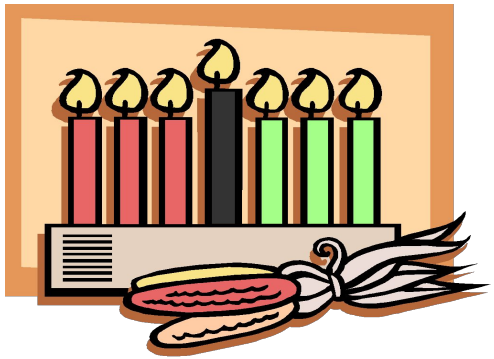
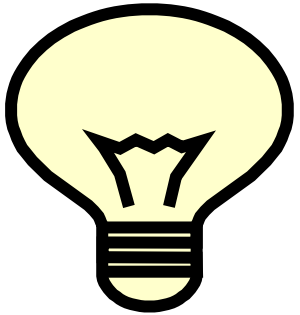
Light, magnetism and electricity

Unit 7

What is light?

- Light is a **form of energy**
- What are three examples?





Light spreads

- Light that leaves a light sources spread in a **straight line** in **ALL directions**
  - Each line is called a **ray of light**
- **Speed** of light **depends on the environment** it crosses
  - light travels at about **300,000 kilometres/second**!

How objects interact with light

- Objects that **DON´T** emit light are **non-luminous**
  - We can **only** see them when **illuminated** by a light source

3 types of non-luminous objects

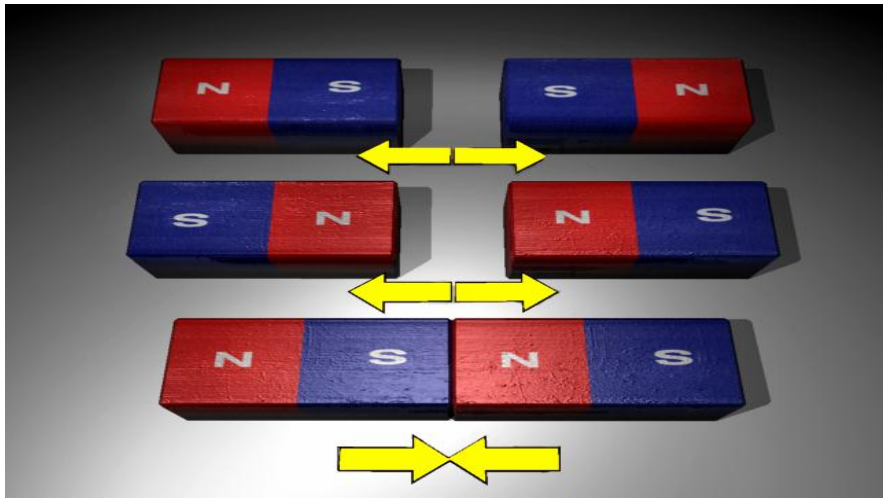
- **Opaque**
  - Light **CAN´T pass** through. **Rays of light bounce off** the object
    - Wood, iron, rock
- **Transparent**
  - Light **CAN pass** through. We **CAN´T see** these objects but we **CAN** see **THROUGH** them
    - Glass, water, air
- **Translucent**
  - **Some light can pass** through. We can see **through** them but it is **blurry.**
    - Some glass and plastic

Magnetism

- **Property** some substances have to **attract metals**, like iron.
- Magnets
  - **Natural**
    - Found in nature, like rocks
  - **Artificial**
    - Man-made. Made of iron or steel.

Poles of a magnet

- Areas that exert the **strongest force on metal objects.**
- One pole is the **north** and the other the **south**. When we put the poles close together:
  - If the **2 poles are different** , the magnets will **attract** each other
  - If the **2 poles are the same**, the magnets will **repel** each other



Questions

- What is light?

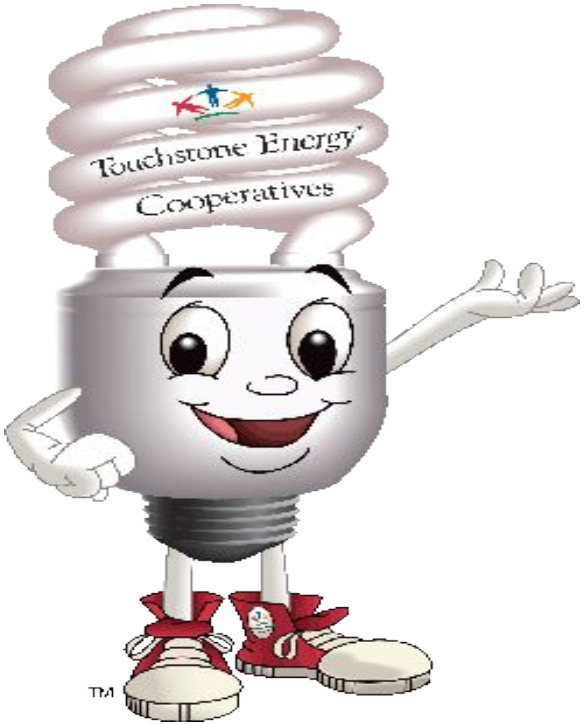
  LIGHT IS A FORM OF ENERGY

- What are the 3 types of non-luminous objects?

