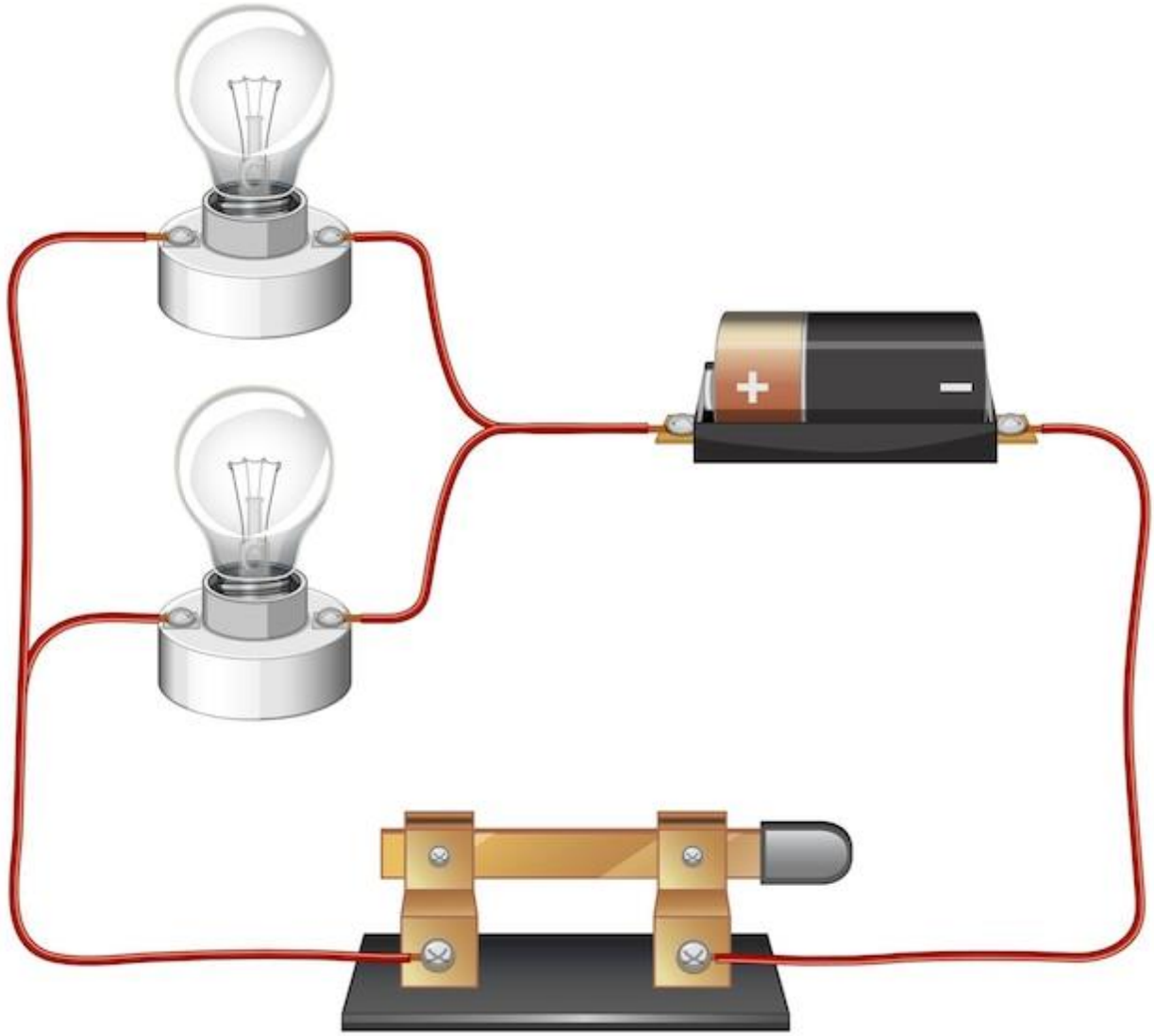
Chapter 9: More about electrical circuits



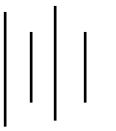
Chapter 9: More about electrical circuits

Worksheet 1: Circuit symbols **Date:** / /

Objective:

- Identify different circuit symbols.
- Draw circuit diagrams for circuits with different components.

