

| Prior Learning | | At KS3, students learned about energy resources, energy stores and transfers, and that energy changes are measured in joules (J) or kilojoules (kJ). | | |
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| Lesson Number | AQA Spec | Title | Content | Assessments |
| 1 | 4.1 | Maths skills: Calculations using significant figures | <ul style="list-style-type: none"> Substitute numerical values into equations and use appropriate units. Change the subject of an equation. Give an answer to an appropriate number of significant figures. | |
| 2 | 4.1.1.1 4.1.3 | Maths skills: Handling data | <ul style="list-style-type: none"> Recognise the difference between mean, mode and median. Explain the use of tables and frequency tables. Explain when to use scatter diagrams, bar charts and histograms. | |
| 3 | 4.1 <i>can omit if short of time</i> | Key concept: Energy transfer | <ul style="list-style-type: none"> To understand why energy is a key concept in science. To use ideas about energy stores and energy transfers to explain what energy does. To understand why accounting for energy transfers is a useful idea. | |
| 4 | 4.1.3 | Using energy resources (Renewable and non-renewable resources) | <ul style="list-style-type: none"> Describe the main energy sources available for use on Earth. Distinguish between renewable and non-renewable sources. Explain the ways in which the energy resources are used. | |

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| 5 | 4.1.3 | Global energy supplies | <ul style="list-style-type: none"> Analyse global trends in energy use. Understand what the issues are when using energy resources. | |
| 6 | 4.1.1.3 | Specific heat capacity | <ul style="list-style-type: none"> Understand what energy transfers are in the context of heating/cooling. Find out about specific heat capacity. | |
| 7 | 4.1.1.3 | Required practical 1: Investigating specific heat capacity | <ul style="list-style-type: none"> Use theories to develop a hypothesis. Evaluate a method and suggest improvements. Perform calculations to support conclusions. | Assessment 1: Teacher Assessed 15 Marks Feedback: Teacher |
| 8 | 4.1.2.1 | Dissipation of energy | <ul style="list-style-type: none"> Explain ways of reducing unwanted energy transfer. Understand that energy is dissipated. Calculate payback time. | |
| 9 TRIPLE ONLY | 4.1.2.1 | Required practical 2: Investigate the effectiveness of different materials as thermal insulators | <ul style="list-style-type: none"> Use scientific ideas to make predictions Analyse data to identify trends. Evaluate an experimental procedure. | |
| 10 | 4.1.1.1 4.1.1.2 | Potential energy | <ul style="list-style-type: none"> Consider what happens when a spring is stretched. Describe what is meant by gravitational potential energy. Calculate the energy stored by an object raised above ground level. | |

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| 11 | 4.1.1.1 | Investigating kinetic energy | <ul style="list-style-type: none"> Describe how the kinetic energy store of an object changes as its velocity changes. EMPHASISE THE DIFFERENCE BETWEEN VELOCITY (VECTOR) AND SPEED (SCALAR). | |
| | 4.1.1.2 | | <ul style="list-style-type: none"> Calculate kinetic energy. Consider how energy is transferred. | |
| 12 | 4.1.1.1 | Work done and energy transfer | <ul style="list-style-type: none"> Understand what is meant by work done. Explain the relationship between work done and force applied. | Assessment 2: Multiple choice Quiz 25 Marks Feedback: Auto/Self-assessed |
| | 4.5.2 | | <ul style="list-style-type: none"> Identify the transfers between energy stores when work is done against friction. <p>TRIPLE: Work Done on gas change in volume.</p> | |
| 13 | 4.1.1.4 | Understanding power | <ul style="list-style-type: none"> Define power. Compare the rate of energy transfer by various machines and electrical appliances. Calculate power. | |
| 14 | 4.1.2.2 | Energy efficiency | <ul style="list-style-type: none"> Explain what is meant by energy efficiency. Calculate the efficiency of energy transfers. Find out about the conservation of energy. | |
| End of Unit test Assessment: Teacher | | | | |
| Where we will use these ideas again | | P2 – Power and energy transfers P3 – Internal energy of particles P6 – Key concept: transferring energy | | |