

# Science Quick Quiz

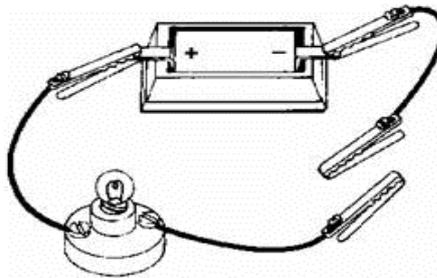
## Year 4 Electricity

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Q1. Simple circuit

(a) Sue has a cell (battery), some wire and a bulb. She makes a simple circuit.



Sue joins these objects into the circuit, to see if the bulb lights:



cork



iron nail



copper rod



plastic ruler



steel spoon

She records her results in this table

| Object       | A  | B     | C   | D  | E   |
|--------------|----|-------|-----|----|-----|
|              |    | spoon |     |    |     |
| Bulb lights? | No | Yes   | Yes | No | Yes |

Object **B** is the steel spoon.

Complete the sentences below to say what objects **A** and **C** are.

- (i) Object **A** is either the ..... or  
the .....

(ii) Object C is either the ..... or  
the .....

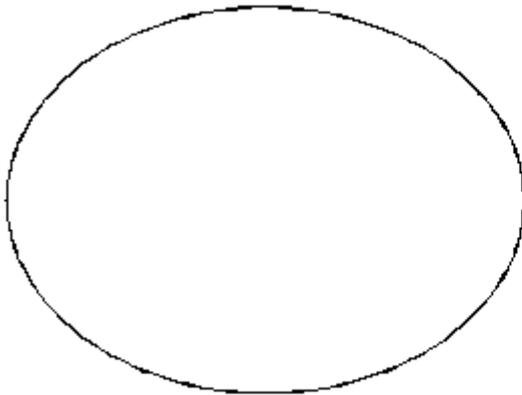
1 mark

(b) Some of the objects are electrical insulators.  
Some are electrical conductors.

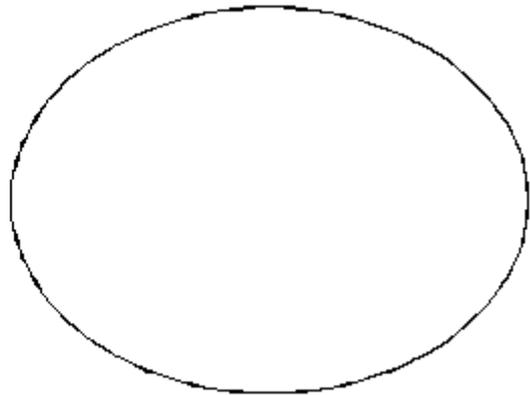
Use the information in Sue's table. Write A, B, C, D and E in the correct group below to sort the objects.



Electrical insulators



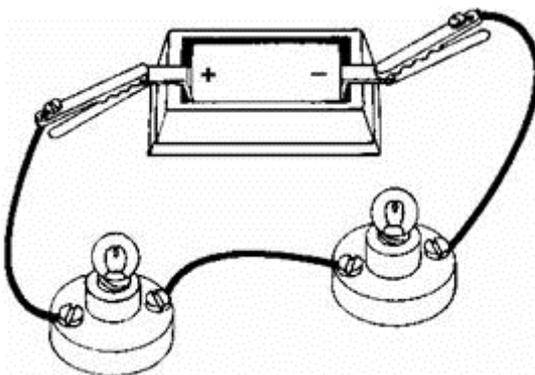
Electrical conductors



1 mark

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

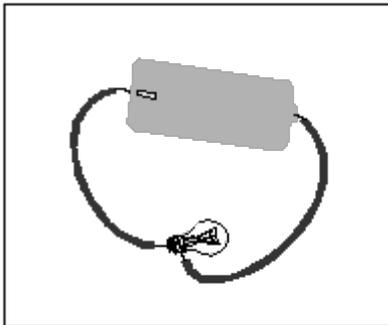
In the space below, draw a circuit diagram of David's circuit.  
Use symbols.



