

P1 Conservation & Dissipation of Energy

Knowledge Organiser

<p>Energy Stores:</p> <p>Chemical energy</p> <p>Kinetic energy</p> <p>Gravitational potential energy</p> <p>Elastic potential energy</p>	<p>Chemical Energy</p> <p>Transferred during chemical reactions, e.g. food, fuels or batteries.</p>	<p>Kinetic Energy</p> <p>All moving objects have it.</p> <p>$KE = 1/2 \times \text{mass} \times \text{speed}^2$</p>	<p>Gravitational Potential Energy</p> <p>Stored in an object lifted up.</p> <p>$GPE = \text{mass} \times \text{gravity} \times \text{height}$</p>
<p>Elastic Potential Energy</p> <p>Stored in a springy object.</p> <p>$EPE = 1/2 \times \text{spring constant} \times \text{extension}^2$</p>	<p>Energy can be transferred by....</p> <p>Heating</p> <p>An electrical current flowing</p> <p>A force moving an object</p>	<p>Useful Energy</p> <p>Energy transferred to the place and in the form we need it.</p>	<p>Wasted Energy</p> <p>Not useful.</p> <p>Eventually transferred to the surroundings.</p>
<p>Work Done</p> <p>Equal to the energy transferred</p> <p>When a force moves an object</p> <p>$\text{Work done} = \text{force} \times \text{distance moved}$</p>	<p>Energy Flow Diagram</p> <p>Shows energy transfers.</p>	<p>Conservation of Energy</p> <p>Energy cannot be created or destroyed.</p> <p>It can only be transferred usefully, stored or dissipated.</p>	<p>Dissipated Energy</p> <p>Wasted energy, usually spread to the sur- roundings as heat.</p>
<p>Hooke's Law</p> <p>The extension of a spring is proportional to the force on it.</p> <p>The gradient of the graph, k, is called the spring constant.</p>	<p>Efficiency</p> <p>Proportion of input energy transferred to useful energy.</p> <p>$\text{Efficiency} = \text{useful energy} / \text{total input}$</p>	<p>Power</p> <p>Energy transferred in 1 second</p> <p>$\text{Power} = \text{Energy} / \text{Time}$</p>	<p>Wasted Power</p> <p>$\text{Total power in} - \text{Useful power out}$</p>