CBSE Class 8 Science Notes Chapter 12: Chapter 12 Some Natural Phenomena in CBSE Class 8 Science, introduces students to various natural events that occur on Earth, such as lightning, earthquakes, and the effects of static electricity. The chapter explains how these phenomena are caused, the science behind their occurrence, and their impact on our lives.

It also emphasizes the importance of safety measures during these events, teaching students how to protect themselves from lightning strikes and understanding the basics of earthquake preparedness. This chapter aims to enhance students knowledge of natural forces and their role in shaping the Earth's environment.

CBSE Class 8 Science Notes Chapter 12 Some Natural Phenomena Overview

These notes are prepared by subject experts of Physics Wallah for CBSE Class 8 Science Chapter 12 Some Natural Phenomena. The overview provides a detailed understanding of key concepts such as lightning, earthquakes, and static electricity. It covers the causes and effects of these natural phenomena, along with practical safety measures to protect oneself during such events.

The notes are designed to help students grasp these important scientific concepts with ease, providing a solid foundation for further studies in science.

CBSE Class 8 Science Notes Chapter 12 Some Natural Phenomena PDF

The PDF link for CBSE Class 8 Science Notes Chapter 12 Some Natural Phenomena is available below. These notes provide a detailed and structured explanation of the chapter, covering all essential topics. They are an excellent resource for students to revise and understand the key concepts effectively ensuring a solid grasp of the material for exams and further studies.

CBSE Class 8 Science Notes Chapter 12 Some Natural Phenomena PDF

CBSE Class 8 Science Notes Chapter 12 Some Natural Phenomena

Below we have provided CBSE Class 8 Science Notes Chapter 12 Some Natural Phenomena for students to help them understand the chapter better and to score good marks in their examination.

Introduction

Class 8 Science Chapter 15 focuses on natural phenomena such as lightning and earthquakes, exploring their causes and the safety measures necessary to reduce the damage they can inflict. This chapter highlights the significance of understanding these natural occurrences to better prepare and protect ourselves from their potentially destructive effects.

Introduction to Natural Phenomena

A natural phenomenon refers to any event or process that occurs in nature without human intervention. This chapter specifically addresses two destructive natural phenomena: lightning and earthquakes, discussing their causes and the precautions we can take to minimize their impact.

Static Charges

Methods of Charging

A body can acquire an electric charge through two primary methods: by rubbing (due to friction) and by induction. These methods are fundamental in understanding how objects can become electrically charged.

Charging by Rubbing (Friction):

- When two different materials are rubbed together, electrons can transfer from one material to the other. This transfer of electrons results in one object becoming negatively charged (gaining electrons) and the other becoming positively charged (losing electrons).
- For example, when a plastic rod is rubbed with hair, electrons move from the hair to the plastic rod, causing the rod to acquire a negative charge. Similarly, when a glass rod is rubbed with a silk cloth, the glass rod loses electrons and becomes positively charged.
- The objects charged by rubbing can then attract or repel other charged objects or even small neutral objects, such as pieces of paper. This attraction or repulsion occurs because of the static charges they carry.

Charging by Induction:

- Charging by induction involves the redistribution of charges within an object without direct contact. When a charged object is brought near a neutral object, the presence of the charged object causes a separation of charges within the neutral object.
- For instance, if a negatively charged rod is brought close to a neutral metal sphere, the electrons in the sphere will move away from the rod, leaving one side of the sphere positively charged and the other side negatively charged.
- By grounding the sphere (providing a path for the excess electrons to leave), and then removing the charged rod, the sphere can be left with a net positive charge. This method

of charging does not involve any direct transfer of electrons from the charged object to the neutral object but rather induces a charge distribution within the neutral object.

Charged Objects

Objects that carry an electric charge, acquired through processes such as rubbing (friction) or induction, are known as charged objects. These objects can hold either a positive or negative charge, depending on the nature of the electron transfer that has occurred. For example, when a plastic rod is rubbed with wool, it becomes negatively charged due to the gain of electrons. Conversely, a glass rod rubbed with silk becomes positively charged as it loses electrons. Charged objects can interact with other charged or neutral objects, leading to phenomena like attraction, repulsion, or static cling.

