Edexcel International GCSE Physics 4PH1 Learning Plan

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| **Unit: 5 Solids, Liquids and Gases** | | **Chapter: 19. Solids, Liquids and Gases** | | **Hours: 6** |
| Content coverage | Learning outcomes | Resources | Assessment | |
| Section 5: Solids, liquids and gases  a) Units  b) Density and Pressure  c) Change of State  d) Ideal gas molecules | **5.15** explain how molecules in a gas have random motion and that they exert a force and hence a pressure on the walls of a container  **5.16** understand why there is an absolute zero of temperature which is –273 °C  **5.17** describe the Kelvin scale of temperature and be able to convert between the Kelvin and Celsius scales  **5.18** understand why an increase in temperature results in an increase in the average speed of gas molecules  **5.19** know that the Kelvin temperature of a gas is proportional to the average kinetic energy of its molecules  **5.20** explain, for a fixed amount of gas, the qualitative relationship between:   * pressure and volume at constant temperature * pressure and Kelvin temperature at constant volume.   **5.21** use the relationship between the pressure and Kelvin temperature of a fixed mass of gas at constant volume:  *p*1 = *p*2 /  *T*1 *T*2  **5.22** use the relationship between the pressure and volume of a fixed mass of gas at constant temperature:  *P1V1*=*p2V2*  **5.8P explain why heating a system will change the energy stored within the system and raise its temperature or produce changes of state**  **5.9P describe the changes that occur when a solid melts to form a liquid, and when a liquid evaporates or boils to form a gas**  **5.10P describe the arrangement and motion of particles in solids, liquids and gases**  **5.11P *practical: obtain a temperature–time graph to show the constant temperature during a change of state***  **5.12P know that specific heat capacity is the energy required to change the temperature of an object by one degree Celsius per kilogram of mass (J/kg °C)**  **5.13P use the equation:**  **change in thermal energy = mass × specific heat capacity × change in temperature**  **Δ*Q* = *m* × *c* × *ΔT***  **5.14P *practical: investigate the specific heat capacity of materials including water and some solids*** | Video and Powerpoint:  1.11 Pressure  2.1 Simple kinetic molecular model of matter (1)  2.2 Simple kinetic molecular model of matter (2)  2.3 Thermal properties and temperature (1)  2.4 Thermal properties and temperature (2)  Textbook pages:  Page 182 – The states of matter  Page 182 – Properties of the different states of matter  Page 183 – Measuring heat energy  Page 184 – **Practical** – *Investigate the specific heat capacity of a substance*  Page 186 – The energy involved in change of state  Page 186 – **Practical** – *Investigate temperature during a change of state*  Page 187 – The gas laws  Page 189 – Absolute zero | Pages 191 - 192  Questions (1) to (7)  Pages 193 – 195  End of Unit Questions (1) to (6)  Chapter 19 Textbook Answers (PDF)  Chapter 19 Answers to End of Unit Questions (PDF)  Chapter 19 - exam question - pdf  Chapter 19 - exam question mark scheme – pdf  Chapter 19 - Talking paper video | |

Videos – [www.igcsesciencecourses.com](http://www.igcsesciencecourses.com)

Textbook Ref: Edexcel International GCSE (9-1) Physics Student Book - Pearson (Arnold, Johnson, Woolley))