Energy Stores and Transfers

	Working towards Mastery (W)	**Meeting Mastery (M)**	**Beyond Mastery (B)**
Energy Transfer	- We can describe how jobs get done using an energy model where energy is transferred from one store at the start to another at the end. - When energy is transferred, the total is conserved, but some energy is dissipated, reducing the useful energy.	- Describe how the energy of an object depends on its speed, temperature, height or whether it is stretched or compressed. - Show how energy is transferred between energy stores in a range of real-life examples. - Calculate the useful energy and the amount dissipated, given values of input and output energy. - Explain how energy is dissipated in a range of situations.	- Explain why processes such as swinging pendulums or bouncing balls cannot go on forever, in terms of energy. - Evaluate analogies and explanations for the transfer of energy
Heating and Cooling	- The thermal energy of an object depends upon its mass, temperature and what it's made of. - When there is a temperature difference, energy transfers from the hotter to the cooler object. - Thermal energy is transferred through different pathways, by particles in conduction and convection, and by radiation.	- Explain observations about changing temperature in terms of energy transfer. - Describe how an object's temperature changes over time when heated or cooled. - Explain how a method of thermal insulation works in terms of conduction, convection and radiation. - Sketch diagrams to show convection currents in unfamiliar situations.	- Sketch a graph to show the pattern of temperature change against time. - Evaluate a claim about insulation in the home or for clothing technology. - Compare and contrast the three ways that energy can be moved from one place to another by heating.