

## Physics: Energy

Content	RAG
What is meant by a system and how changes in a system can change how energy is stored.	
Calculate how much (kinetic) energy is in a moving object by KNOWING and using the equation: $E_k = \frac{1}{2} m v^2$	
Calculate how much (elastic potential) energy is in a stretched spring by using the equation: $E_e = \frac{1}{2} k e^2$	
Calculate the amount of (gravitational potential) energy is in an object raised above the ground by KNOWING and using the equation: $E_p = m g h$	
Calculate the energy stored or released from a system when there is a temperature change, using the equation: $\Delta E = m c \Delta \theta$	
Know what is meant by specific heat capacity.	
Know what is meant by 'work' and that a force does work on an object when the force causes the object to move.	
Calculate the work done when an object is moved by KNOWING and using the equation: $W = F s$	
Know what is meant by the term 'power' and give examples that illustrate this.	
Calculate Power by KNOWING and using the equations: $P = \frac{E}{t}$ and $P = \frac{W}{t}$	
Know that 1 watt = 1 Joule of energy transferred per second (1W = 1J/s)	
Be able to explain why energy can be TRANSFERRED USEFULLY, DISSIPATED or STORED	
Describe ways in which unwanted energy transfers can be reduced.	
Describe ways that the rate of cooling in buildings is affected.	
Calculate the energy efficiency of an energy transfer using the equation: $efficiency = \frac{useful\ output\ energy\ transfer}{total\ input\ energy\ transfer} \text{ OR } efficiency = \frac{useful\ power\ output}{total\ power\ input}$	
<b>(HT ONLY) Be able to describe ways to increase the efficiency of an energy transfer</b>	

List the main energy resources available for use on Earth & describe whether they are renewable or non-renewable	
Compare ways that different energy resources are used, the uses to include transport, electricity generation and heating	
Explain why some energy resources are more reliable than others	
Describe the environmental impact arising from the use of different energy resources	
Explain patterns and trends in the use of energy resources	