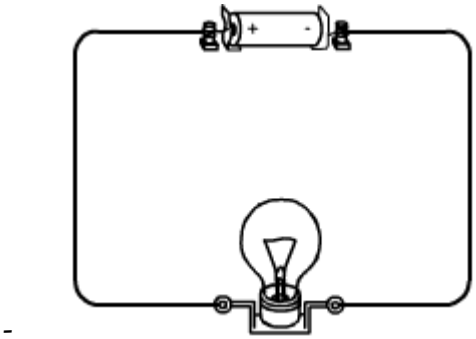
Question 1: Complete the table by writing the correct component name in the box next to each circuit symbols.

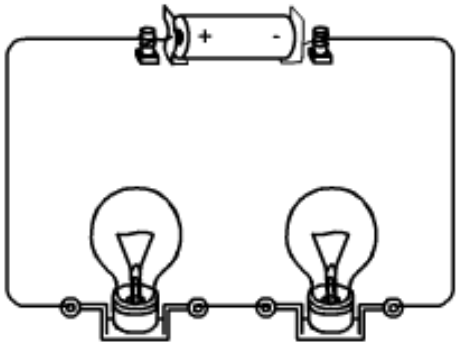
Question 2:

Draw a circuit diagram for each of the following electric circuits:

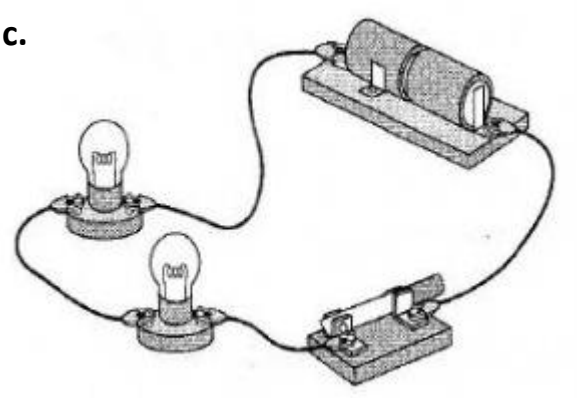
a.



b.



c.



Chapter 9: More about electrical circuits

Worksheet 2: Electrical Circuits-Lab Report **Date: / /**

Objective:

- Construct a simple circuit.
- Change the circuit by adding/ removing components and observe what happens.

Required Materials:

- Wires	- Bulbs
- Cells	- Switch
- Bulb holders	

	Procedure	Observation	Draw the circuit in symbols
Part 1	**1. Connect the wires with each side of the cell.** **2. Connect the other ends of the wires into each side of the bulb.** **3. Observe what happens, record your observation.**		

	Procedure	**Observation**	**Draw the circuit in symbols**
Part 2	**Add a switch to your circuit.** Observe what happens when you open the switch and when you close it. Record your observation.		
Part 3	Now **add another cell to your circuit** and observe what happens to the bulb. Record your observation.		

	Procedure	**Observation**	**Draw the circuit in symbols**
Part 4	Now **add another bulb to your circuit** and observe what happens to the bulb. Record your observation.		
Part 5	**Change the direction of the other cell, with the positive terminal of the first cell facing the positive terminal of the other cell.** Does the bulb light up? Record your observation.		

Conclusion:

- The **basic components** of a simple electrical circuit are:

1. ……
2. ……
3. ……

We can add an optional component **…… to** the circuit, in order to turn the bulb on and off easily.

- If the switch is closed: ……

- If the switch is open: ……..

-If there is any gap in the circuit: **……..**

Electrical current needs a closed path (complete circuit) in order to pass.

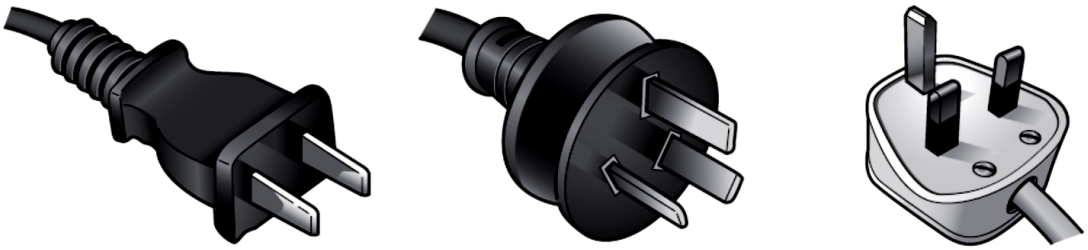
Chapter 9: More about electrical circuits

Worksheet 3: Electrical Circuits **Date:** / /

Objective:

- Use diagrams and symbols to represent and compare different electric circuits.

Question 1:



(a) Suggest **one** material which could be used for the wire inside these electrical plugs.

..... [1]

(b) Explain why.