1 mark

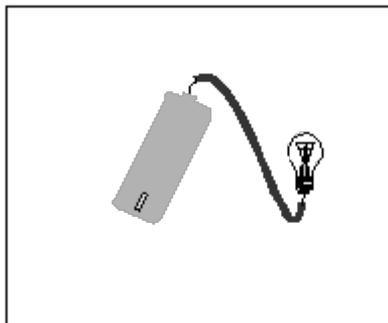
Q2. Electricity

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



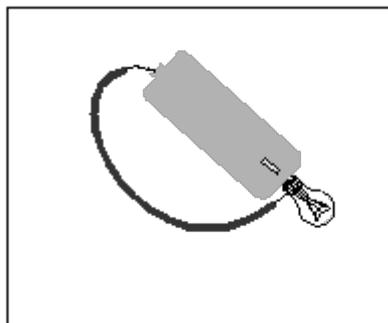
|   |                          |                          |
|---|--------------------------|--------------------------|
|   | will light               | will not light           |
|  | <input type="checkbox"/> | <input type="checkbox"/> |

1 mark



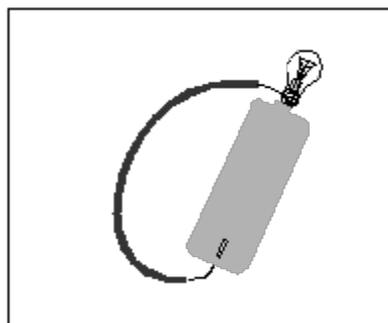
|   |                          |                          |
|---|--------------------------|--------------------------|
|   | will light               | will not light           |
|  | <input type="checkbox"/> | <input type="checkbox"/> |

1 mark



|   |                          |                          |
|---|--------------------------|--------------------------|
|   | will light               | will not light           |
|  | <input type="checkbox"/> | <input type="checkbox"/> |

1 mark



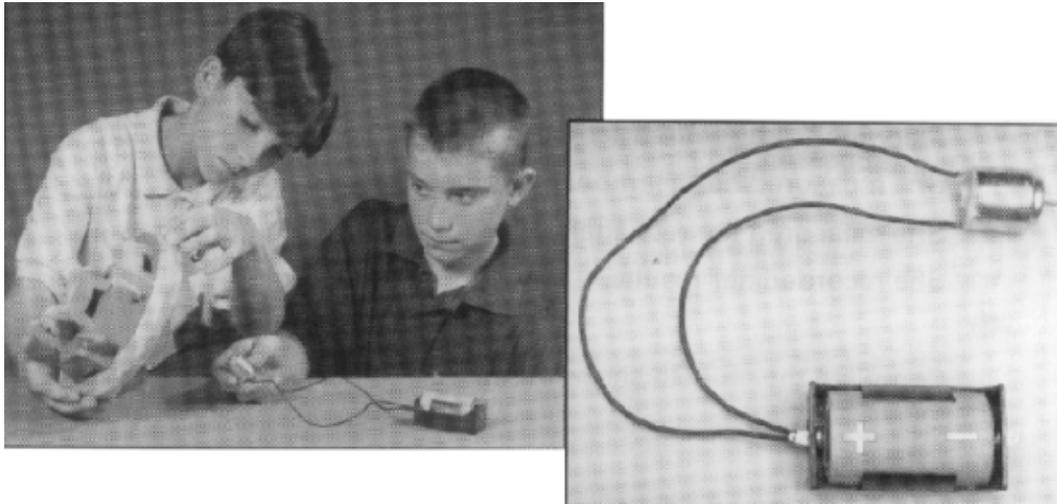
|   |                          |                          |
|---|--------------------------|--------------------------|
|   | will light               | will not light           |
|  | <input type="checkbox"/> | <input type="checkbox"/> |

1 mark

**Q3. Circuits**

(a) Two children made a model fairground ride.

