

| Blue Pathway | | | | | | | | |
|-----------------------------|---|--|---|---|---|---|--|--|
| Purple Pathway | | | | | | | | |
| Orange Pathway | | | | | | | | |
| | Step 5 | Step 6 | Step 7 | Step 8 | Step 9 | Step 10 | Step 11 | Step 12 |
| AO1 Remember | Explain the properties of 3 states of matter with reference to the particle model | Describe gas pressure with reference to particles | Explain how pressure in gases may change | Explain internal energy | Use appropriate terminology in answers (key words, phrases and units) | Use appropriate SI units on answers Explain the risks and benefits of scientific advances | Understand specific heat capacity | Recall all key areas of Science |
| | | Describe conservation of mass in change of state | Explain temperature in changes of state | Describe latent heat of fusion and vaporisation | | | Use accurate and appropriate scientific language and units | |
| | Remember a range of basic facts and put them into structured sentences | Describe what is meant by specific heat capacity | Remember key facts about most areas of Science. | Describe key facts about most areas of Science. | | | | |
| AO2 Application | Sometimes use data to support evidence. | Use the equation for density | Rearrange equations in calculations | Link the particle model to density and conservation of mass. | Interpret data and use it to support evidence. | Relate the temperature of a gas to the average KE of its particles | Apply the ideas about particles and density to complex problems | Apply concepts of specific heat capacity and latent heat in conjunction with other heating and cooling systems |
| | Consistently use equations in calculations. | Consistently use and sometimes rearrange equations in calculations. | Use Boyle's Law | Use & rearrange specific latent heat calculations | Use & rearrange specific heat capacity calculation | Use particle model to explain changes in gas pressure at different conditions | Apply the concept of conservation of mass and internal energy to unfamiliar situations | Manipulate particle model and gas laws to answer complex problems |
| AO3 Analyse and Evaluate | Recognise anomalous results and spot some causes of error in experimental procedures. | Write reasoned explanations of a conclusion based on the experimental data | Identify some causes of error and uncertainty in data or experimental procedures. | Evaluate data with reference to potential sources of random and systematic error. | Evaluate the reliability of methods in detail | Identify causes of error and uncertainty in data or experimental procedures. | Suggest detailed improvement to methods where reliability may be a concern | Critically evaluate and refine methodologies, and judge the validity of scientific conclusions |
| AO3 Experimental Procedures | Outline a method for calculating density | Carry out an experiment to calculate density | Describe the steps required to collect the necessary data to calculate density | Accurately make and record observations and measurements | Explain a method to calculate density of regular and irregular shapes and liquids | Safely carry out practical investigations by creating a full risk assessment | Explain accuracy, precision, resolution and reliability | Use all the correct scientific language throughout. |
| | Identify variables in an investigation | | | | | | | |