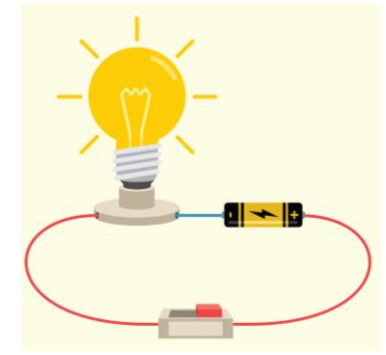


Week

Year 6 Science
Electricity

Understanding Circuits



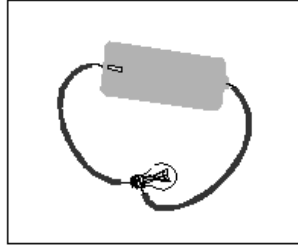
A circuit is a loop through which current can flow. A power source, such as a battery, provides the energy for the circuit to work. Electrons flow from the negative side of the power source, through the circuit and back to the positive side of the power source. Once the electrons return to the power source, the circuit is complete.

In order to provide power, circuits must be closed. This happens when a complete loop is formed from one side of the voltage source to the other side. If there are any interruptions in this loop, the electrons cannot complete their loop, creating an open circuit.

Understanding Circuits

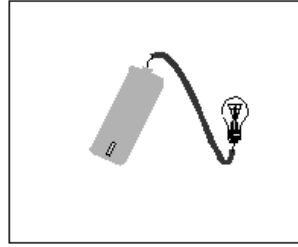
Task 1

1. Tick **ONE** box for each circuit to show whether the bulb **will** or **will not** light.



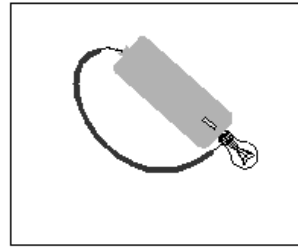
will light will not light





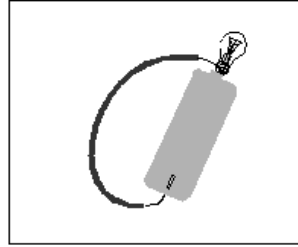
will light will not light





will light will not light



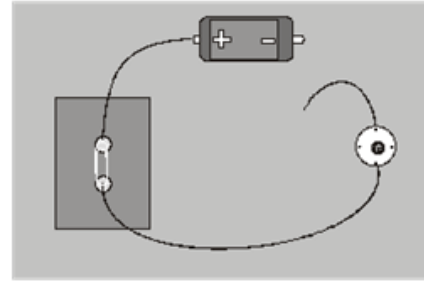


will light will not light



2.

(a) Some children make this circuit to light a bulb.



The bulb is not lit.

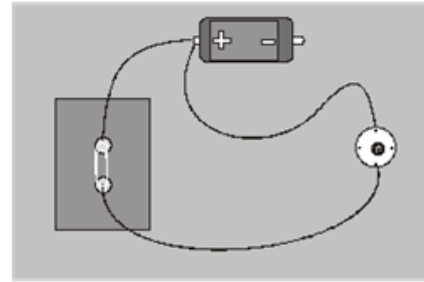
Why is the bulb not lit?



.....

.....

(b) The children make another circuit to light a bulb.



The bulb is not lit.

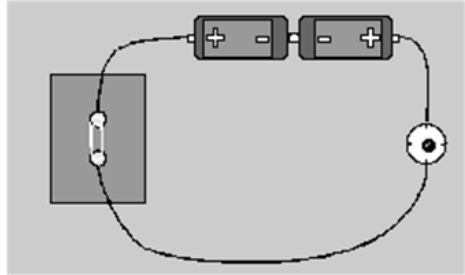
Why is the bulb not lit?



