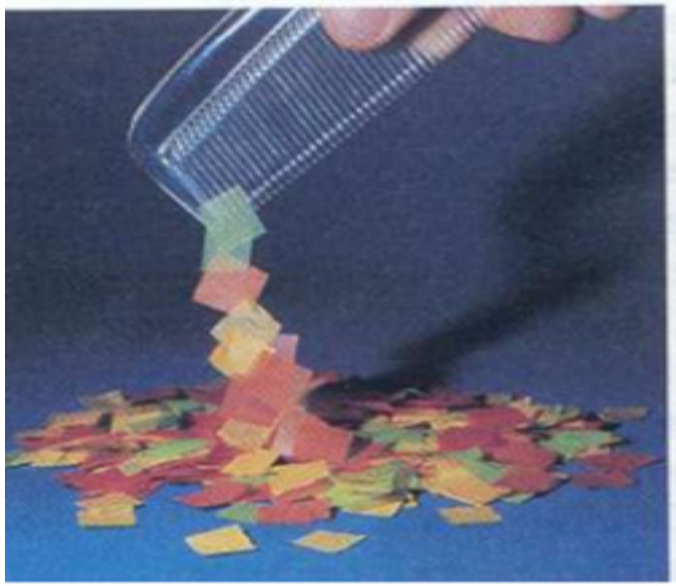
CHAPTER 15

SOME NATURAL PHENOMENA

SOME NATURAL DESTRUCTIVE PHENOMENA

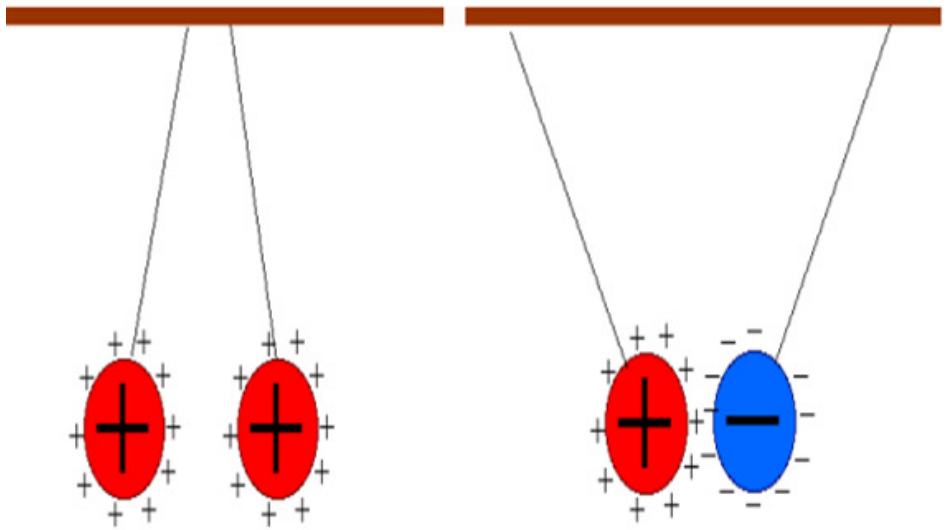
- **Lightning:** The process of electric discharge between clouds and the earth or between different clouds causes lightning
- **Earthquake:** Earthquake is caused by a disturbance deep inside the earth's crust.

- Some objects can be charged by rubbing with other objects.
- The electrical charges produced by rubbing are called static charges.
- When charges move, they constitute an electric current.



TYPE OF CHARGES

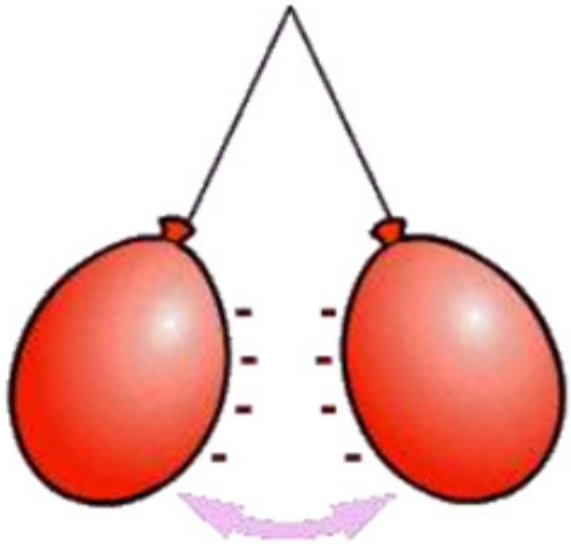
- There are two kinds of charges
  positive charge
  negative charge
- Like charges repel
- unlike charges attract each other.



