



Year 8 Physics Learning Journey

Matter and Density

Autumn Term

Core knowledge
1. Recall the 3 states of matter.
2. Draw the particle diagram for the 3 states of matter.
3. Describe the arrangement, movement, and energy content of the particles in the three states of matter.
4. Recognise state changes.
5. Explain changes of states.
6. Plot graphs showing cooling and/or heating.
7. Describe the effect of gas pressure on a balloon.
8. Define density.
9. Calculate the density of a regular object.
10. Calculate the density of an irregular object.
11. Compare the densities of solids, liquids and gases.

Learning Checkpoints

Learning Checkpoint Title	Attempt 1		Attempt 2 / Extend	
	Mark	RAG	Mark	RAG

Key Vocabulary

Tier 2 – draw, recognise, describe, calculate, compare

Tier 3 – particles, bonds, forces, melting, condensing, sublimation, mass, volume, density



Year 8 Physics Learning Journey

Waves

Spring Term

Core knowledge
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.
16. Explain why sound can't travel through a vacuum.
17. Link with Energy to explain sound dissipation.
18. Label the parts of the ear.
19. Describe the vibrational nature of sound.
20. Describe how ears detect sound.

21. Describe how vibrations are used in a microphone and loudspeaker.
22. Define ultrasound.
23. Describe how echolocation can be used in nature and by humans.
24. Design a method to measure a quantity in the equation $s=d/t$.
25. Describe what is meant by superposition. Give examples where superposition is useful and harmful.
26. Describe the function of each part of the eye.
27. Draw how a lens refracts light onto the retina. Explain how absorption causes us to see colours.
28. Describe how a pinhole camera works.
29. Label the features of a film camera. Compare the features of the eye and camera.

Learning Checkpoints

Learning Checkpoint Title	Attempt 1		Attempt 2 / Extend	
	Mark	RAG	Mark	RAG

Key Vocabulary

Tier 2 – State, Describe, Label, draw, recognise, compare

Tier 3 – crest, trough, transverse, longitudinal, normal, refract, vibration, ultrasound, retina, lens



Year 8 Physics Learning Journey

Pressure

Summer Term

Core knowledge
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.

Learning Checkpoints

Learning Checkpoint Title	Attempt 1		Attempt 2 / Extend	
	Mark	RAG	Mark	RAG

Key Vocabulary

Tier 2 – draw, recognise, describe, calculate, compare

Tier 3 – particles, forces, collisions, area, altitude, upthrust, frequent