Interaction Between Like and Unlike Charges

Like charges repel each other, while unlike charges attract. This fundamental principle of electrostatics explains how charged objects behave when brought close to one another. For instance, two objects with positive charges will push away from each other, while a positively charged object will be drawn toward a negatively charged one.

Convention of Positive and Negative Charges

By convention, the charge that a glass rod acquires when rubbed with silk is designated as positive. This convention helps in understanding and predicting the behavior of charged objects.

Transfer of Charges

Charges can be transferred from one object to another through good conductors, such as metals. This transfer occurs because of the movement of electrons between atoms, allowing the charge to move from one material to another. This process is crucial in various applications, such as grounding and electrostatic discharge.

Electroscope

An electroscope is a device used to detect the presence of electric charge on an object. It works by using metal leaves or other sensitive components that move apart or come together when exposed to a charged object, indicating the presence and magnitude of the charge.

Discharged Objects

When objects lose their charge, typically through the transfer of electrons, they are referred to as discharged objects. This can occur naturally or be induced by processes like grounding.

Earthing

Earthing, or grounding, is the process of transferring excess charge from a charged object to the earth. This is done to neutralize the object and prevent the buildup of potentially harmful electric charge, ensuring safety in electrical systems and devices.

Lightning: Introduction

Lightning occurs during thunderstorms when air currents move upwards while water droplets move downwards, causing a separation of charges within the clouds and between the clouds and the Earth. As the magnitude of these charges increases, the normally non-conductive air becomes a conductor, allowing the flow of electricity. This flow of charge, accompanied by bright light and sound, is known as lightning.

Electric Discharge

Electric discharge refers to the flow of charge between clouds or from a cloud to the Earth due to the separation of positive and negative charges. This process results in the visible and audible phenomena associated with lightning.

Lightning Safety: Steps to Follow

Outside the House:

- Find shelter under small trees or safe structures.
- If inside a vehicle, stay inside with doors and windows closed.
- Avoid metal poles and do not lie flat on the ground; instead, crouch with your head between your hands.

Inside the House:

- Avoid using telephones or touching electrical wires.
- Refrain from bathing.
- Unplug electrical appliances to prevent damage or injury.

Lightning Conductors

Lightning conductors are devices installed on buildings to protect them during lightning strikes. They consist of a tall metal rod that extends from the top of the building to the ground, providing a direct path for the electric discharge to safely reach the Earth.

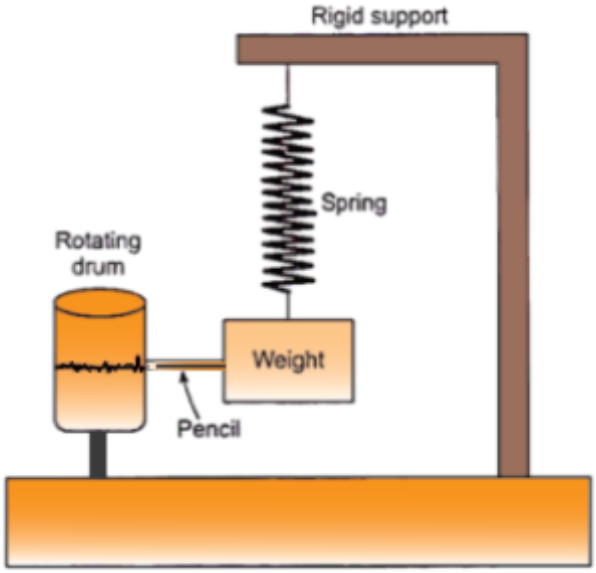
Earthquakes

An earthquake is a sudden shaking of the Earth's surface caused by disturbances deep within the Earth's crust. These natural disasters can cause significant damage to life and property and cannot be predicted with certainty.

Causes of Earthquakes

Earthquakes occur due to the movement or collision of tectonic plates in the Earth's crust. The Earth's crust is divided into several large plates that constantly move. When these plates collide, slide past each other, or collapse under one another, they can cause earthquakes on the surface.

