

# Electric Conductors & Insulators



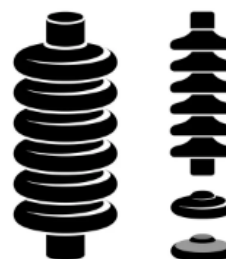
## Conductors

Those substances through which electric charges can flow, are called conductors.  
Example: silver, copper and aluminium etc.



## Insulators

The material in which there is no flow of current are called insulators.  
Example: Plastic, rubber and wood etc.



## Electric Switch

Switch is an integral part of an electric circuit. It is a simple device which breaks or completes a circuit. Electric switch is a simple device that either breaks the circuit or completes it to stop or start the flow of current

When the switch is connected, we call it ON, and when it's not in contact (or open) with the circuit, the switch is OFF.



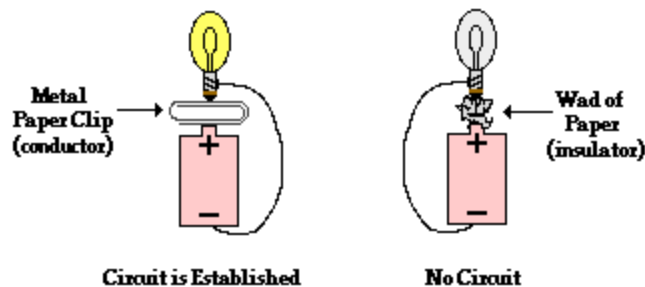
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## The Requirement of a Closed Conducting Path

There must be a closed conducting path that extends from the positive terminal to the negative terminal. It is not enough that there is simply a closed conducting loop; the loop itself must extend from the positive terminal to the negative terminal of the electrochemical cell. An electric circuit is like a water circuit at a water park. The flow of charge through wires is similar to the flow of water through the pipes and along the slides at a water park. If a pipe gets plugged or broken such that water cannot make the complete path through the circuit, then the flow of water will soon cease. In an electric circuit, all connections must be made and made by conducting materials capable of carrying charge. As the cell, bulb and wire experiment continues, some students explore the capability of various materials to carry a charge by inserting them in their circuit. Metallic materials are conductors and can be inserted into the circuit to successfully light the bulb. On the other hand, paper and plastic materials are typically insulators and their insertion within the circuit will hinder the flow of charge to such a degree that the current ceases and the bulb no longer lights. There must be a closed conducting loop from the positive to the negative terminal in order to establish a circuit and to have a current.

The Importance of a Closed **Conducting** Loop



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## Circuit diagrams and circuit symbols

Scientists use certain symbols to draw electrical circuits. An electrical circuit drawn using these symbols is called a circuit diagram. The symbols used to indicate different components are called circuit symbols. Figure shows some components and their circuit symbols.

