



SP14 Particle model

Personal learning checklist | 1 of 2

GCSE Edexcel Separate Sciences | Physics Paper 2

Name _____ Class _____ Date _____

Tick one box for each statement. Red: need help. Amber: partly confident.
Green: can do independently.

I can	Red	Amber	Green
Particles and density			
Compare state properties through particle movement and arrangement and explain density differences, including ice.	☐	☐	☐
Calculate and rearrange density, mass and volume and convert between common unit systems.	☐	☐	☐
Explain mass conservation and changing volume or density during reversible physical state changes.	☐	☐	☐
Density practical			
Describe density measurements for regular solids, irregular solids and liquids using appropriate volume methods.	☐	☐	☐
Explain measurement quality using zeroed balances, meniscus readings, complete immersion, repeats and trapped-bubble errors.	☐	☐	☐
Heating and state changes			
Distinguish temperature from internal energy and explain heating effects on particle kinetic and potential energy.	☐	☐	☐
Define specific heat capacity and calculate temperature-change energy or rearranged quantities with correct units.	☐	☐	☐
Define specific latent heat and calculate melting or vaporisation energy without a temperature change.	☐	☐	☐
Name state changes and interpret heating or cooling plateaus using particle potential energy and latent heat.	☐	☐	☐
Calculate energy for separate warming and state-change stages and explain methods of reducing thermal losses.	☐	☐	☐

My next revision priority _____



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Water investigations			
Describe the water heat-capacity practical using mass, electrical energy, temperature rise, stirring and insulation.	☐	☐	☐
Describe melting-ice temperature-time measurements and explain flat and imperfect plateau regions.	☐	☐	☐
Gases and temperature			
Explain gas pressure and qualitative temperature effects for fixed gas mass at constant volume.	☐	☐	☐
Describe absolute zero, convert Celsius and kelvin readings and distinguish readings from temperature differences.	☐	☐	☐
Gas pressure and compression			
Explain gas compressibility and pressure forces using particle collisions.	☐	☐	☐
Use Boyle's law with absolute pressure at fixed gas mass and temperature.	☐	☐	☐
Plan a pressure-volume investigation and interpret pressure against reciprocal volume.	☐	☐	☐
Explain compression work, internal energy and gas temperature changes (Higher).	☐	☐	☐

My next revision priority _____