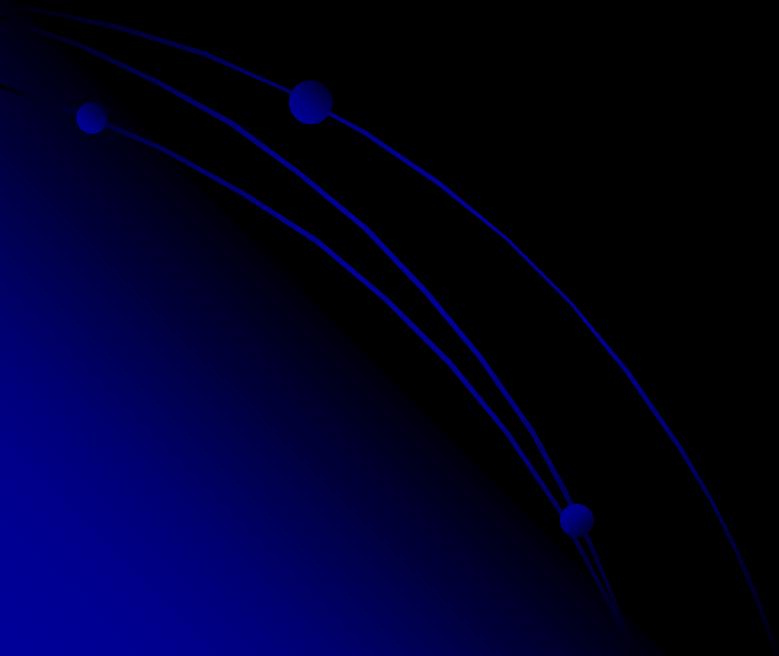
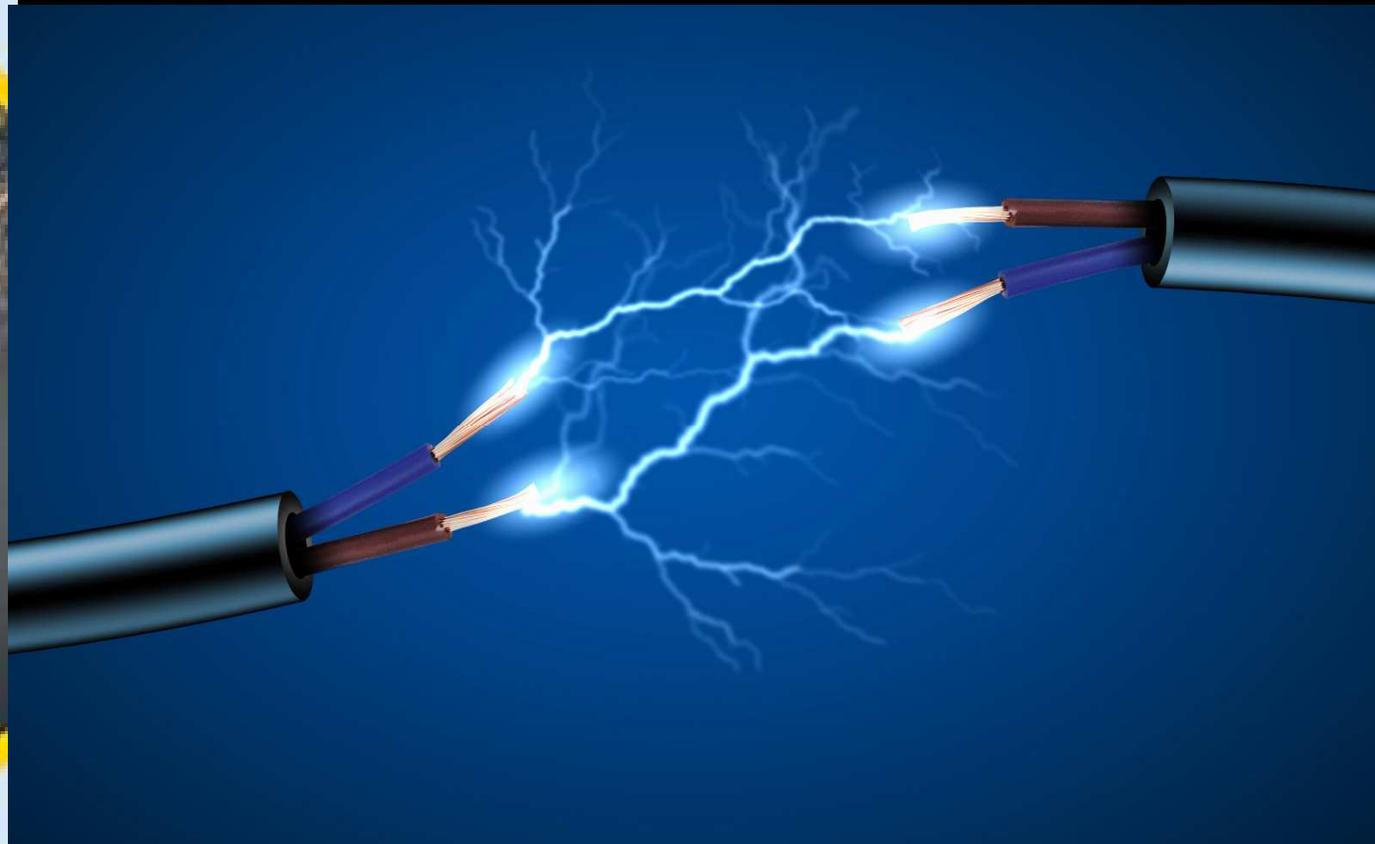


