

## 2. Electricity

### What's the science story?

An introduction to electricity covering current, charge, voltage and potential difference, how to model electricity and how to build series and parallel circuits.



### Previous knowledge:

None

### Next steps...

Static electricity is covered in year 9  
P2 Electricity is revisited at KS4.




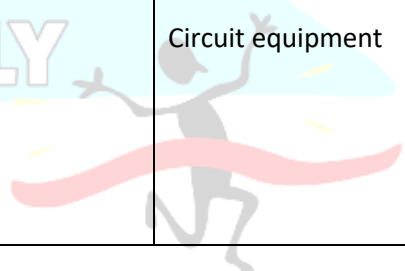
### Keywords

Current, potential difference, charge, series, parallel, voltage, Ohms, resistance, component.

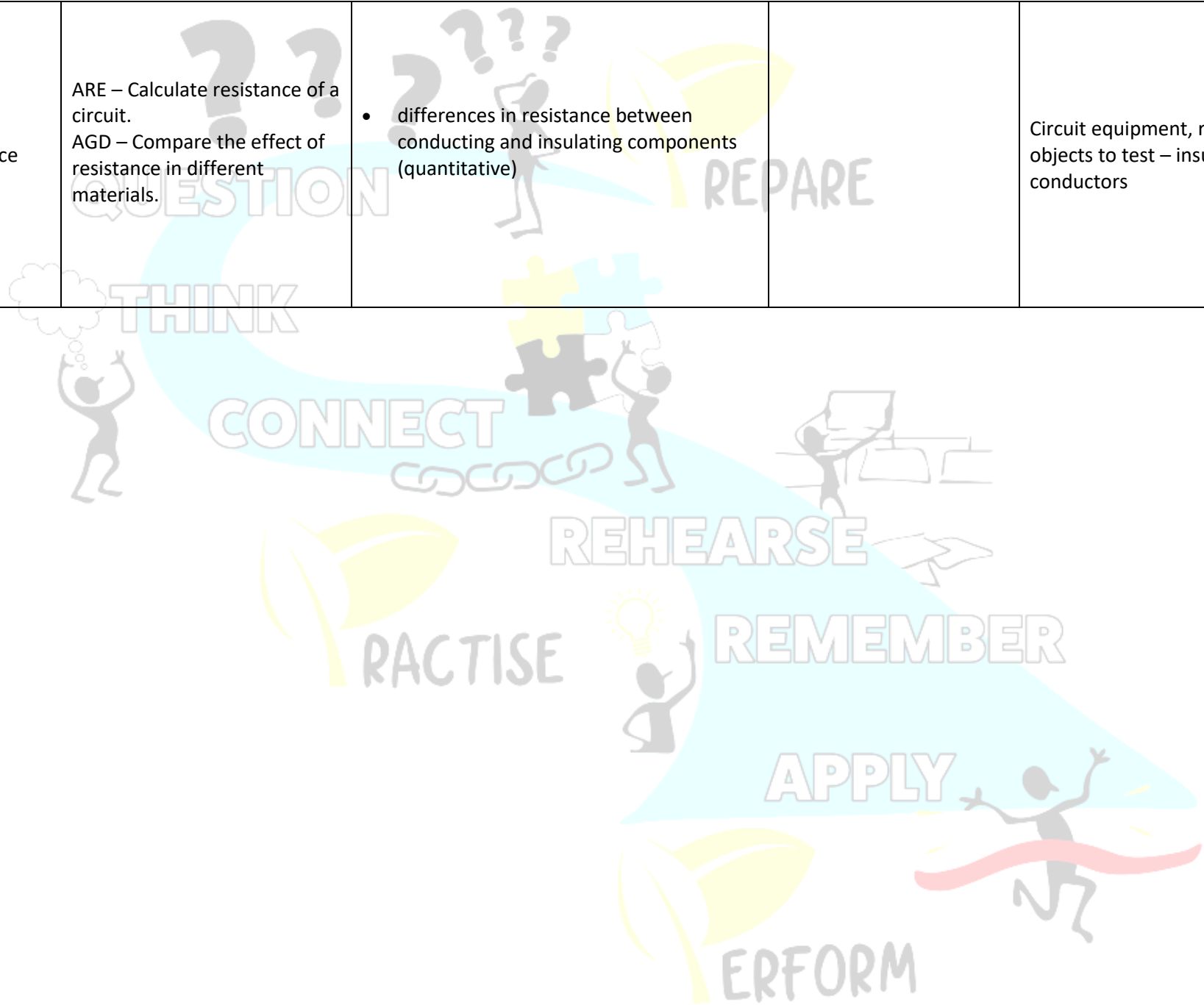


Lesson No. and Title	Learning objectives - Knowledge	National Curriculum	Working scientifically skills	Practical equipment
1. Electricity	<p>ARE - Set up a closed series circuit</p> <p>AGD – Draw a scientific diagram of a series circuit</p>			Circuit equipment
2. Current	<p>ARE – Describe what current is, include the unit.</p> <p>AGD – Explain how current is measured and how electrons move around a circuit</p>	<ul style="list-style-type: none"> <li>electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge</li> </ul>		

KS3 – Year 8

<p>3. Potential difference</p>	<p>ARE – Describe what is meant by potential difference. AGD – Explain why potential difference was measured in parallel.</p>	<ul style="list-style-type: none"> <li>potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current</li> </ul>		<p>Make a potato lamp – potato, wires, nails, lamps</p>
<p>4. Series circuits</p>	<p>ARE – Describe how potential difference and current varies in series circuits. AGD – Apply theory to practical work. Evaluate results.</p>	<ul style="list-style-type: none"> <li>electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge</li> </ul>		<p>Circuit equipment</p>
<p>5. Parallel circuits</p>	<p>ARE – Describe how potential difference and current varies in parallel circuits. AGD – Apply theory to practical work. Evaluate results.</p>	<ul style="list-style-type: none"> <li>electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge</li> </ul>		<p>Circuit equipment</p>

<p>6. Resistance</p>	<p>ARE – Calculate resistance of a circuit. AGD – Compare the effect of resistance in different materials.</p>	<ul style="list-style-type: none"><li>differences in resistance between conducting and insulating components (quantitative)</li></ul>		<p>Circuit equipment, range of objects to test – insulators and conductors</p>
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**Assessment Criteria**

Assessment No. & Title	Working Towards	Age Related Expectations	At Greater Depth
	Describe the effect of a larger potential difference	Describe how to measure current	Use a model to explain how current flows in a circuit
	State one difference between series and parallel circuits.	Describe how to measure potential difference	Explain the difference between potential difference and current
		Describe how current and potential difference vary in series and parallel circuits.	Explain why current and potential difference vary in series and parallel circuits
n/a	Compare simply the resistance of conductors and insulators List examples of conductors and insulators	Calculate the resistance of a component and of a circuit	Explain what factors affect the resistance of a resistor