



Subject: Year 9 P.2 Electricity

Overarching Topic: Electricity											
<p>Why is this topic being studied at this time?</p> <p>How does it fit into the wider subject curriculum?</p>	<p>Electric charge is a fundamental property of matter everywhere. Understanding the difference in the microstructure of conductors, semiconductors and insulators makes it possible to design components and build electric circuits. Many circuits are powered with mains electricity, but portable electrical devices must use batteries of some kind. Electrical power fills the modern world with artificial light and sound, information and entertainment, remote sensing and control. The fundamentals of electromagnetism were worked out by scientists of the 19th century. However, power stations, like all machines, have a limited lifetime. If we all continue to demand more electricity this means building new power stations in every generation – but what mix of power stations can promise a sustainable future?</p> <p>Having studied Electricity at KS3 students will be able to analyse circuits and how they impact our lives. In doing so they should be able to identify the types and uses of components and why we need electrical safety measures.</p>										
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<p>The Key Skills/ Techniques</p>	<p>The sophistication and application of skills will become more advanced as students' progress through the critical, core and pinnacle knowledge.</p> <table border="1"> <thead> <tr> <th>Skill/Technique</th> <th>How will this skill be developed?</th> </tr> </thead> <tbody> <tr> <td>1. Graphing & Drawing</td> <td>Draw graphs with suitable scales, axes and units. Correct line of best fit. Appreciation of anomalies and processed data. Scientific drawing of cells, concepts and scientific equipment.</td> </tr> <tr> <td>2. Variables</td> <td>Identify independent, dependent and control variables and devise experiments to include these to ensure valid results. Appreciation of uncertainty.</td> </tr> <tr> <td>3. Data Analysis</td> <td>Describe, explain and predict trends. Graph and table data interpretation. Identify links and patters within and between topics. Statistical analysis of data to include mode/median/mean/range determination. Drawing justified conclusions from presented data.</td> </tr> <tr> <td>4. Application</td> <td>Apply known and taught theory in unfamiliar contexts. Making links to taught theory and extracting key ideas. Communicating using correct scientific terminology.</td> </tr> </tbody> </table>	Skill/Technique	How will this skill be developed?	1. Graphing & Drawing	Draw graphs with suitable scales, axes and units. Correct line of best fit. Appreciation of anomalies and processed data. Scientific drawing of cells, concepts and scientific equipment.	2. Variables	Identify independent, dependent and control variables and devise experiments to include these to ensure valid results. Appreciation of uncertainty.	3. Data Analysis	Describe, explain and predict trends. Graph and table data interpretation. Identify links and patters within and between topics. Statistical analysis of data to include mode/median/mean/range determination. Drawing justified conclusions from presented data.	4. Application	Apply known and taught theory in unfamiliar contexts. Making links to taught theory and extracting key ideas. Communicating using correct scientific terminology.
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5. Working Scientifically

Identify hazards and planning to limit risk. Describe how to improve accuracy/precision/repeatability/reproducibility/validity. Evaluate reliability of methods and investigations, taking in to account data analysis.