



Science Department Curriculum and Assessment Map

	Half Term 1	Half-Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Year 8	Matter and Density		Waves		Pressure	
Fundamental Knowledge	<ol style="list-style-type: none"> 1. Draw the particle model of solid, liquid and gas. Describe the particle arrangement of solid, liquid and gas. 2. Identify mistakes in exemplars of diagrams and descriptions of solid, liquids and gas. 3. Describe how the arrangement of particles changes during the state change. 4. Name the changes of state. 5. Explain why the arrangement of particles changes during changes of state. 6. Investigate the changes of state for water. Draw a graph to identify the melting point of water. Identify and control risks. 7. Describe the motion of particles in cold and hot substances. 8. Describe how temperature is a measure of the thermal energy of a substance. 9. Compare the particle arrangement and motion during state and temperature change. 10. Identify an observable change as physical or chemical. 11. Describe the differences between a physical and chemical change. 12. Investigate the conservation of mass. Evaluate and control risks. 13. Provide evidence to justify a theory. 		<ol style="list-style-type: none"> 1. Name features of a wave. Define the features of a wave. 2. Define longitudinal and transverse waves. 3. Identify longitudinal and transverse waves. 4. Comparison of frequency and amplitude in sound and light. 5. Identify how wave features change on a trace. 6. Investigate the law of reflection. Measure angles. 7. Define specular and diffuse reflection. 8. Apply law of reflection to build a periscope. Draw technical diagrams of reflection. 9. State name of reflected sound wave. Calculate and describe distance using speed of sound. 10. Name primary and secondary colours. 11. State colour combinations to make secondary colours. 12. Explain how colour filters can be used to absorb light. 13. Explain using a model the refraction of light. 14. Predict path of light between medium. Define "medium". 15. Describe how sound waves travel through a medium. 		<ol style="list-style-type: none"> 1. Define pressure. 2. Predict changes in pressure when F/A are varied. 3. Investigate pressure of different shoes. 4. Select appropriate footwear (PEEL). 5. Describe how pressure changes with depth. 6. Explain why pressure changes with depth. 7. Apply pressure in liquids to dams and water butts. 8. Investigate upthrust by building boats. 9. Describe how gas exerts pressure. 10. Explain how pressure changes with different variables. 11. Explain why atmospheric pressure varies with altitude. 	

	<p>14. Define density.</p> <p>15. Carry out calculations using the density equation. Predict how density varies with factors.</p> <p>16. Create a density column.</p> <p>17. Draw a scientific diagram of the density column. Explain the observations of the density column. Explain why ice is an anomaly.</p> <p>18. Describe Brownian motion in liquids and gases. Define diffusion referring to concentration.</p> <p>19. Explain why perfume spreads from the front to the back of the classroom.</p>	<p>16. Explain why sound can't travel through a vacuum.</p> <p>17. Link with Energy to explain sound dissipation.</p> <p>18. Label the parts of the ear.</p> <p>19. Describe the vibrational nature of sound.</p> <p>20. Describe how ears detect sound.</p> <p>21. Describe how vibrations are used in a microphone and loudspeaker. Compare microphone to ear.</p> <p>22. Define ultrasound.</p> <p>23. Describe how echolocation can be used in nature and by humans.</p> <p>24. Design a method to measure a quantity in the equation $s=d/t$.</p> <p>25. Describe what is meant by superposition. Give examples where superposition is useful and harmful.</p> <p>26. Describe the function of each part of the eye.</p> <p>27. Draw how a lens refracts light onto the retina. Explain how absorption causes us to see colours.</p> <p>28. Describe how a pinhole camera works.</p> <p>29. Label the features of a film camera. Compare the features of the eye and camera.</p>	
Learning Checkpoint Tasks	<ul style="list-style-type: none"> • Properties of solids, liquids and gases • Changes of states • Density 	<ul style="list-style-type: none"> • Properties of waves • Reflection • Refraction 	<ul style="list-style-type: none"> • Pressure calculations • Gas pressure and temperature • Factors affecting pressure
Common Assessment Task	Year 8: Common Assessment 1	Year 8: Common Assessment 2	
Mock Exam (if applicable)	N/A	N/A	N/A

Interleaved Knowledge	Key knowledge acquired previously: <ul style="list-style-type: none">• compare and group materials together, according to whether they are solids, liquids or gases.• observe that some materials change state when they are heated or cooled.• identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Key knowledge acquired previously: <ul style="list-style-type: none">• Recall the different energy stores and transfer pathways.• Recall that temperature is a measure of how hot or cold something is and be able to use thermometers to measure temperature.• Describe some materials as thermal conductors and some as thermal insulators have seen materials burning and understand that burning is an irreversible change.	Key knowledge acquired previously: <ul style="list-style-type: none">• Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.
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