Curriculum Content Map			Subject: Year 11 Combined Physics										
			Term 1				Term 2				Term 3		
Month			September	October	November	December	January	February	March	April	May	June	July
Cultural Transmission	Units of Work		*Chapter 9 - Motion* *Chapter 10 - Force and motion*	*Chapter 10 - Force and motion* *Chapter 11 - Wave properties*	Chapter 12 - Electromagnetic waves	Chapter 13 - Electromagnetism Revision for and analysis of AP1	*Revision Biology* *Revision Chemistry* *Revision Physics*	Revision Biology Revision Chemistry Revision Physics	Revision Biology Revision Chemistry Revision Physics	Revision Biology Revision Chemistry Revision Physics	*Revision Biology* *Revision Chemistry* *Revision Physics*	*Revision Biology* *Revision Chemistry* *Revision Physics*	Revision Biology Revision Chemistry Revision Physics
	National Curriculum area – KS4		Forces and motion • speed of sound, estimating speeds and accelerations in everyday contexts • interpreting quantitatively graphs of distance, time, and speed	Forces and motion • speed of sound, estimating speeds and accelerations in everyday contexts • interpreting quantitatively graphs of distance, time, and speed • acceleration caused by forces; Newton's First Law • weight and gravitational field strength • decelerations and braking distances involved on roads, safety. Wave motion • amplitude, wavelength, frequency, relating velocity to frequency and wavelength • transverse and longitudinal waves • velocities differing between media: absorption, reflection, refraction effects	•amplitude, wavelength, frequency, relating velocity to frequency and wavelength • transverse and longitudinal waves • electromagnetic waves, velocity in vacuum; waves transferring energy; wavelengths and frequencies from radio to gamma-rays •uses in the radio, microwave, infra-red, visible, ultra-violet, X-ray and gammaray regions. •hazardous effects on bodily tissues.	• forces and fields: electrostatic, magnetic, gravity Magnetism and electromagnetism • exploring the magnetic fields of permanent and induced magnets, and the Earth's magnetic field, using a compass • magnetic effects of currents, how solenoids enhance the effect	Teachers will plan individual lessons dependent on the strengths and weaknesses of individual groups	Teachers will plan individual lessons dependent on the strengths and weaknesses of individual groups	Teachers will plan individual lessons dependent on the strengths and weaknesses of individual groups	Teachers will plan individual lessons dependent on the strengths and weaknesses of individual groups			
	Substantive Knowledge	*The What!*	• The difference between scalars and vectors followed resultant forces and their connection to acceleration • interpreting velocity time graphs and the use of y=mx+c • how to calculate acceleration from a velocity time graph HT: • What the area under a velocity time graph shows • Calculating speed and distance from a velocity time graph	• The difference between scalars and vectors followed resultant forces and their connection to acceleration • Newton's three laws of motion, inertia mass and equations of motion undergoing uniform acceleration and conservation of momentum • The concept of momentum and detailed conservation of momentum - calculations • Plastic deformation of materials, using experimentation to take accurate and precise measurements. Wave properties: Transverse and longitudinal waves Amplitude, wavespeed, frequency reflection and refraction	• Different parts of the electromagnetic spectrum and their uses • How to calculate frequency of electromagnetic waves • The nature of white light • Mobile phone radiation • Hazards of electromagnetic radiation • Communication • Ionising radiation • HT the use of optical fibres	•The force rule for two magnetic poles near each other • The pattern of magnetic field lines around a bar magnet •what induced magnetism is •Why steel not iron is used to make permanet magnets • the pattern of a magnetic field around a wire carrying a current and in and around a solenoid • how the strength and direction of the field varies with position and with the current • what a unifom magnetic field is •what an electromagnet is •How a simple motor works and what is meant by magnetic flux density, including how to calculate the force on a current carrying wire Following AP1 in December 2023, teachers of science used the question by question analysis to identify gaps and misconceptions in students knowledge. Normal lessons were paused and students had gap filling lessons on electricity and energy resources. Each student was then given a learning booklet and time was given for students to revisit those topics that they needed in order to fill these gaps, which they personalised using the question by question analysis for their AP1							
	Disciplinary knowledge	*The How!*	students will analyse a variety of velocity time graphs and use data collected from the graphs in calculations, including examples where speed is changing. Students have analysed the motion of objects in depth starting from a recap of the concept of speed and this relationship to distance travelled and time taken. The representation of motion using distance-time graphs representing single and multiple objects has been analysed to give detailed descriptions of the movement of the objects. The students have defined acceleration in terms of changes in velocity before analysing it graphically and mathematically.	