LIKE CHARGES REPEL EACH OTHER

Activity: Inflate two balloons. Hang them in such a way that they do not touch each other Rub both the balloons with a woollen cloth and release them.

Observation: They repel each other

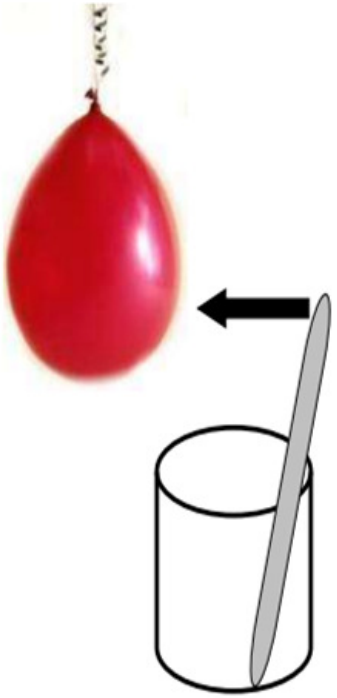


UNLIKE CHARGES ATTRACT EACH OTHER

Activity: Charge an inflated balloon by rubbing it with a woolen cloth.

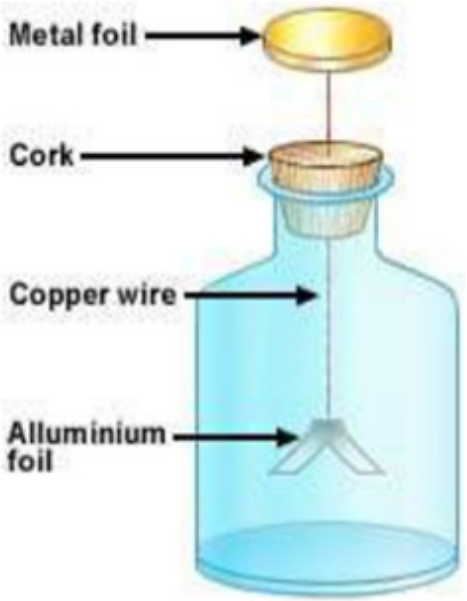
- Charge a refill by rubbing it with a polythene and keep it in a tumbler
- Bring charged balloon close to the charged refill.

Observation: They attract each other.



ELECTROSCOPE

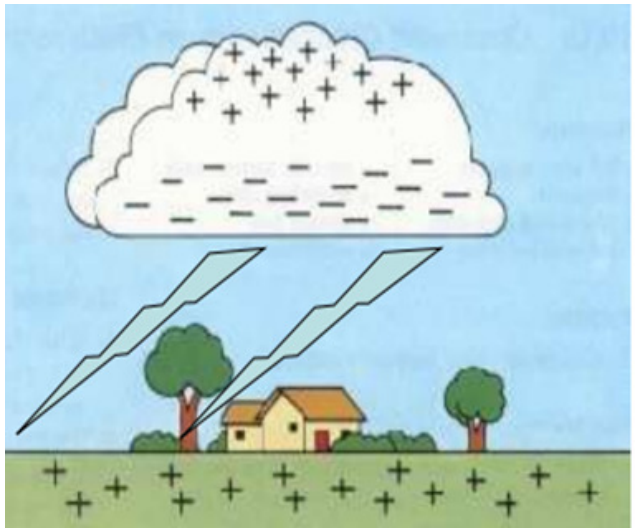
- A device which can be used to test whether an object is carrying charge or not is called an electroscope.
- An electroscope can be made using an empty bottle, cardboard, paper clip and two strips of aluminium foils.
- Pass one end of a paper clip through the cardboard and hang the two aluminium slip at the other end of the
- **Working:** If a charged body is touched to the end of paper clip, the aluminium strip repel each other.



