

Subject : Science

Grade : 9

Term : 2nd Term

Unit : 8 - Electricity

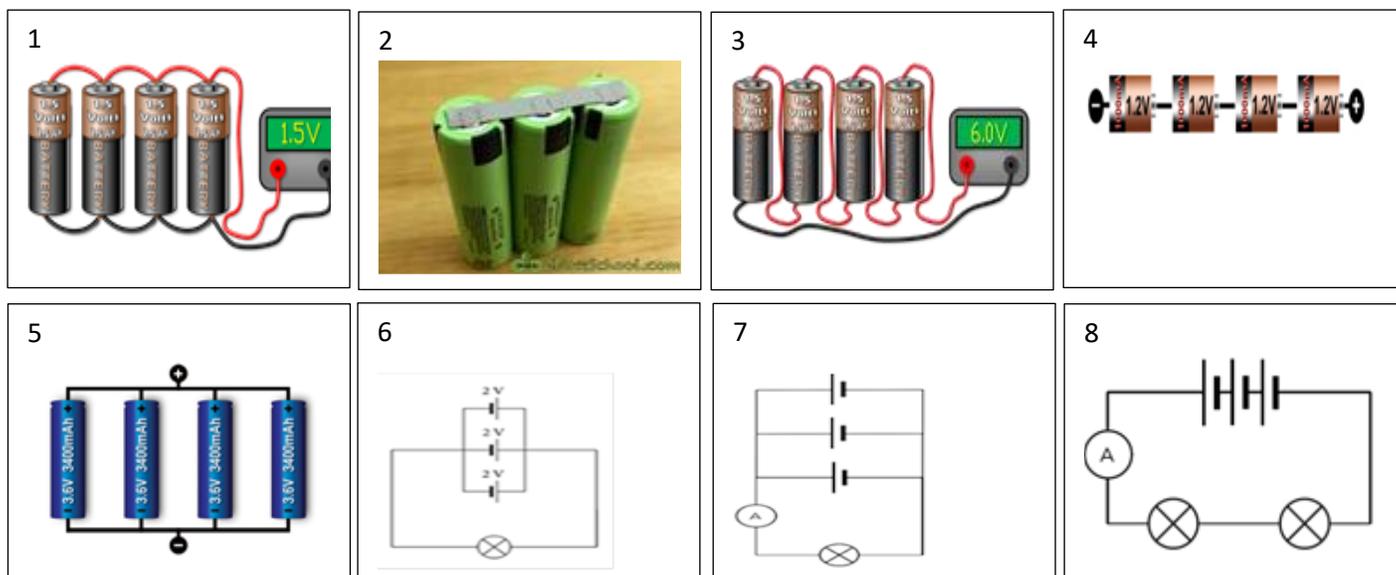
Competency level : Adjusted according to the learning outcomes of the levels 3.5 and 3.6

1. Different ways of connecting cells and bulbs

Activity 1

Identification of series cell systems and parallel cell systems.

Study photographs and circuit diagrams and classify them into series cell systems and parallel cell systems. Put the number of the relevant photographs and circuit diagrams in the appropriate box.



Series connection	Parallel connection
The negative terminal of one cell is connected to the positive terminal of the other cell whereas the negative terminal of that particular cell is connected to the positive terminal of next cell.	The positive terminals of each cell are connected together while negative terminals are connected together to another point.
Put the number of photo and circuit diagram -----	Put the number of photo and circuit diagram -----

Activity 2

Let's identify series bulb systems and parallel bulb systems.

Identify series bulb systems and parallel bulb systems and draw diagrams related to them.

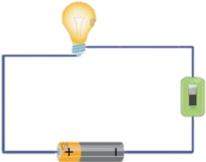
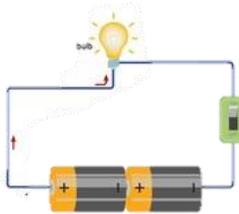
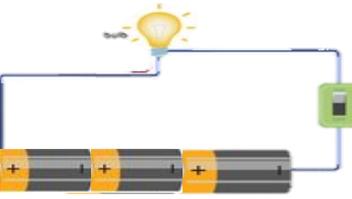
Series bulb system	Parallel bulb system
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Activity 3

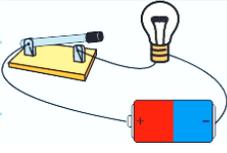
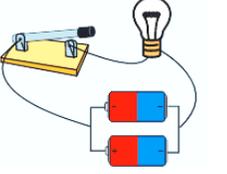
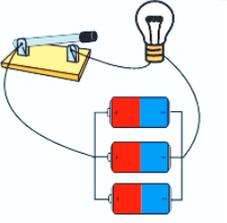
Comparison of series and parallel bulb systems and cell systems.

