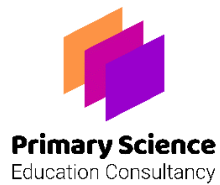



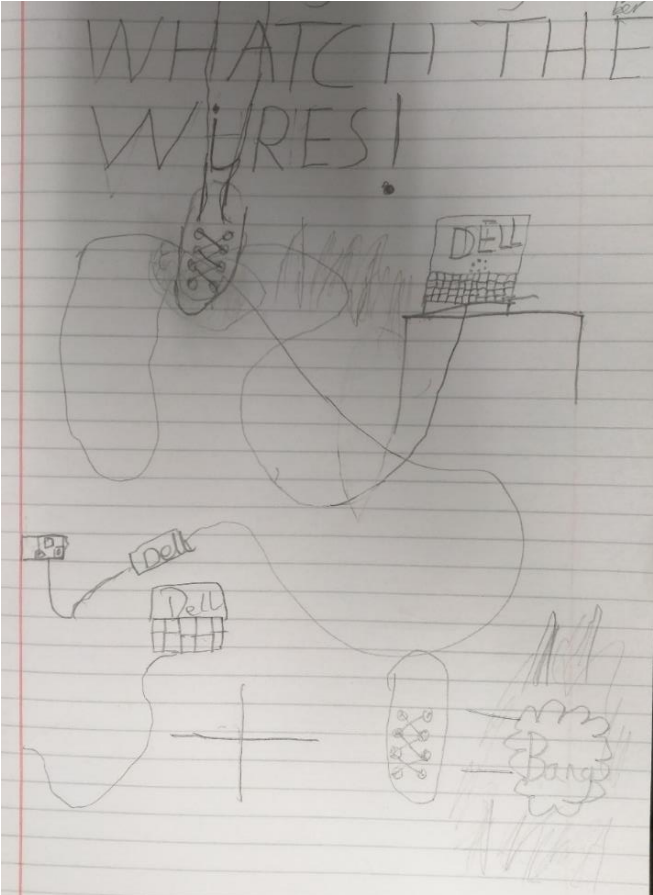
Examples of Work


Dougal

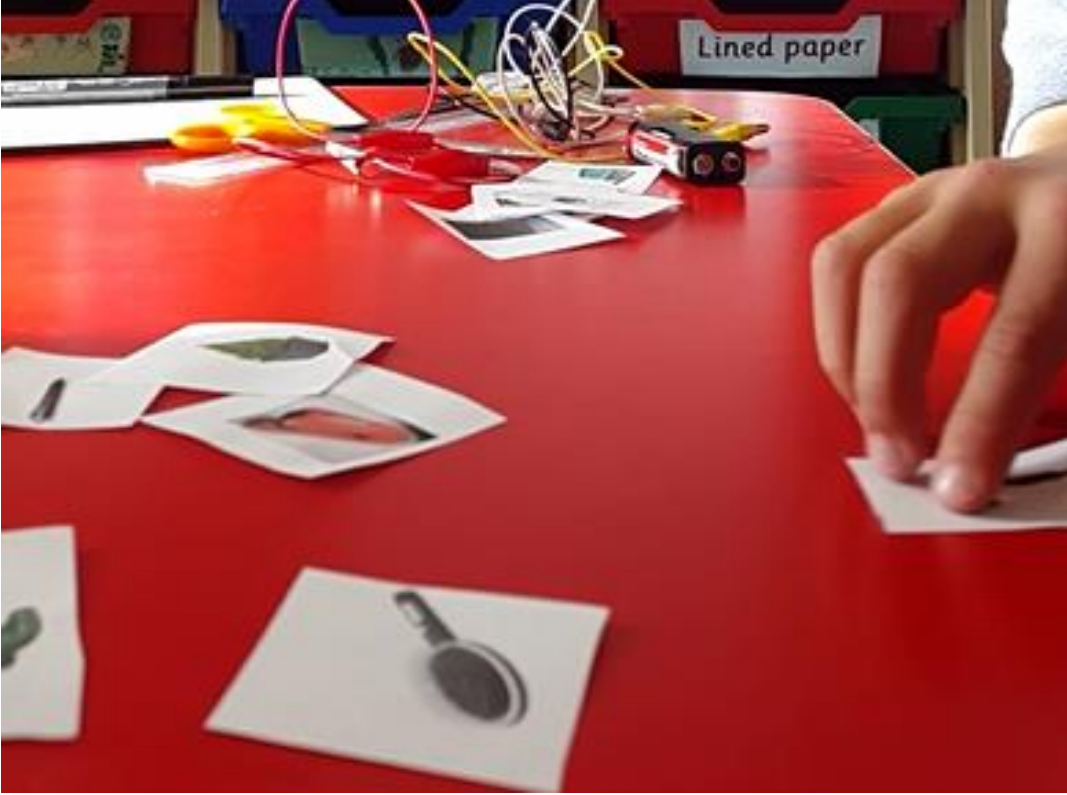
Electricity - Year 4




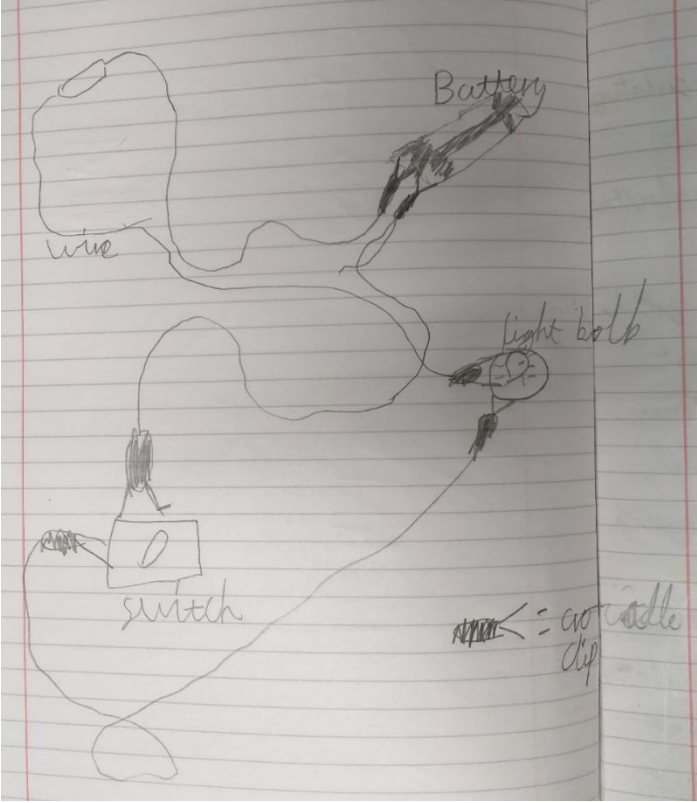
	Year	4	Topic	Electricity
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Identify common appliances that run on electricity. 			
	Description of activity			
	The children were asked to create a title page showing what they already knew about electricity.			


EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
Teacher observations		Working scientifically
<p>The top image shows a computer connected using wires to a socket. There is also a trainer on the floor.</p> <p>The bottom image is showing that tripping over a cable is dangerous.</p>		<p>Dougal shows an awareness that the computer uses electricity and that it is plugged in to a socket. He has drawn wires connecting things together. He also shows an awareness that electricity can be dangerous.</p>


