



P3 Particle Model of Matter

Revision Checklist

Triple Science,
Higher Tier

Topic	Content	✓
Changes of State and the Particle Model	Describe states of matter and the differences in their particle arrangements. Explain density and how it relates to state changes. Compare the properties of solids, liquids, and gases in terms of particle movement and forces.	
	Density of Materials - Define and calculate density using $\rho = m/V$. Compare the densities of solids, liquids, and gases. Discuss how changes in state affect density and provide experimental methods to measure density.	
	Required practical activity 5 : use appropriate apparatus to make and record the measurements needed to determine the densities of regular and irregular solid objects and liquids.	
	Changes of State - Describe how changes of state involve energy transfer but not changes in mass. Explain specific latent heat. Discuss real-life applications of latent heat, such as refrigeration.	
Internal Energy and Energy Transfers	Define internal energy. Explain the effect of heating on a system's internal energy. Discuss how changes in kinetic and potential energy influence internal energy.	
	Use $\Delta E = mc\Delta\theta$ to calculate temperature changes in a system. Explain how specific heat capacity is different for various materials and its importance in engineering.	
	Define specific latent heat and use $E = mL$ to calculate energy changes during state changes. Compare latent heat of fusion and latent heat of vaporisation.	
Particle Model and Pressure	Describe the motion of gas molecules as random and constant and explain how this relates to temperature and kinetic energy. Describe how increasing temperature increases the average speed of gas molecules.	
	Explain how gas pressure is caused by collisions between particles and the walls of a container, use the equation $pV = \text{constant}$ to explain how increasing volume at constant temperature decreases pressure, describe the force created by gas pressure acting at right angles to container walls.	
	Explain how doing work on a gas, such as compression, increases its internal energy and temperature. Apply this to real-world examples such as bicycle pumps and engines.	



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Revision Checklist

Triple Science,
Foundation Tier

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	Density of Materials - Define and calculate density using $\rho = m/V$. Compare the densities of solids, liquids, and gases. Discuss how changes in state affect density and provide experimental methods to measure density.	
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Internal Energy and Energy Transfers	Define internal energy. Explain the effect of heating on a system's internal energy. Discuss how changes in kinetic and potential energy influence internal energy.	
	Use $\Delta E = mc\Delta\theta$ to calculate temperature changes in a system. Explain how specific heat capacity is different for various materials and its importance in engineering.	
	Define specific latent heat and use $E = mL$ to calculate energy changes during state changes. Compare latent heat of fusion and latent heat of vaporisation.	
Particle Model and Pressure	Describe the motion of gas molecules as random and constant and explain how this relates to temperature and kinetic energy. Describe how increasing temperature increases the average speed of gas molecules.	
	Explain how gas pressure is caused by collisions between particles and the walls of a container, use the equation $pV = \text{constant}$ to explain how increasing volume at constant temperature decreases pressure, describe the force created by gas pressure acting at right angles to container walls.	



P3 Particle Model of Matter

Revision Checklist

Double Science



Topic	Content	✓
Changes of State and the Particle Model	Describe states of matter and the differences in their particle arrangements. Explain density and how it relates to state changes. Compare the properties of solids, liquids, and gases in terms of particle movement and forces.	
	Density of Materials - Define and calculate density using $\rho = m/V$. Compare the densities of solids, liquids, and gases. Discuss how changes in state affect density and provide experimental methods to measure density.	
	Required practical activity 5 : use appropriate apparatus to make and record the measurements needed to determine the densities of regular and irregular solid objects and liquids.	
	Changes of State - Describe how changes of state involve energy transfer but not changes in mass. Explain specific latent heat. Discuss real-life applications of latent heat, such as refrigeration.	
Internal Energy and Energy Transfers	Define internal energy. Explain the effect of heating on a system's internal energy. Discuss how changes in kinetic and potential energy influence internal energy.	
	Use $\Delta E = mc\Delta\theta$ to calculate temperature changes in a system. Explain how specific heat capacity is different for various materials and its importance in engineering.	
	Define specific latent heat and use $E = mL$ to calculate energy changes during state changes. Compare latent heat of fusion and latent heat of vaporisation.	
Particle Model and Pressure	Describe the motion of gas molecules as random and constant and explain how this relates to temperature and kinetic energy. Describe how increasing temperature increases the average speed of gas molecules.	