TRANSFER OF CHARGE

- When a charged body is brought in contact is brought in contact of an uncharged body. The charge passes from the charge body to uncharged body. This method of charging a body is called charging by conduction.
- Example: When a charge straw is brought in contact with an electroscope. The metal strips gets similar charges repel and they repel each other

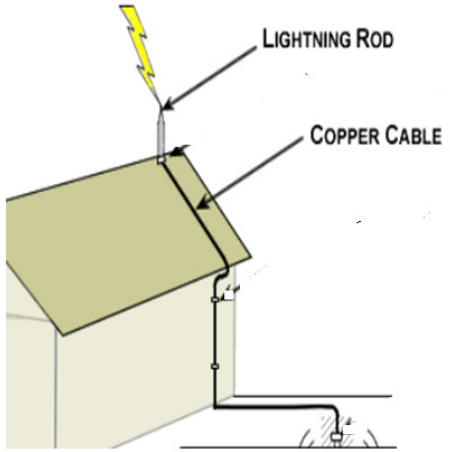
LIGHTNING



- During thunderstorm, the air currents move upward while the water droplets move downward. This causes separation of charges. The positive charges collect near the upper edges of the clouds and the negative charges accumulate near the lower edges. There is accumulation of positive charges near the ground also. When the large amount of charge is formed, then the charges flow from cloud to earth causing a bright streak of light called lightning

LIGHTNING CONDUCTOR

- A Lightning Conductor is a device used to protect buildings from the effect of lightning.
- It is a metallic rod, taller than the building. One end of the rod is kept out in the air and the other is buried deep in the ground
- The rod provides easy route for the transfer of electric charge to the ground.



PROTECTION FROM LIGHTNING AND THUNDERSTORM

If you are outside:

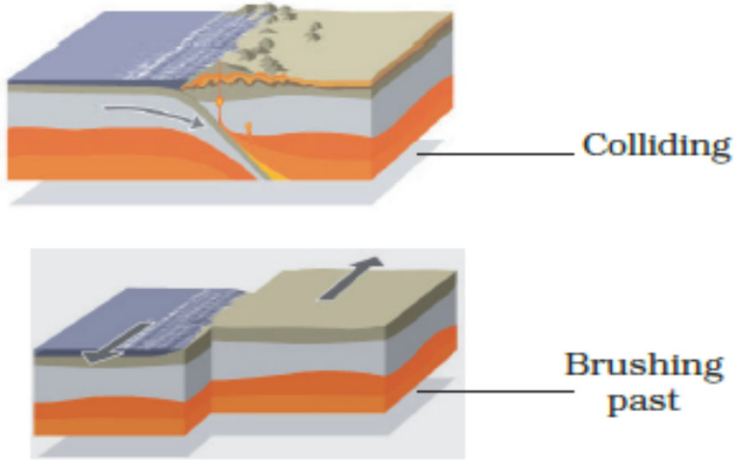
- Open vehicles, like motorbikes, tractors, open cars are not safe.
- Open field parks and elevated places are not safe.
- Carrying an umbrella is not safe.
- If you are in an open field do not lie on the ground Instead, squat low on the ground.
- **If you are inside:**
- Lightning can strike telephone cords, electrical wires and metal pipes contact with these should be avoided.
- It is safer to use mobile phones and cordless phones.
- Bathing should be avoided to avoid contact with running water.

EARTHQUAKE

- An earthquake is a sudden shaking or trembling of the earth. It is caused by a disturbance deep inside the earth's crust.
- An earthquake can cause damage to buildings, bridges, dams and people. There can be a great loss to life and property.
- The earthquakes can cause floods, landslides and tsunamis.

CAUSE OF EARTHQUAKE

- The outermost layer of the earth is not in one piece. It is fragmented. Into many plates. These plates are continuously moving.
- Earthquakes tend to occur at the boundaries of earth's plates. These boundaries are known as fault zones.
- An earthquake is measured on the Richter scale.



PROTECTION FROM EARTHQUAKE

- Make the structure simple so that it is earthquake Safe
- Use mud or timber to Keep roofs as light as possible.
- Cupboards and shelves should be fixed to the walls
- Buildings must have fire fighting equipment.