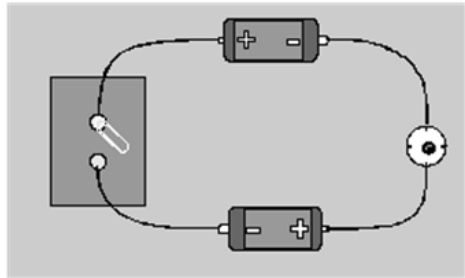
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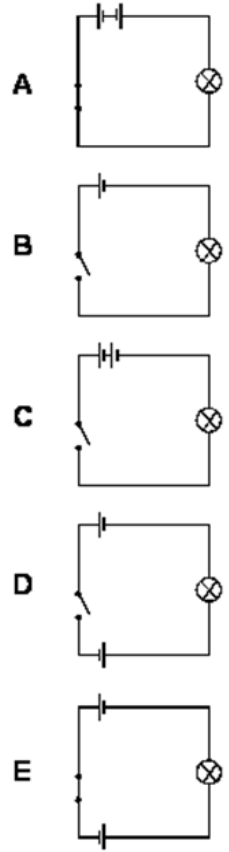
3. | Here are two photographs of circuits and five circuit diagrams.



circuit 1



circuit 2



(a) Draw **ONE** line from **each** photograph to the matching circuit diagram.

(b) The bulb is not lit in circuit 2.

Why is the bulb **not** lit?

.....

.....

4. Quiz board

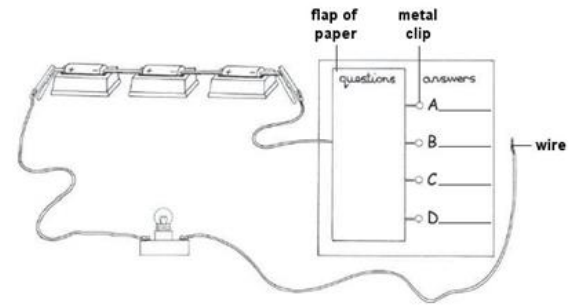
Lori makes an electrical quiz board like the one below.

She writes a question on the flap of paper.

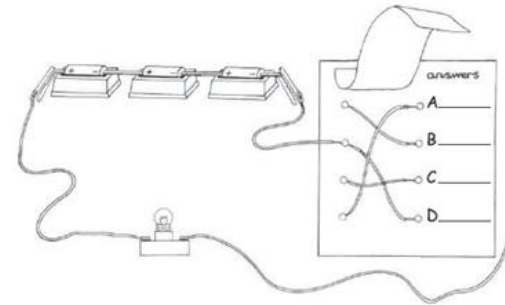
Then she writes four answers next to the letters A, B, C and D.

Only one answer is correct.

When the wire touches the metal clip next to the correct answer, the bulb lights brightly.



When she lifts the flap of paper, you can see how the circuit is made.



Look at the diagrams.

Which metal clip must Lori touch with the wire to complete the circuit? Tick **ONE** box.

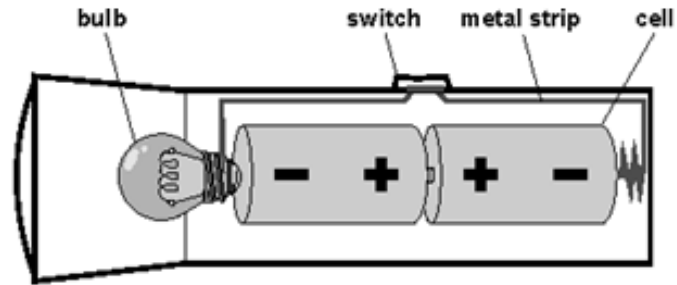
A
 B
 C
 D

5.

Electricity

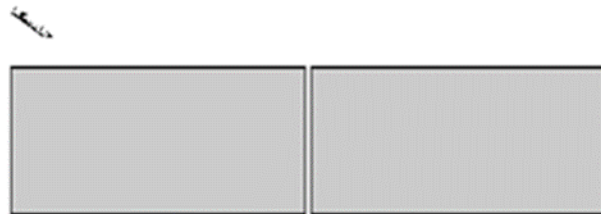
(a) Naomi's torch is not working.

The cells (batteries) inside the torch are like this:



Naomi puts the cells back in a different way and the torch works.

Write + and - in the correct place in each cell below to show how Naomi puts them back.



(b) Inside the torch, a metal strip connects the cells and bulb.

Describe **ONE** property of metal that makes it a good material to connect the cells and bulb.

.....

