

Curriculum Map KS5 Physics

Autumn Term Year 12	Ch6 – Materials – M3 Teacher 1	Ch8 – Charge & Current – M4 Teacher 2	Ch2 – Vectors – M2 and Ch3 – Motion – M3 Teacher 1	Ch9 – Energy, Power & Resistance – M4 Teacher 2
Content- WHAT will be learned? What previous learning can be linked? Why this order/sequence?	A good introductory unit as it covers a range of skills, which we will build on later in the course. <ul style="list-style-type: none"> • Material properties • Stiffness • Young’s Modulus • Unit conversion and prefixes (from M2) 	A good introductory unit as it builds on work on electricity covered at GCSE, so more gradually increases demand on students. <ul style="list-style-type: none"> • Current and charge • Moving charges • Kirchoff’s first law • Drift velocity 	Vectors is a key skill that is used frequently throughout A level physics – teaching it early on allows us to demonstrate how they can be used in different scenarios. This leads nicely in to the motion chapter, where vectors feature a lot. <ul style="list-style-type: none"> • Vectors • Speed, distance, time, velocity, graphs • SUVAT equations • Car stopping distances • Free fall, g and projectile motion 	Builds on nicely from knowledge gained on electricity in chapter 8. <ul style="list-style-type: none"> • PD and EMF • Electron gun • Resistance • Resistance and resistivity • I-V characteristics • Diodes, thermistors and LDR’s • Electrical energy & power
Skills- What will be developed?	Introduce calculating errors and uncertainties and how to carry out practical’s for the practical endorsement qualification. Practise at writing a detailed method.	Developing skills around drawing circuits and using/rearranging equations.	A range of skills around calculations and correctly displaying work out. Working to develop a range of maths skills.	Developing skills around drawing circuits and using/rearranging equations. Working to develop a range of maths skills.
Key ‘How’/‘Why’ Questions- What powerful knowledge will be gained? What areas/themes/concepts will be explored?	How do the properties of a material link to its uses and how you observe it behave?	What flows in an electrical circuit? What is a current?	How can we analyse an objects motion?	What is potential difference? Why do some materials resist a current? How are current and potential difference related to energy?
SEND- how will support be seen? Seating plans? Simplified questions?	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.
Assessment- What? Why? Progress checks are formative and assessments are summative	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	A mock will be completed at the start of spring term, based on all content covered so far (knowledge and skills). End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.
What memory for learning skills will be required- modelling? Concrete answers? Retrieval?	Modelling is used throughout topic, particularly when introducing the calculations around uncertainties and making sure working out is displayed clearly. Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.
Literacy- reading, extended accurate writing and oracy opportunities	Extended writing opportunity in terms of writing a method for practical.		Extended writing opportunity in terms of writing a method for practical.	
Numeracy/computing skills	Using equations, rearranging equations, unit conversions, standard form, significant figures, percentage uncertainties	Using equations, rearranging equations, unit conversions, standard form, significant figures, percentage uncertainties	Using equations, rearranging equations, unit conversions, standard form, significant figures, percentage uncertainties, trigonometry, splitting resultant speeds into horizontal and vertical components, vectors	Using equations, rearranging equations, unit conversions, standard form, significant figures, percentage uncertainties
Character development				
Equality/Diversity opportunities				
Homework/Independent learning	Homework is set to reinforce work done in lessons, and practise skills already learnt. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Students have access to UpLearn for independent learning.
CIAG coverage/links	Links with engineering in terms of materials properties		Link with calculations regarding air craft and boats - talk about why this might be needed in certain industries.	

