



LITTERA PUBLIC SCHOOL

CLASS 8

CHAPTER 15

SCIENCE

SOME NATURAL PHENOMENON

Introduction

The natural phenomenon can be defined as the naturally occurring calamity or physical process.

Some natural phenomena can be destructive such as

- Earthquakes
- Lightning
- Volcanic eruption
- Cyclones

Charged Bodies

What is Charge?

Charge is most commonly used to refer to electric charge. It is a fundamental property of matter.

Charges are of two types

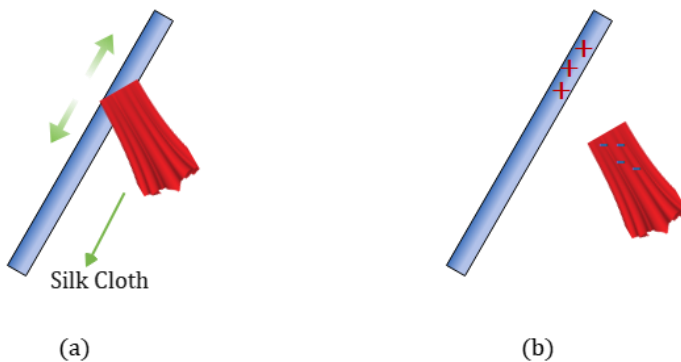
1. **Positive charge** – When the matter has more protons than the number of electrons.
 2. **Negative charge** – When the matter has more electrons than protons.
- Electrons are negatively charged particles that move around the nucleus of an atom.
 - Protons are positively charged particles.

- Neutrons are electrically neutral which means that they carry no charge.

Both protons and neutrons are concentrated at the centre of an atom known as the nucleus of the atom. Electrons surround the nucleus.

How the object becomes positively charged and negatively charged?

When an object loses electrons, it becomes positively charged because it has more protons than electrons. After gaining electrons, the objects become negatively charged.



When a glass rod is rubbed with silk cloth, for example, it becomes positively charged, whereas the silk cloth becomes negatively charged.

Properties of charge

- Like charges repel each other. This means that two positive charges repel each other.
- Unlike charges, they attract each other.

like charges repel

$$F \longleftarrow e^{-}$$

$$e^{-} \longrightarrow F$$

$$F \longleftarrow p$$

$$p \longrightarrow F$$

unlike charges attract

$$F_{pe} \longrightarrow e^{-}$$

(Negative charge)

$$p \longleftarrow F_{ep}$$

(Positive charge)

Lightning

- Lightning is an electric discharge or an electric spark that occurs in nature on a major scale. It is caused by the accumulation of charges in the clouds.
- It can be deadly and cause the destruction of life and property.

Lightning Conductor

A metal rod (generally made of copper) placed on top of tall buildings with its lower end connected to the ground. It is used to protect buildings from the effects of lightning. When lightning strikes, the metal rod, being a good conductor, provides an easy passage for the transfer of charge to the ground. This way, the electric discharge flows from the clouds into the ground without damaging the clouds.

Things to do during lightning

- Switch off the electrical appliances like computer, TV, refrigerator etc.
- If travelling in a car or bus, remains inside the vehicle and shut all its doors and windows.
- Get inside as quickly as possible.
- Check the forecast before going outside in the monsoon.

Things to avoid during lightning.

- Do not roam here when there is lightning.
- Avoid contact with running water.
- Do not lie on the ground.
- Do not sit in open vehicles.
- Do not carry an umbrella.

Earthquake – Another natural destructive phenomenon

A sudden trembling or shaking of the earth for a short interval of time is caused by disturbances deep inside the earth's crust. It can cause large-scale destruction. It is not possible to predict the occurrence of an earthquake.

Why do earthquakes occur?

- The earth's crust is made up of fragments called plates, also called tectonic plates.
- These plates are continuously moving.
- Due to continuous motion, these plates slide past or collide with each other.
- The rocks at the boundaries of these plates get interlocked and prevent the plates from moving, which results in pressure being formed on these rocks.

- The increase in pressure leads to the slipping of rocks and causes the rocks to vibrate.
- These vibrations travel up to the surface and cause earthquakes.

Focus, Epicentre and Fault zones

1. **Focus**:-The point where the earthquake originates or starts is called the focus.
2. **Epicentre**:-The point on the surface of the Earth immediately above the focus is known as the epicentre.
3. **Fault zones or seismic zones**:-Weak zones (The boundaries of the tectonic plates) where earthquakes are most likely to occur are called fault zones or seismic zones.

Seismology, Seismic waves, and Seismograph

1. **Seismology**:- The study of earthquakes is called seismology.
2. **Seismic waves**:- The waves produced on the surface of the earth in an earthquake are called seismic waves.
3. **Seismograph**:- The instrument is used to measure seismic waves.

How can the intensity of an earthquake be measured?

- The destructive energy of an earthquake is measured on the Richter scale, designed by an American Seismologist, Charles F. Richter, using a seismograph.
- On the Richter scale, an earthquake measuring
 - 2 to 4 – It is a mild earthquake and does not cause any damage.
 - 4 to 8 – It is moderate to severe.
 - 8 to 9 – It is very severe and destructive earthquakes. It causes a lot of damage to life and property.

Protection against Earthquakes.

- Stay away from tall and heavy objects.
- Take shelter under a table.
- If you are outdoors, stay away from buildings, trees, and overhead power lines. Try to move to the open ground.