Electricity



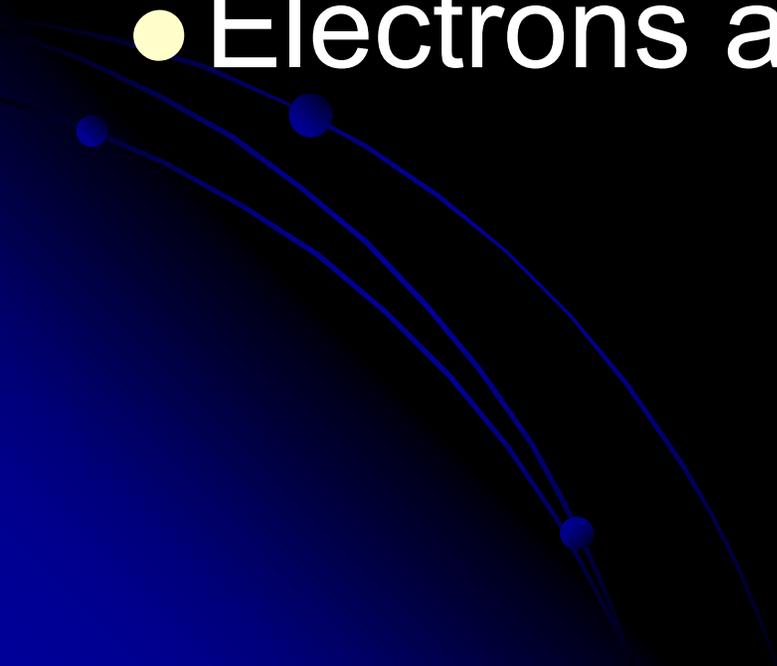
What is electricity?

The collection or flow
of electrons in the
form of an electric
charge



Atoms...

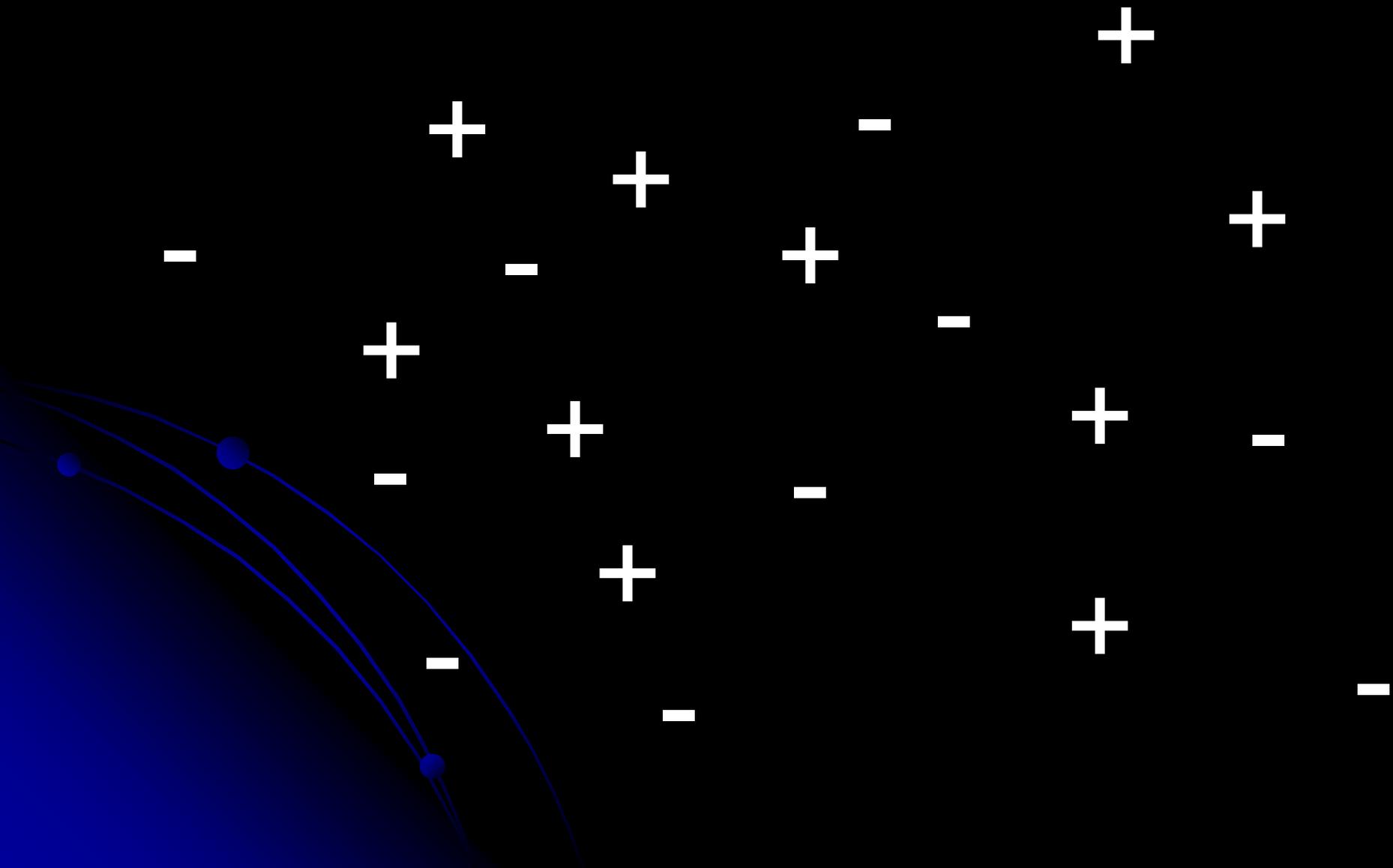
- Have **neutrons**, **protons**, and **electrons**.
- Protons are **positively** charged
- Electrons are **negatively** charged



Electrons...