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Spring Term Year 12	Ch4 – Forces in Action – M3 Teacher 1	Ch10 – Electrical Circuits – M4 Teacher 2	Ch5 & 7 – Work, Energy & Power & Laws of Motion– M3 Teacher 1	Ch11 – Waves 1 – M4 Teacher 2	Ch12 – Waves 2 – M4 Teacher 2
Content- WHAT will be learned? What previous learning can be linked? Why this order/ sequence ?	Follows on well from work on motion and vectors. More opportunities to apply knowledge of vectors. <ul style="list-style-type: none"> Force, mass and weight Terminal velocity Moments Density & pressure 	Builds on nicely from knowledge gained on electricity in chapter 8 and 9. <ul style="list-style-type: none"> Kirchoff's laws Combining resistors Internal resistance Potential dividers Sensing circuits 	<ul style="list-style-type: none"> Work done & energy Conservation of energy KE and GPE Power & efficiency Newton's Laws Momentum Impulse Collisions in 2 dimensions 	<ul style="list-style-type: none"> Wave properties Reflection and refraction Diffraction and polarisation EM waves Refractive index Total internal reflection 	Builds on knowledge gained in chapter 11. <ul style="list-style-type: none"> Superposition of waves Path difference and interference Stationary waves Harmonics Young's slits and diffraction gratings
Skills- What will be developed?	A range of skills around calculations and correctly displaying work out. Working to develop a range of maths skills. Building on knowledge of vectors.	Developing skills around drawing circuits and using/rearranging equations. Working to develop a range of maths skills and apply them to circuits.	A range of skills around calculations and correctly displaying work out. Working to develop a range of maths skills. Building on knowledge of vectors.	Being able to define and explain a range of wave properties. Maths skills used to rearrange and use equations.	Applying knowledge of phase difference to waves in a range of different scenarios. Use and rearrange equations. Apply trigonometry to a range of scenarios. Develop practical skills for a range of activities.
Key 'How'/'Why' Questions- What powerful knowledge will be gained? What areas/themes/concepts will be explored?	What affect do forces have on the world around us?	How can we apply our knowledge of electrical concepts to predict real circuits properties?	How does energy affect the outcome of an interaction? What do Newton's Laws mean? How do we observe them in everyday life?	What makes a wave special?	How do waves interact with each other?
SEND- how will support be seen? Seating plans? Simplified questions?	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.
Assessment- What? Why? Progress checks are formative and assessments are summative	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.
What memory for learning skills will be required- modelling? Concrete answers? Retrieval?	Detailed feedback and model answers for the mock – this will then inform homework for the term. Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.
Literacy- reading, extended accurate writing and oracy opportunities				Important key terminology introduced – importance of getting wording exact emphasised	
Numeracy/computing skills	Using equations, rearranging equations, unit conversions, standard form, significant figures, percentage uncertainties, trigonometry, splitting resultant speeds into horizontal and vertical components, vectors		Using equations, rearranging equations, unit conversions, standard form, significant figures, vectors, trigonometry, splitting resultant speeds into horizontal and vertical		
Character development	Lots of opportunity to apply problem solving skills to a range of scenarios in this unit				

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Equality/Diversity opportunities					
Homework/Independent learning	Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.
CIAG coverage/links	Terminal velocity links to engineering in terms of designing cars, air craft, etc. Look at how terminal velocity is used within a range of industries		Work on motion and momentum links with vehicle safety and design.		

Curriculum Map KS5 Physics

Summer Term Year 12	Revision & Practise AS Papers Teacher 1	Ch13 – Quantum Physics – M4 Teacher 2	Ch20 – Cosmology – M5 Teacher 1	Ch19 – Stars – M5 Teacher 2
Content- WHAT will be learned? What previous learning can be linked? Why this order/ sequence ?	Once all of the AS content is covered, we pause for revision before mocks. This is also an opportunity to develop students exam technique and ability to apply their knowledge. As part of this, we do a full set of AS papers with them in class, and then go through and staff model how to answer them. We then set AS papers for homework to reinforce the development of these skills .	Builds on knowledge gained in chapter 11 and 12, as waves knowledge is essential for understanding quantum. <ul style="list-style-type: none"> • Photons and energy • Photoelectric effect • Wave-particle duality 	Fits well with doing 19 at the same time. A nice introductory unit to the A2 content. <ul style="list-style-type: none"> • Astronomical distances • The doppler effect • Hubble’s law • Big Bang theory • Evolution of the Universe 	Fits well with doing 20 at the same time. A nice introductory unit to the A2 content. <ul style="list-style-type: none"> • Objects in the universe • Life cycle of stars • Hertzsprung-Russell diagram • Energy levels in atoms • Spectra and analysing starlight • Stellar luminosity
Skills- What will be developed?	Exam technique and applying knowledge to a range of scenarios. Revises all skills learnt so far this year.	Developing analytical skills around wave and particle behaviour – are there exceptions to the rules?	Developing understanding of the scale of the Universe – maths skills associated with different units for distance. A range of skills around calculations and correctly displaying work out. Working to develop a range of maths skills.	A range of skills around calculations and correctly displaying work out. Working to develop a range of maths skills.
Key ‘How’/‘Why’ Questions- What powerful knowledge will be gained? What areas/themes/concepts will be explored?		Can particles ever behave like waves?	How do we take measurements of space? How has our Universe changed over time?	Why are there so many different types of star? Why do stars produce light, and what can the light tell us about the star?
SEND- how will support be seen? Seating plans? Simplified questions?	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.
Assessment- What? Why? Progress checks are formative and assessments are summative	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	Full set of AS papers used as a mock. End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.
What memory for learning skills will be required- modelling? Concrete answers? Retrieval?	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.
Literacy- reading, extended accurate writing and oracy opportunities	Opportunity for extended writing in long answer questions. Reading in the form of revising methods for practical.		Extended writing opportunity when answering questions about the start of the Universe	
Numeracy/computing skills	All maths skills covered so far will be revised as part of this	Using equations, rearranging equations, unit conversions, standard form, significant figures. Graph work to calculate Planck’s constant.	Lots of opportunities to practise unit conversions. Using equations, rearranging equations, unit conversions, standard form, significant figures	Using equations, rearranging equations, unit conversions, standard form, significant figures
Character development				
Equality/Diversity opportunities				
Homework/Independent learning	Full set of AS papers as a homework, after a set done in class. Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.