Seismic/Fault Zones

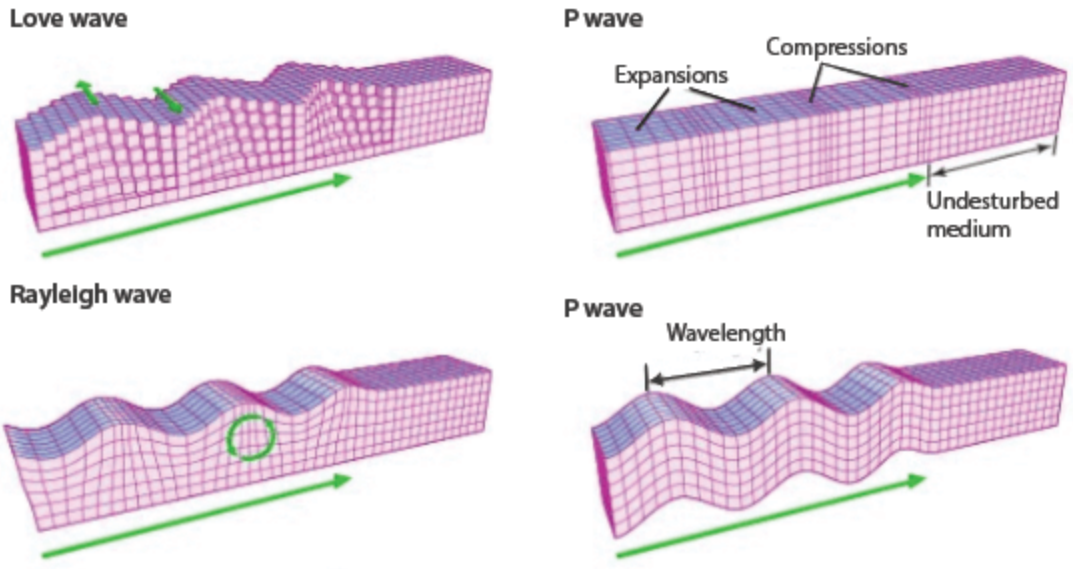


The boundaries between tectonic plates are known as seismic or fault zones. These areas are particularly susceptible to earthquakes because they are weaker points where stress can accumulate and eventually be released as seismic activity.

Power of Earthquakes

The strength of an earthquake is measured using the Richter Scale. An earthquake with a magnitude greater than 7 on this scale is considered destructive. The Richter Scale is logarithmic, meaning that each whole number increase on the scale represents a thousandfold increase in energy released.

Seismic Waves



Tremors from earthquakes produce waves known as seismic waves. These waves travel through the Earth's crust and are recorded by instruments called seismographs. A seismograph uses a vibrating rod or pendulum to detect and record the seismic waves.

Protection from Earthquakes: Steps to Follow

Outdoors:

- Move to a clear area away from buildings and overhead lines.
- If you are in a vehicle, pull over to a safe location and remain inside the car until the shaking stops.

Indoors:

- Take cover under a sturdy table or desk and stay there until the shaking ceases.
- Avoid standing near tall or heavy objects that might fall.

Structural Measures:

- In seismic areas, build structures with lightweight roofs to reduce damage.
- Secure shelves and cupboards to walls.
- Ensure that buildings are equipped with functional firefighting equipment, as fires can occur after an earthquake.

Benefits of CBSE Class 8 Science Notes Chapter 12

- **Comprehensive Understanding**: These notes provide a thorough overview of natural phenomena such as lightning and earthquakes. They cover fundamental concepts, causes, and effects, helping students grasp the intricate details of these events.
- **Clear Explanations**: The notes simplify complex topics making them easier for students to understand. By breaking down the concepts into manageable sections, they ensure that students can follow and retain the information effectively.
- **Foundation for Advanced Learning**: Understanding these basic concepts prepares students for more advanced studies in natural sciences. The knowledge gained from this chapter serves as a foundation for exploring more complex phenomena in higher classes.
- **Exam Preparation**: The notes are structured to align with the CBSE curriculum, making them a valuable resource for exam preparation. They help students focus on key points and revise efficiently, improving their performance in assessments.
- **Encourages Critical Thinking**: By exploring the causes and effects of natural phenomena, students develop critical thinking skills. They learn to analyze and interpret scientific information, which is essential for problem-solving and scientific inquiry.
- **Enhanced Learning Experience**: The notes are prepared by subject experts, ensuring accuracy and relevance. This expertise contributes to a richer learning experience, providing students with reliable and well-organized study material.