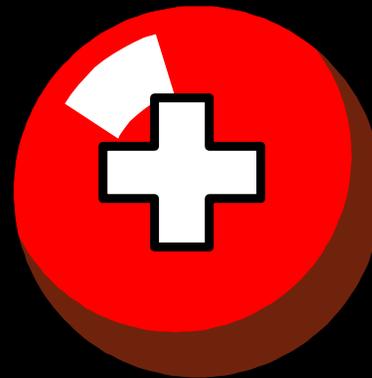
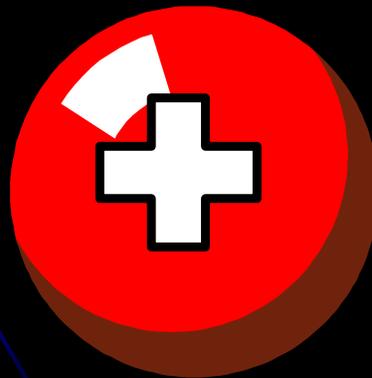
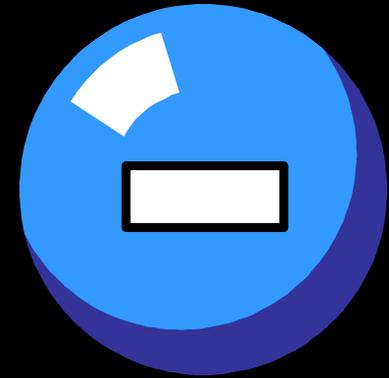
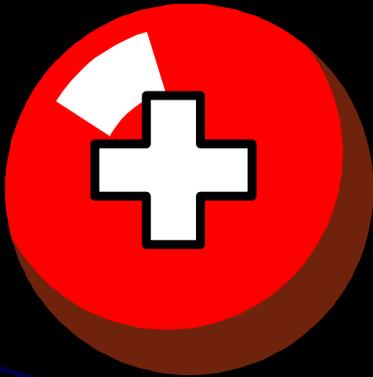
- Are located on the **outer** edges of atoms...they can be **moved**.
 - Gaining electrons = **negative** charge
 - Losing electrons = **positive** charge
- 

The world is filled with **electrical**
charges:

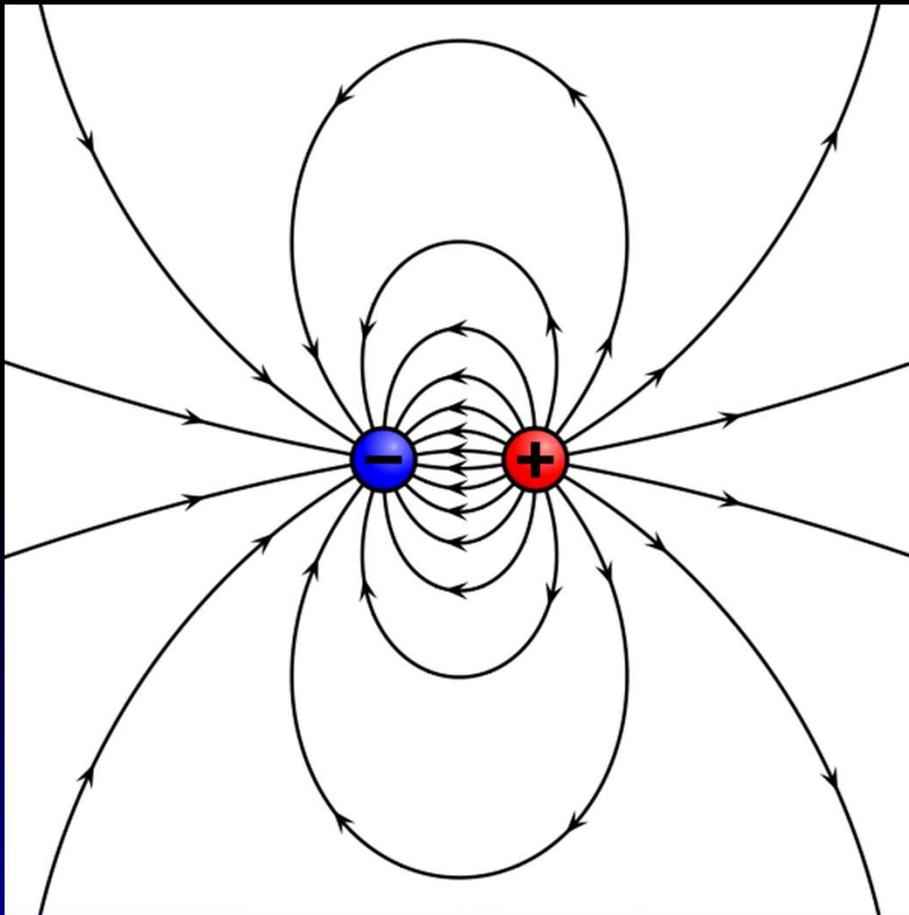


EL CTRICITY – H BASICS

- Law of Electric Charges
 - Opposite charges attract and like charges repel



Electric Force and Electric Fields



- The electric force is the push or pull that comes from the attraction and repulsion of charges.
- The electric field is the area near and around the charge in which the push or pull has an effect

