CBSE Class 7 Science Notes Chapter 14: Excellent concepts connected to fascinating themes that are essential for a student to master are taught in Science 7 class. "Electric Current and Its Effects" is a chapter in this syllabus. The fourteenth chapter on this syllabus is the one that students should pay close attention to. To lay a solid knowledge base, this chapter must be thoroughly examined.

Students who have this foundation will be better able to understand the more complex ideas of electric current in higher grades. The specialists here have prepared easy-to-follow Class 7 Science Chapter 14 notes to make editing this chapter a breeze. Students will find these revision notes to be very helpful in learning and remembering these new ideas. It can be found in PDF format.

CBSE Class 7 Science Notes Chapter 14 Overview

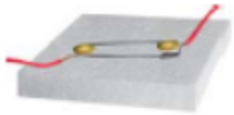
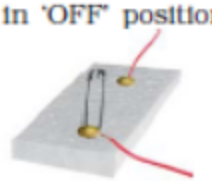
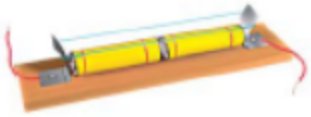
The definition and formation of a charge are covered in the fourteenth chapter. A current is created when this charge moves through a conductor.

Study the fundamental ideas and become familiar with the characteristics of the charges generated in a conductor before delving into the more complex ones. Both positive and negative charges will be thoroughly explained in this chapter. You will also discover that opposite charges attract and similar charges repel.

CBSE Class 7 Science Notes Chapter 14

Introduction to charge

According to definitions, electric charge is one of the fundamental physical characteristics of matter that enables it to feel a particular form of force when subjected to an electromagnetic field.
Charges come in two types - positive and negative.
While unlike charges attract one another, like charges repel one another.

S.No.	Electric component	Symbol
1.	Electric cell 	
2.	Electric bulb 	
3.	Switch in 'ON' position 	
4.	Switch in 'OFF' position 	
5.	Battery 	
6.	Wire 	

Heating Effect of Electric Current

Conductors and Insulators

Conductors are substances or materials that provide relatively less resistance to the flow of electric current through them. For instance, water, iron, copper, etc.
insulators are materials that provide a stronger barrier against the flow of electric current through them. For instance, wood, sand, rubber, etc.

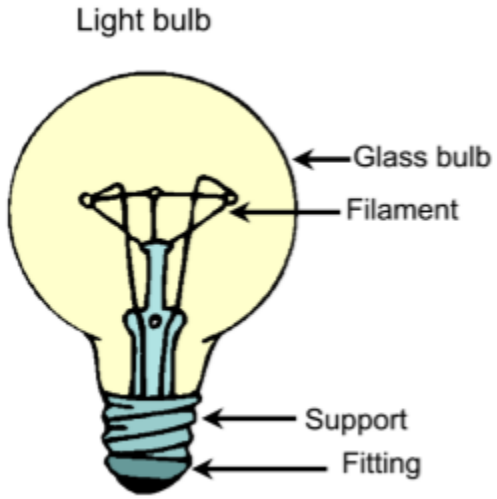
Heating Effects of Electric Current

Electricity passing through a wire causes it to become heated. This is how electric current causes heating.
The composition, thickness, and length of the conductor all affect how much heat is generated in the wire.
A high electric current flow rate can cause the wire to heat up to the point of melting and breaking.
Numerous home equipment, including water heaters, toasters, and electric heaters, exploit electricity's heating properties.
They are also utilized as safety devices (fuses) and in lamps.

Electric Bulb and Electric Fuse

Elements are wire coils that make use of the heating properties of electric current. Electric room heaters, electric iron boxes, and other electric appliances all have these coils.
The electric bulb and electric fuse are two significant appliances that are frequently used and are based on the thermal effects of electric current.
When an electric current flows through an electric bulb, the filament gets so hot that it glows.
A fuse is a component used in cables that melts when electricity passes through it. Fuse boxes are employed as safety devices to cut off circuits when they are overloaded. They stop electrical circuit damage and fire hazards.

What happens when the filament of a bulb breaks?



When the filament of a bulb breaks the circuit of the bulb becomes incomplete. Hence the bulb does not glow as it does not receive any electricity.

Production of Light in a Bulb due to the Heating Effect of Electric Current

A coiled wire that becomes heated when electricity is carried through it is called a bulb's filament. This causes the filament to glow, which causes the bulb to emit light.