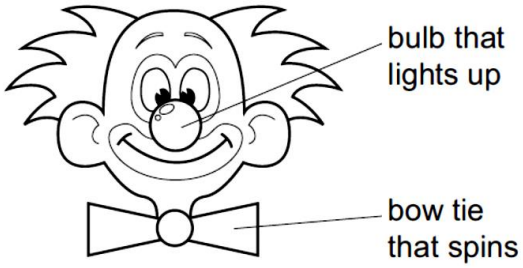
..... [1]

(c) Use **one** word to complete the sentence below.

People often wear rubber boots when they use electrical tools. This is because rubber is a good electrical ..... [1]

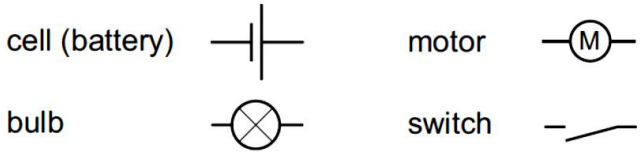
Question 2:

Ellie is making a clown face toy.



She wants to make the bulb light up and the bow tie turn by making an electric circuit.

(a) Using the symbols below draw the circuit diagram to make the toy.



(b) Ellie decides to replace one of the wires with a much longer one.

What effect does this have on

the bulb .....

The bow tie .....

(c) She needs some extra connectors to make her circuit. Which objects could be used as circuit connectors?

Tick (✓) **three** boxes.

Steel paperclip ☐

Strip of cardboard ☐

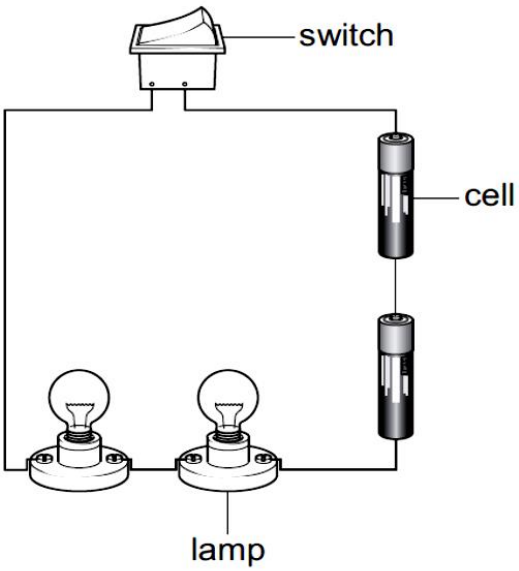
Strip of aluminium foil ☐

Metal split pin ☐

Plastic paperclip ☐

Question 3:

Kofi has built an electrical circuit.



(a) The lamps are **off**.

What does Kofi do to turn the lamps **on**?

.....

(b) In the space below draw the circuit diagram for this electrical circuit.

Use circuit symbols.

Question 4:

Look at this safety sign.

(a) Why is this?

.....

..... [1]

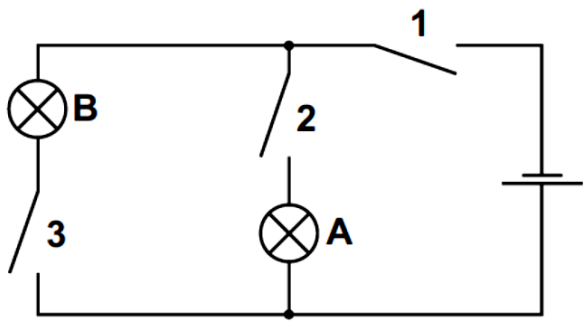
(b) Electrical circuits can be drawn using symbols.

Use the symbols below to draw a circuit to light **two** bulbs. They must both turn on and off using the same switch.

cell (battery)		motor	
bulb		buzzer	
switch			

Question 5:

Look at this circuit diagram.



(a) Switch **1** and **2** are closed. Switch **3** is open.

What will happen? Tick (✓) **one** box.

A and **B** both light up. ☐

Only **A** will light up. ☐

Only **B** will light up. ☐

Neither bulb will light up. ☐

(b) What will happen if Switch **1** is opened?