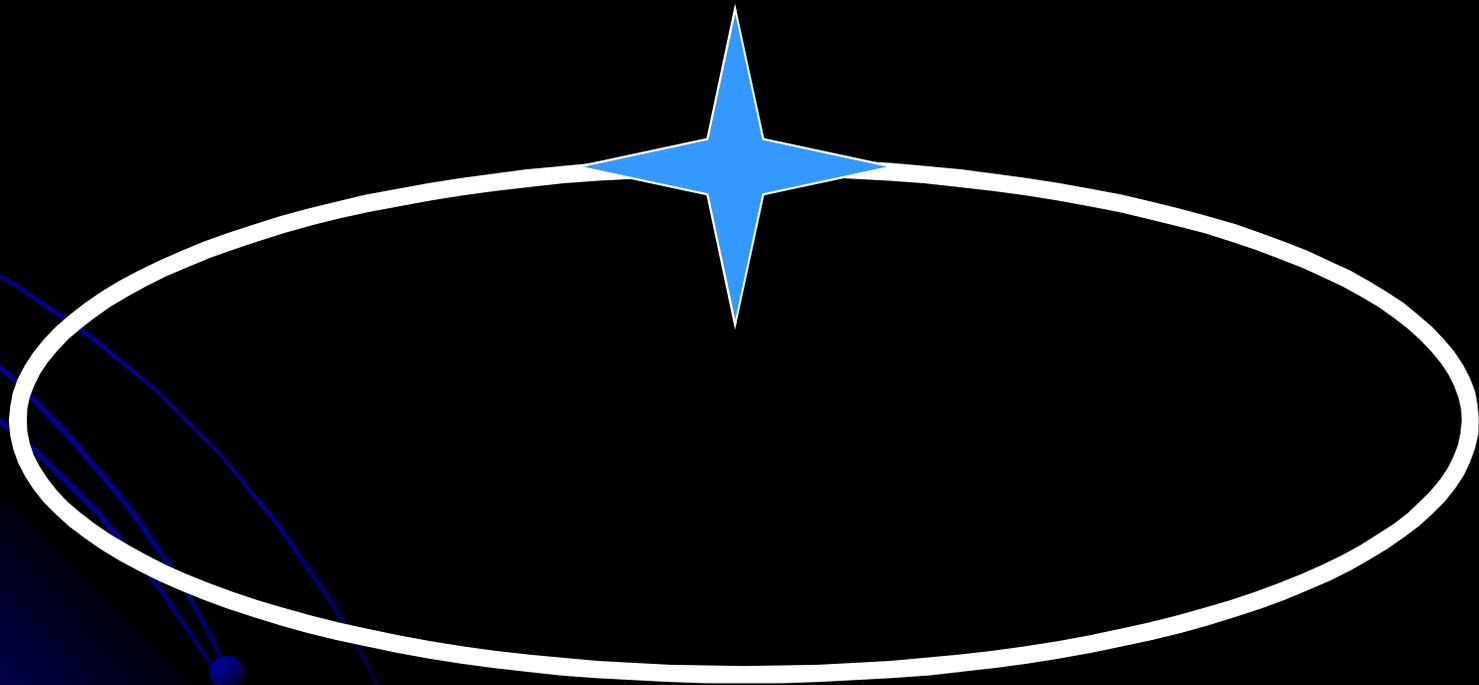
Electricity that **moves**...

- **Current**: The flow of electrons from one place to another.
- Measured in **amperes** (amps)
- **Kinetic** energy



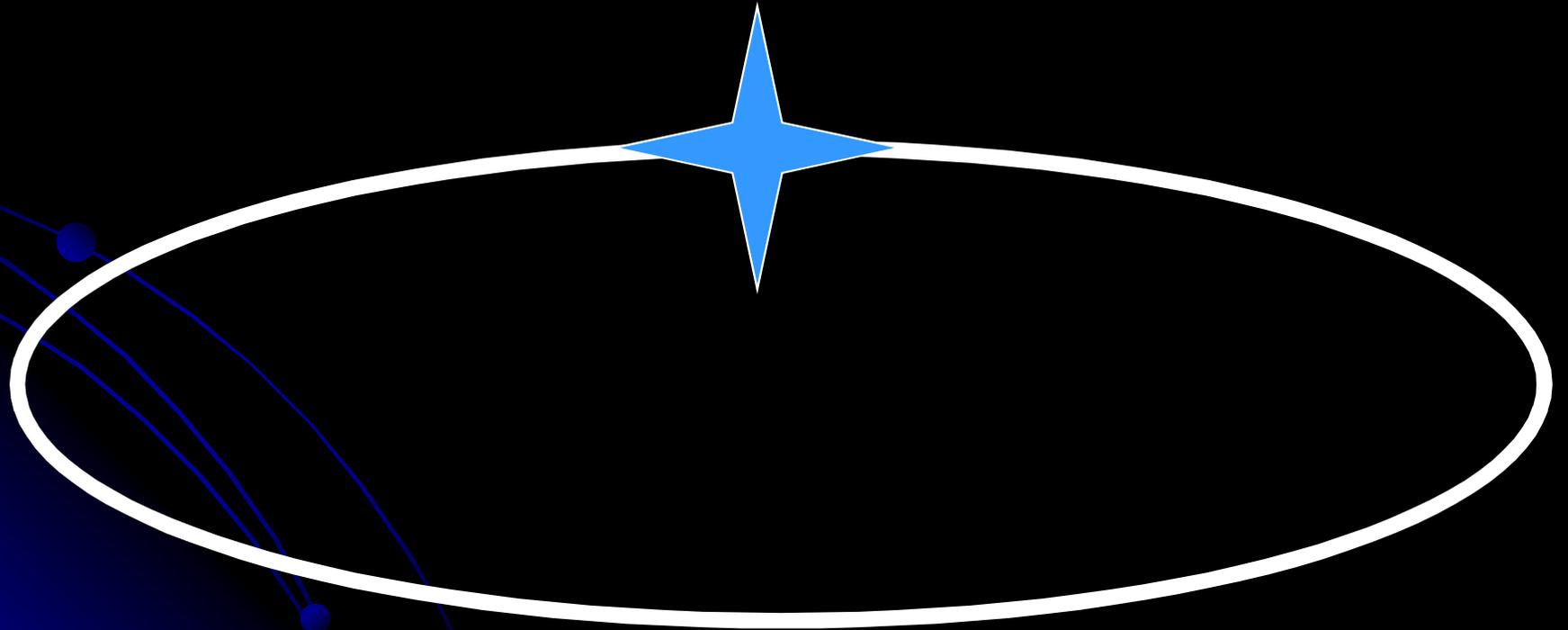
There are 2 types of currents:

- Direct Current (DC) – Where electrons flow in the same direction in a wire. (In batteries)



There are 2 types of currents:

- Alternating Current (AC) –
electrons flow in different
directions in a wire. (in homes,
buildings, etc.)



