CBSE Class 6 Science Notes Chapter 12: Detailed & Easy-to-Understand Notes

CBSE Class 6 Science Notes Chapter 12 *has been given in an easy and detailed way for CBSE class 6 students to help in their CBSE class 6 exams. Students can find the detailed notes for chapter 12 here!*

CBSE Class 6 Science Notes Chapter 12: CBSE Class 6 Science Notes Chapter 12 notes are meticulously prepared by experienced Science teachers, based on the latest edition of NCERT books. Enhance your understanding and score higher in your CBSE board examinations by using these notes. These notes can help CBSE class 6 students to understand the chapter better and score high. Find the detailed notes for chapter 12 below.

CBSE Class 6 Science Notes Chapter 12 Electricity and Circuits

Power station: The electricity we use in our homes and factories comes from a power station.

Electric cell: An electric cell serves as a provider of electricity.

Production of electricity in a cell: An electric cell generates a small amount of electricity using chemicals stored inside it. Once these chemicals are depleted, the electric cell ceases to produce electricity.

Terminal: All kinds of electric cells come with two ends, a positive end and a negative end. In a dry cell found in our households, the central carbon rod serves as the positive (+) end while the enclosed zinc acts as the negative (-) end.

Battery: When two or more cells are connected, they form what is known as a battery.

Bulb: We receive light from a slender small wire enclosed within the glass casing. This wire is known as the filament. It is held up by two thicker wires. One of these thicker wires links to the metal enclosure surrounding the bulb's base. The other wire connects to the metal point of the base. The base of the bulb and the metal point of the base serve as the bulb's two terminals. These terminals are positioned to avoid contact with each other. The inner part of the bulb is filled with inert gases such as argon.

Circuit: The whole route, starting from one end of the electric cell passing through the bulb and returning to the opposite end of the electric cell, is referred to as a circuit.

Open circuit: If there's a break in the path of a circuit, the bulb won't light up. This kind of circuit is known as an open circuit.

Closed circuit: The light bulb shines when there's a connected path between the bulb and wire, going from one end of the battery to the other. This setup is known as a closed circuit.

Flow of current in a circuit: Once the connection between the two ends of the electric cell is made, an electric current begins to move through the circuit, causing the bulb to illuminate. The flow of electric current goes from the positive terminal of the electric cell to its negative terminal.

Electricity enters the bulb from one end, travels through the filament inside, and exits from the other end. As the electricity passes through the filament, it makes it glow.

Fused bulb: If the wire inside the bulb is damaged, the circuit isn't connected properly, so the electricity can't move through. A bulb with a damaged wire is often called a fused bulb. When a bulb is fused, it doesn't shine.

Electric switch: An electric switch is a basic tool that either interrupts the circuit or connects it to halt or initiate the current's movement.

- When the switch completes the circuit, it is called a closed switch.
- When the switch breaks the circuit, it is called an open switch.

Conductors

- Materials through which electric current can flow are called conductors.
- Most metals are conductors.
- Our body is also a good conductor.

Insulators

- Materials, through which the electric current cannot pass, are called insulators. In other words, insulators are the bad conductors of electricity.
- Rubber and wood are insulators.

Conduction tester: This is a basic tool used to determine if a substance conducts electricity or acts as an insulator.

Filament: The slender wire that emits light is known as the bulb's filament.

Dry cell: A dry cell produces electricity. It makes direct current (DC) because of a chemical reaction happening inside it.

Bulb: An electric bulb is a tool that shines and gives off light when electricity flows through it.

Conductors: Substances that permit electricity to flow through them are known as conductors.

Electric cell: Electric cell is a source of electricity.

Electric circuit: The entire route from one end of the electric cell through the bulb and back to the other end of the electric cell is known as an electric circuit.

Filament: Inside an electric bulb, there's a slender small wire enclosed within the glass casing. It's referred to as the filament.

Insulator: Items that do not permit the flow of electric current are referred to as insulators.

Switch: An electric switch is a basic tool that can either interrupt the circuit or connect it to halt or begin the movement of electricity.

Terminal: All types of electric cells have two ends: a positive one and a negative one.

Life without electricity is hard to imagine. Many devices and machines in our daily life operate on electricity. Take a look at the images below. Which of these operate on electricity? Write their names in the provided space.

