

Name _____ Class _____ Date _____

Lesson	Aiming for 4		Aiming for 6		Aiming for 8	
P2.1 Energy transfer by particles	I can describe materials as good or poor thermal conductors.	<input type="checkbox"/>	I can analyse temperature change data to compare the thermal conductivity of materials.	<input type="checkbox"/>	I can explain the different thermal conductivities of materials using the free electron and lattice vibration explanations of conduction.	<input type="checkbox"/>
	I can compare the thermal conductivities of materials in simple terms.	<input type="checkbox"/>	I can describe the changes in the behaviour of the particles in a material as the temperature of the material increases.	<input type="checkbox"/>	I can evaluate the results of an experiment into thermal conductivity in terms of repeatability and reproducibility of data, and the validity of conclusions drawn from the data.	<input type="checkbox"/>
	I can relate the thermal conductivities of a material to the uses of that material in familiar contexts.	<input type="checkbox"/>	I can apply understanding of thermal conductivity in reducing energy dissipation through the choice of appropriate insulating materials.	<input type="checkbox"/>	I can justify the choices of material involved in insulation or conduction using the concept of thermal conductivity and other data.	<input type="checkbox"/>
P2.2 Energy transfer by radiation	I can compare the cooling and heating of different coloured surfaces.	<input type="checkbox"/>	I can describe the cooling of objects in terms of the rate of emission of radiation.	<input type="checkbox"/>	I can explain why objects stop cooling in terms of the rate of absorption and emission of radiation.	<input type="checkbox"/>
	I can state that an object cools by emitting IR radiation and heats by absorbing IR radiation.	<input type="checkbox"/>	I can describe the heating of objects in terms of the rate of absorption of radiation.	<input type="checkbox"/>	I can apply the concepts of absorption and emission of IR radiation to explain why an object maintains a constant temperature.	<input type="checkbox"/>
	I can measure the difference in cooling of objects of different colours.	<input type="checkbox"/>	I can describe the cooling of an object over a period of time.	<input type="checkbox"/>	I can describe the changes in the rate of cooling of objects of different colours and temperatures.	<input type="checkbox"/>

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P2.3 Radiation and the greenhouse effect	I can state that infrared radiation is electromagnetic radiation with a <u>wavelength shorter than red light</u> .	<input type="checkbox"/>	I can compare the emission of infrared radiation with a wavelength shorter than red light.	<input type="checkbox"/>	I can describe factors that affect the rate of emission of infrared radiation, including <u>temperature and surface area</u> .	<input type="checkbox"/>
	I can state that an object cools by emitting infrared radiation and heats by absorbing infrared radiation.	<input type="checkbox"/>	I can outline the evidence that changes in the concentration of atmospheric gases are the likely cause of global warming.	<input type="checkbox"/>	I can apply the concepts of absorption and emission of infrared radiation to explain why an object maintains a constant temperature.	<input type="checkbox"/>
	I can describe the greenhouse effect in simple terms.	<input type="checkbox"/>	I can describe the greenhouse effect in terms of absorption and emission of radiation.	<input type="checkbox"/>	I can fully explain the greenhouse effect in terms of absorption, emission, and wavelengths of electromagnetic radiation.	<input type="checkbox"/>
P2.4 Specific heat capacity	I can describe materials in terms of being difficult or easy to heat up (<u>increase the temperature of</u>).	<input type="checkbox"/>	I can describe the effects of changing the factors involved in the equation.	<input type="checkbox"/>	I can evaluate materials used for transferring energy in terms of their <u>specific heat capacity</u> .	<input type="checkbox"/>
	I can state the factors that affect the amount of energy required to <u>increase the temperature of an object</u> .	<input type="checkbox"/>	I can calculate the energy required to change the temperature of an object.	<input type="checkbox"/>	I can use the specific heat capacity equation to perform a wide range of <u>calculations in unfamiliar contexts</u> .	<input type="checkbox"/>
	I can, with some support, measure the specific heat capacity of a material.	<input type="checkbox"/>	I can measure the specific heat capacity of a material and find a mean value.	<input type="checkbox"/>	I can evaluate in detail the results of an experiment to measure specific heat capacity.	<input type="checkbox"/>
P2.5 Heating and insulating buildings	I can state some design features used to prevent energy transfer to the surroundings in the home.	<input type="checkbox"/>	I can describe how some design features used to reduce energy dissipation from a home work.	<input type="checkbox"/>	I can evaluate in detail design features used to reduce energy loss from the home.	<input type="checkbox"/>
	I can calculate the payback time of a simple home improvement feature.	<input type="checkbox"/>	I can compare home improvement features in terms of payback time.	<input type="checkbox"/>	I can decide on home improvement features using payback time and savings beyond the payback time.	<input type="checkbox"/>