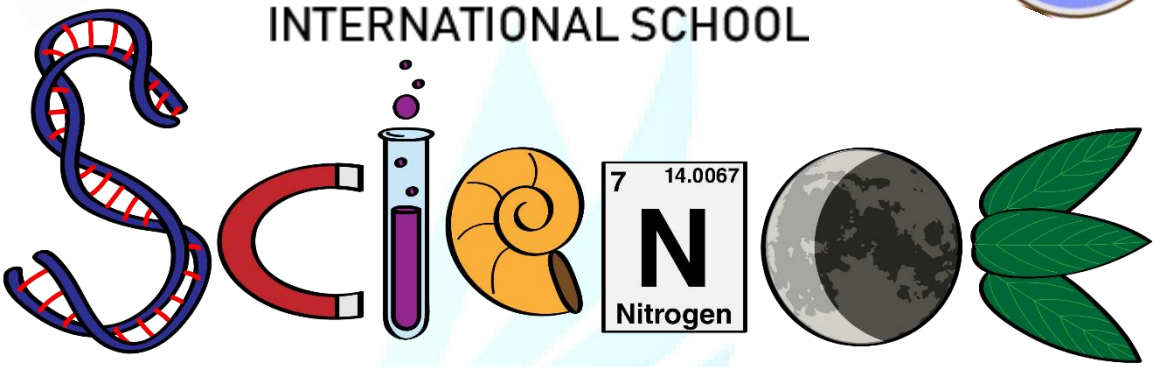
ASPIRE
INTERNATIONAL SCHOOL



Science Department

2023/2024

Year 4

Revision pack

Name: ……

Class: ……

Aspire International School Year4

Science Department 2023/2024

ASPIRE INTERNATIONAL SCHOOL

1 Draw lines linking the words on the left with their meanings on the right.

Word	Meaning
Plug	A circuit where electricity flows all the way round.
Electric shock	The connection between the plug and the electricity supply.
Wall socket	110V or 220V electricity.
Mains electricity	A device to connect electric wires or cables to an electricity supply.
Complete circuit	The effect of high voltage electricity passing through your body.

2 What is the difference between:

a An electrical conductor and an electrical insulator?

_____

_____

b Distilled water and tap water?

_____

c A closed circuit and an open circuit?

_____

_____

3 All metals conduct electricity. But not all metals conduct electricity equally well. Copper is rated as 100. Metals that conduct electricity better than copper have a rating over 100. Metals that do not conduct electricity as well as copper have a rating below 100. Here are the ratings for five metals:

Metal	Rating: How well does the metal conduct electricity?
Copper	100
Silver	105
Gold	70
Aluminium	60
Steel	10

1 Which metals are the best and worst conductors of electricity?

_____

2 Which metal is used for electrical wiring?

_____

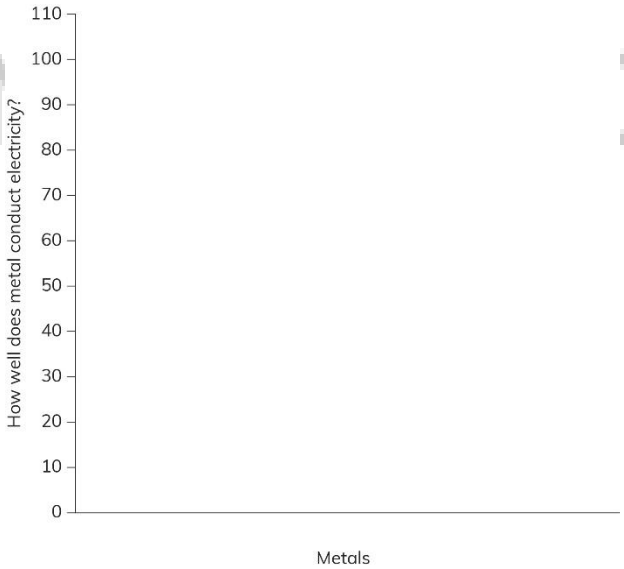
3 a Which metal conducts electricity better than the metal you answered in question 2?

