Grade 7 Electric Current and Its Effects Worksheets

A. Answer the following questions in short:

1. Draw in the box given below the symbols to represent the following components of electrical circuits: connecting wires, switch in the 'OFF' position, bulb, cell, switch in the 'ON' position and battery.

2. Draw the circuit diagram to represent the circuit shown in Fig. 1.

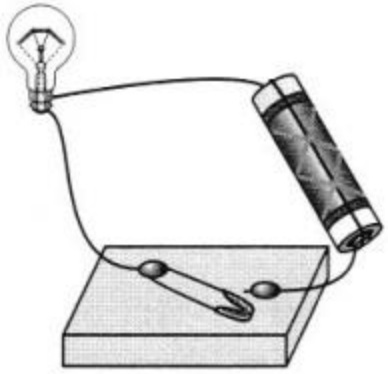


Fig. 1

3. Fig. 2 shows four cells fixed on a board. Draw lines to indicate how you will connect their terminals with wires to make a battery of four cells.

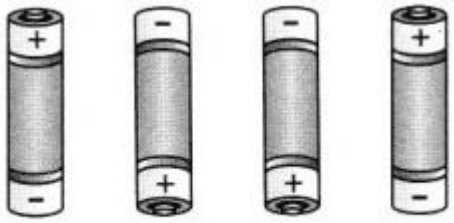


Fig. 2

4. The bulb in the circuit shown in Fig. 3 does not glow. Can you identify the problem? Make necessary changes in the circuit to make the bulb glow.

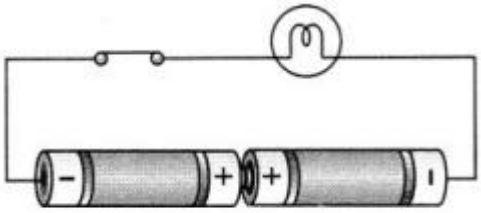


Fig. 3

5. Name any two effects of electric current.
6. When the current is switched on through a wire, a compass needle kept nearby gets deflected from its north-south position. Explain.
7. Will the compass needle show deflection when the switch in the circuit shown by Fig. 4 is closed?

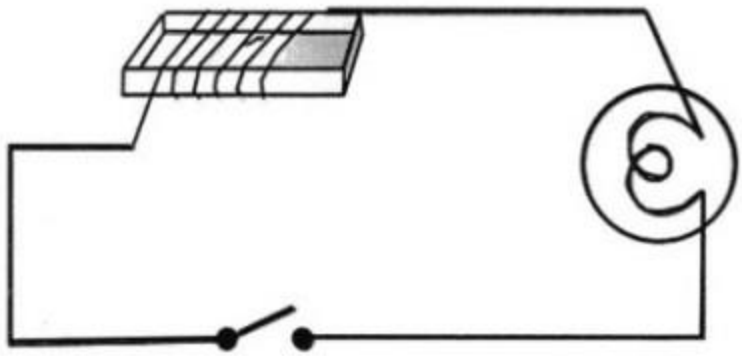


Fig. 4

8. Do you think an electromagnet can be used for separating plastic bags from a garbage heap? Explain.
9. An electrician is carrying out some repairs in your house. He wants to replace a fuse by a piece of wire. Would you agree? Give reasons for your response.
10. Zubeda made an electric circuit using a cell holder shown in Fig. 5, a switch and a bulb. When she put the switch in the 'ON' position, the bulb did not glow. Help Zubeda in identifying the possible defects in the circuit.

