



### Subject: Year 8 Energy Costs

| Overarching Topic: Energy Costs  |  |   |  |
|--|--|---|--|
| <p>Why is this topic being studied at this time?</p> <p>How does it fit into the wider subject curriculum?</p> | <ul style="list-style-type: none"> <li>All students at some point in their lives will face an electricity bill. Being able to identify which devices use more electricity and how Energy bills are calculated is an essential life skill.</li> <li>This comes after the energy resources topic and explains how we pay for electricity.</li> </ul> |   |  |
|  | Critical   | Core  | Pinnacle   |
| The Big Questions<br>(What questions will students be able to answer upon mastery of the topic?)               | <p>Can I explain why we pay for electricity?</p> <p>Can I identify why some devices use more electricity than others?</p>  | <p>Can I explain how we pay for our domestic electricity usage based on the amount of energy transferred?</p> <p>Can I calculate the cost of home energy usage, using the formula: <math>\text{cost} = \text{power (kW)} \times \text{time (hours)} \times \text{price (per kWh)}</math>?</p> <p>Can I compare the energy usage and cost of running different home devices?</p> | <p>Energy is important to our economy and our diet. Suggest ways we can improve the supply and use of any energy form you are interested in.</p> |
| The Key Skills/<br>Techniques  | The sophistication and application of skills will become more advanced as students' progress through the critical, core and pinnacle knowledge.  |   |  |
|  | 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 patterns 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.   |  |
| 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.  |   |  |