_____

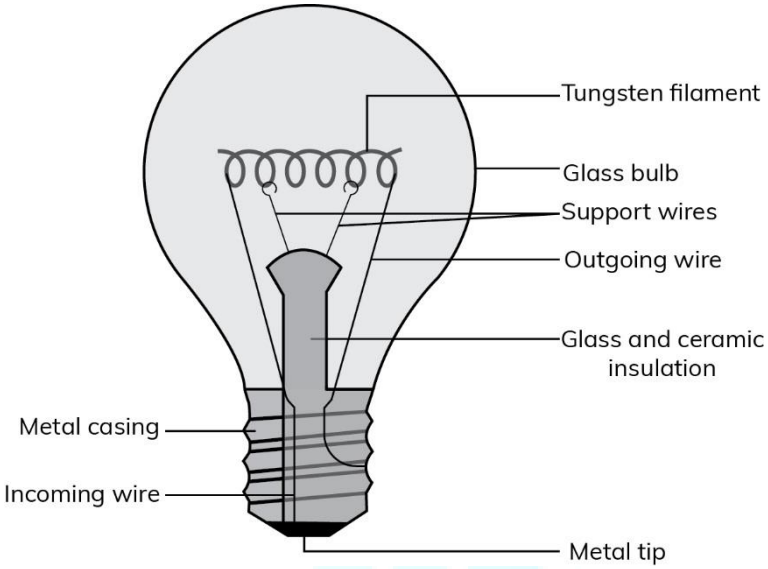
b Why isn't this metal used for electrical wiring?

_____

4 Draw the results in a bar graph



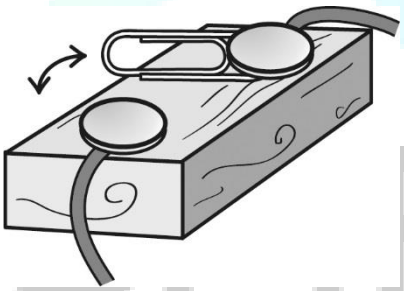
5 Look at the drawing of a light bulb.



a List **four** parts of the light bulb which are made of materials that conduct electricity.

_____

6 Here is a picture of the switch you have used in the circuits you have made.



a Why do we use a metal paper clip and metal drawing pins to make the switch?

_____

b Why do we use a wooden base to make the switch?

_____

c Suggest another material we could use for the base.

_____

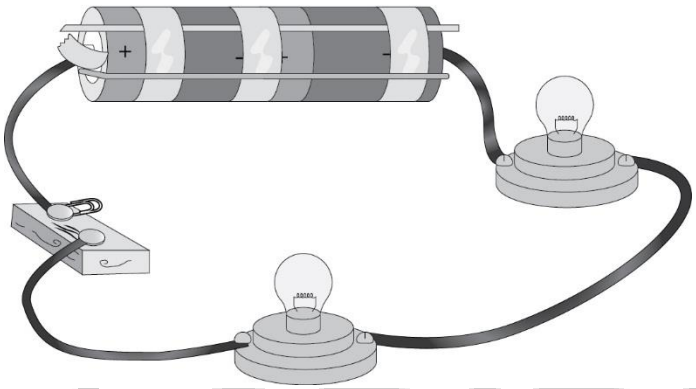
d How do you close the circuit with this switch?

_____

7 Circle THREE of the following materials that are electrical insulators.

copper	**glass**	**cork**	**steel**	**aluminium**	**plastic**

8



a What must you do to close the circuit?

_____

b If you add a third lamp, will the lamps shine more brightly, the same or more dimly?

_____

c If you add a third battery, will the lamps shine more brightly, not at all or more dimly?

_____

9 a Why does seawater conduct electricity?

