**YEAR 8 SCIENCE**

**HALF TERM 3 & 4**

# MAGHULL HIGH SCHOOL – CURRICULUM MAP

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| Unit: **Particles and Heat**<br>**LESSON TOPIC QUESTION(S)** | 1. Careers<br>2. Density<br>3. Solids, Liquids and Gases<br>4. Solid Pressure | 5. Liquid Pressure<br>6. Atmospheric Pressure<br>7. Temperature and Heat<br>8. Conduction | 9. Convection in Liquids<br>10. Convection in Gases<br>11. Infra-Red (Heat) Radiation<br>12. Stopping Heat Transfer |
| **Knowledge & Skills Development** | - Use ideas about particles to explain the properties of a substance in its three states.<br>- Describe what happens when you heat up solids, liquids, and gases.<br>- Describe what is meant by the term density using the particle model<br>- Describe how to determine the density of objects<br>- Calculate pressure.<br>- Apply ideas of pressure to different situations.<br>- Predict quantitatively the effect of changing area and/or force on pressure.<br>- Describe how liquid pressure changes with depth.<br>- Explain why some things float and some things sink, using force diagrams.<br>- Use the particle model to explain gas pressure.<br>- Describe the factors that affect gas pressure.<br>- Describe how atmospheric pressure changes with height. | - State the difference between energy and temperature.<br>- Explain what is meant by equilibrium<br>- Describe how energy is transferred by particles in conduction<br>- Describe the pattern in conduction shown by results, using numerical data to inform a conclusion.<br>- Describe how energy is transferred by particles in convection in liquids.<br>- Describe how energy is transferred by particles in convection in gases.<br>- Describe some sources of infrared radiation.<br>- Explain how energy is transferred by radiation.<br>- Describe how an insulator can reduce energy transfer.<br>- Apply knowledge of conduction, convection and radiation to explain how a vacuum flask works. | |
| **Assessment / Feedback Opportunities** | **Formative Assessment**<br>Teacher questioning<br>Quizzes<br>Mid topic assessment | **Summative assessment**<br>End of topic assessment | |
| **Key Vocabulary** | Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly<br><br>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 | | |
| **Literacy/Reading Opportunities** | Dedicated reading lesson<br>Subject specific vocabulary introduced before reading of related texts<br>Word etymology from Latin and Greek roots<br>Reading of simple and complex sentences, paragraphs, articles<br>Scientific writing including structuring methods, comparisons and evaluations | | |

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| **Cross Curricular Themes** | Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators, significant figures |
| **Personal Development (Including British Values, RSE, Citizenship)** | None |
| **Career Opportunities** | Dedicated careers lesson at start of topic<br>Heating Engineer, Thermal Insulator |