



Unit: Motion	<ol style="list-style-type: none"> 1. Distance and displacement 2. Speed and Velocity 	<ol style="list-style-type: none"> 5. Velocity-time graphs 6. Terminal velocity 	<ol style="list-style-type: none"> 9. Stopping Distance 10. Momentum
LESSONS	<ol style="list-style-type: none"> 3. Distance-time graphs 4. Acceleration 	<ol style="list-style-type: none"> 7. Newton’s Laws 8. Acceleration (Required practical) 	<ol style="list-style-type: none"> 11. Changing momentum
Knowledge & Skills Development	<ul style="list-style-type: none"> • Explain the vector–scalar distinction as it applies to displacement, distance, velocity and speed • Recall typical values of speed for a person walking, running and cycling as well as the typical values of speed for different types of transportation systems • Recall, use and rearrange the equation for speed • Be able to draw distance–time graphs from measurements and extract and interpret lines and slopes of distance–time graphs, translating information between graphical and numerical form • Draw velocity–time graphs from measurements and interpret lines and slopes to determine acceleration • Interpret enclosed areas in velocity–time graphs to determine distance travelled (or displacement) • Draw and interpret velocity–time graphs for objects that reach terminal velocity • Interpret the changing motion as objects reach terminal velocity in terms of the forces acting • Apply Newton’s First Law to explain the motion of objects moving with a uniform velocity and objects where the speed and/or direction changes • Recall, use and rearrange the equation of Newton’s 2nd law • Apply Newton’s Third Law to examples of equilibrium situations 		
Assessment / Feedback Opportunities	Formative Assessment Teacher questioning Quizzes Exam style questions		Summative assessment End of topic assessment Exam questions in future end of topic assessments to assess recall

Key Vocabulary	<p>Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly, Describe, Explain, Compare, Analyse, Calculate, Suggest</p> <p>Vector, Scalar, Speed, Velocity, Distance, Displacement, Acceleration, Gradient, Momentum, Reaction, Inertia, Crumple Zone, Thinking Distance, Braking Distance, Stopping Distance, Collision, System, Conservation, Terminal Velocity, Resultant</p>
Literacy/Reading Opportunities	<p>Subject specific vocabulary introduced before reading of related texts</p> <p>Word etymology from Latin and Greek roots</p> <p>Reading of simple and complex sentences, paragraphs, articles</p> <p>Scientific writing including structuring methods, comparisons and evaluations</p>
Cross Curricular Themes	<p>Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators</p>
Personal Development (Including British Values, RSE, Citizenship)	<p>None</p>
Career Opportunities	<p>Car designers, Sports scientists, Aerospace Engineers, Engineering, Crash Investigators</p>