PROTECTION DURING EARTHQUAKE

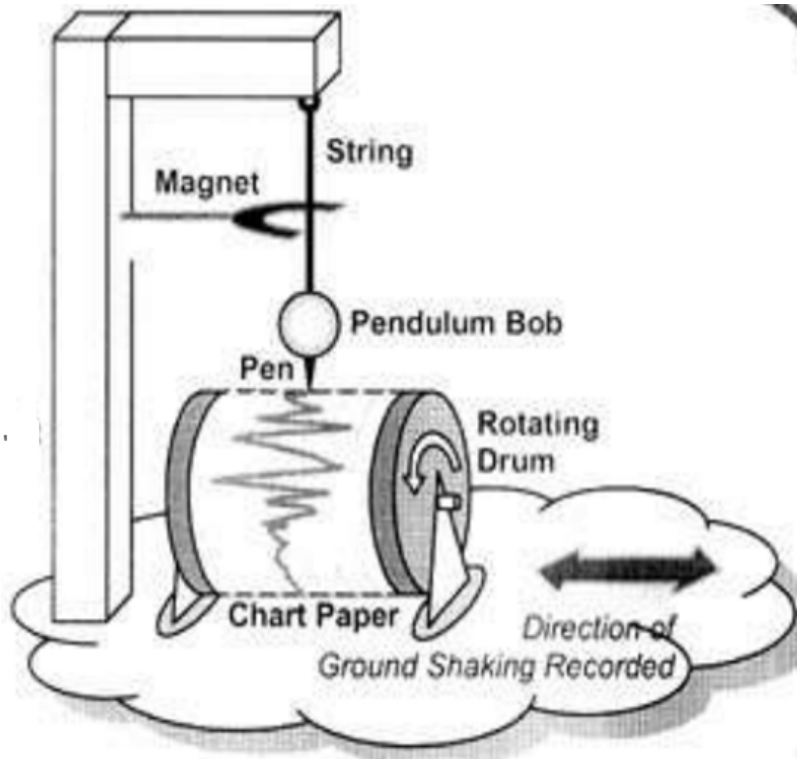
1. If you are at home:

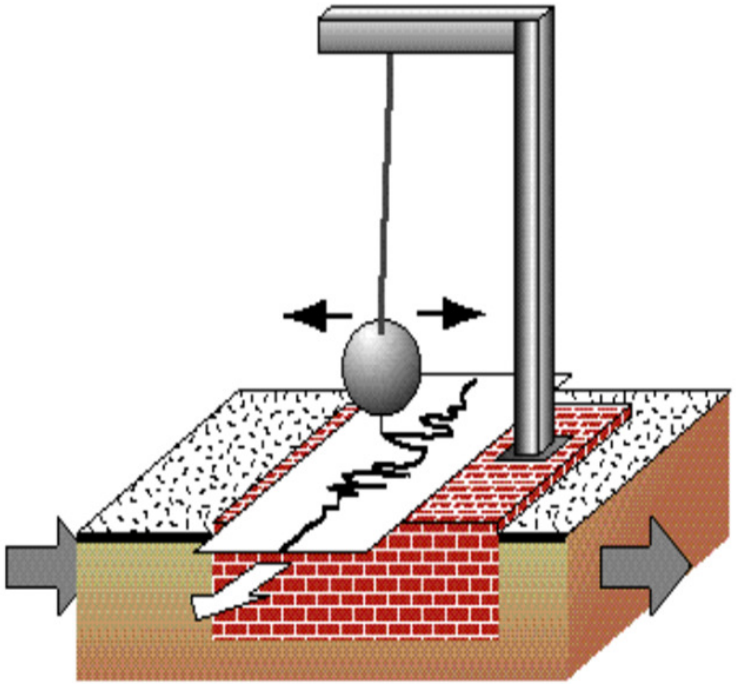
- Take shelter under a table and stay there till shaking stops.
- Stay away from tall and heavy object.
- If you are in bed, do not get up. Protect your head with a pillow.

2. If you are outdoors:

- Find a clear spot, away from buildings, trees and overhead power lines.
- If you are in a car or a bus, Ask the driver to drive slowly to a clear spot.

SEISMOGRAPH





THANK YOU