  OPAQUE, TRANSPARENT, TRANSLUCENT

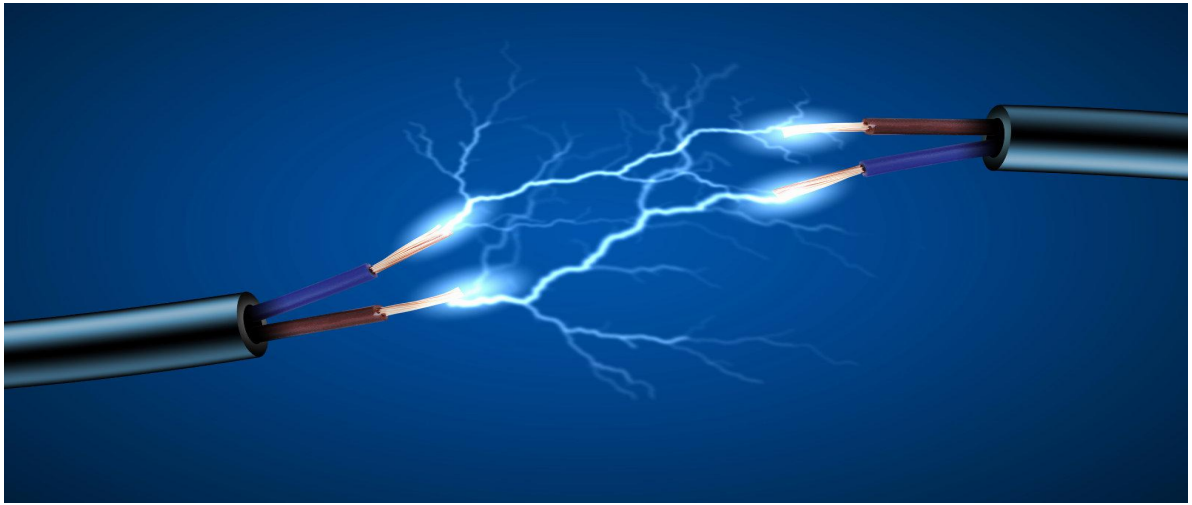
- When do magnets attract and repel each other?

  ATTRACT: IF THE POLES ARE DIFFERENT
  REPEL: IF THE POLES ARE THE SAME



Electricity

- **Form of energy**
- Gives us **light** and **heat**
- **Makes machines work** (washing machines, computers, microwave ovens, etc.)



Static electricity

- If we rub glass or plastic objects with a cloth, we see that these objects attract small pieces of paper or hairs
  - We call this **electric charge** or **static electricity**!

Electric current

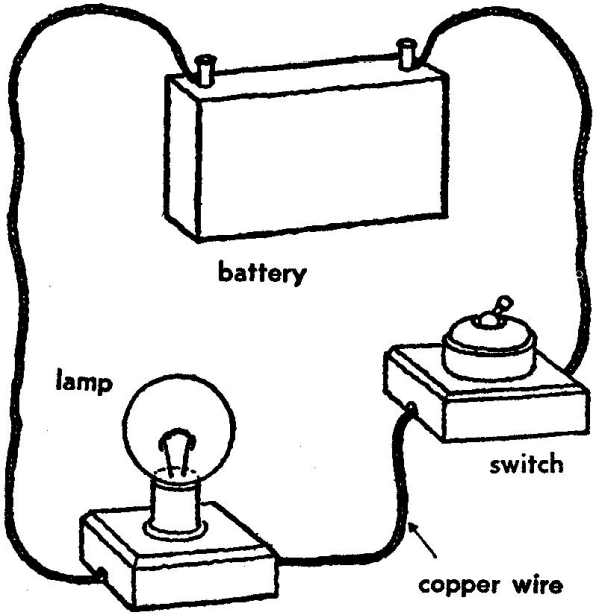
- If we rub a balloon with a bit of wool and place it near a flourescent light, a small light will appear in the tube.
- The **electrical charge** of the balloon has **passed to the tube**.
- The **movement of the charge** is called an **electric current**.

