Curriculum Overview: *AS Physics*

Year 12 Spring Term 1			
What are we learning?	What knowledge, understanding and skills will we gain?	What does excellence look like?	What additional resources are available?
3.4.1.3 Motion along a straight line **3.4.1.4 Projectile motion** **3.4.1.5 Newton's laws of motion**	• Define displacement, speed, velocity and acceleration. • Distinguish between velocity and speed. • Calculate velocities and accelerations. • Calculate both instantaneous and average velocities. • Draw graphs to represent motion. • Recognise the significance of the areas of velocity – time and acceleration – time graphs. • Recognise the significance of the gradients of displacement – time and velocity – time graphs. • Recall the equations of uniform acceleration and can apply them in calculations.	• Practise calculations using the definitions of displacement, speed, velocity and acceleration. • Use light gates to obtain data from a trolley rolling down a slope or a glider on an air track to generate displacement time and velocity time graphs. • Practise plotting and analysing motion graphs. • Highlight the link between displacement time, velocity time and acceleration time graphs. • Practise calculations using the equations of uniform acceleration. • Practical to determine *g* using a free fall method. • Demonstration of knowledge and understanding	https://www.aqa.org.uk/subjects/science/as-and-a-level https:www.physicsandmathstutor.com http://www.senecalearning.com login http://www.npl.co.uk/educate-explore/

	Involving motion in straight lines	displacement, speed, velocity and acceleration.	
Year 12 Spring Term 2			
What are we learning?	What knowledge, understanding and skills will we gain?	What does excellence look like?	What additional resources are available?
3.4.1.6 Momentum **3.4.1.7 Work, energy and power** **3.4.1.8 Conservation of energy**	• Define momentum and recall the unit for momentum. • Discuss the conservation of linear momentum and apply it in calculations involving collisions in one dimension. • Relate force to rate of change of momentum. • Define impulse. • Deduce the effect on impact forces of contact times. • Distinguish between elastic and inelastic collisions. • Apply momentum conservation to explosions.	• Investigate momentum using colliding trollies or gliders on an air track. • Link rate of change of momentum to Newton's second law and demonstrate how this leads to *F=ma* • Give examples of impulse and link this to the relationship between impact forces and contact time. • Demonstration of knowledge and understanding of momentum. • Apply knowledge and understanding of the conservation of momentum in the analysis of collisions. • Evaluate results from conservation of momentum experiments and draw conclusions.	https://www.aqa.org.uk/subjects/science/as-and-a-level https:www.physicsandmathstutor.com http://www.senecalearning.com login http://www.npl.co.uk/educate-explore/

		• Process and analyse data from conservation of momentum experiments..	