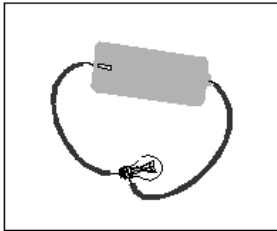
.....

Understanding Circuits


Answers

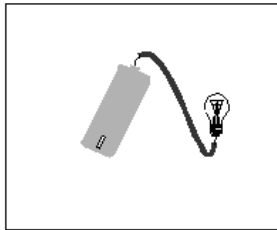
1.

Tick **ONE** box for each circuit to show whether the bulb **will** or **will not** light.



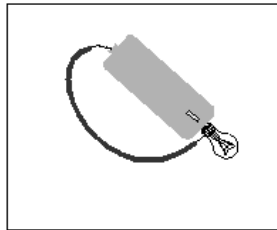
will light will not light





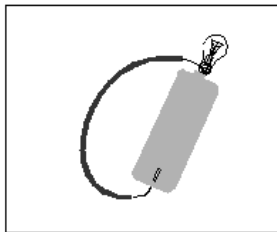
will light will not light





will light will not light



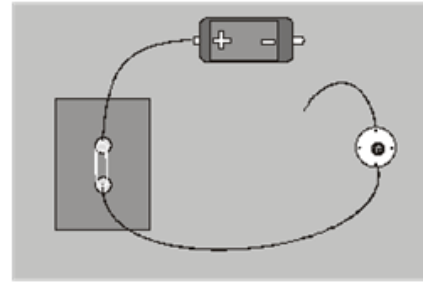


will light will not light



2.

(a) Some children make this circuit to light a bulb.



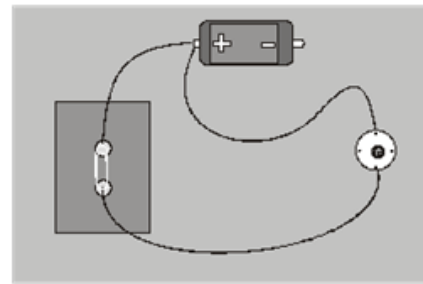
The bulb is not lit.

Why is the bulb not lit?



.....

(b) The children make another circuit to light a bulb.



The bulb is not lit.

Why is the bulb not lit?



.....

Possible answers:

The wire is not connected/joined to the battery.

There is a break/gap in the circuit.

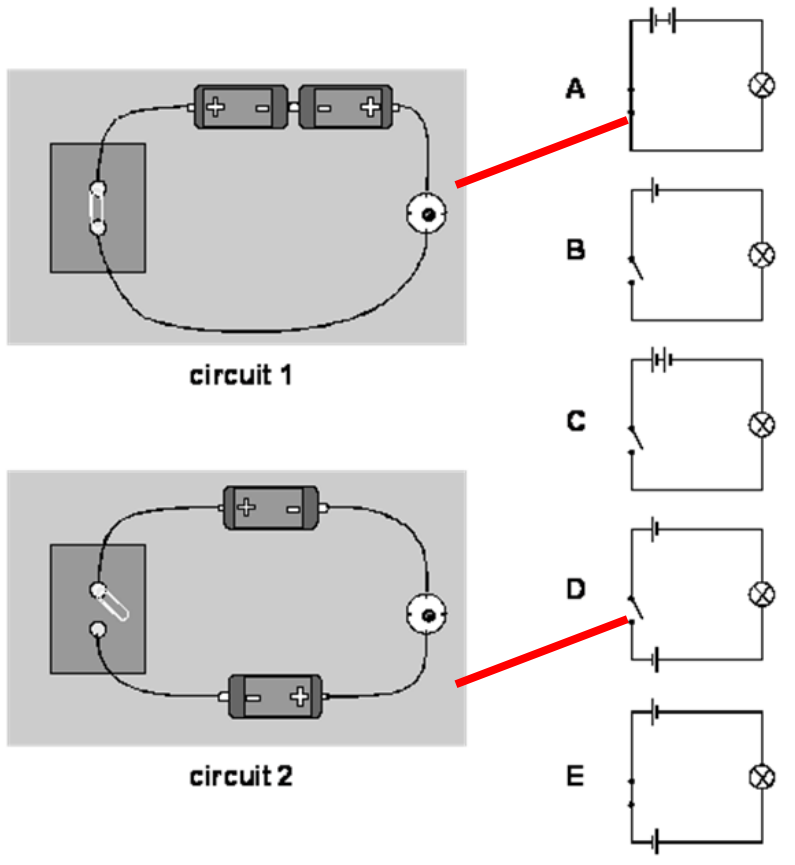
Possible answers:

The wires should be connected to each end of the battery/cell.