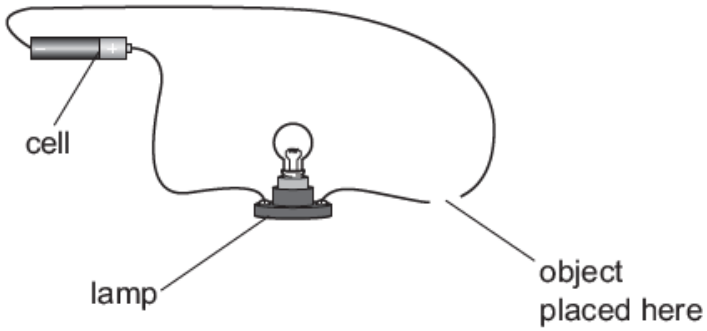
_____

b What type of water does not conduct electricity?

_____

10 Oliver investigates electrical conductors and electrical insulators.

The diagram shows the equipment he uses.



Oliver places different objects between the wires.

He makes sure the ends of the wires touch the object.

Oliver records if the lamp lights.

(a) Here are his results.

object	lamp lights?
A	yes
B	no
C	yes
D	yes
E	no

Write down the letters of **all** the objects that are electrical insulators.

.....

(b) Oliver places a copper coin in the circuit.

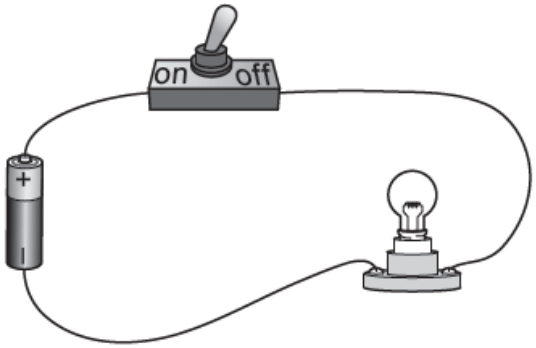
Predict what will happen to the lamp.

Explain your answer.

The lamp will .....

This is because .....

11 Lily makes this electrical circuit.



(a) Explain why the lamp does **not** light.

.....

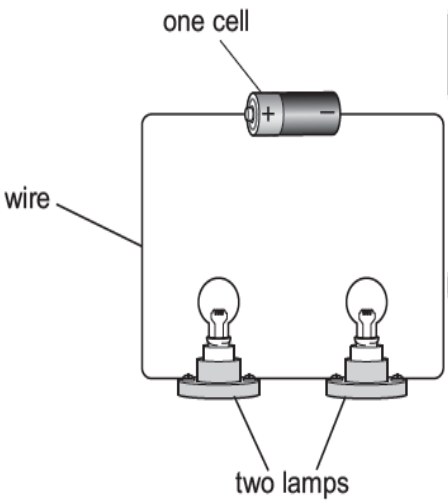
(b) Lily changes the electrical circuit so that the lamp lights.

The lamp is very dim.

Write down **one** way Lily makes the lamp brighter.

.....

12 This electrical circuit has one cell and two lamps.



(a) Describe how to make the lamps brighter.

Circle the correct answer.

add more cells

add more wire

add one more lamp

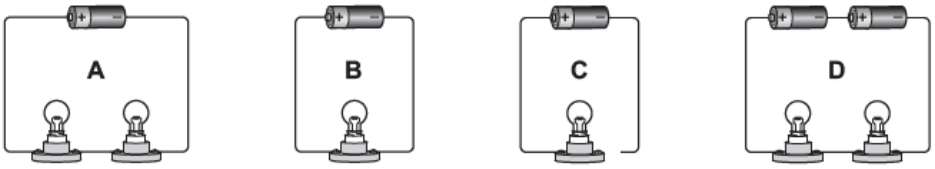
add two more lamps

The lamps are dim.

(b) Which component is added to open and close an electrical circuit?

.....

13 Hassan has **four** electrical circuits.



(a) One of the electrical circuits does **not** work.

Which electrical circuit does **not** work?

Circle the correct answer.

