

Name _____ Class _____ Date _____

Lesson	Aiming for 4		Aiming for 6		Aiming for 8	
P6.1 Density	I can describe density as a property of a material and not a particular object.	<input type="checkbox"/>	I can explain why some materials will float on water.	<input type="checkbox"/>	I can use the density equation in a wide variety of calculations.	<input type="checkbox"/>
	I can state that the density of a material is the mass per unit volume.		I can calculate the density of materials.	<input type="checkbox"/>	I can use appropriate significant figures in final answers when measuring	<input type="checkbox"/>
	I can calculate the volume of some regular shapes and the density of materials, with support.		I can measure the density of a solid and a liquid.	<input type="checkbox"/>	I can evaluate in detail the experimental measurement of density, accounting for errors in measurements.	<input type="checkbox"/>
P6.2 States of matter	I can describe the simple properties of solids, liquids and gases.	<input type="checkbox"/>	I can describe the arrangement of the particles in a solid, liquid, and gas.	<input type="checkbox"/>	I can describe the forces acting between particles in a solid, liquid, and gas.	<input type="checkbox"/>
	I can name the changes of state.		I can explain the behaviour of a material in terms of the arrangement of particles within it.		I can describe the changes in the energy of individual particles during changes of state.	
	I can state that there are changes in stores of energy associated with a material when its temperature is increased.		I can describe the changes in behaviour of the particles in a material during changes of state.		I can explain in detail why the density of a material changes during a change of state, using a particle model.	
P6.3 Changes of state	I can state that the melting point of a substance is a temperature at which it changes from a solid to a liquid and vice versa.	<input type="checkbox"/>	I can state that the melting and boiling points of a pure substance are fixed.	<input type="checkbox"/>	I can describe how the melting and boiling points of a substance can be changed.	<input type="checkbox"/>
	I can state that the boiling point of a substance is the temperature at which it changes from a liquid to a gas and vice versa.		I can use the term 'latent heat' to describe the energy gained by a substance during heating for which there is no change in temperature.	<input type="checkbox"/>	I can describe in detail the behaviour of the particles during changes of state.	<input type="checkbox"/>
	I can describe the process of melting and boiling.		I can find the melting or boiling point of a substance by using a graphical technique.	<input type="checkbox"/>	I can evaluate data produced by a heating experiment to discuss the reproducibility of the measurement of a melting point.	<input type="checkbox"/>

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P6.4 Internal energy	I can state that the internal energy of a system increases as it is heated.	<input type="checkbox"/>	I can describe how the internal energy of an object can be increased by heating.	<input type="checkbox"/>	I can use the concepts of kinetic and potential energy to explain changes in internal energy.	<input type="checkbox"/>
	I can identify which changes of state are related to increases in internal energy and which are related to decreases.		I can describe how the behaviour of particles changes as the energy of a system increases.		I can describe the changes in the size of intermolecular forces during changes of state.	
	I can outline the behaviour of particles in solids, liquids, and gases.		I can describe the energy changes by heating between objects within the same system.		I can explain in detail why the pressure of a gas increases as it is heated.	
P6.5 Specific latent heat	I can state that heating a material will increase its internal energy.	<input type="checkbox"/>	I can describe the changes in particle bonding during changes of state.	<input type="checkbox"/>	I can perform a variety of calculations based on the latent heat equation.	<input type="checkbox"/>
	I can describe energy changes during melting and vaporisation.		I can calculate the latent heat of fusion and latent heat of vaporisation for a substance.	<input type="checkbox"/>	I can combine variety of equations to solve problems involving heating.	<input type="checkbox"/>
	I can measure the latent heat of vaporisation for water.		I can measure the latent heat of fusion for water.	<input type="checkbox"/>	I can evaluate the reproducibility of a measurement of latent heat based on collated data.	<input type="checkbox"/>
P6.6 Gas pressure and temperature	I can state that as the temperature of a gas in a sealed container increases, the pressure of the gas increases.	<input type="checkbox"/>	I can describe the behaviour of particles in a gas as the gas is heated.	<input type="checkbox"/>	I can describe the linear relationship between changes in temperatures and pressure for a gas.	<input type="checkbox"/>
	I can describe a gas as consisting of a large number of rapidly moving particles.		I can outline Brownian motion and how this provides evidence for the particle nature of matter.		I can explain Brownian motion in terms of particle behaviour and collisions, relating the speeds of smoke particles and air molecules.	
	I can describe pressure as being caused by collisions of gas particles with the walls of its container.		I can describe the relationship between an increase in the temperature of a fixed volume of a gas and the increase in pressure of the gas.		I can describe in detail how the relationship between the pressure of a gas and its temperature can be investigated.	

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P6.7 Gas pressure and volume	I can state that the temperature of a gas is related to the kinetic energy of the gas particles.	<input type="checkbox"/>	I can describe how the pressure of a gas can change when it is compressed or allowed to expand.	<input type="checkbox"/>	I can explain in terms of particle behaviour why the pressure of a gas increases when its volume decreases.	<input type="checkbox"/>
	I can state that the pressure of a gas increases when it is compressed (at a constant temperature).	<input type="checkbox"/>	I can use the relationship $pV = \text{constant}$ to calculate the constant.	<input type="checkbox"/>	I can calculate the pressure or volume of a gas.	<input type="checkbox"/>
	I can state that forces are required to compress a gas.	<input type="checkbox"/>	I can explain why the temperature of a gas increases when it is compressed.	<input type="checkbox"/>	I can solve a variety of problems in which gas pressure or volume changes.	<input type="checkbox"/>