Take a few wires, bulbs, and cells that can be found at home. Adjust them as shown in the diagrams below and compare the brightness of the bulbs.

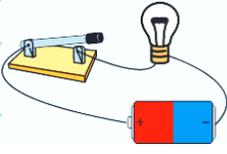
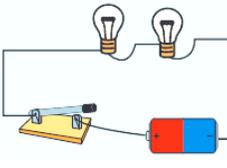
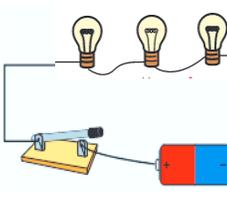
3-1 series cell systems

Setup	Number of cells connected	Brightness of the bulb (comparatively)
		
		
		

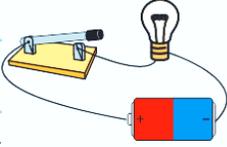
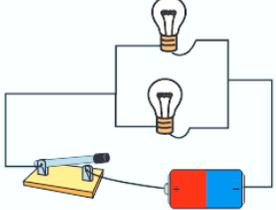
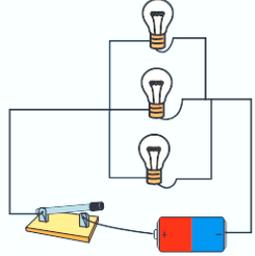
3-2 Parallel cell systems

Setup	Number of cells connected	Brightness of the bulb (comparatively)
		
		
		

3-3 series bulb systems

Setup	Number of bulbs connected	Brightness of the bulb (comparatively)
		
		
		

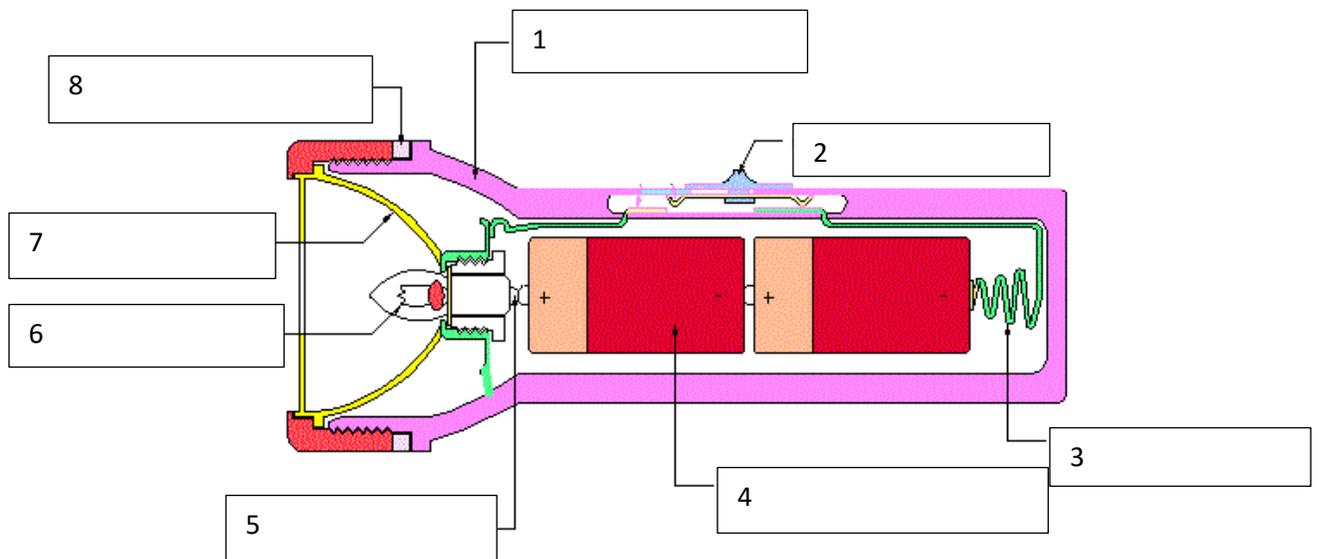
3-4 Parallel bulb systems

Setup	Number of bulbs connected	Brightness of the bulb (comparatively)
		
		
		

2. Simple electrical circuits

Activity 1

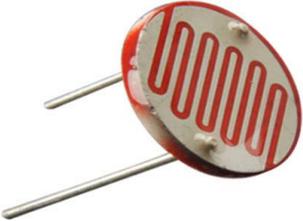
Detach and observe an electric torch found at home. Identify its parts and name the diagrams shown below.