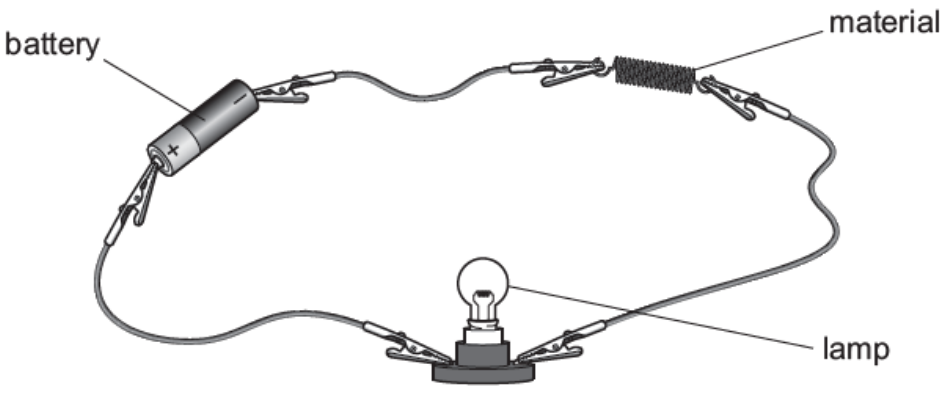
A **B** **C** **D**

(b) Why are the wires in the electrical circuit made of the metal copper?

.....

14 Mia investigates different materials.

She adds different materials to an electrical circuit.



(a) Mia wants to find out if the material is an electrical insulator.

What question does she ask to find out if this is true?

.....

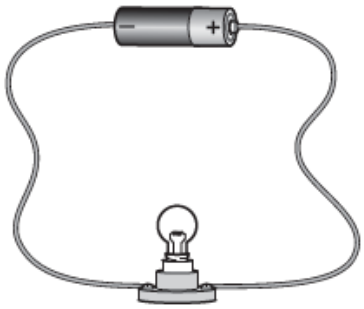
(b) Mia wants to be **safe** during the investigation.

Write down **one** thing she does to be safe.

.....

15 Oliver investigates electrical circuits.

He connects a lamp to a battery.



The lamp is bright.

Oliver adds another battery to the electrical circuit.

(a) Predict what happens to the lamp.

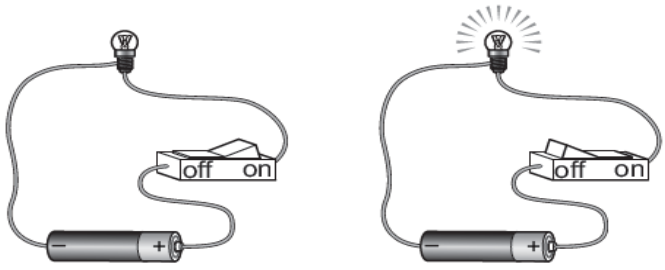
.....

(b) Oliver wants to make this investigation a fair test.

What must he keep the same?

.....

16 Rajiv has **two** electrical circuits, **A** and **B**.



circuit **A** circuit **B**

(a) Complete the sentences.

The electrical circuit that is open is circuit .....

I know this because .....

.....

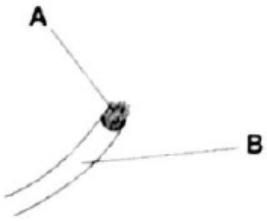
(b) Rajiv cuts the wire in electrical circuit **B**.

Describe what happens to electrical circuit **B**.

.....

.....

17 Q 1. Wires are used in electrical circuits.



Complete the sentences.

Choose from the following words.

conductor **copper** **insulator** **plastic** **reflector** **wood**

These words can be used once, more than once or not at all.

A|M|17|01|Q4

Material **A** is .....

This material is used because it is a good .....

Material **B** is .....

This material is used because it is a good .....

18 Q 2. The picture shows an electrical cable.

A|M|18|01|Q7

(a) Label the picture.

Choose from the following words.

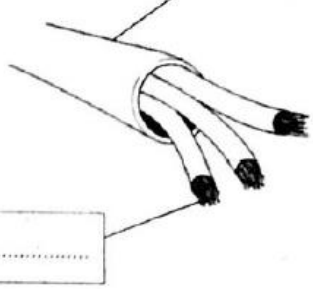
glass

metal

paper

plastic

wood



cable cover is .....

wire is .....