The wires are connected to one end.

The electrons need to travel through the negative and positive end of the battery.

3. | Here are two photographs of circuits and five circuit diagrams.



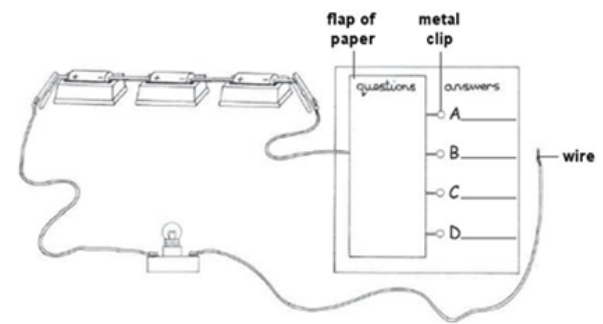
(a) Draw **ONE** line from **each** photograph to the matching circuit diagram.

(b) The bulb is not lit in circuit 2.
Why is the bulb **not** lit?

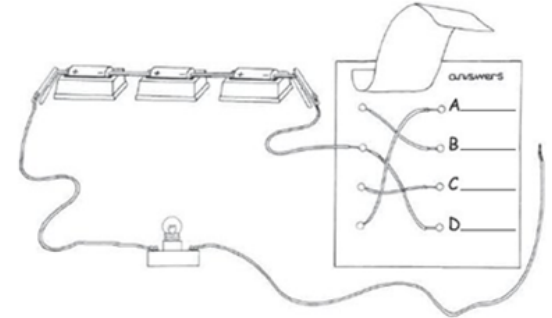
Possible answers:
The switch is not closed.
The paper clip is not touching the drawing pin.
There is a break/gap in the circuit.

4. Quiz board

Lori makes an electrical quiz board like the one below.
She writes a question on the flap of paper.
Then she writes four answers next to the letters A, B, C and D.
Only one answer is correct.
When the wire touches the metal clip next to the correct answer, the bulb lights brightly.



When she lifts the flap of paper, you can see how the circuit is made.



Look at the diagrams.
Which metal clip must Lori touch with the wire to complete the circuit? Tick **ONE** box.

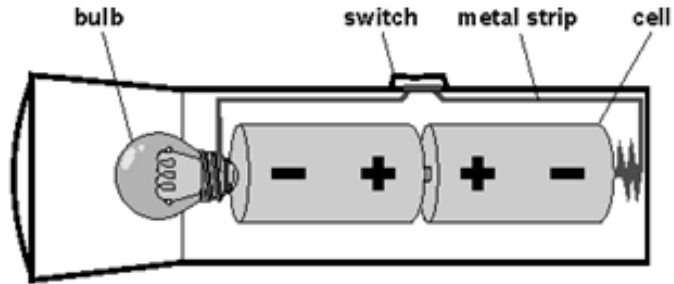
A
 B
 C
 D

5.

Electricity

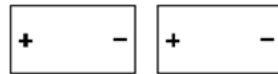
(a) Naomi's torch is not working.

The cells (batteries) inside the torch are like this:

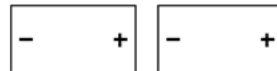


Naomi puts the cells back in a different way and the torch works.

Write + and - in the correct place in each cell below to show how Naomi puts them back.



OR



(b) Inside the torch, a metal strip connects the cells and bulb.