3. Current control devices

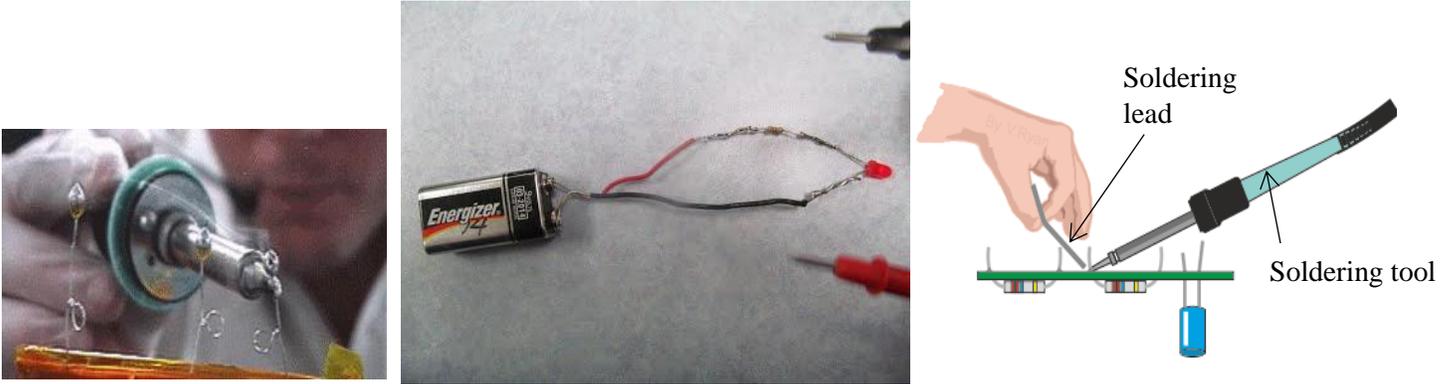
Activity 1

Study the diagrams given below and the functions of the equipment and write the correct answer in the appropriate box

Diagram	tasks	Equipment
	It is used to pass an electric current through a circuit when necessary and to stop the flow of electric current when necessary.	1
	A type of resistors with a certain fixed resistance value	2
	A resistor made by connecting several resistors to vary the current flow through a circuit	3
	Flow of current through a circuit can be changed to a desired value	4
	Resistors that change their resistance when the intensity of light falling on them changes	5

Activity 2

Find out how soldering is done. Construct a simple circuit using soldering tool and soldering lead. A dry cell, LED and wires are required for this.



4. Household electrical appliances

Activity 1

Electrically powered equipment are known as electrical appliances.

Observe and list down the electrical appliances that are used in home for day-to-day activities. Record the power and voltage of those appliances.

Electrical appliances	Voltage	Power

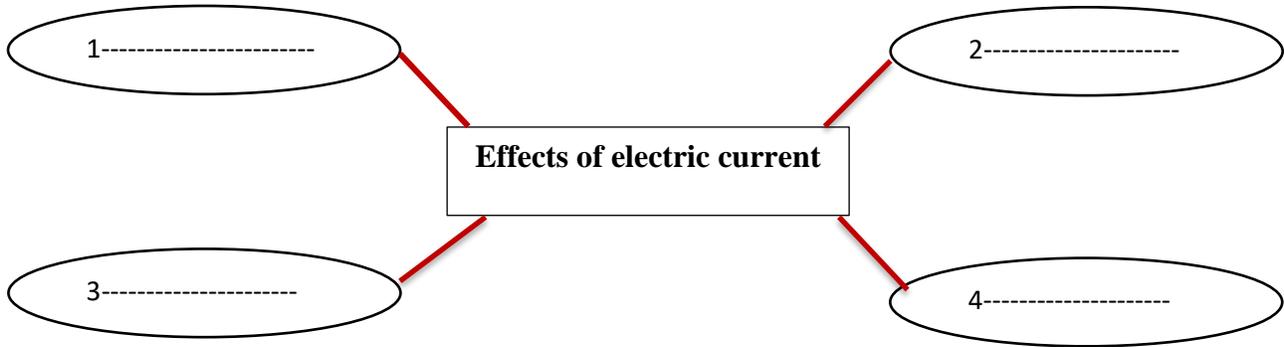
Activity 2

Write the protective ways of using the electrical appliances.