A conductor is a material in which charges move easily



An insulator is a material in
which charges cannot easily
move



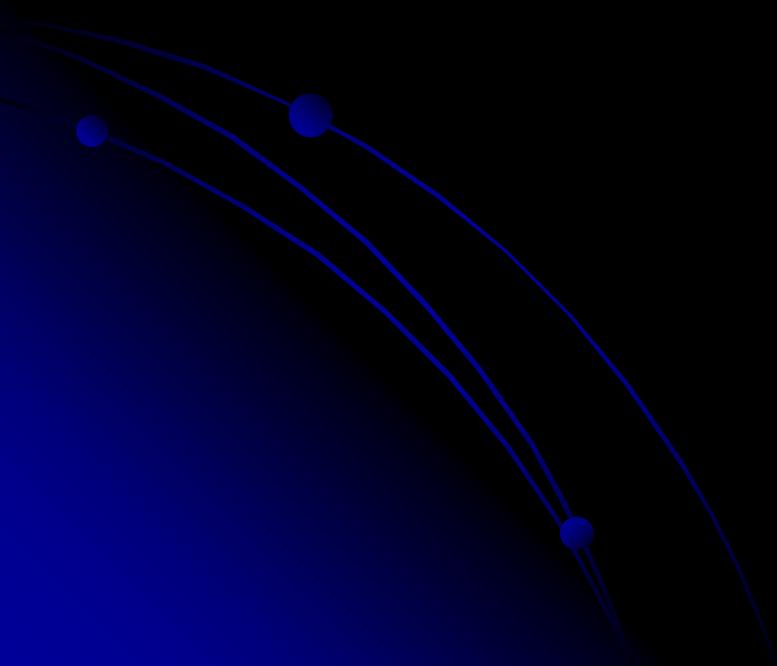
Examples

- **Conductors:**

- Metal
- Water

- **Insulators:**

- Styrofoam
- Rubber
- Plastic
- Paper



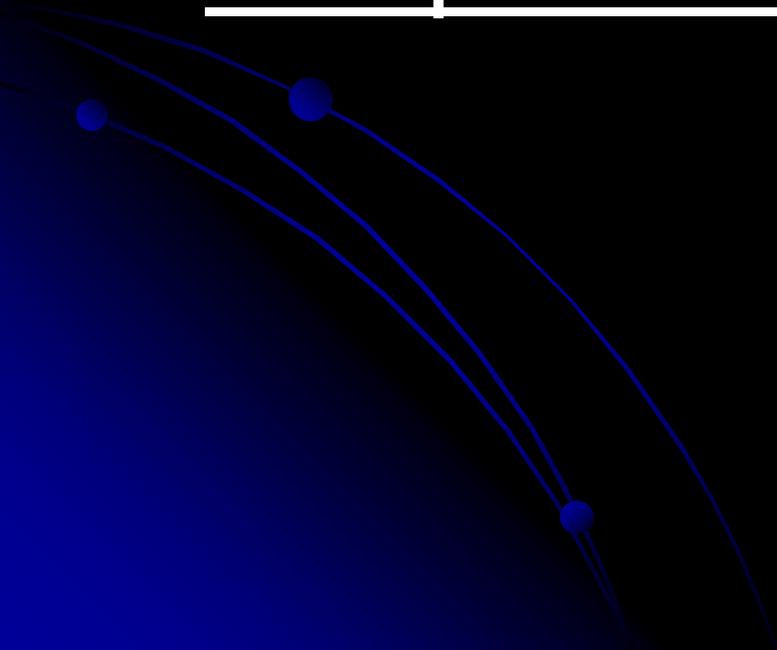
How can we **control** currents?

- With **circuits**.
- **Circuit**: is a **path** for the flow of electrons. We use **wires**.