Movement of an electric current

- **Conductors**
  - Objects that **permit an electric current to pass** through them.
    - Metals like copper and silver
- **Insulators**
  - Objects that **do not permit an electric current to pass** through them
    - Wood, rubber, clay, plastics, glass
    - These **protect us** from electric currents

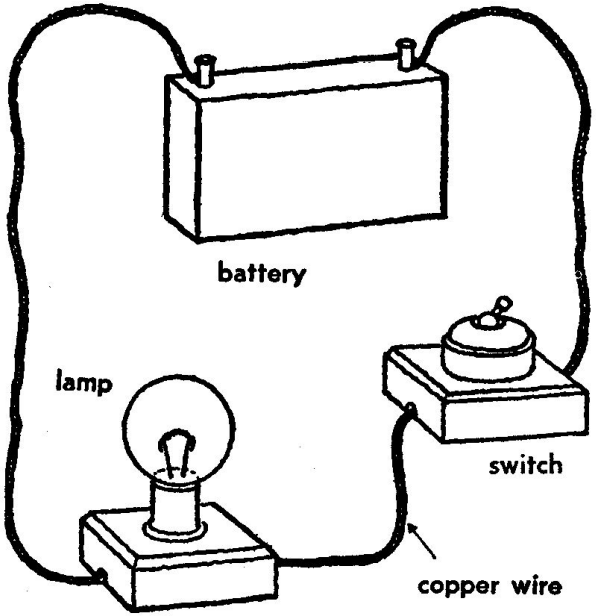
Electrical circuit

- Group of objects that allow us to **generate, distribute,** and **use** an **electric current**
- Formed of:
  - Generator
  - Wires
  - Switch
  - receptors



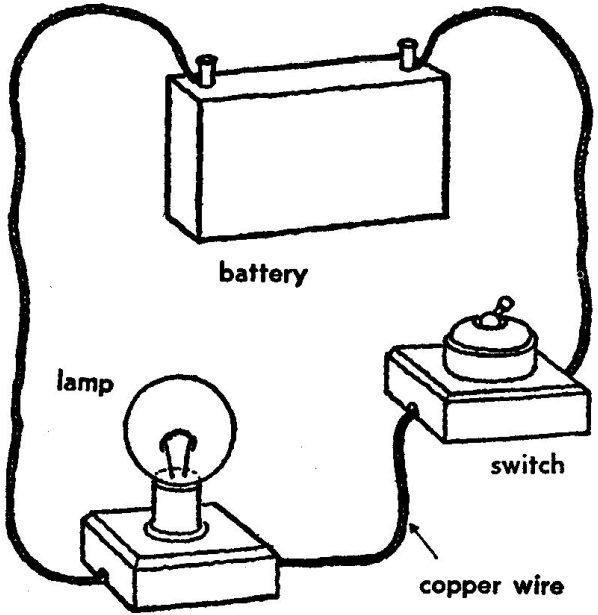
Generator

- **Produces** the electric current
  - Power stations and batteries



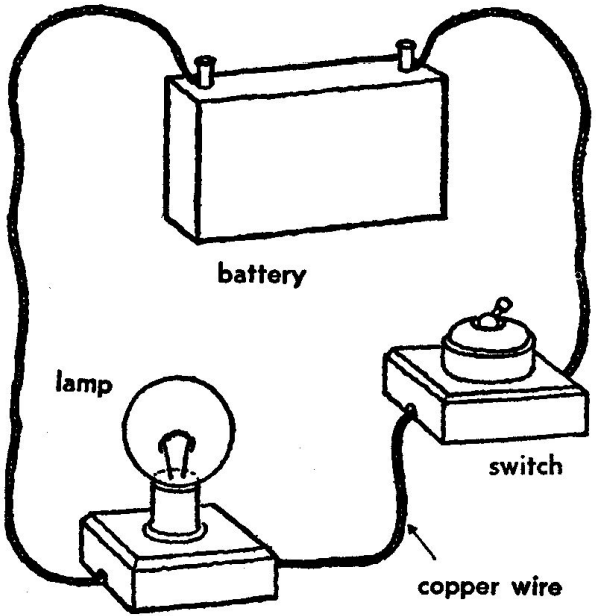
Wires

- **Transport** the electric current from the **generator** to the **receptors** of the circuit



