**Barnsley Academy – Year 10 Science Energy Curriculum**
**Scheme of Work – 2023-24**

| Term 1 Week 2 | | | | |
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| | 1 | 2 | 3 | 4 |
| **Lesson Focus** | Elastic Potential Energy | Power and Energy | Efficiency | SHC Calculations |
| **Prerequisite Knowledge** | Energy Stores<br>Equation model | Energy Stores<br>Equation model | Energy Stores<br>Equation model | Equation Model |
| **Core Knowledge** | • Define an elastic object and give examples<br>• Calculate the energy stored in a stretched or compressed object<br>• Use the elastic energy equation to calculate the spring constant and the extension | • Explain the relationship between energy and power.<br>• Calculate power using energy and time values given<br>• Calculate energy and time using the power equation | • State what is meant by efficiency and calculate it using the correct equation<br>• Use the efficiency equation to calculate 'Total energy in' and 'useful energy out'<br>• Describe ways to increase the efficiency of an intended energy transfer. (Higher) | • State what is meant by Specific Heat Capacity<br>• Use the specific heat capacity of a material to calculate its change in thermal energy<br>• Rearrange the specific heat capacity equation and carry out calculations |
| **Expert Model /Guided Practice/Agreed Approach** (Procedural Knowledge) | • Slide 3- 4 Teacher explains what is meant by an elastic object and gives examples<br>• Equation model used to calculate elastic potential energy. | • Slide 4 – 8 teachers describes power and energy then explains the link between them.<br>• Model for comparison question<br>• Model for calculations | • Slide 4 – 8 – Teacher describes what is meant by efficiency and explains why some appliances are more efficient than others<br>• Equation model used to carry out efficiency calculations<br>• Slide 30 – 37 teacher explains how efficiency can be increased | • Slide 4 – 6 teacher describes what is meant by specific heat capacity<br>• Equation model used to carry out SHC calculations |
| **Independent Practice** | 1. Elastic Potential Energy exam questions<br>2. Elastic Potential energy calculations | 1. Comparing appliances In terms of power and energy | 1. Efficiency calculations<br>2. Exam questions | • Exam questions |

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| | | 2. Calculations involving power and energy | | |
| **Assessment** (Informal/Formal) | Independent practice tasks – exam question incorporated.<br>Learning checks on WB<br>Students to self- assess all tasks.<br>Teacher to circulate and check for misconceptions. | Independent practice tasks – exam question incorporated.<br>Learning checks on WB<br>Students to self- assess all tasks.<br>Teacher to circulate and check for misconceptions. | Independent practice tasks – exam question incorporated.<br>Learning checks on WB<br>Students to self- assess all tasks.<br>Teacher to circulate and check for misconceptions. | Independent practice tasks – exam question incorporated.<br>Learning checks on WB<br>Students to self- assess all tasks.<br>Teacher to circulate and check for misconceptions. |
| **Resources** | | | | |
| **Specific SEN(D)/EAL support** | Equation model<br>Use of the visualiser to show calculations | Equation model<br>Use of the visualiser to show calculations | Equation model<br>Use of the visualiser to show calculations | Equation model<br>Use of the visualiser to show calculations |