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**LANGDON PARK SIXTH FORM**

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| **Subject: Physics** | **Year: Y12** | **Topic: 3.4.1 Work, Energy and Power** |

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| ***What and Why*** “The concept of energy is very important in our lives. It includes: improving the efficiency of machines; use of alternative energy resources to offset fossil fuel use; utiliing power appliances used at home and in industry.” |

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| **Key terms**  Conservation of energy  Elastic potential energy  Energy | Gravitational Potential energy  Hydroelectric  Joule  Kinetic energy | Motive power  Power  Renewable energy  Solar | Watt  Wind  Work |

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| **Specification point** | **Pre-reading** | **Application and Assessment (date)** | **Home learning** | **Extension – Cultural Capital and Reading** |
| **3.4.1.7:** I can calculate work done and the rate at which work is done.  The ability to use the area under a Force-displacement graph.  Determine the efficiencies of machines.  **3.4.1.8:** I can apply the principle of conservation of energy.  I can calculate the work done against resistive forces in various situations.  I can use the equations of motion and energy relating to renewable resources | Use the Oxford AQA AS textbook p.170-181. Look at other textbooks in the library for alternative ideas, explanations and diagrams.  **YouTube Videos:**  (1) [Top 10 INCREDIBLE Alternatives to Alternative ENERGY](https://www.youtube.com/watch?v=oVOUE4sFMuw)  (2) [Conservation of Energy | Physics – Wonders of Life](https://www.youtube.com/watch?v=nbXXFtF8Lzs)    **Websites:**  <https://physicsworld.com/a/renewable-energy-has-space-to-grow/> | **Practicals:**  (1) Investigate the energy losses in a falling ping-pong ball  (2) Determine the efficiency of an electric motor  (**Assessment**:  Minitest on Energy (1st week Jan) | (1) Investigate the different types of renewable energy and their advantages and disadvantages  (2) Devise an experiment to find out the efficiency of an electric motor and how to reduce energy losses  Make notes on each topic and complete the exam style practice questions | (1) Dungeness B power station  visiting centre  **Reading:**  [There Is No Planet B: A Handbook for the Make or Break Years](https://www.amazon.co.uk/There-No-Planet-Handbook-Break/dp/1108439586/ref=sr_1_8?crid=LQYKLWKSZ5ZY&dchild=1&keywords=energy+systems+and+sustainability+power+for+a+sustainable+future&qid=1594286069&s=books&sprefix=energy+and+power%2Cstripbooks%2C174&sr=1-8)  by [Mike Berners-Lee](https://www.amazon.co.uk/Mike-Berners-Lee/e/B004ULUALY?ref=sr_ntt_srch_lnk_8&qid=1594286069&sr=1-8) |

**Pre-assessment content review**

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| I feel secure in | I need to focus on | My action plan |

**Pre-assessment skills review**

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| I feel secure in | I need to focus on | My action plan |

**Post-assessment review**

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| Weaknesses in content knowledge | Skills I need to focus on | My action plan |
| Retest / review – teacher and student comment | | |

**Revision planning**

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| Spec point | Notes complete | Revision materials | Past paper Qs | Timed conditions |
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