Science – Physics

MAGHULL HIGH SCHOOL – CURRICULUM MAP

	Lessons Sequence					
TOPIC (S) **PARTICLE MODEL OF MATTER**	1. Density (including required practical) 2. Changes of state		3. Internal energy 4. Specific heat capacity		5. Particle motion in gases (including single only content) 6. Increasing pressure in gases	
Knowledge & Skills development	• Recognise/draw simple diagrams to model the difference between solids, liquids and gases • Explain the differences in density between the different states of matter in terms of the arrangement of atoms or molecules • Recall, use and rearrange the equation for density • Describe how and when substances change state • Define internal energy, specific heat capacity and latent heat of vaporisation and fusion • Use and rearrange the equations for specific heat capacity and latent heat • Interpret heating and cooling graphs that include changes of state.			• Explain how the motion of the molecules in a gas is related to both its temperature and its pressure • Explain qualitatively the relation between the temperature of a gas and its pressure at constant volume • Calculate the change in the pressure of a gas or the volume of a gas (a fixed mass held at constant temperature) when either the pressure or volume is increased or decreased • Explain how, in a given situation eg a bicycle pump, doing work on an enclosed gas leads to an increase in the temperature of the gas		
Assessment / Feedback Opportunities	Targeted questioning throughout topic	Teacher assessment of practical skills during investigation - verbal	Knowledge Recall Quizzes	Deep marking of written task in students books	Topic Test	Targeted exam questions – teacher or self-assessed
Cultural Capital	• Encourage students to visit Science Museum in Manchester					
SMSC / Promoting British Values (Democracy, Liberty, Rule of Law, Tolerance & Respect)	• Listening to others during presentations • Working in groups during practicals or research tasks					
Reading opportunities	• Recommended Read: Superfast Physics for 14 to 16 year olds: Book 5: Pressure in Solids, Liquids and Gas (Michael D. Reid) • Recommended Read: All About Physics (Richard Hammond) • Recommended Read: Storm in a Teacup: The Physics of Everyday Life (Helen Czerski)					
Key Vocabulary	Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly, Describe, Explain, Compare, Analyse, Calculate, Suggest Density, Arrangement, Molecules, Atoms, Internal, Specific Heat Capacity, Latent, Vaporisation, Fusion, Temperature, Pressure, Volume					
Digital Literacy	SharePoint resources including topic quizzes					

	Possible use of excel to plot graphs and analyse data, powerpoint, word, etc to present information, internet for research
Cross-Curricular Links	Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators
Careers	Heating engineers, Divers in various careers (Recreational, Navy, Rescue, etc)