(b) Complete the sentence.

The cable cover is a good .....

19 Q3. 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. A/M/16/02/Q

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?

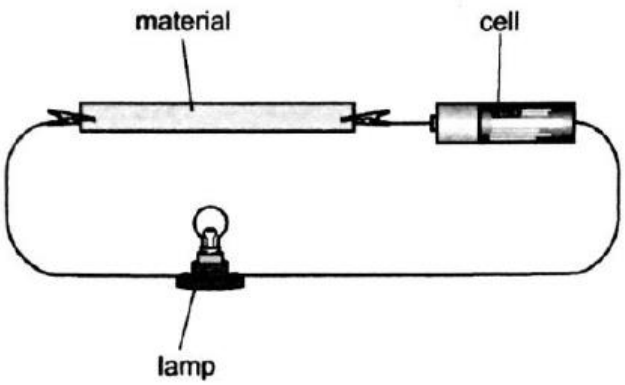
.....

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

.....

20 Q4 Priya investigates electrical conductors. Q/N/1

She uses different materials in an electrical circuit.



(a) Explain how she can tell if a material is an electrical conductor.

.....

(b) Which material is a good conductor of electricity?

Circle the correct answer.

copper

glass

plastic

wood

(c) Which material is not a good conductor of electricity?

Circle the correct answer.

brass

gold

rubber

silver

21 Q **5.** Complete these sentences. SP/14/01/Q

Cables and wires need to be **good** electrical conductors.

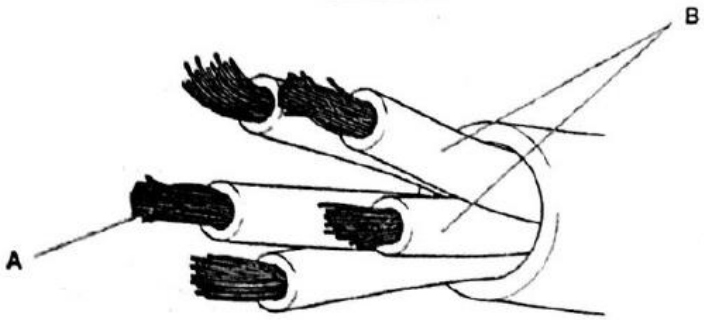
They are made of .....

For safety, wires are covered with materials that do not conduct electricity.

The wires are covered with .....

Any material that is a non-conductor is an .....

22 Q6. Electrical cables contain wires. [0N13/01 Q2]



(a) Complete these sentences.

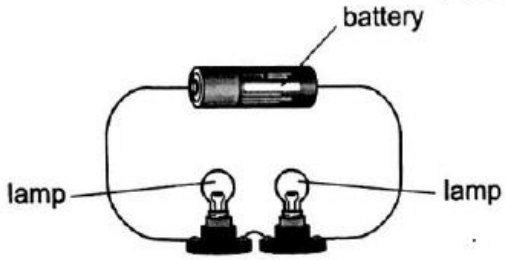
Part A needs to be a good ..... of electricity.

The best material to use is .....

(b) What material is used to make the parts labelled B?

.....

23 Q11. Mia makes a series circuit. [0N



Mia makes different series circuits.

She uses the same size batteries.

She uses the same size lamps.

(a) Complete the table.

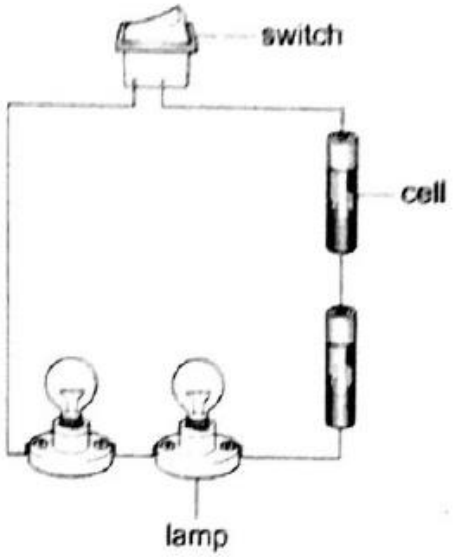
Choose from the following words.

dim **normal** **bright**

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

[2]

24 Q 12. Kofi has built an electrical circuit.



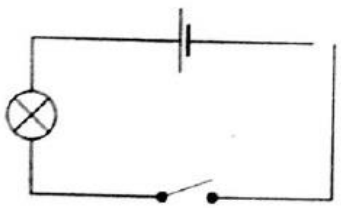
(a) The lamps are **off**.