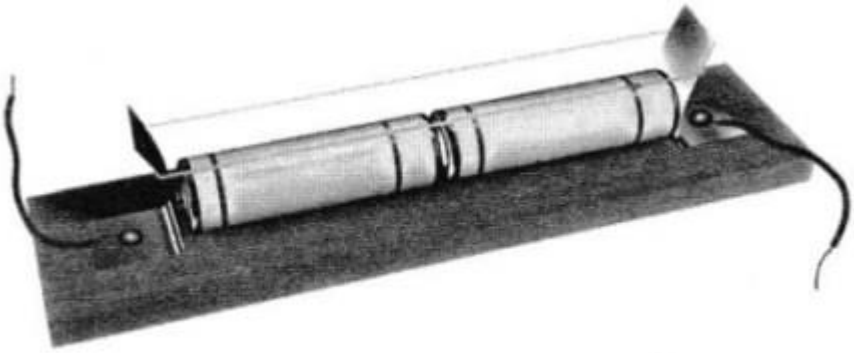


Fig. 5

11. In the circuit shown in Fig. 6.

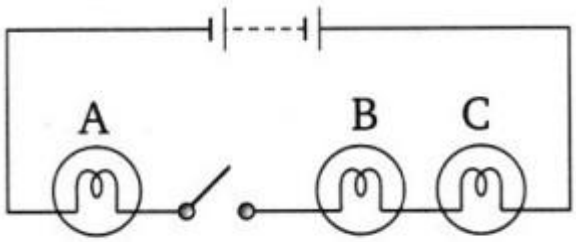


Fig. 6

(i) Would any of the bulb glow when the switch is in the 'OFF' position?
(ii) What will be the order in which the bulbs A, B and C will glow when the switch is moved to the 'ON' position?
12. "Don't experiment with the electric supply from main." Justify the given

statement.
13. Why do we cover plug pin holes which are within the reach of children with cellotape or a plastic cover when not in use?

B. Fill in the blanks:
1. Longer line in the symbol for a cell represents its …….. terminal.
2. The combination of two or more cells is called a ……. .
3. When current is switched ‘ON’ in a room heater, it …… .
4. The safety device based on the heating effect of electric current is called a …… .
5. A …… diagram makes use of electrical symbols.

C. State ‘True’ or ‘False’:
1. To make a battery of two cells, the negative terminal of one cell is connected to the negative terminal of
the other cell. ……
2. When the electric current through the fuse exceeds a certain limit, the fuse wire melts and breaks. ……
3. An electromagnet does not attract a piece of iron. ……
4. An electric bell has an electromagnet. …….
5. If the circuit is broken, current cannot flow. ……

D. Tick (✓) the correct option:
1. The sources of electrical energy are:
(a) batteries
(b) solar cells
(c) generators
(d) all of these

2. If a circuit is open:
(a) the bulb glows
(b) the bulb does not glow
(c) the bulb glows for sometime and then stops glowing
(d) none of the above

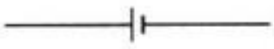
3. CFL stands for:
(a) compressed fluorescent lamp
(b) complete fluorescent lamp
(c) compact fluorescent lamp
(d) compact fluorine lamp

4. Which equipment is not based on heating effect of electric current?
(a) Electric bulb
(b) Electric oven
(c) Electric iron
(d) Electric kettle

5. Which symbol is used for switch 'ON'?

(a) 
(b) 
(c)
(d) 

E. Match the following:

'A'	'B'
1.  represents	● Fuse
2.  represents	● Wire
3.  represents	● Electric cell
4. represents	● Bulb off
5.  represents	● Switch off

F. Set up the circuit shown in Fig. 7. Move the key to 'ON' position and watch carefully in which direction the compass needle gets deflected. Switch 'OFF' the current. Now keeping rest of the circuit intact, reverse the connections at the terminal of the cell. Again switch 'on' the current. Note the direction in which the needle gets deflected. Think of an explanation.

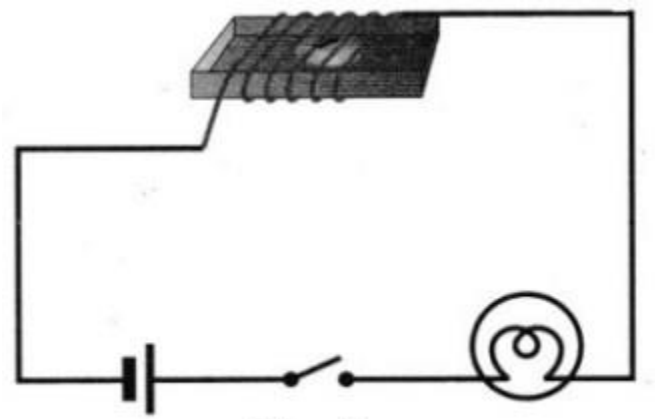


Fig. 7

G. Make four electromagnets with 20, 40, 60 and 80 turns. Connect them one by one to a battery of 2 cells. Bring the electromagnet near a box of pins. Count the number of pins attracted by it. Compare the strengths of the electromagnets.

H. Solve the following crossword puzzle:

Across (→) :

1. In it, the current flows.
3. A temporary magnet, formed by winding a coil of wire around a piece of soft iron.

Down(↓) :

2. A point where wires are attached in a battery.
4. Element used in electric lamp as filaments.
5. A composition of two or more metals.

6. A term used for safety valves.