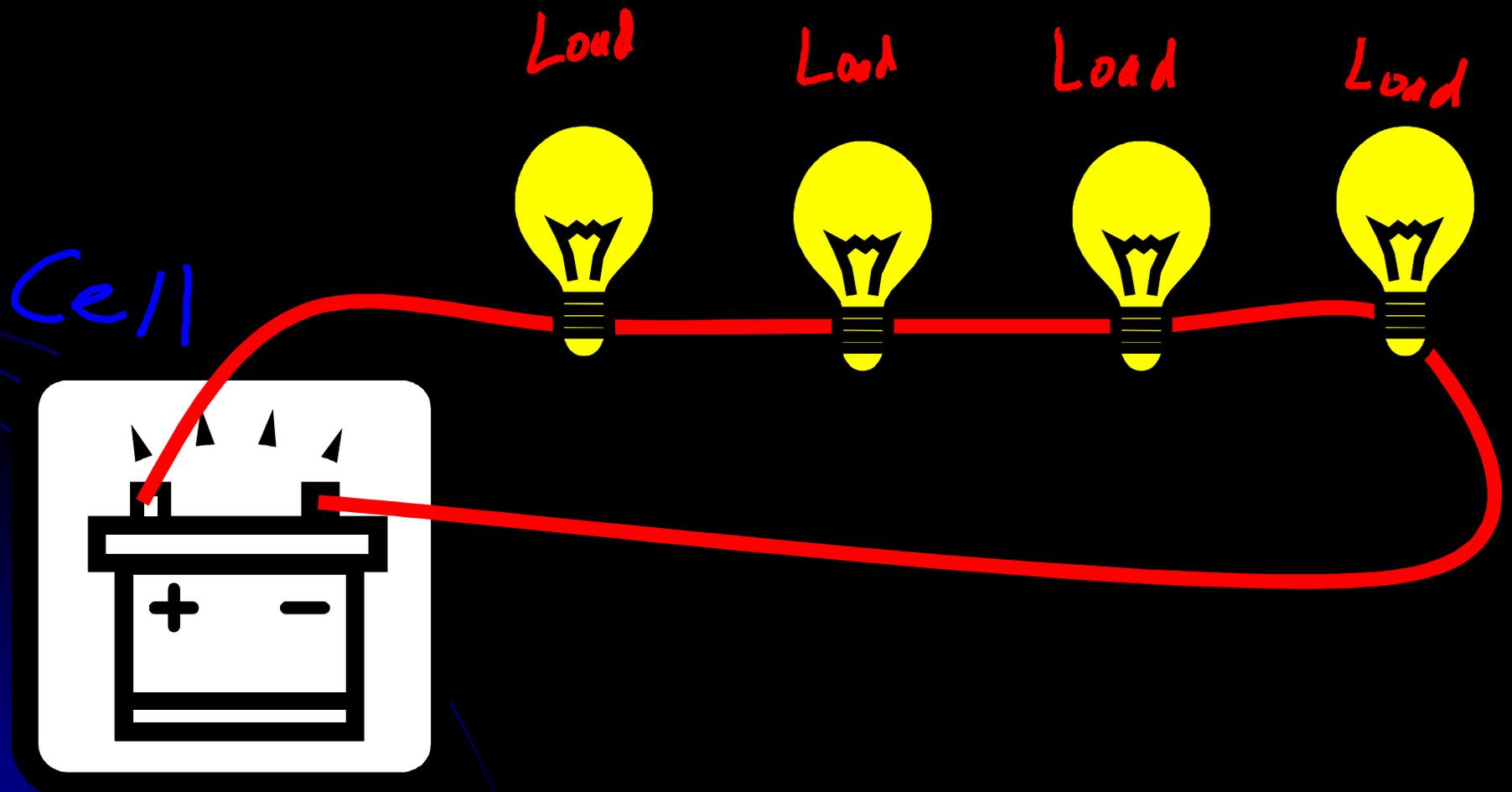


There are 2 types of circuits:

- Series Circuit: the components are lined up along one path. If the circuit is broken, all components turn off.



