

Electricity

Symbols of Electric Circuit Components

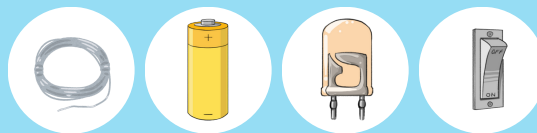
NCF and/or NCERT Learning Outcomes:

- To learn about the symbols of components of an electric circuit.
- To learn to draw circuit diagrams with the help of these symbols.

Why should you learn this?

- Electrical symbols are essential for understanding circuit diagrams and deciphering the electrical layout in a place. These symbols help you to interpret and create electrical circuits, fostering experiential understanding.
- You will be able to read, understand, and create circuit diagrams using symbols.

If you have electrical wires, a cell, a bulb and a switch, how would you connect them so that the bulb glows? Draw a diagram in the space below. Label the components in the diagram.



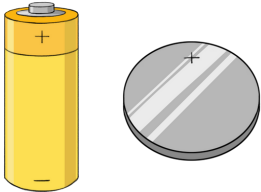
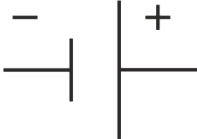
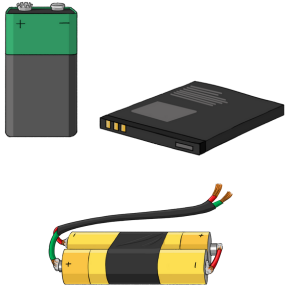
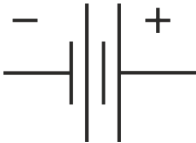
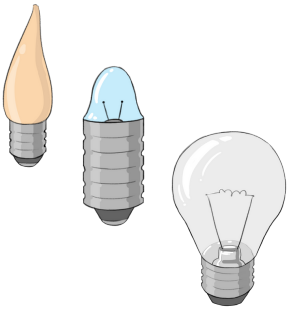



Discussion points:

1. Is it possible to draw a picture of the bulb, switch, or cell every time?
2. Will everybody be able to draw the circuit in the same way?
3. How will you know if the switch is on or off?



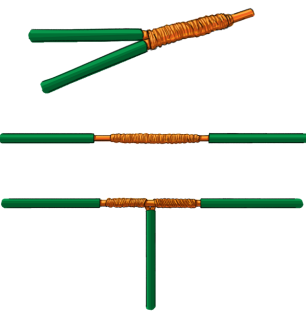

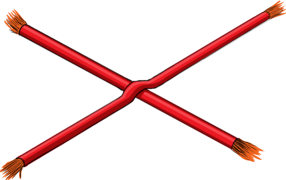
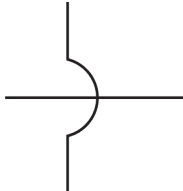
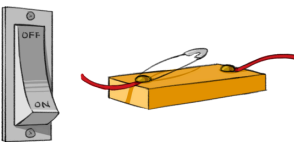

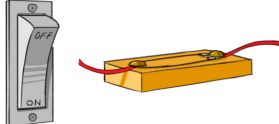

Scientists struggled with these questions and devised a solution. They used a unique symbol to represent each component and used the symbols to depict electrical circuits in the form of a circuit diagram. Now, these symbols are used worldwide, making it easier for people to understand how electricity flows.

Symbols of Electric Circuit Components

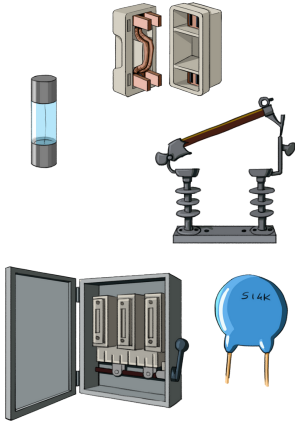
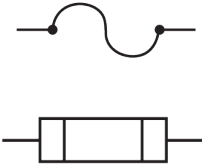
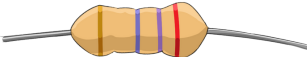

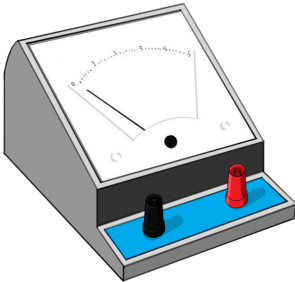
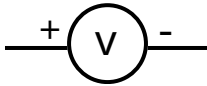
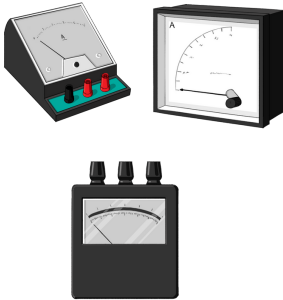
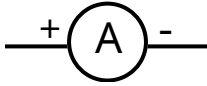
Let's learn about symbols assigned to each component:

Name of Electric Components	Electric Components	Symbols	Description
Electric Cell			This symbol represents all kinds of electric cells. It has two terminals: one is the '+' positive terminal, and the other is the '-' negative terminal.
Battery			This symbol represents all types of batteries. It has two terminals: one is the '+' positive terminal, and the other is the '-' negative terminal.
Electric Bulb			This symbol represents an electric bulb.
LED (Light-Emitting Diode) bulb			An LED (Light Emitting Diode) bulb is represented by this symbol. It shows electricity is flowing in a specific direction.