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

.....

25 Q 13. Youssef is building electrical circuits.

Here is his circuit.



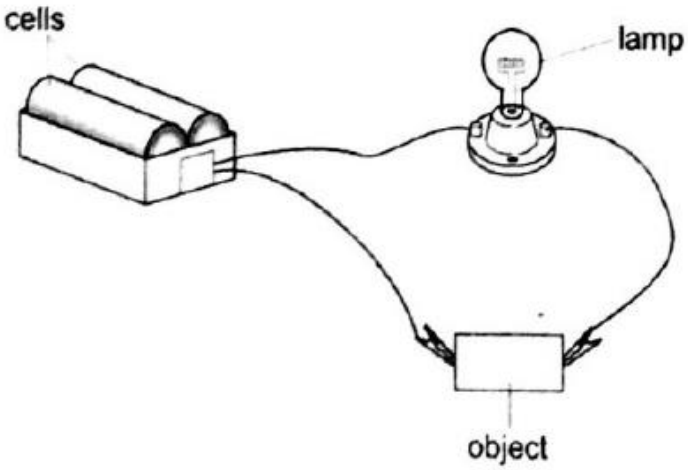
(a) When the switch is closed the circuit does **not** work.

Why is this? 0/

Tick (✓) the correct box.

More than one lamp is needed.	☐
More than one switch is needed.	☐
The cell is the wrong way round.	☐
The circuit is not complete.	☐
The switch must be open.	☐

26 **Lily puts different objects in this electrical circuit.**



Predict what will happen if the object is a good conductor.

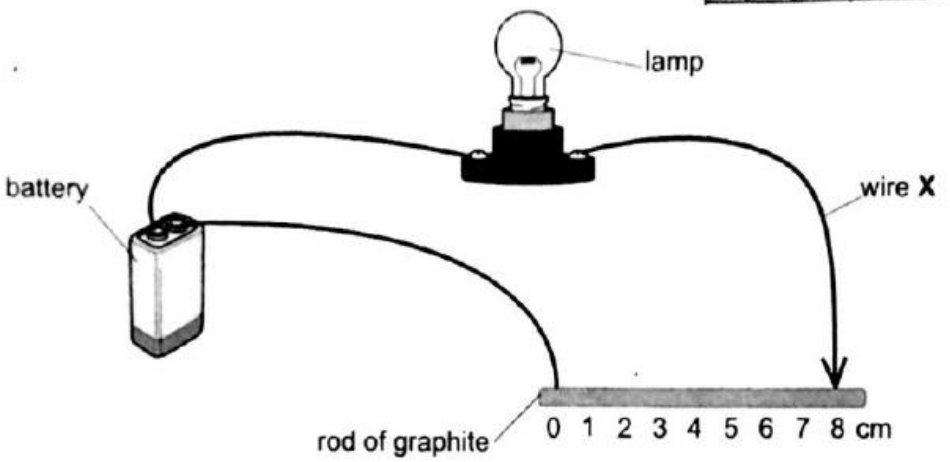
.....

Predict what will happen if the object is a bad conductor.

.....

27 Q14. **Hassan and Mike connect an electrical circuit.**

AM 18 02 Q



Hassan moves the wire X from 0 cm to 8 cm.

Mike writes down how bright the lamp is for each distance.

He uses a scale from 0 to 100.

100 is the brightest on the scale.

Here are the first three results.

distance in cm	brightness of lamp
0	100
2	80
4	60
6	
8	

(a) Complete the sentence.

As the distance increases the brightness of the lamp .....