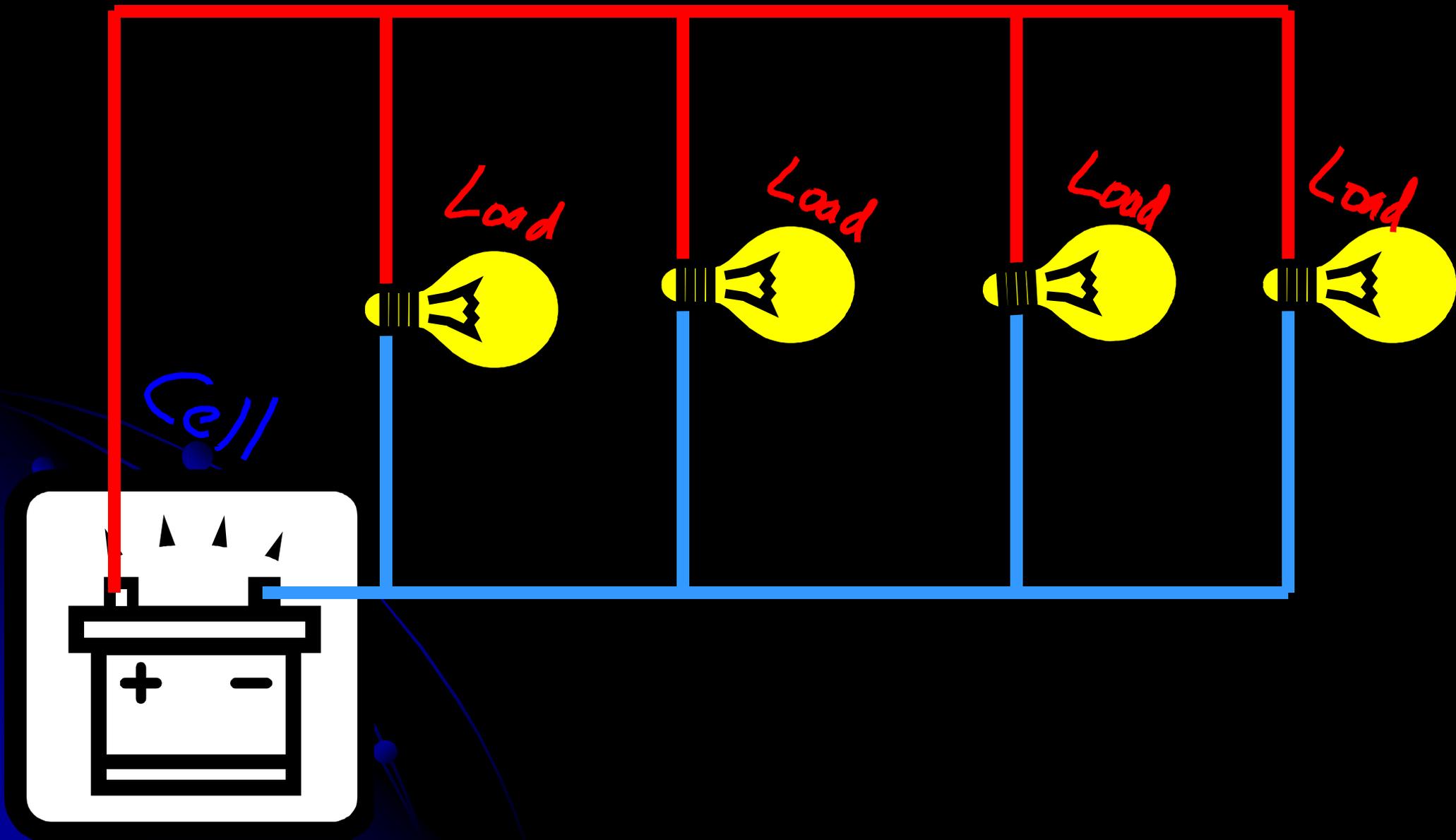
Series Circuit



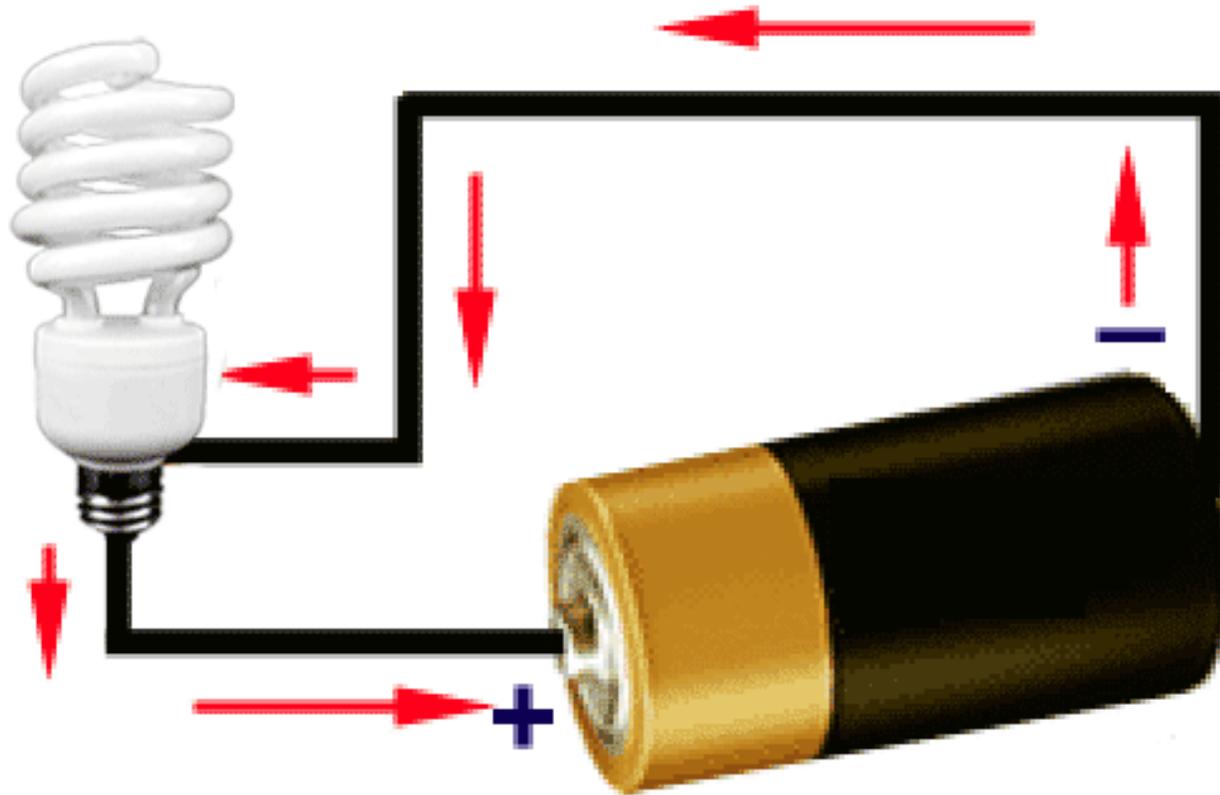
There are 2 types of circuits:

- Parallel Circuit – there are several branching paths to the components. If the circuit is broken at any one branch, only the components on that branch will turn off.

Parallel Circuit



A circuit is a closed path through which electric charges flow.

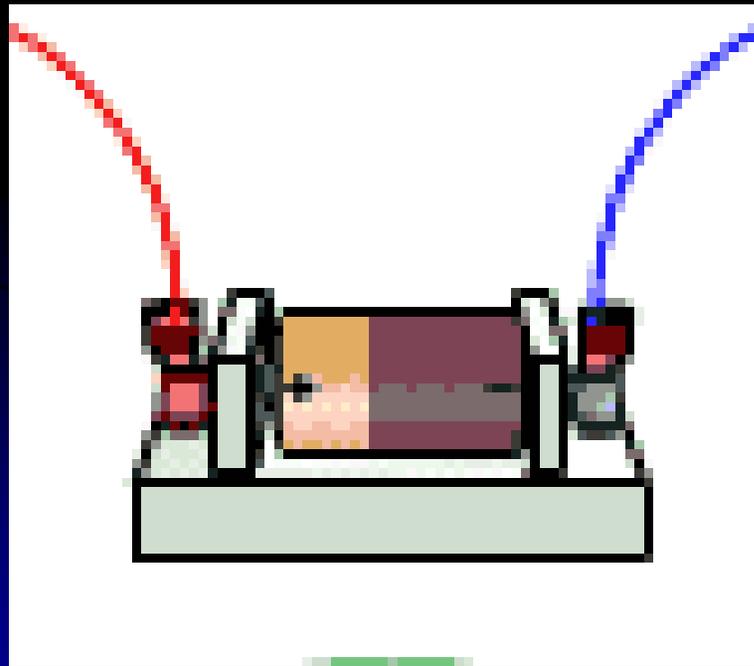


Simple circuit with light

The CELL

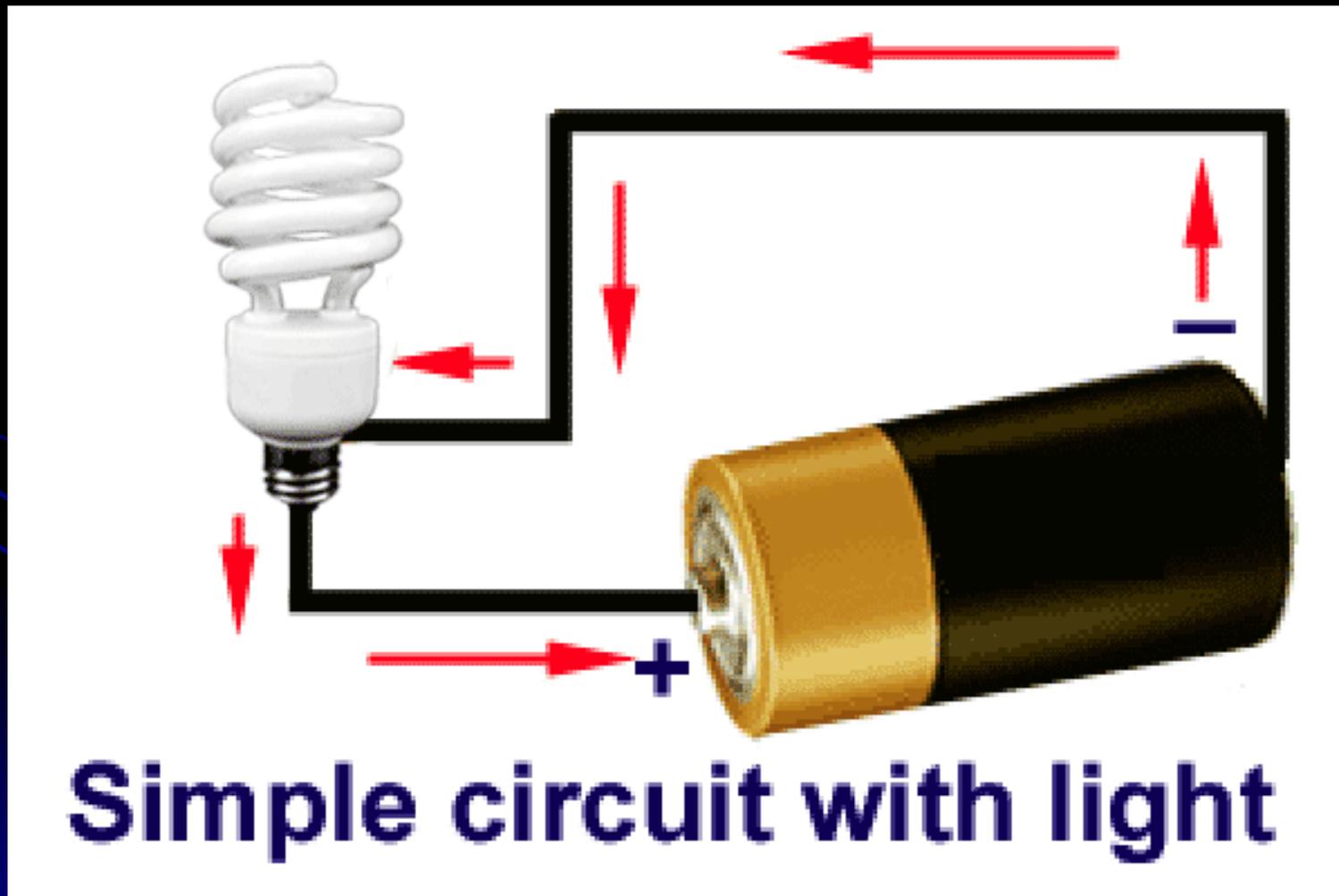
The cell stores chemical energy and transfers it to electrical energy when a circuit is connected.