Symbols of Electric Circuit Components

Name of Electric Components	Electric Components	Symbols	Description
Electric Wire			An electric wire is represented by a straight line.
Wire Joint			This symbol represents a joint of two or more wires together.
Wire Crossing (Without Joint)			This symbol represents a crossings of two or more wires without a joint.
Switch Off			This symbol represents a switch in the OFF position.
Switch On			This symbol represents a switch in the ON position.

Symbols of Electric Circuit Components

Name of Electric Components	Electric Components	Symbols	Description
Fuse			These two symbols represent a fuse. A fuse is a metal wire that melts and breaks the circuit when excess current flows through the circuit, thus protecting electrical devices from damage.
Resistor			This symbol represents a resistor. A resistor controls the flow of current in a circuit, similar to a speed breaker that helps to control the speed of vehicles.
Voltmeter			This symbol represents a voltmeter. It measures the voltage across the electric circuit.
Ammeter			This symbol represents an ammeter. This instrument measures the strength of the current flowing through the circuit.

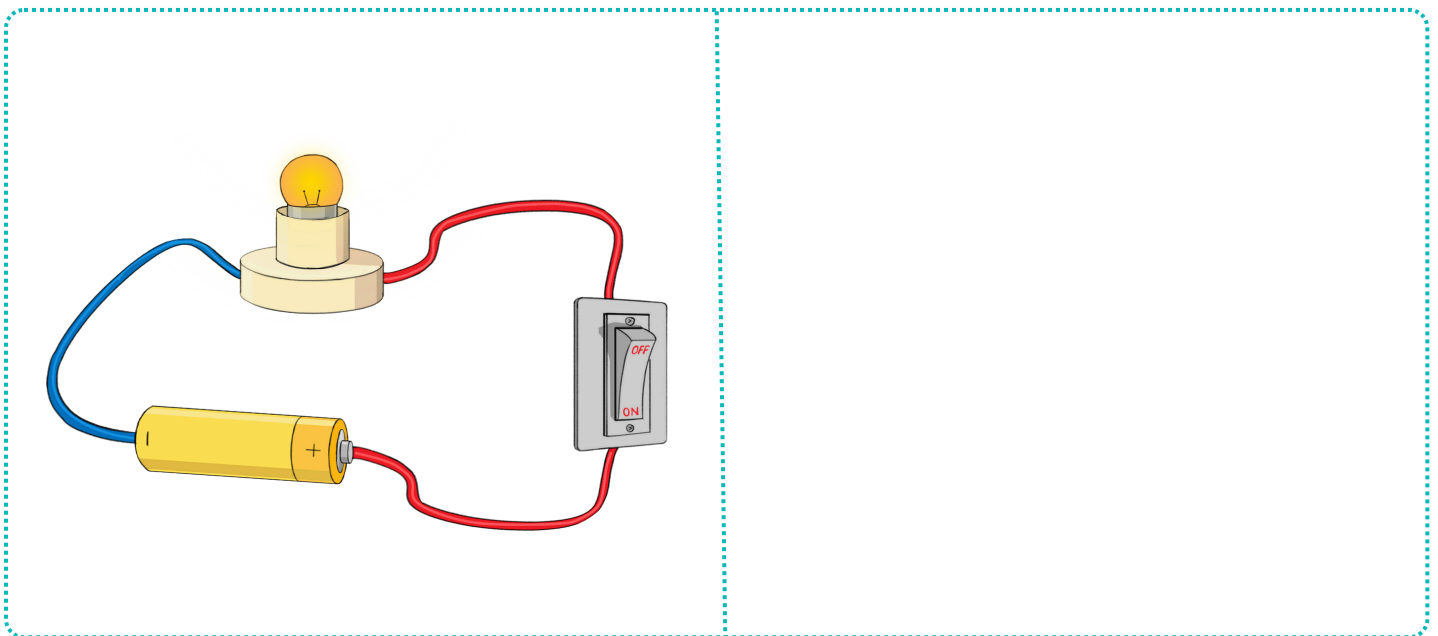
Symbols of Electric Circuit Components



Maya wants to protect her house from short circuits. What is the best way to do it?

Let's draw a circuit diagram:

Carefully observe the diagram below. In the rectangle below/in your notebook, recreate this diagram using symbols. Represent wires with straight lines.



If maya uses this LED in place of bulb. Will the diagram be the same or not? If not, what is the change?

This resource is aligned with competencies outlined in the National Curriculum Framework (NCF) and National Council of Educational Research and Training (NCERT). (Grade 7, Electric Current and its Effect)

For more information write to digital.repository@pratham.org.

