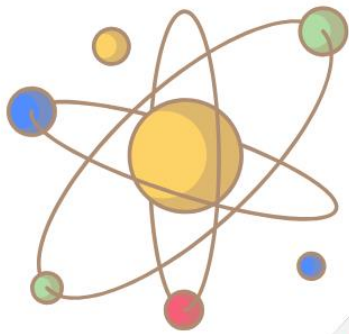




CREST Science Olympiad (CSO) Worksheet *for* Class 6



Topic

Electricity and Circuits



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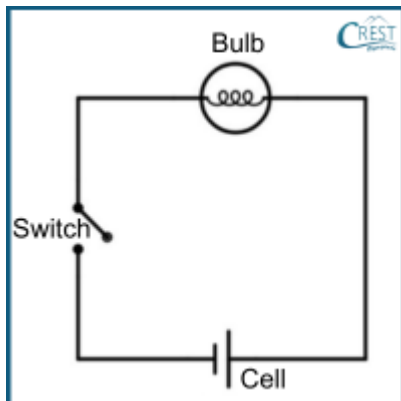
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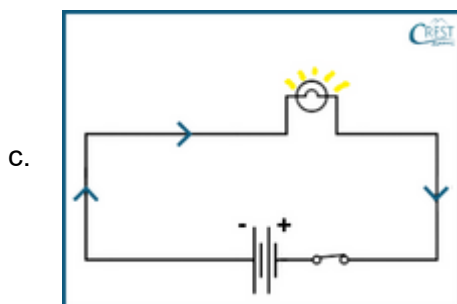
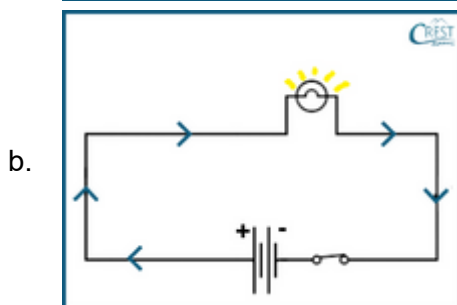
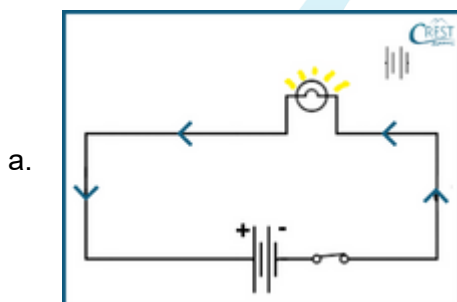
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Worksheet on Electricity and Circuits

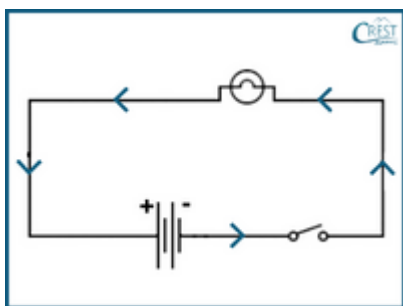
1. Consider the circuit diagram below. Based on the diagram, determine the state of the bulb in the circuit.



- a. The bulb will glow.
 - b. The bulb will not glow.
 - c. The brightness of the bulb will be dim.
 - d. The brightness of the bulb will be bright.
2. Which of the following images correctly represents the direction of current flow in a closed circuit?



d.



3. Rachel connects a bulb and a battery using a long and thin copper wire. If he replaces the copper wire with a thicker aluminium wire, what is likely to happen to the brightness of the bulb?

- a. The bulb will become brighter.
- b. The bulb will become dimmer.
- c. The brightness of the bulb will remain the same.
- d. The bulb will stop glowing.

4. Complete the following pattern:

Aluminium foil: Conductor:: ? : Insulator

- a. Graphite pencil
- b. Coin
- c. Glass rod
- d. Silver ring

5. A group of students conducted an experiment to determine whether certain materials were conductors or insulators. They connected a bulb and a battery using different wires made of different materials. Based on their observations, they recorded the following:

Wire A: Bulb glows brightly

Wire B: Bulb glows dimly

Wire C: Bulb does not glow

Which of the following conclusions can be drawn from the experiment?

- a. Wire A and Wire B are insulators, but Wire C is a conductor.
- b. Wire A is an insulator, Wire B is a conductor, and Wire C is an insulator.
- c. Wire A is a good conductor, Wire B is a weak conductor, and Wire C is an insulator.
- d. Wire A is a weak conductor, Wire B is a good conductor, and Wire C is an insulator.

Answer Key

1. b - The bulb will not glow.
In the given circuit diagram, the circuit is open, which means there is a gap or break in the path of the current flow. Without a complete circuit, the current cannot flow through the bulb, causing it to not glow.
2. b - In a closed circuit, the electric current flows from the positive terminal of the battery (represented by a longer line) or power source towards the negative terminal (represented by a shorter line). This flow of current occurs in a continuous loop, allowing electrical energy to be transferred and power the components connected in the circuit. Image B shows the direction of current flow from the positive terminal to the negative terminal, which aligns with the standard convention for current flow in a closed circuit.
3. a - If Rachel replaces the thin copper wire with a thicker aluminium wire, the bulb is likely to become brighter. Using a thicker wire allows more current to reach the bulb. When more current flows through the bulb, it gets more energy, causing it to glow brighter.
4. c - The pattern suggests that aluminium foil is a conductor, and we need to find the insulator counterpart. Among the options, a glass rod is an insulator, as it does not conduct electricity.
5. c - From the observations, we can conclude that Wire A allows the current to flow freely, resulting in a bright glow of the bulb. This suggests that Wire A is a good conductor of electricity. Wire B, on the other hand, allows some current to flow, but the glow of the bulb is dim. This indicates that Wire B is a weak conductor. Wire C does not allow any current to flow, resulting in no glow of the bulb. Therefore, Wire C is an insulator, as it does not conduct electricity.

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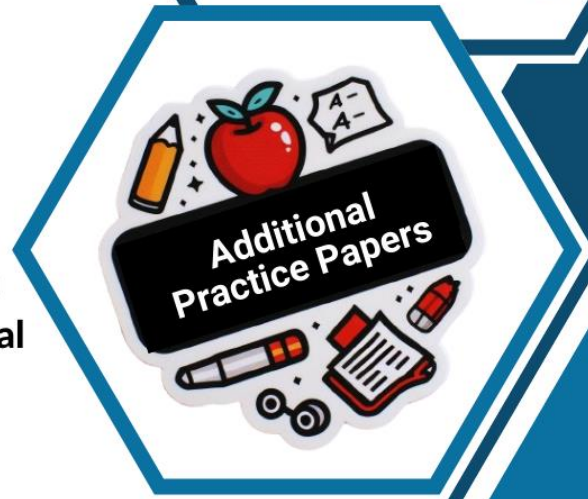
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