Things that operate on electricity have an electric current passing through them. In this chapter, you will learn about electric current, what is required to generate it, the conditions needed to enable an electric current to flow, and the materials through which current can flow. You will discover some fascinating aspects, such as how to make a small bulb glow and how to create an electric switch. **Answers:** Refrigerator, Fan.

Electric Current

Many of the gadgets and machines we use, such as an electric iron, oven, room heater, refrigerator, ceiling fan, or an electric bulb, operate when electricity passes through them. With assistance from an adult, examine the inside of a clear electric bulb. You'll notice it contains a thin filament, which is a very fine metal wire. When electricity flows through this filament, it heats up. It becomes so hot that it starts to glow and emit light. Now, let's understand what generates an electric current.

Source Of Electric Current

A tool that makes electricity is known as a source of electric current. Everyday sources include cells and batteries, which come in different shapes and sizes, and the electricity we get from wall outlets in homes. One common type of cell we use is the dry cell. Chemical reactions inside cells and batteries create electric current. On a bigger scale, we use flowing water or steam to generate electricity.

The Dry Cell:

A dry cell is a handy source of electricity. Instead of containing liquid, it has dry or semi-solid substances inside.

The dry cell has a mixture of ammonium chloride inside a zinc container. Inside this mixture, there's a cardboard box with powdered manganese dioxide and carbon. This cardboard box has tiny 'holes' (called porous materials) where a chemical reaction happens between the ammonium chloride and powdered manganese dioxide. A rod, typically made of carbon, with a metal cap is inserted into the manganese dioxide. Then, everything is sealed (leaving only the metal cap exposed) to prevent spills.

The zinc can is also wrapped, leaving only the bottom exposed. Every electrical source has two terminals where wires are connected to draw electricity. The metal cap's tip and the zinc can's base are known as the dry cell's positive and negative terminals, respectively. Electricity can be seen as 'flowing in' from one terminal and 'flowing out' from the other. If the metal cap's tip and the zinc can's base are connected by a metal wire, electricity will pass through it.

Different Types of Electric Cells:

Besides simple primary cells such as dry cells, there exist various types of electric cells. Each cell employs distinct methods to generate an electric current. Primary cells are disposable and can only be utilised once they are depleted.

Secondary cells, on the other hand, can be recharged once they run out of power. They find applications in devices like mobile phones, laptops, and car batteries. Nowadays, solar cells are increasingly employed in numerous applications, utilising sunlight to generate electric current. For instance, many calculators are powered by solar cells, while solar panels comprising these cells illuminate streets and numerous residences.

Flow Of Electric Current

Three fundamental requirements are necessary for electricity to move through a circuit.

1. A device such as a cell, battery, or plug point serves as the source of electric current.
2. A metal wire, typically made of copper, silver, or aluminium, facilitates the easy flow of electric current.
3. An uninterrupted loop formed by the wire, connecting from one terminal of the source, passing through different appliances, and returning to the other terminal of the source.

Electric Switch

We utilise electric switches to turn electrical devices and machines on or off. But have you ever wondered how they function?

An electric switch is a tool used to either open or close an electric circuit. When we open an electric circuit, the flow of electric current stops within the circuit, and when we close it, electric current flows through. Sometimes, a switch is necessary in an electrical circuit.

Electric Torch

Inside a torch, there are one or more dry cells serving as the power source. These cells are linked to a small bulb via a switch. When the switch is turned on, the circuit is complete, allowing current to flow and the bulb to illuminate. Conversely, when the switch is turned off, the circuit breaks, preventing current flow and causing the light to go out.

Conductors And Insulators

A material that does let electricity pass through is called a conductor, like a key and safety pin. On the other hand, a material that doesn't allow electricity to pass is called an insulator, like a rubber band and plastic pen.

All metals conduct electricity, but some are better at it than others. Even a few non-metals, like graphite (which pencil lead is made of), can conduct electricity.

Examples of insulators include glass, wood, rubber, pure water, and dry air. However, even a tiny impurity in water, like salts dissolved in it, can make it conductive.

Electricians often use screwdriver handles and testers made of wood or hard plastic. They also wear rubber gloves when fixing electric switches to prevent electric shocks.

Electrical Safety

Electricity can pose a serious risk if you don't handle electrical gadgets cautiously. It's crucial to avoid messing around with electrical wires and outlets. While electricity from cells is generally safe for experimenting, it's important to be cautious and not directly connect the terminals of a cell with a wire. Electricity produced by portable generators is hazardous and shouldn't be used for experiments.