5. Effects of electric current

Activity 1

Write the effects of electric current.



Activity 2

Draw the experimental setups that could be designed at home to investigate the effects of electric current using the materials given in the table.

	Materials	Experimental setup	Observations	Effects of electric current
1	Two dry cells, connecting wires, nichrome wires & copper wire, wooden plank, nails			
2	LEDs with different colours, connecting wires, two dry cells			
3	A long iron nail, copper wires, two dry cells, pins			

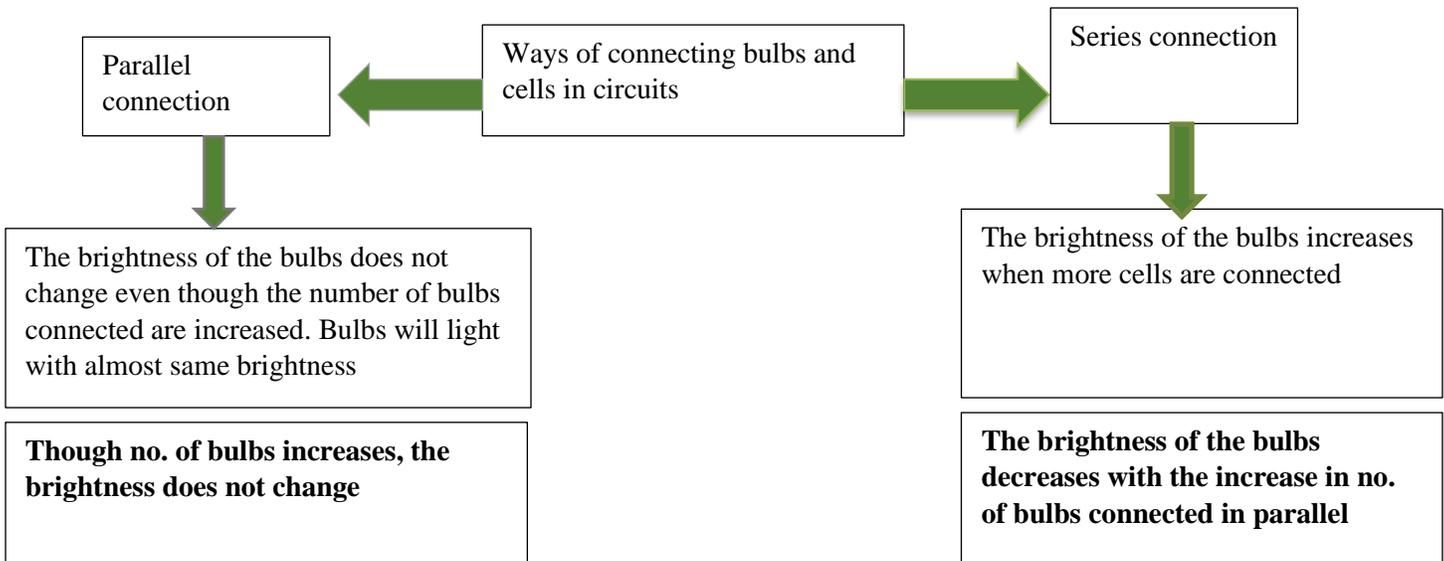
4	A jam bottle, two dry cells, two carbon rods obtained from worn out dry cells, acidified water (put a few drops of lime juice into water and mix well), connecting			
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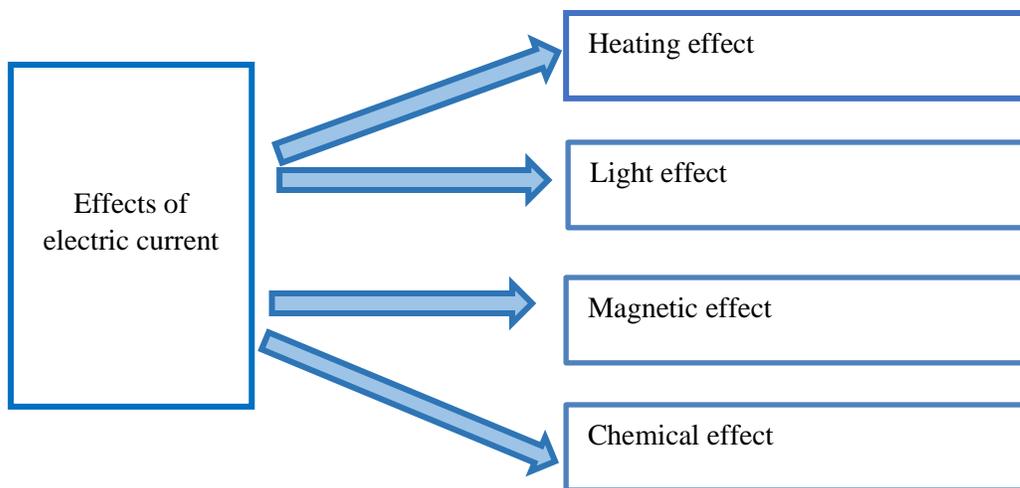
