



	Lessons Sequence					
<b>TOPIC (S)</b> <b>Particles and Heat</b>	1. Density 2. Solids, Liquids and Gases 3. Solid Pressure 4. Liquid Pressure		5. Atmospheric (Gas) Pressure 6. Temperature and Heat 7. Conduction 8. Convection in Liquids		9. Convection in Gases 10. Infra-red Radiation 11. Stopping Heat Transfer	
<b>Knowledge &amp; Skills development</b>	- Use ideas about particles to explain the properties of a substance in its three states. - Describe what happens when you heat up solids, liquids, and gases. - Describe what is meant by the term density using the particle model - Describe how to determine the density of objects - Calculate pressure. - Apply ideas of pressure to different situations. - Predict quantitatively the effect of changing area and/or force on pressure. - Describe how liquid pressure changes with depth. - Explain why some things float and some things sink, using force diagrams. - Use the particle model to explain gas pressure. - Describe the factors that affect gas pressure.			- Describe how atmospheric pressure changes with height. - State the difference between energy and temperature. - Explain what is meant by equilibrium - Describe how energy is transferred by particles in conduction - Describe the pattern in conduction shown by results, using numerical data to inform a conclusion. - Describe how energy is transferred by particles in convection in liquids. - Describe how energy is transferred by particles in convection in gases. - Describe some sources of infrared radiation. - Explain how energy is transferred by radiation. - Describe how an insulator can reduce energy transfer. - Apply knowledge of conduction, convection and radiation to explain how a vacuum flask works.		
<b>Assessment / Feedback Opportunities</b>	Targeted questioning throughout topic	Teacher assessment of practical skills during investigation - verbal	AWOL assessment – formative teacher assessment in students books	Mid topic assessment – formative assessment	Homework topic quiz – formative assessment	End of topic assessment – teacher summative assessment
<b>Cultural Capital</b>	<ul style="list-style-type: none"> <li>Use of potato cannon</li> <li>Life Skills – Home insulation/saving energy bills</li> <li>Link to different cultures ways to deal with heat and cold</li> </ul>					
<b>SMSC / Promoting British Values</b> (Democracy, Liberty, Rule of Law, Tolerance & Respect)	<ul style="list-style-type: none"> <li>Listening to others during presentations</li> <li>Working in groups during practicals or research tasks</li> </ul>					
<b>Reading opportunities</b>	<ul style="list-style-type: none"> <li>Investigating Heat (Investigating Science Challenges) by Richard Spilsbury (Author)</li> <li>Various reading and comprehension activities embedded within scheme of work</li> </ul>					

<b>Key Vocabulary</b>	Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly Particles, Practical, Solid, Liquid, Gas, Vibrate, Density, Volume, Pressure, Collisions, Force, Exert, Upthrust, Surface Area, Temperature, Heat, Energy, Degrees Celcius, Joules, Transfer, Conduction, Convection, Current, Vacuum, Absorb, Emit, Reflect, Insulator, Effective
<b>Digital Literacy</b>	SharePoint resources including topic quiz Possible use of excel to plot graphs and analyse data, powerpoint, word, etc to present information, internet for research
<b>Cross-Curricular Links</b>	Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators
<b>Careers</b>	Heating Engineer, Thermal Insulator