Source of energy



The cell's chemical energy is used up pushing a current round a circuit.

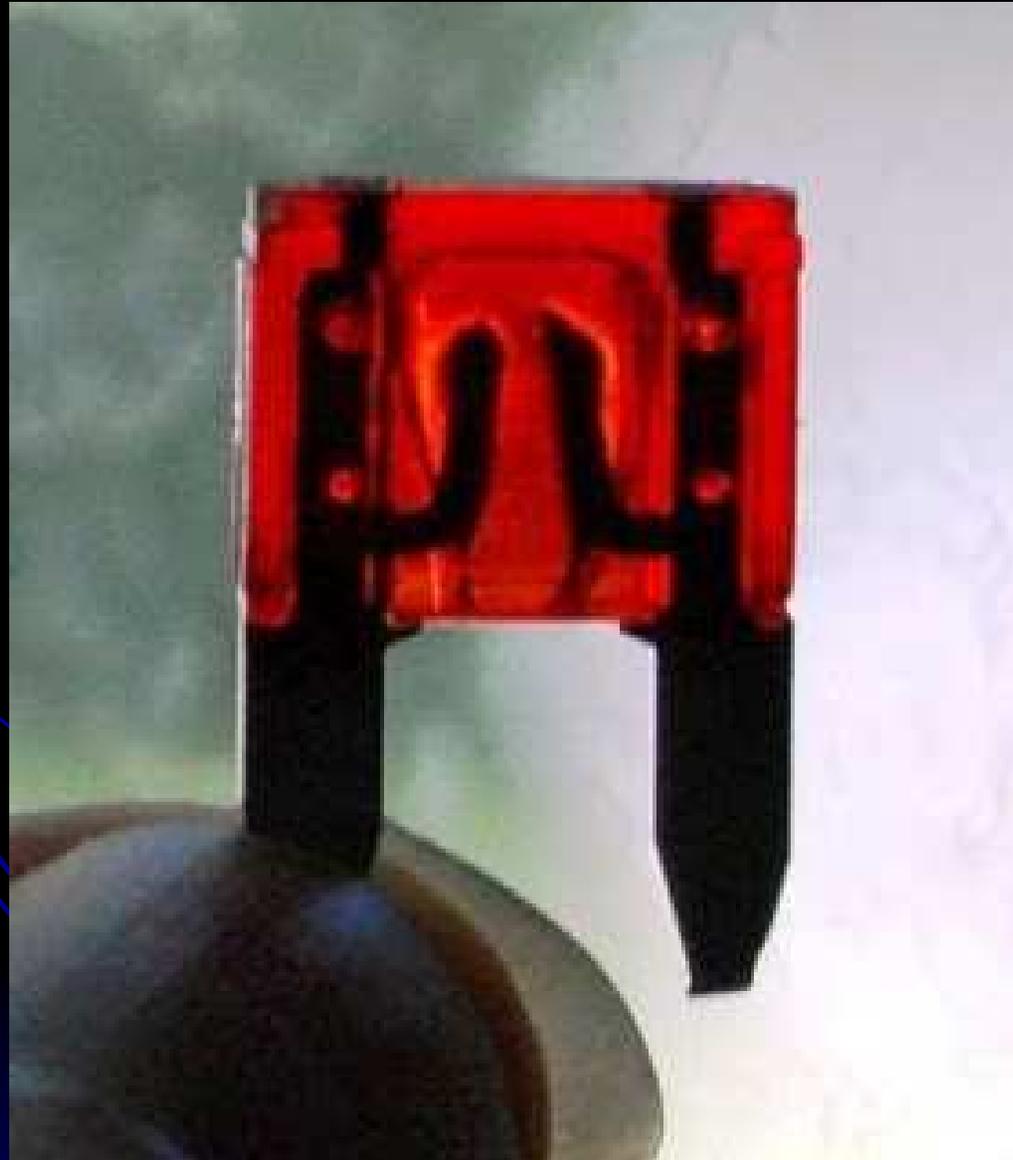
The load is the device that uses the electrical energy to do work



A switch is used to open and close a circuit.



A fuse contains a thin strip of metal that melts if the current is too high.



A circuit breaker is a switch that automatically opens if the current is too high.