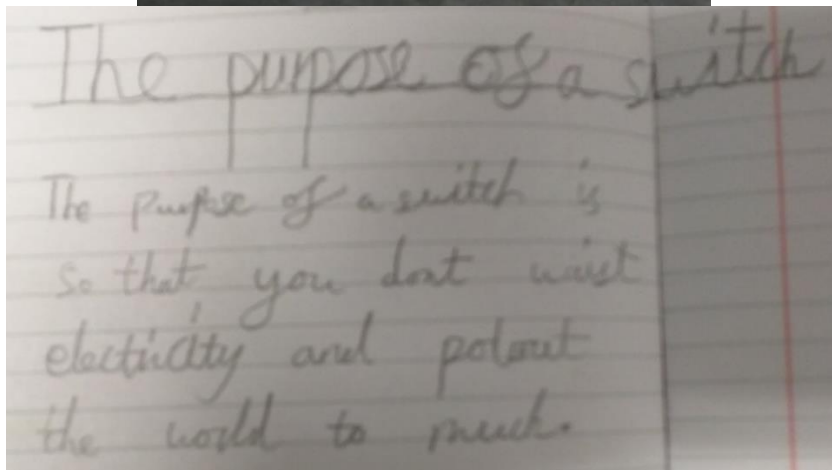
	Year	4	Topic	Electricity
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Identify common appliances that run on electricity. 			
	Description of activity			
	The children were given pictures of objects and asked to sort them in a variety of ways. The children then sorted the images into two labelled hoops: use batteries; and plug in. They then thought of other familiar objects to add to each area of the Venn diagram.			


EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
<p>“These things have lights. These have batteries in them. These need to be plugged in. These you plug in to charge up.</p> <p>“The mobile phone needs to go in both hoops because it has a battery, but you need to charge it up by plugging it in.”</p>		<p>Dougal is secure in identifying common appliances that run on electricity and talks about some of the differences between them.</p>
Teacher observations		<p>Working scientifically</p> <p>Dougal sorts objects correctly into an intersecting Venn diagram</p>

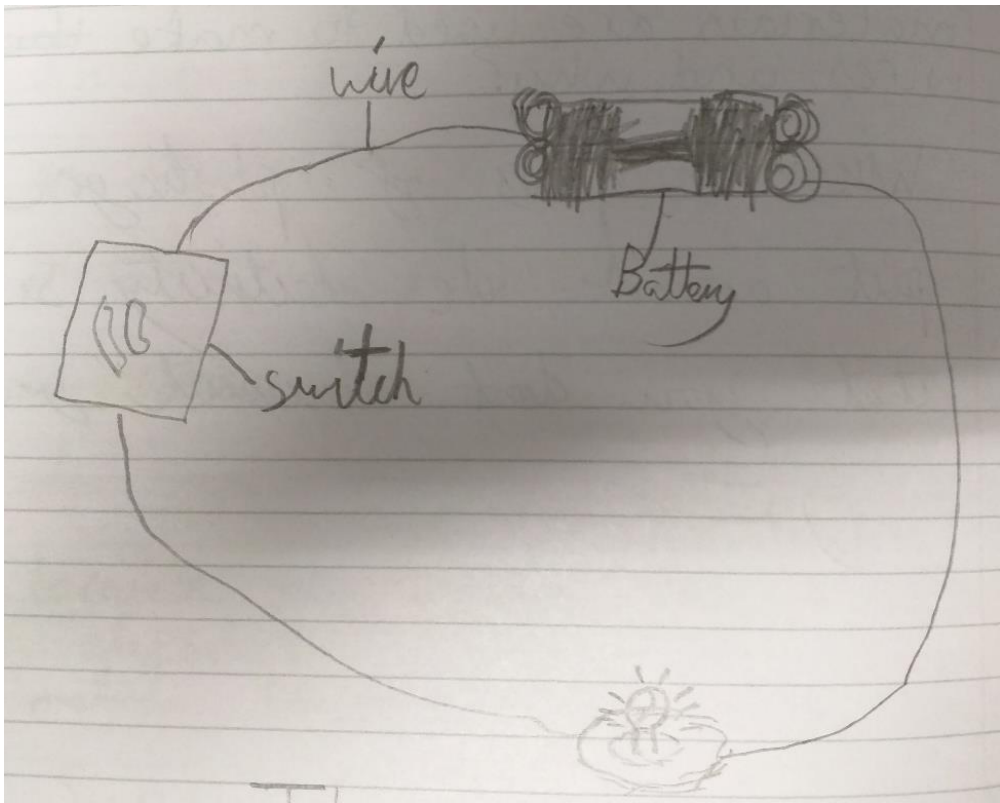
	Year	4	Topic	Electricity
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. 			
	Description of activity			
	The children were given a bulb, bulb holder, wires, battery and a battery holder and asked to make the bulb light. They were then asked to draw their circuit.			


EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
Teacher observations		Dougla names all the components in the circuit.
Dougal was able to construct a circuit to light the bulb and was able to add in a switch to turn it on and off.		Working scientifically

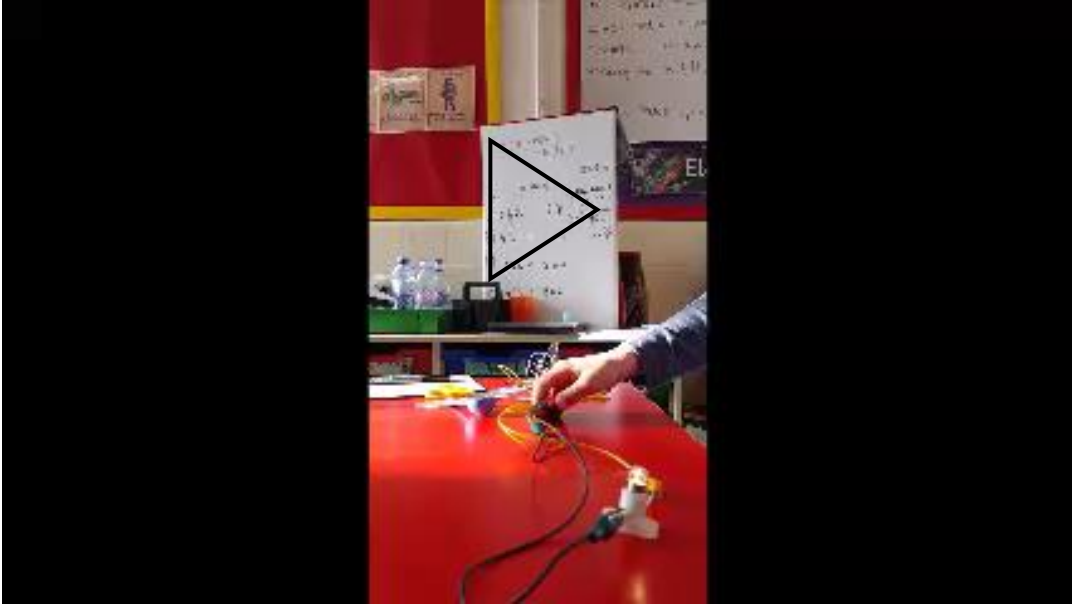
	Year	4	Topic	Electricity
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. 			
	Description of activity			
	The children were shown how to make a switch and then they were challenged to explore how to connect it into the circuit.			

EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
<p>"I switch it on by putting the paper clip here and switch it off by moving it around."</p>		<p>Dougal understands that the function of a switch is to not waste electricity. At this point, he is not talking about the switch opening and closing the circuit.</p>
Teacher observations		Working scientifically
<p>Dougal was able to connect up the switch and use it to turn the light bulb on and off.</p>		

	Year	4	Topic	Electricity
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. 			
	Description of activity			
	The teacher shared some examples of the circuits that the children had previously drawn, and they considered which examples were clearer to understand.			

EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
<p>"I have labelled the parts of my circuit, but my wires were a bit messy."</p>		<p>Dougal identifies the wire, battery and switch although, in this example, he has not labelled the bulb.</p>
Teacher observations		Working scientifically

	Year	4	Topic	Electricity
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. 			
	Description of activity			
	To ensure that Dougal was secure with open and closed circuits, the teacher carried out a quick focussed assessment task with him where he was asked to explain why a circuit was not working.			

EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
		Here Dougal demonstrates that he can identify why circuits are not working, can adapt them so that they work and also talks about them in terms of open and closed circuits.
Teacher observations		Working scientifically
	Click here to watch the video.	



Year

4

Topic

Electricity

Focus of assessment (National Curriculum statements)

- Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.
- Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.
- Recognise some common conductors and insulators, and associate metals with being good conductors.

Description of activity

The children were asked to consider what would happen if different materials were placed into a working circuit. They then tested this out for themselves.

EVIDENCE OF LEARNING

ASSESSMENT

Oral evidence

Examples of work

Knowledge

I can make predictions and record my findings in a table.

Good Conductor?

Fill in the table giving a reason for your prediction, and then use a tick or a cross to indicate whether or not the material conducted the electricity.


Material	Prediction	Result
	I think the light will/will not light because	
Tin foil	I think it will turn on.	on
Kork	I predict it won't work.	off
Paper clip	I think it will work	on
Cardboard	I don't think it will work	off
tag	I don't think it will work	off
plastic spoon	I don't think it will work	off
Loli stick	I don't think it will work.	off

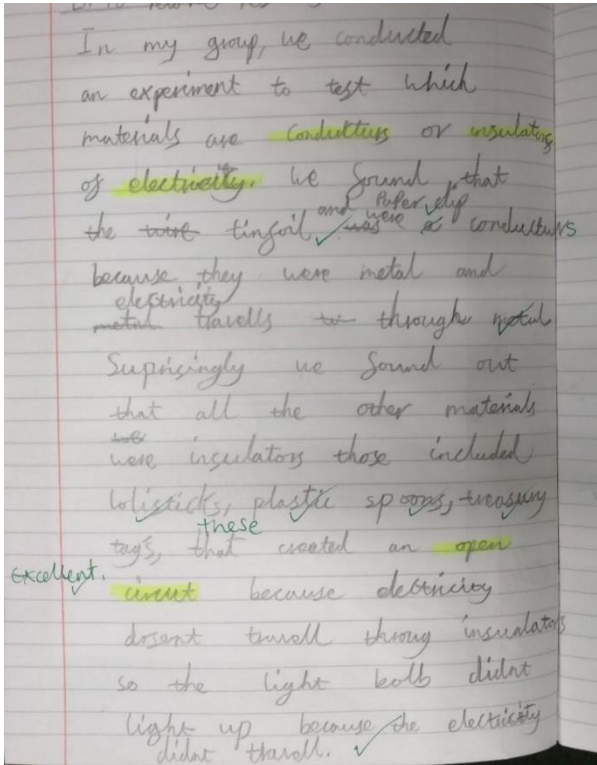
Dougal's predictions show that he already has an understanding that some materials will allow the circuit to stay on and some will cause it to switch off.


Dougal does not include the words 'insulator' and 'conductor' at this point, but this is not surprising as this vocabulary had not been introduced at this stage.