Students have analysed the motion of objects in depth starting from a recap of the concept of speed and this relationship to distance travelled and time taken. The representation of motion using distance-time graphs representing single and multiple objects has been analysed to give detailed descriptions of the movement of the objects. The students have defined acceleration in terms of changes in velocity before analysing it graphically and mathematically. Higher tier students have also outlined circular motion in terms of constant acceleration but with constant speed. All students have then investigated acceleration caused by an unbalanced force on ramp, linking acceleration to the gradient of a line on a velocity-time graph. Students will carry out a required practical relating to the extension of a spring Wave properties:	Students will describe waves and their properties including wavelength, amplitude, vavespeed and frequency. Students will manipulate the wave equation to calculate all values. Students have studied wave properties before and will build on knowledge from KS3 to include practical uses of the parts of the electromagnetic spectrum and understand the dangers of some of these waves linked to their individual properties.	Students will investigate magnetic fields around bar magnets and current carrieng wires, plotting these fields where appropriate. They will use the force equation to calculate magnetic flux density. They will be able to demonstrate Flemming's left hand rule	Students will complete a range of activities such as long answer examination questions, multuiple choice questions and short answer questions	Students will complete a range of activities such as long answer examination questions, multuiple choice questions and short answer questions	Students will complete a range of activities such as long answer examination questions, multuiple choice questions and short answer questions	Students will complete a range of activities such as long answer examination questions, multuiple choice questions and short answer questions			
	Sequencing (Flow)	*Retrieval & Extension*	KS3: 1.1 Speed 1.2 Gravity 1.3 Contact forces 3.4 Energy transfer 1.1 speed 1.2 gravity 1.3 gravity forces	KS3: 1.1 Speed 1.2 Gravity 1.3 Contact forces 3.4 Energy transfer 1.1 speed 1.2 gravity 1.3 gravity forces 4.1 Sound 4.2 Light Biology Y11 chapter 10 Reaction time	KS3: 3.4 Energy transfer 4.3 Wave Effect 4.4 Wave Properties	KS3: 3.4 Energy transfer 4.3 Wave Effect 4.4 Wave Properties	2.1 potential difference and resistance 2.2 current 2.1 Potential difference and resistance 2.2 current 2.4 Electromagnets						
	Summative Assessment						AP2- Paper 1		Mock examinations (papers 1 and 2)	GCSE Papers	GCSE Papers	GCSE Papers	GCSE Papers
Personal Empowerment	Virtue	*The opportunity to reflect, think deeply and critically about an issue:*	Friendliness and Civility	Justice & Truthfulness	Courage	Generosity	Gratitude	Good Speech	Good Temper & Humour	Self-Mastery	Self-Mastery	Compassion	Good Sense
	Link to Virtue		Students will need to demonstrate friendliness and civility as they work in groups to complete a variety of different practical. They will need to demonstrate civility as they work towards a method to ensure they are civil with each other to achieve a common goal.	Students will demonstrate truthfulness within their work as they reflect on their finding within an investigation. Students will look at the justice on each results and determine if they are reaching their full potential.	Within the lessons, students will need to have the courage to answer the questions with their learning. Students will need to demonstrate their understanding of the courage by applying their learning to their exams and independent practice within lessons.	Students will need to demonstrate generosity of as they work with groups and demonstrate their understanding of their learning. They will need to be generous with their time and comments towards each other	Student will demonstrate good speech within their lessons by demonstrating their key words within lessons and their work	As students work within group they will need to demonstrate, good temper as they work towards a practical to achieve the independent practice. Students will need to demonstrate good humour as they can work together and laugh as each other learn	Students will need to aim high for their up and coming exams. Students will need to revise in their own time and ensure they are fully prepared for their GCSES	Students will need to aim high for their up and coming exams. Students will need to revise in their own time and ensure they are fully prepared for their GCSES	Students will need to aim high for their up and coming exams. Students will need to revise in their own time and ensure they are fully prepared for their GCSES	Students will need to aim high for their up and coming exams. Students will need to revise in their own time and ensure they are fully prepared for their GCSES	Students will need to aim high for their up and coming exams. Students will need to revise in their own time and ensure they are fully prepared for their GCSES
Preparation for Work	Skill	*Transferable skills*	Listening	Leadership	Problem-Solving	Creativity	Staying Positive	Speaking	Staying Positive	Aiming High	Aiming High	Speaking	Teamwork
	Link to Skill		Students will need to listen to each other and be able to explain another students' opinion. Students will also need to be listen to the teacher to pull out consistency underlying themes or use of previous skills.	Students will lead their learning to ensure they are secure in building on previous knowledge.	Students will need to use their problem-solving skills to be able to draw conclusions from data.	Students will need to be creative when using their notes to revise for the mock examinations and use active learning techniques.	Students will need to stay positive as they learn new key words and definitions. Building on their previous knowledge	Students will need to demonstrate good speaking when working with others and demonstrate what knowledge they understand and what they need help with in prepare.					
Preparation for Citizenship	SMSC & British Values												
	Link to SMSC & British Values	*Developing opinions on current issues*											