Summary

Source of electric current: A tool that can generate an electric current is known as a provider of electric current.

Electric circuit: An electric circuit is a route for electricity to travel.

Closed circuit: A circuit that has an uninterrupted path for electric current to flow is known as a closed circuit.

Open circuit: A circuit that has a gap in it is known as an open circuit.

Electric switch: A tool utilised for opening or closing a circuit is known as an electric switch.

Conductor (in this chapter): A substance that permits the flow of electric current with ease is known as a conductor.

Insulator (in this chapter): A substance that doesn't let electric current flow through easily is known as an insulator.

In a dry battery, a chemical process happens to make electricity.

A dry battery holds solid or semi-solid stuff inside.

Every battery has two ends: the plus and the minus end.

Electricity moves only if there's a full path, going from one end of the battery, through different things, and back to the other end of the battery.

An electric switch is a tool to turn a circuit on or off.

Benefits of CBSE Class 6 Science Notes Chapter 12

CBSE (Central Board of Secondary Education) Class 6 Science Notes Chapter 12 covers topics related to electricity and circuits. These notes serve as a valuable resource for students to understand and revise the concepts taught in this chapter. Here are some benefits of using CBSE Class 6 Science Notes Chapter 12:

1. **Clarity of Concepts**: The notes provide a concise explanation of various concepts related to electricity and circuits, making it easier for students to understand the fundamental principles involved.
2. **Structured Format**: The notes are organised in a structured format, which helps students follow a logical sequence of topics. This organisation aids in better comprehension and retention of information.
3. **Key Points Highlighted**: Important points and definitions are highlighted in the notes, making it convenient for students to identify and focus on the essential aspects of each topic.
4. **Illustrations and Diagrams**: Visual aids such as diagrams, illustrations, and labelled circuit diagrams are included in the notes to enhance understanding. These visuals help students visualise abstract concepts and grasp the practical applications of electricity.
5. **Examples and Applications**: The notes provide examples and real-life applications of concepts, making the learning experience more engaging and relatable for students. This approach helps students understand the relevance of studying electricity in their daily lives.
6. **Solved Exercises**: CBSE Class 6 Science Notes Chapter 12 often include solved examples and exercises that enable students to practise applying the concepts learned. These exercises help reinforce learning and improve problem-solving skills.
7. **Quick Revision**: The concise nature of the notes makes them suitable for quick revision before exams. Students can easily review the entire chapter or specific topics to refresh their memory and reinforce their understanding of key concepts.
8. **Preparation Aid**: CBSE Class 6 Science Notes Chapter 12 serve as a valuable aid for exam preparation. By referring to these notes, students can effectively review the entire chapter and assess their understanding of the topics covered.
9. **Complementary Resource**: The notes complement the textbooks and other study materials prescribed by the CBSE curriculum. They provide an additional resource for students to deepen their understanding and clarify any doubts they may have.
10. **Self-Study Tool**: Students can use the notes for self-study purposes, allowing them to learn at their own pace and revise the material as needed. This promotes independent learning and helps students take ownership of their education.

CBSE Class 6 Science Notes Chapter 12 offers numerous benefits to students, including clarity of concepts, structured format, visual aids, practice exercises, and exam preparation assistance. By leveraging these notes effectively, students can enhance their understanding of electricity and circuits and excel in their academic endeavours.

CBSE Class 6 Science Notes Chapter 12 FAQs

1. **What are the advantages of parallel circuits over series circuits?**
   Parallel circuits offer redundancy and independence, allowing components to function independently of each other. If one component fails, the others continue to operate, unlike in series circuits.
2. **Why is it important to understand electricity in daily life?**
   Understanding electricity is crucial for safety, efficiency, and innovation. It enables us to use electrical devices safely, conserve energy, and develop new technologies that improve our quality of life.
3. **How do electric circuits impact modern technology?**
   Electric circuits form the foundation of modern technology, powering everything from household appliances to smartphones, computers, and transportation systems. They enable communication, entertainment, and countless other aspects of daily life.
4. **Can electricity be harmful to the human body?**
   Yes, electricity can be dangerous if not handled properly. It can cause electric shock, burns, and even death. It's essential to follow safety precautions and avoid contact with live electrical components.
5. **What are some real-life applications of electric circuits?**
   Electric circuits are used in a wide range of applications, including lighting, heating, transportation, communication, and manufacturing processes. They power everything from streetlights and refrigerators to cars and aeroplanes.