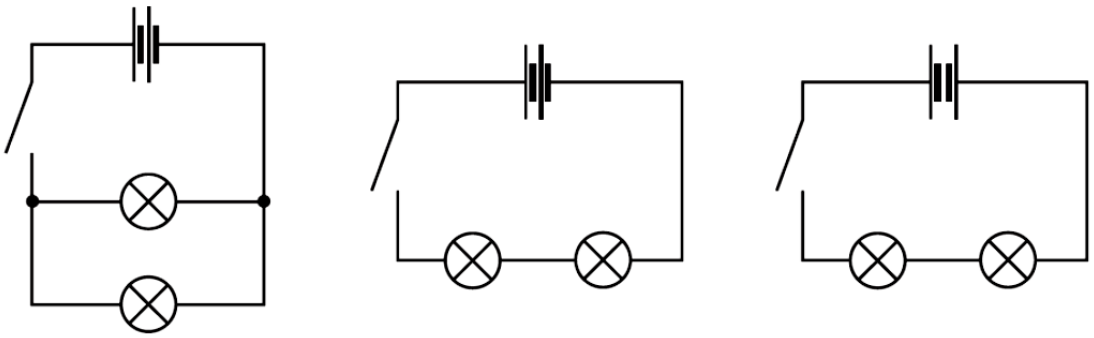
.....

Question 6:

(a) An electrical circuit has two cells, correctly arranged, and two lamps in series with one switch. When the switch is closed both of the bulbs light up.

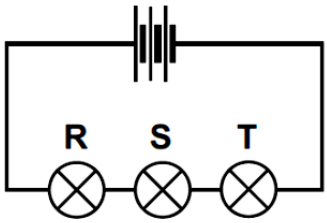
Which circuit, **A**, **B** or **C**, matches the description?

Put a circle around the answer.



A **B** **C**

(b) In this circuit, bulb **S** does not light up.



(i) What happens to bulbs **R** and **T**?

R .....

T .....

(ii) Why does this happen?

.....

Question 7:

Mike investigates how well materials conduct electricity.

He connects different materials to an electrical circuit containing a lamp.

He looks at the brightness of the lamp.

Here are his results.

material	brightness of lamp in circuit
lead	lamp is very dim
brass	lamp is just brighter than when using lead
copper	lamp is bright
plastic	lamp does not work
silver	lamp is very bright

(a) Brass conducts electricity.

Name **one** material that is a better conductor of electricity.

.....

(b) Which material is the **best** conductor of electricity?

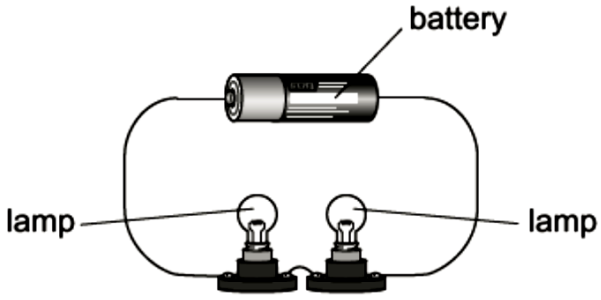
.....

(c) Which material does **not** conduct electricity?

.....

Question 8:

Mia makes a series circuit.



Mia makes different series circuits.

She uses the same size batteries.

She uses the same size lamps.

(a) Complete the table.

Choose from the following words.

dim **normal** **bright**

number of batteries	number of lamps	brightness of lamps
1	2	normal
2	2	.....
1	3	.....

Chapter 10: More about Rocks

Chapter 10: More about Rocks

Worksheet 1: Types of Rocks **Date:** / /

Objective:

- Identify different types of rocks according to the way they are formed.
- Describe how fossils are formed.

Question 1:

a. Rocks can be classified into igneous rocks, sedimentary rocks and metamorphic rocks.
Tick (√) the box next to the correct statement.

☐ The rocks are classified based on how they are formed.

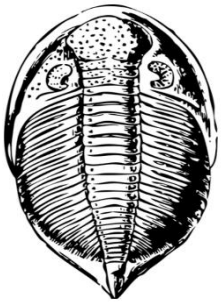
☐ The rocks are classified based on their colour.

b. Compare between the igneous, sedimentary and metamorphic rocks in the following table:

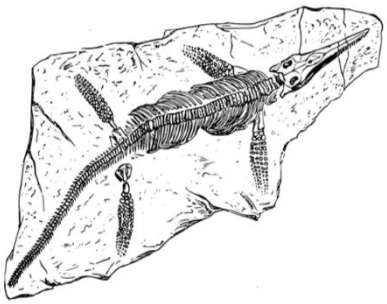
	Igneous	**Sedimentary**	**Metamorphic**
How they are formed?			
Where they are formed?			
Appearance			
Hardness			
Can they have fossils?			
Examples			

Question 2:

The pictures show different fossils.



A



B

(a) Define the term fossil.

……

(b) Which of the fossils is an imprint?

……

(c) Describe how the imprint is formed.

……

……

……