Chapter – 15
Some Natural Phenomena

Some objects can be charged by rubbing with other objects.

There are two kinds of charges — positive charge and negative charge

Like charges repel and unlike charges attract each other.

The electrical charges produced by rubbing are called static charges.

When charges move, they constitute an electric current.

An electroscope may be used to detect whether a body is charged or not.

The process of transfer of charge from a charged object to the earth is called earthing.

The process of electric discharge between clouds and the earth or between different clouds causes lightning. The formation of clouds involves friction between water droplets in the atmosphere. The friction charges the particles in the atmosphere. The negative charges accumulate at the bottom of the cloud and the positive charges at the top. As the accumulation of the charges increases, the cloud will induce positive charges on the ground nearby. As the amount of charge increases, the negative charges on the cloud tend to make a path towards the ground, and it results in a narrow streak of electrical discharge, which we call lightning.

Lightning strike could destroy life and property. Protective measures are of utmost importance during lightning strikes. Taking shelter in interiors(house or other closed places) and vehicles(closed e.g. cars) are the most preferred measures.

Lightning conductors can protect buildings from the effects of lightning.

A natural phenomenon that cannot be predicted is an **earthquake.** The earth consists of three major layers, called **the crust, the mantle and the core.** The core is further divided into the inner core and the outer core. The mantle consists of semi-solid material above

which the crust floats. The crust consists of oceans and continents.

The **crust** is divided into several parts, called **tectonic plates**. The regions where one tectonic plate slides against another are referred to as **fault zones**, and these are the regions where an earthquake is likely to occur. Hence, these zones are referred to as **seismic zones.**

The place in the interior of the earth where an earthquake occurs is the **focus**, and the region on the surface of the earth that is the closest to focus is likely to experience the largest damage. This region is called the **epicenter** of the earthquake.

The instrument that measures the severity of an earthquake is a **seismograph**. It basically consists of a drum that rolls and a pendulum with a stylus that traces the waves of an earthquake on a sheet like a graph paper. The energy released at the focus of an earthquake, propagates outwardly in form of waves known as **seismic waves.**

Destructive energy of an earthquake is measured on the **Richter scale.** It is a logarithmic scale, ranging from 1 to 10 for indicating the intensity of an earthquake. The earthquake measuring 7 or more on Richter scale can cause severe damage to life and property.

Protective measures for earthquake:

1. If you are at home:
 Take shelter under a table and stay there till shaking stops.
 Stay away from tall and heavy objects that may fall on you.
 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. Drop to the ground.
 If you are in a car or a bus, do not come out. Ask the driver to drive slowly to a clear spot. Do not come out till the tremors stop.

Moreover, it is advisable to make the structure of buildings simple so that they are ‘Quake Safe’.