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 gasesa) Unitsb) Density and Pressurec) Change of Stated) 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 Pressure2.1 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 matterPage 182 – Properties of the different states of matterPage 183 – Measuring heat energyPage 184 – **Practical** – *Investigate the specific heat capacity of a substance*Page 186 – The energy involved in change of statePage 186 – **Practical** – *Investigate temperature during a change of state*Page 187 – The gas lawsPage 189 – Absolute zero | Pages 191 - 192Questions (1) to (7)Pages 193 – 195End of Unit Questions (1) to (6)Chapter 19 Textbook Answers (PDF)Chapter 19 Answers to End of Unit Questions (PDF)Chapter 19 - exam question - pdfChapter 19 - exam question mark scheme – pdfChapter 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))