Science Assessment Year 4: Electricity

What is Electricity

1. Fill in the missing words:

   Electricity flows in a ______________. The flow of electricity creates an electric ______________.

2. Circle which combination would make a simple circuit:
   a) a buzzer, a battery, and a bulb
   b) a battery, a wire, a bulb
   c) a bulb, a switch, a wire

3. Tick whether the bulb will be lit or not lit in each of these diagrams:
Everyday Electricity

4. Name three appliances that run on electricity.

5. Draw lines to match these items to **battery** or **mains** electricity:

- Mains Electricity
- Battery Electricity

Electrical Circuits

6. Name these pieces of equipment that you might use when you are making electrical circuits:
7. Will the light bulb in this circuit light up? Explain why or why not:

Will it light up?

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Why?

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........................................................................................................................................

8. Why would you want to put a switch in a circuit?

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Electrical Investigation

A group of Year 4 children have made this circuit to test some different materials to see if they will conduct electricity or not:

9. What do the children mean when they say ‘conduct electricity’?

........................................................................................................................................................................
........................................................................................................................................................................

10. Fill in the table below:

<table>
<thead>
<tr>
<th></th>
<th>Does it light the bulb?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td></td>
</tr>
<tr>
<td>Copper wire</td>
<td></td>
</tr>
<tr>
<td>Paper</td>
<td></td>
</tr>
<tr>
<td>Plastic ruler</td>
<td></td>
</tr>
<tr>
<td>Paper clip</td>
<td></td>
</tr>
</tbody>
</table>

11. What should the title of the first column be?

........................................................................................................................................................................
12. What do you notice about the materials that do conduct electricity?

13. What is the name for a material that does not conduct electricity?

14. Explain why the bulb did not light up when the Year 4 children tested the plastic ruler?
### Question 1
Fill in the missing words:

Electricity flows in a **circuit**. The flow of electricity creates an electric **current**.

**Answer:**

<table>
<thead>
<tr>
<th>question</th>
<th>answer</th>
<th>marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fill in the missing words:</td>
<td>Electricity flows in a <strong>circuit</strong>. The flow of electricity creates an electric <strong>current</strong>.</td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 2
Circle which combination would make a simple circuit.

- a) a buzzer, a battery and a bulb
- b) a battery, a wire, a bulb
- c) a bulb, a switch, a wire

**Answer:**

<table>
<thead>
<tr>
<th>question</th>
<th>answer</th>
<th>marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Circle which combination would make a simple circuit.</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 3
Tick whether the bulb will be lit or not lit in each of these diagrams:

- a) No (the switch is turned off)
- b) Yes
- c) No (There is no battery)
- d) No (Not a complete circuit)

**Answer:**

<table>
<thead>
<tr>
<th>question</th>
<th>answer</th>
<th>marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Tick whether the bulb will be lit or not lit in each of these diagrams:</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

### Question 4
Name three appliances that run on electricity.

Accept any item that runs on electricity, for example:

- hairdryer
- washing machine
- toaster
- television
- lights
- microwave

**Answer:**

<table>
<thead>
<tr>
<th>question</th>
<th>answer</th>
<th>marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Name three appliances that run on electricity.</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

### Question 5
Draw lines to match these items to **battery** or **mains** electricity.

**Answer:**

<table>
<thead>
<tr>
<th>question</th>
<th>answer</th>
<th>marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Draw lines to match these items to <strong>battery</strong> or <strong>mains</strong> electricity.</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

### Question 6
Name these pieces of equipment that you might use when you are making electrical circuits.

**Answer:**

<table>
<thead>
<tr>
<th>question</th>
<th>answer</th>
<th>marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Name these pieces of equipment that you might use when you are making electrical circuits.</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>
7. Will the light bulb in this circuit light up? Explain why.

- **No** + it is an incomplete circuit
- **No** + there is a break/gap in the circuit
- **No** + the lamp/bulb is not joined to the battery/cell in a circuit

1 mark for no plus a correct explanation.

In lessons make sure that ‘incomplete’ is the best vocabulary.

8. Why would you want to put a switch in a circuit?

To turn it on/off

9. What do the children mean when they say ‘conduct electricity’?

- Completes the circuit by letting electricity pass through it
- Lets electricity easily pass through it
- Electricity can travel through it easily

Make sure in lessons that children understand the real dangers of electricity and an ‘insulator’ does NOT give 100% protection from shock.

10. What is the independent variable that they are testing?

<table>
<thead>
<tr>
<th>Material</th>
<th>Does it light the bulb?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td>no</td>
</tr>
<tr>
<td>Copper wire</td>
<td>yes</td>
</tr>
<tr>
<td>Paper</td>
<td>no</td>
</tr>
<tr>
<td>Plastic Ruler</td>
<td>no</td>
</tr>
<tr>
<td>Paper Clip</td>
<td>yes</td>
</tr>
</tbody>
</table>

11. What should the title of the first column be?

- Type of material
- Material

12. What do you notice about the materials that **do** conduct electricity?

- They are metals

Make sure that children know about non-metallic conductors such as water and graphite (graphite can be demonstrated shown using a pencil with 2 sharpened ends).

13. What is the name for a material that **does not** conduct electricity?

- Insulator

Make sure in lessons that children understand the real dangers of electricity and an ‘insulator’ does **not** give 100% protection from shock.
<table>
<thead>
<tr>
<th>question</th>
<th>answer</th>
<th>marks</th>
<th>notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. Explain why the bulb did not light up when the Year 4 children tested the plastic ruler?</td>
<td>The bulb did not light up when the Year 4 children tested the plastic ruler because plastic is an insulator. This means that it does not let electricity pass through it.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>total 23</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Answer Sheet: Science Assessment Year 4:
Electricity