(b) Predict the brightness of the lamp for the distance of **6 cm**.

Circle the correct answer.

0 **20** **40** **60** **80**

(c) Complete the sentence.

Choose the **best** word from the following.

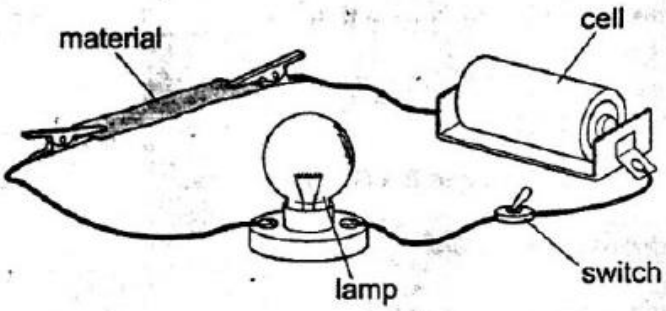
conductor **insulator** **metal** **plastic** **solid**

Graphite is a good electrical .....

28 Q19. **Tomas and Jakub investigate electrical conductors.**

0|N|12|02|Q6

They put different materials in an electric circuit.



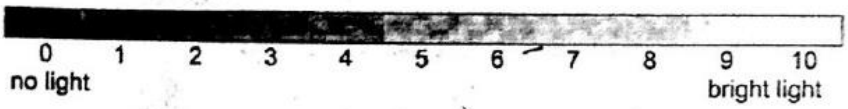
(a) They keep the length of the material the same each time.

Why do they do this?

.....

29 9 (c) Tomas and Jakub measure the brightness of the lamp for each material they test.

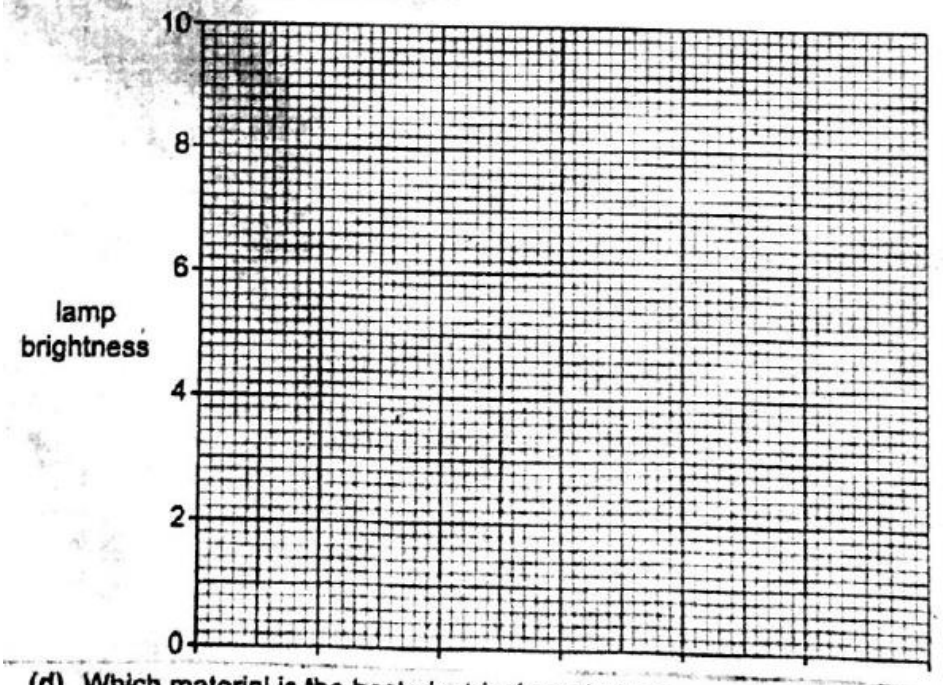
Here is their scale for lamp brightness.



Here are their results.

material	lamp brightness
brass	4
copper	9
wood	0
silver	10
plastic	0
lead	3

Draw a bar chart of their results.



(d) Which material is the best electrical conductor?

.....

(e) Name one material that does not conduct electricity. - - - - - -