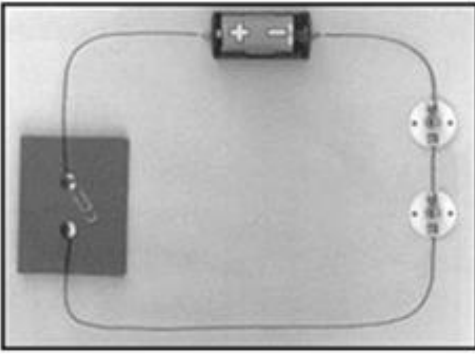
Describe ONE property of metal that makes it a good material to connect the cells and bulb.

.....
.....

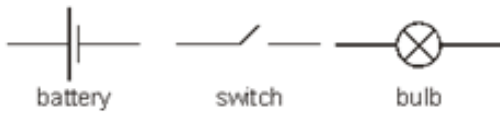
Possible answers:
Metal conducts electricity
Metal is a good conductor
Electricity can flow through metal

Drawing Circuits Task 2

1. The circuit contains one new battery, two new bulbs and a switch.

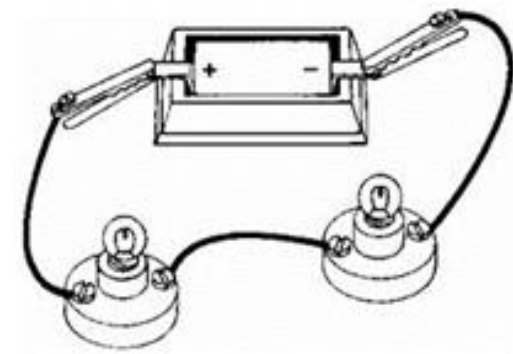


Draw a circuit diagram of Daniel's circuit. Use these symbols.



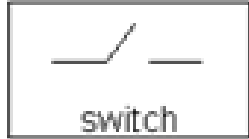
2. David makes a circuit with two bulbs and one cell (battery). He draws a picture of it.

In the space below, draw a circuit diagram of David's circuit. Use symbols.



3. Draw a circuit diagram in which the switch can be used to turn the motor on and off.

You **MUST** use these three symbols in your diagram.

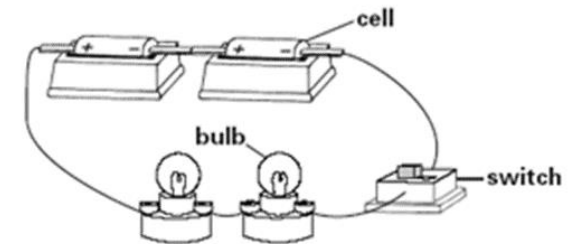


4. School play

Polly is in a school play.

She is dressed as a star.
The star costume has bulbs
which light up.

The picture below shows
the circuit that makes the
star light up.



Draw a circuit diagram of the star's circuit in the space below.

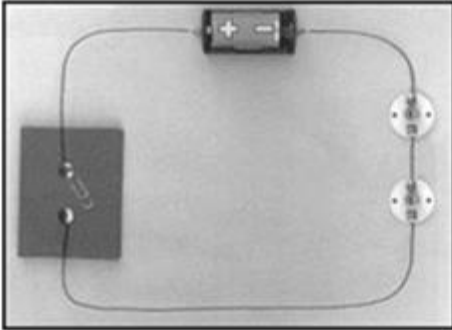
Use these symbols in your circuit diagram.

You can use each symbol more than once if you need to.

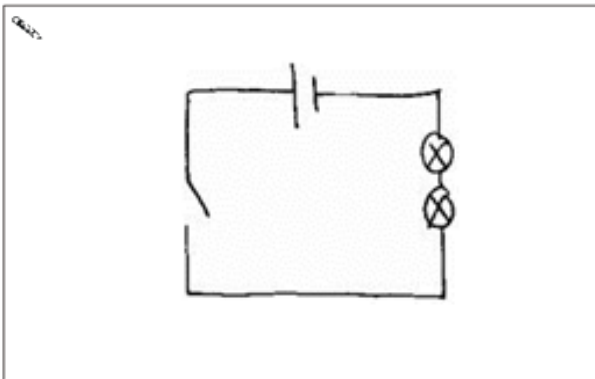
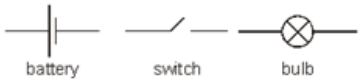