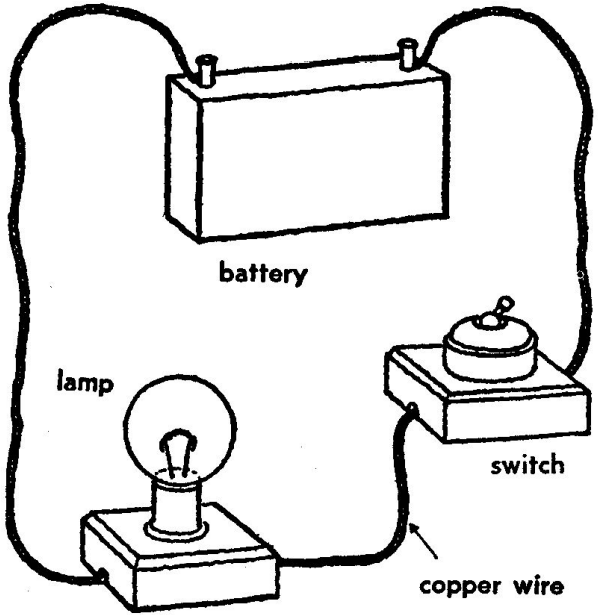
Switch

- **Interrupts the flow** of the electric current

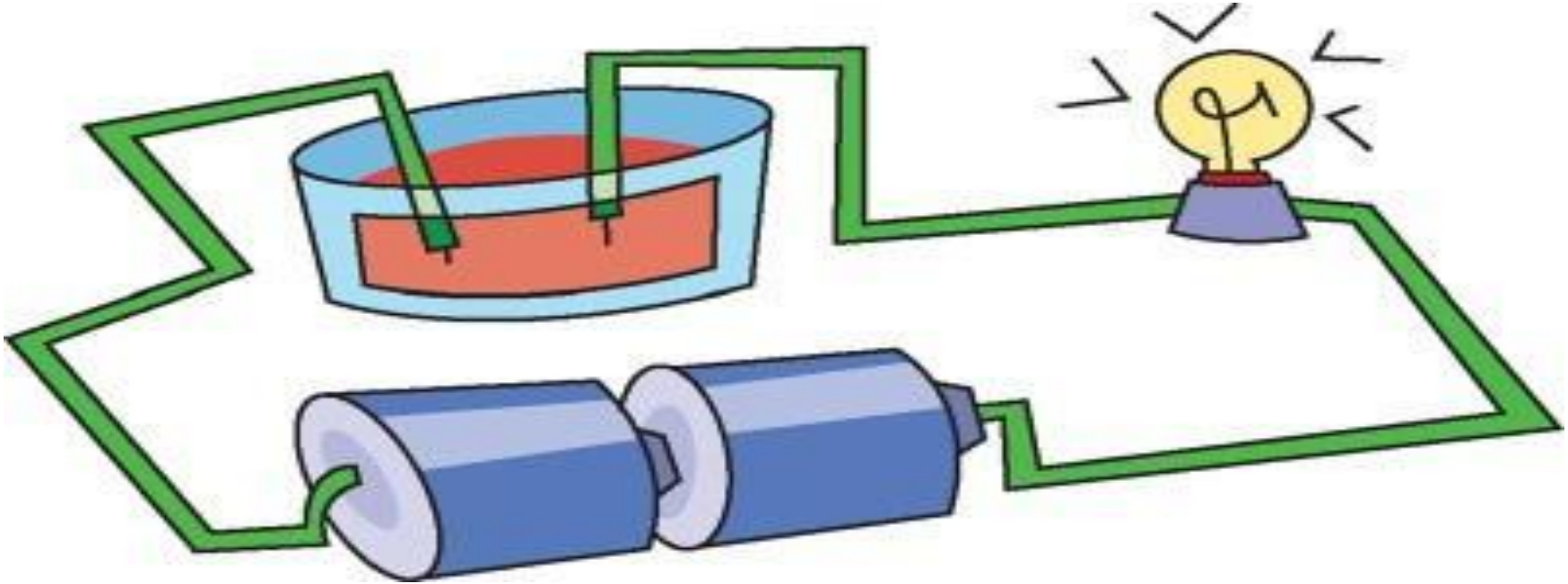


Receptors

- **Receive and use** the electric current
  - Light bulbs, computers, washing machines



Describe this electrical circuit!



questions!

What is static electricity?

WHEN PLASTIC OR GLASS CAN ATTRACT SMALL PIECES OF PAPER OR HAIR

What are the two types of magnets?

NATURAL AND ARTIFICIAL

What are the parts of an electrical circuit?

GENERATOR, WIRES, SWITCH, RECEPTORS

What is a straight line of light called?

A RAY OF LIGHT

What two things does electricity give us?

LIGHT AND HEAT

Is this object opaque, transparent, or translucent?

TRANSLUCENT

THE END