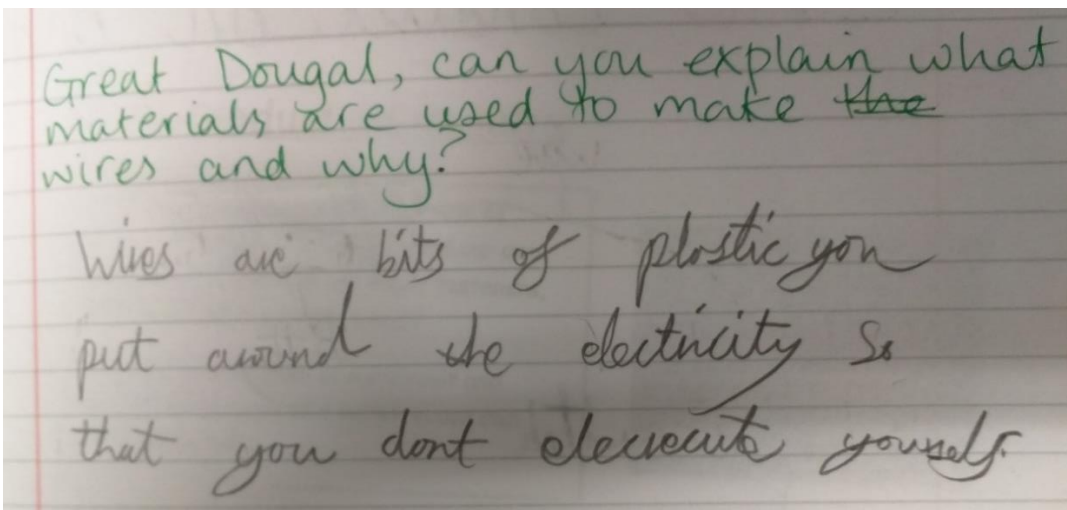
Working scientifically


Teacher observations


	Year	4	Topic	Electricity
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors. 			
	Description of activity			
	The children were then introduced to the terms 'insulator' and 'conductor' and asked to write what their evidence for the previous activity is showing.			


EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
Teacher observations		<p>Dougal uses the key vocabulary – 'conductor' and 'insulator' – with additional information that show he understands what these terms mean.</p> <p>This piece of writing shows that Dougal understands that metals are conductors and they allow the electricity to travel through them. This means the circuit is open and the bulb lights. He also talks about insulators. This is not sufficient, as yet, to indicate that he is consistently secure with this concept.</p>
		Working scientifically

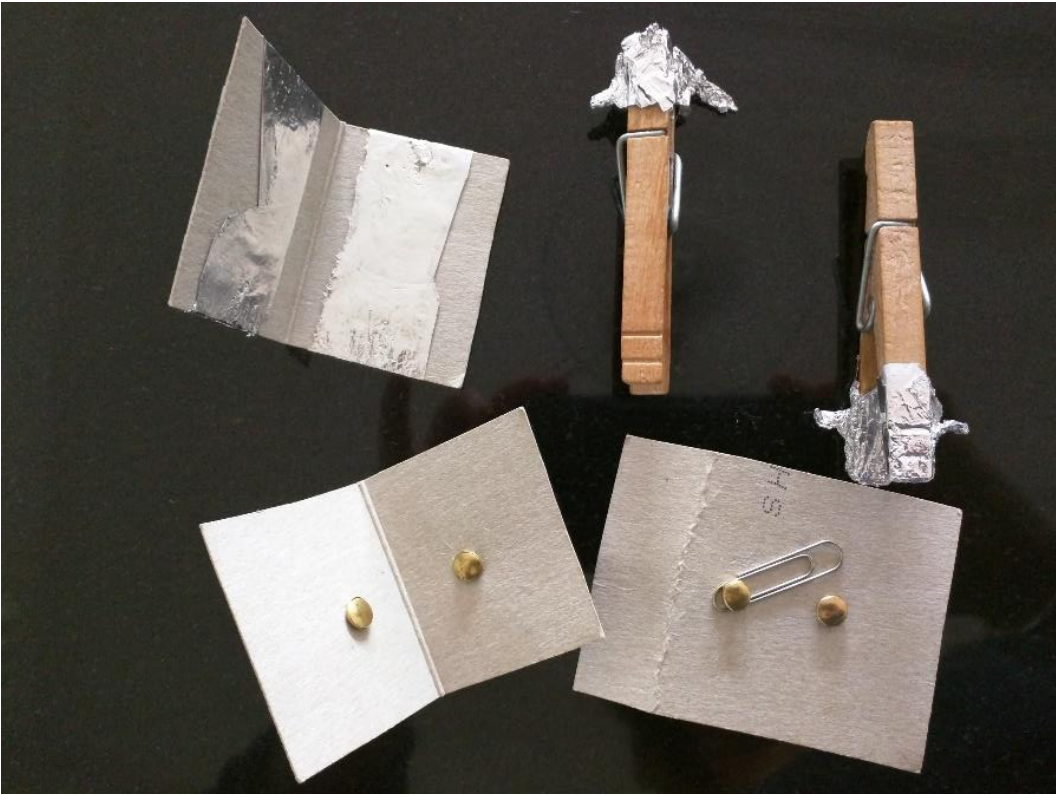
	Year	4	Topic	Electricity
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors. 			
	Description of activity			
	Dougla was asked to consider the materials that are used for wires.			


EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
		Dougal does not talk about the metal being the conductor of the electricity or that the plastic is an insulator. He needs another opportunity to show that he is secure on this.
Teacher observations		Working scientifically


	Year	4	Topic	Electricity
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Recognise some common conductors and insulators, and associate metals with being good conductors. 			
	Description of activity			
	The teacher provided an additional assessment activity for Dougal to show he is secure on the statements.			


EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
		<p>During this activity, Dougal identifies common appliances that run on electricity and clearly demonstrates that he can construct simple circuits by identifying reasons why the circuit is not complete. He uses the words 'insulator' and 'conductor' without prompting, can explain what they mean and give examples. He is now secure on these objectives.</p>
Teacher observations		Working scientifically
	<p>Click here to watch video.</p>	


	Year	4	Topic	Electricity
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. • Recognise some common conductors and insulators, and associate metals with being good conductors. 			
	Description of activity			
	The children were given a selection of home-made switches to connect up and use in their circuits.			

EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
<p>“To make the switch work, you have to connect the wires in the right places. They have to go on two different metal bits. The switch is on and the circuit is closed when these two bits touch.”</p>		<p>Dougal was able to explain how he connected the switch into the circuit by attaching the wires to the conducting parts of the switch.</p>
<p>Teacher observations</p> <p>Although he did not use the word ‘conductor’ without prompting, he was able to add this in when asked.</p>		Working scientifically

	Year	4	Topic	Electricity
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Recognise some common conductors and insulators, and associate metals with being good conductors. 			
	Description of activity			
	The children were challenged to make the light bulb work without using any wires.			

EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
<p>"I have used tin foil and paperclips. These are both made of a metal and metals are conductors, so the circuit works. It is a closed circuit."</p>		<p>Dougal now confidently uses the term 'conductor' and is linking this to whether the circuit is open or closed. He is secure with this statement.</p>
Teacher observations		Working scientifically

	Year	4	Topic	Electricity
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. 			
	Description of activity			
	<p>The children were given a battery, wires, a switch and a buzzer (which they had not used before), and were ask to connect it up. Some of the children’s circuits worked straightaway and other’s did not. The children were asked to look carefully at a working and not working circuit to see if they could spot the difference.</p>			

EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
<p>“Our circuit didn’t work to start with. The only difference was the red and black wires. When we swapped them round, it worked.”</p>		<p>Dougal understands that the buzzer needs to be connected the correct way around in order for it to work. It is interesting that, as most of the circuits that he has built have involved a switch, he at first thinks that a switch is necessary.</p>
<p>Teacher observations</p> <p>To check Dougal understood that the wires need to be connected the correct way round, during a later session, he was given another circuit that was not working.</p>	<p>Click here to watch the video.</p>	<p>Working scientifically</p>



Overall summary

Secure

Dougal has shown that he is consistently able to make a basic circuit and also add in a switch. He recognises that a switch opens and closes a circuit to turn the component on and off. He has used both a bulb and a buzzer in circuits and understands that the buzzer must be connected into the circuit the correct way round. He can name insulators and conductors and can explain how they affect a circuit.