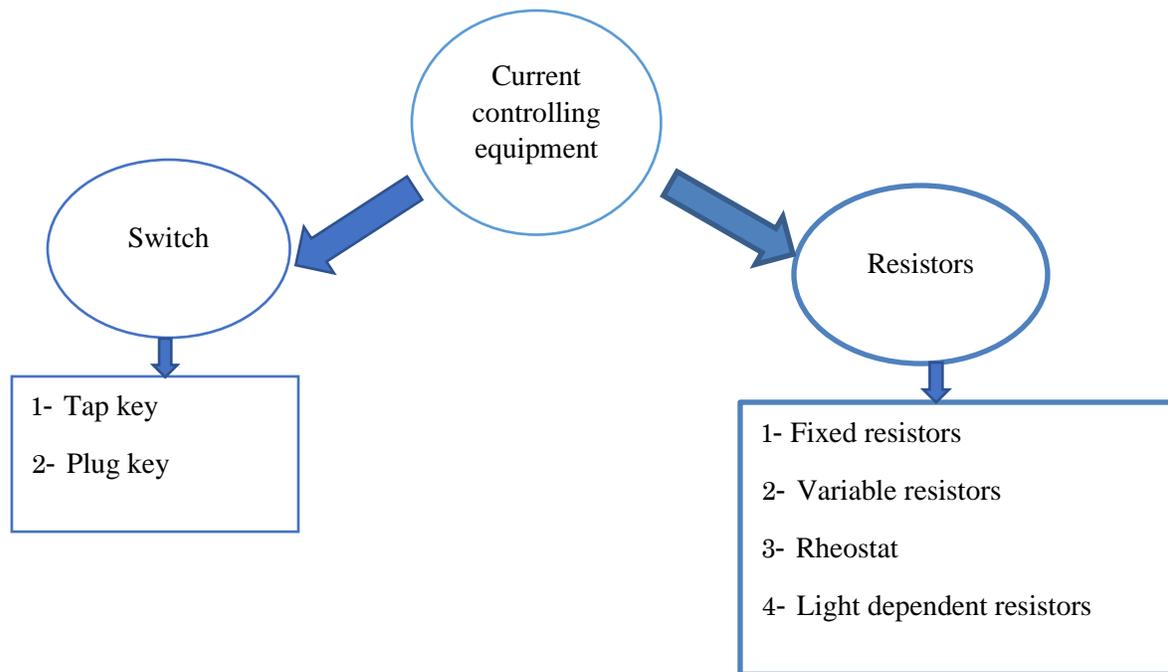
Activity 3

Write a few instances where the effects of electric current are utilized in a useful manner.

Effects of electric current	Instances

Summary





Exercises

1. What are the ways in which bulbs and cells can be connected in circuits?
2. What are the equipment that can be used to control the electric current flowing through an electrical circuit
- 3 - What are electronic appliances?
- 4- What are the points to be considered in the use of electric appliances?
- 5- What are the effects of electric current? Write down the energy conversion that takes place in each of these effects.
- 6 - What about electromagnetic devices?
- 7- What is the chemical effect of electric current?
- 8 - Write an instance where the chemical effect of electric current is used.

Translated by : Nayomi Wijesooriya