
- Example: old time Christmas lights when one light blows the whole circuit, string, will not work.

# Series Circuit



Series Circuit

# Label

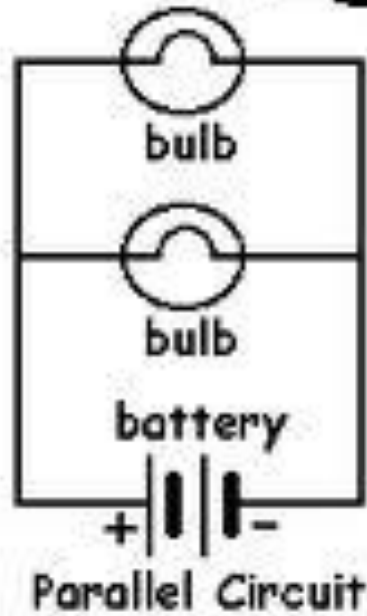


# Parallel Circuit

- A parallel circuit is a simple circuit split into more than one loop.
- In a parallel circuit there is more than one path for electric current to follow.
- Example: new type Christmas lights when one light blows the rest of the circuit, string, will work.



# Parallel Circuit



# Label