Magnetic Effect of Electric Current

Magnetic Effects of Electric Current

A magnetic field is created around a current-carrying conductor when an electric current passes through it. A magnetic needle that exhibits deflection can be used to see this. The deflection increases with increasing current.
The magnetic needle's direction of deflection reverses if the circuit's current flow is directed in the other way.
Deflection of the magnetic needle only occurs when an electric current passes through the wire.

Lightning and magnetism

Water droplets flow downhill while air currents move upward during thunderstorms. Charges between clouds and between clouds and the Earth separate as a result of this.
Air, which is generally a poor conductor, begins to conduct when the magnitude of charges increases, allowing electricity to flow. Because the charge movement is accompanied by brilliant streaks of light and sound, this phenomenon is known as lightning.
Lodestones are naturally occurring magnets created by lightning.

Electromagnet

Electromagnets

When electric current flows through a conductor, an artificial magnet known as an electromagnet creates a magnetic field surrounding it.
When there is no current passing through the conductor, the magnetic field vanishes.
Permanent magnets and electromagnets are not the same thing.

Application of electromagnets:

Used in toys
Used in electric bells
Used in all kinds of telecommunication equipment

Difference Between Electromagnets and Permanent Magnets

Long-lasting permanent magnets are magnetized for extended periods.
As long as electricity is passing through them, electromagnets produce their magnetic field.
They lose their magnetic as soon as the circuit is interrupted.

Electric Bell

Hazards of Electricity

Because it can start a fire from heating up or cause fatalities, electricity can be dangerous.
Electric circuit insulation needs to be done correctly. A short circuit may result from insulation breaking and wires coming into contact with one another. This could shock those who come into contact with the exposed wiring.

Electric bell

An electromagnet is the component of an electric bell. The circuit is completed by pressing the switch.
The bell's operation is demonstrated in the image below. The circuit is current-flowing when the switch (K) is pressed.
After being charged, the electromagnet (E) creates a magnetic field that draws the iron strip in its direction.
The bell or gong is struck by the striker (B).
The circuit's current ceases when the striking arm (A) strikes the gong, breaking the contact at (T).

The electromagnet loses its magnetic field as a result of this.
The striker is brought back to its initial resting position by the attached spring arm.
Current passes across the circuit and the contact is made again—as long as the primary switch is depressed.
Until the switch (K) is made open, the procedure is done once again.

Working on an Electric Bell

When the bell's switch is turned on, an electric current passes through the wire coil, turning the iron component that is attached to it into an electromagnet.

Consequently, the iron component draws the hammer in its direction. As a result, when the hammer strikes the bell, sound is generated.

The hammer slides away from the contact screw and towards the iron piece, breaking the circuit.

The electromagnet loses its magnetic effect when the circuit breaks since the wire coil is no longer getting any current.

The hammer then returns to its starting position.

The circuit is then finished when the hammer drops back, and the iron strip makes contact with the contact screw once more.

This procedure repeats the previous transformation of the iron component into an electromagnet until the bell is turned off. The bell continues to sound as a result of this.

How can excessive current pass through a circuit?

Excessive current can flow through a circuit for the following reasons:

Occasionally, we attach multiple devices to a single socket, which causes the socket to draw more current. This raises the circuit's load and raises the possibility of a fire or short circuit.

When wire insulation is ripped off, the exposed wires may come into touch with one another, sparking a spark or possibly starting a fire (short circuit).

What is an ISI mark?

The Indian Standards Institute, or ISI, is responsible for standardizing all electrical products.

Therefore, an appliance is not safe to use if it does not bear the ISI mark, which indicates that it does not adhere to the organization's established requirements.

Conversely, if an appliance bears this symbol, it indicates that it is a high-quality product, safe to use, and won't waste electricity.

Benefits of CBSE Class 7 Science Notes Chapter 14

Discover the benefits of using our Science Class 7 Revision Notes Electric Current and Its Effects. Concise and efficient study materials designed for students in Class 7 Science can help you grasp the content better and increase your knowledge.

- provide concise, understandable descriptions of important ideas.
- simplifies difficult subjects for easier comprehension.
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- improves the recall of important information.
- offers essential points and advice to help with efficient exam preparation.
- combines information to save time.