They connected a battery to an electric motor to make the model turn.



The motor is not working.

What is wrong with this circuit?

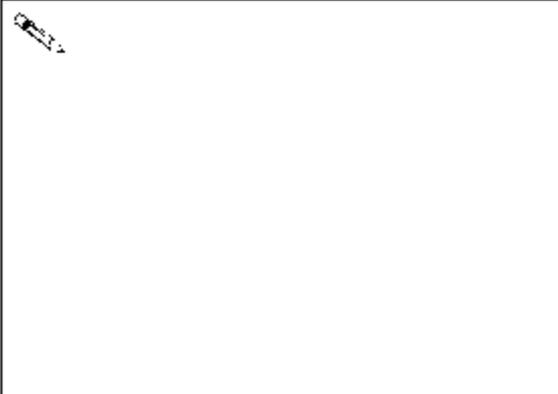
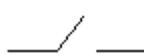
*Handwritten mark* .....

.....

1 mark

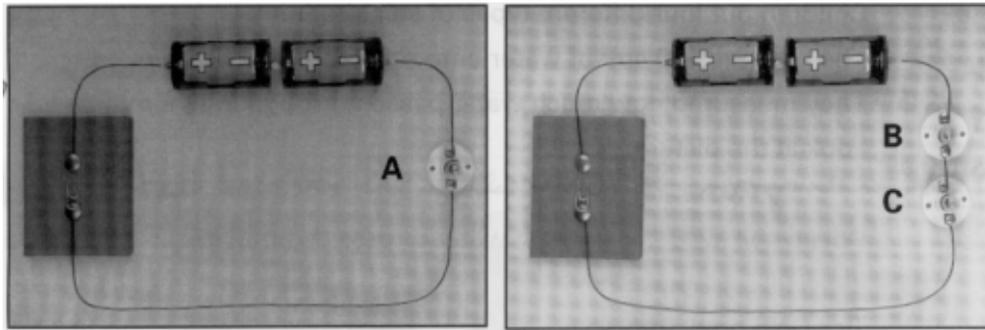
(b) Draw a circuit diagram in which the switch can be used to turn the motor on and off.

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

|  |  |
|--|--|
| <br>battery |  |
| <br>switch  |  |
| <br>motor   |  |

1 mark

(c) Here are two different circuits which use the same kind of battery and bulb.



Which bulb will be the brightest ?

Tick **ONE** box.

*Handwritten mark*

bulb A

bulb B

bulb C

1 mark

(d) The outside of this plug is made of plastic so that you do not get a shock when you plug it in.



Explain why the **plastic** helps to make the plug safe.

*Handwritten mark*

.....

1 mark

(e) Why is it dangerous to put a plug in when the plug is wet?

*Handwritten mark*

.....

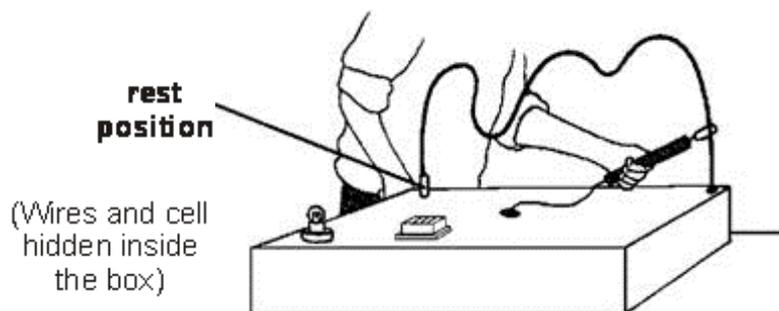
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1 mark

**Q4. The Steady Hand Game**

(a) Sita has made a game. In her game, she has to move a metal ring along a piece of thick wire until it reaches the rest position.