Drawing Circuits Answers

1. The circuit contains one new battery, two new bulbs and a switch.



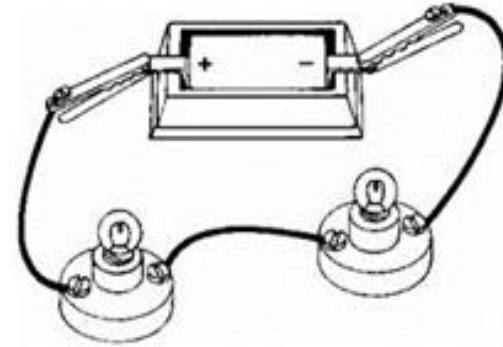
Draw a circuit diagram of Daniel's circuit. Use these symbols.



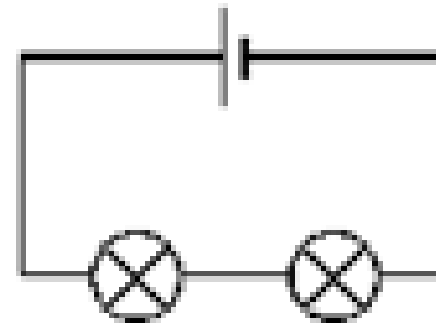
The symbols can be in any order.

2. David makes a circuit with two bulbs and one cell (battery).
He draws a picture of it.

In the space below, draw a circuit diagram of David's circuit.
Use symbols.

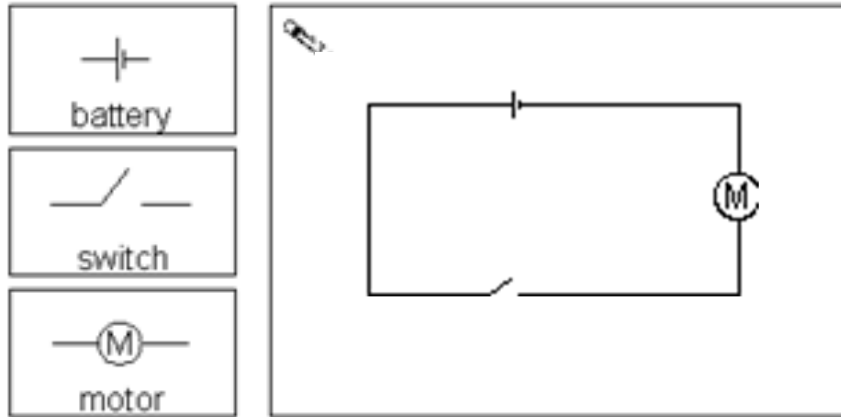


Your circuit must contain 2 bulbs and 1 cell.
The symbols can be in any order.



3. Draw a circuit diagram in which the switch can be used to turn the motor on and off.

You **MUST** use these three symbols in your diagram.



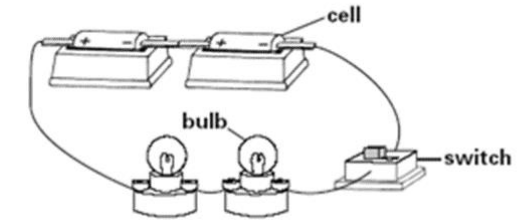
All 3 symbols should be included in any order:

4. School play

Polly is in a school play.

She is dressed as a star. The star costume has bulbs which light up.

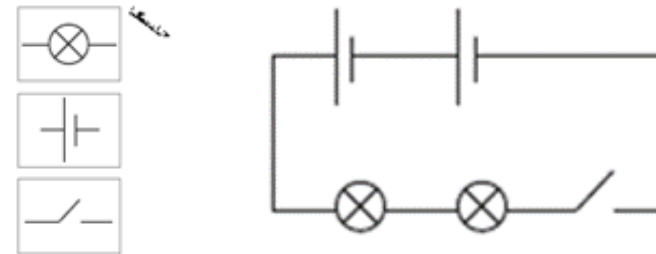
The picture below shows the circuit that makes the star light up.



Draw a circuit diagram of the star's circuit in the space below.

Use these symbols in your circuit diagram.

You can use each symbol more than once if you need to.



The circuit should include 2 bulbs, 2 cells and a switch (in any order).