

Year Group: 12		Subject: Physics	Term: autumn 2021
Topic	Key Learning points	Assessment	
Topic 1 working as Physicist and 2 mechanics	<i>End Point: To understand the concepts involved in year 12 content and knowledge for paper 1 exam.</i> - understand the distinction between base and derived quantities understand the idea of a fixed system of units, and explain the SI system estimate values for physical quantities use your estimates to solve problems - explain the distinction between scalar and vector quantities distinguish between ‘speed’ and ‘velocity’ and define ‘acceleration’ calculate values using equations for velocity and acceleration. - interpret displacement–time graphs, velocity–time graphs and acceleration–time graphs make calculations from these graphs add two perpendicular vectors by calculation. - calculate the moment of a force apply the principle of moments and find the centre of gravity of an object. - recall Newton’s laws of motion and use them to explain the acceleration of objects make calculations using Newton’s second law of motion - calculate unknown variables using the kinematics equations. - Calculate the values of the component vectors in any such right-angled pair (resolution). - Combine horizontal and vertical motion to calculate the movements of projectiles. - Calculate exchanges between gravitational potential and kinetic energies, based on energy conservation. - Calculate resultant force from rate of change of momentum.	Students will be formatively assessed during each topic by past paper questions completed in lesson time. Also practice mocks based on content covered - Students will complete homework assignments as ongoing assessment of understanding. - Teachers will provide students with targeted feedback, based on their test performance.	
Topic 3 Electric circuits	<i>End Point: To understand the mechanisms that are involved electric circuits and their components</i> - describe electric current as the rate of flow of charged particles - define electromotive force and potential difference - state Ohm’s law calculate resistances - define resistivity explain how to measure resistivity experimentally - explain conduction in metals and explain electrical resistance - explain conduction in semiconductors in terms of conduction and valence bands - calculate currents, voltages and resistances in series and parallel circuits - derive the equations for combining resistances in series and parallel. - understand how the distribution of current in a circuit is a consequence of charge conservation - explain uses for potential divider circuits. - make calculations of internal resistance. - Explain electric power in circuits	At the end of the term students will have a summative assessment. This will be a 90-mark exam paper which will be marked by their teacher.	