When she is moving it, the metal ring must not touch the wire. If it touches the wire, a bulb will light and a buzzer will make a noise.



The metal ring and the thick wire both let electricity through.

What is the scientific name for materials that let electricity through?

.....

1 mark

(b) Sita made the rest position by covering the wire with an insulating material. When she puts the metal ring down on the rest position, the bulb and buzzer cannot work.

Which materials might Sita have used to **insulate** the wire for the rest position?

Tick the three correct boxes.

.....

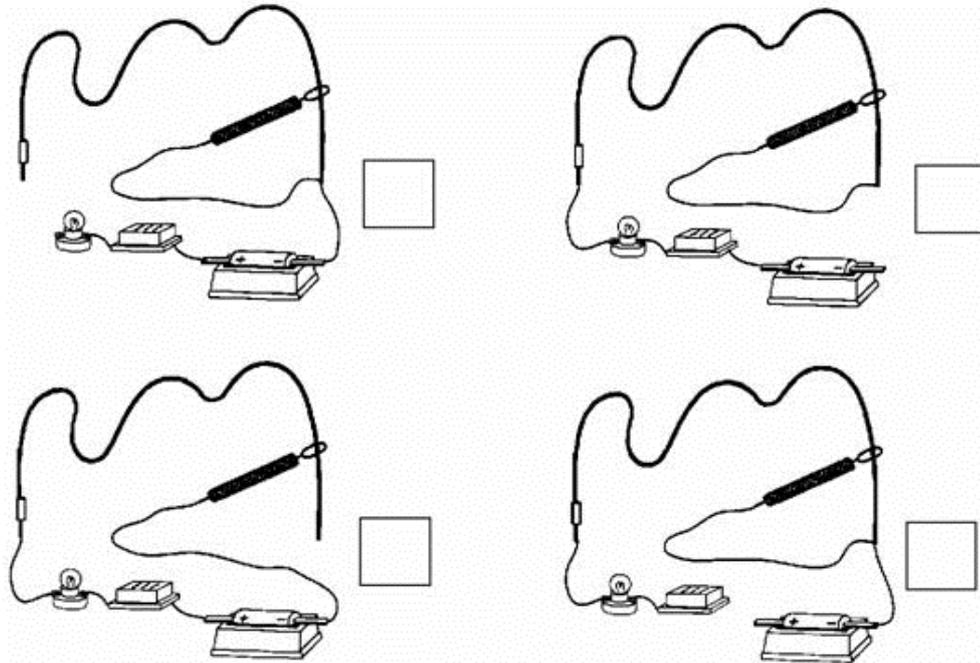
- |                   |                          |                |                          |
|-------------------|--------------------------|----------------|--------------------------|
| clear sticky tape | <input type="checkbox"/> | copper wire    | <input type="checkbox"/> |
| plasticine        | <input type="checkbox"/> | newspaper      | <input type="checkbox"/> |
| steel wool        | <input type="checkbox"/> | aluminium foil | <input type="checkbox"/> |

2 marks

(c) The bulb and buzzer will only work in Sita's game when the metal ring touches the wire.

Tick **ONE** box to show which is the correct circuit for her game.

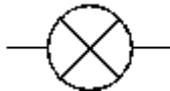
*Handwritten mark*



1 mark

(d) To make the electrical circuit for the game, Sita uses a buzzer, a bulb and a cell (battery).

Label the symbols below by writing **buzzer**, **bulb** or **cell**.



*Handwritten mark*

.....

1 mark

(e) Kalinda plays the game. She thinks the buzzer should be louder.

How can Sita change her circuit so that the **same** buzzer makes a louder sound?

*Handwritten mark*

.....

1 mark



| Assessment Summary                   |     |
|--------------------------------------|-----|
| Total Mark                           | /19 |
| Below Expectations<br>Below 6 marks  |     |
| Expectations<br>Between 6-12 marks   |     |
| Above Expectations<br>Above 12 marks |     |