Curriculum Map KS5 Physics

CIAG coverage/links			Astronomy, aerospace engineering	Astronomy, aerospace engineering
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Curriculum Map

Autumn Term Year 13	Ch17 – Oscillations – M5 Teacher 1	Ch14 & 15 – Thermal Physics and Ideal Gases – M5 Teacher 2	Ch16 & 18 – Circular Motion & Gravitational Fields – M5 Teacher 1	Ch22 – Electric Fields – M6 Teacher 2	Ch23 – Magnetic Fields – M6 Teacher 1
<p>Content- WHAT will be learned? What previous learning can be linked? Why this order/sequence?</p>	<p>Covering module 5 topics at the start of year 13 allows us to give students a complete paper for a mock later in the year, better preparing them.</p> <ul style="list-style-type: none"> Oscillations and SHM SHM graphs SHM and energy Damping Resonance 	<p>Covering module 5 topics at the start of year 13 allows us to give students a complete paper for a mock later in the year, better preparing them.</p> <ul style="list-style-type: none"> Temperature Solids, liquids & gases Internal energy Specific heat capacity Specific latent heat The kinetic theory of gases Gas laws Root mean square speed The Boltzmann constant 	<p>Good opportunity to revisit ch19 and 20, in the run up to Autumn mocks.</p> <ul style="list-style-type: none"> Angular velocity and the radian Centripetal acceleration Centripetal forces Gravitational force and field Energy and Potential Non-uniform fields Kepler’s Laws and orbits Satellites 	<p>Follows on well from work on gravitational fields, as both types of field follow similar rules.</p> <ul style="list-style-type: none"> Electric fields Coulomb’s law Capacitance Charged particles in uniform electric fields EPE 	<p>Fits well with other work previously covered on fields.</p> <ul style="list-style-type: none"> Magnetic fields Charged particles in magnetic fields Electromagnetic induction Faraday and Lenz’s laws Transformers
<p>Skills- What will be developed?</p>	<p>Analysing graphs and linking displacement, velocity and acceleration. Applying knowledge of resonance to a range of scenarios.</p>	<p>Practical skills developed throughout this unit – lots of opportunity for this. Overlap with skills previously gained in chemistry around moles calculations.</p>	<p>Learning field patterns for gravitational fields and how they change as you get further away from an object. Lots of maths skills around rearranging and deriving equations are developed as part of this chapter.</p>	<p>Similar skills to ch18 with regards fields, but applying them to a different situation with electric fields. Lots of maths skills around rearranging and deriving equations are developed as part of this chapter.</p>	<p>Develops maths skills for using and rearranging equations. Develops vocab skills as using the correct terminology and being precise in your explanation is key for this topic.</p>
<p>Key ‘How’/‘Why’ Questions- What powerful knowledge will be gained? What areas/themes/concepts will be explored?</p>	<p>Why do bridges sometimes oscillate? How can we prevent this?</p>	<p>What is the difference between temperature and energy? How does the energy of a substance affect its particles, and how does this lead to real world properties?</p>	<p>How can we find out information about space when some of it is so far away? How do objects in gravitational fields interact?</p>	<p>What affect does an electric field have on objects interacting with it?</p>	<p>How are magnetism and electricity linked? How does moving a wire through a magnetic field induce a potential difference?</p>
<p>SEND- how will support be seen? Seating plans? Simplified questions?</p>	<p>All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.</p>	<p>All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.</p>	<p>All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.</p>	<p>All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.</p>	<p>All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.</p>
<p>Assessment- What? Why? Progress checks are formative and assessments are summative</p>	<p>End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.</p>	<p>End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.</p>	<p>November Mock on Module 4 from AS and A2 chapters covered so far. End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.</p>	<p>End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.</p>	<p>End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.</p>
<p>What memory for learning skills will be required- modelling? Concrete answers? Retrieval?</p>	<p>Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.</p>	<p>Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.</p>	<p>Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.</p>	<p>Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.</p>	<p>Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.</p>
<p>Literacy- reading, extended accurate writing and oracy opportunities</p>	<p>Extended writing opportunity about the practical.</p>	<p>Extended writing opportunity about the practical.</p>	<p>Extended writing opportunity to answer questions linking the equations together.</p>	<p>Extended writing opportunity to answer questions linking the equations together.</p>	<p>Extended writing opportunity around Faraday and Lenz’s laws.</p>
<p>Numeracy/comp uting skills</p>	<p>Equations involve sine and cosine. Opportunities to rearrange these and other equations. Using equations, rearranging equations, unit conversions, standard form, significant figures.</p>	<p>Using equations, rearranging equations, unit conversions, standard form, significant figures.</p>	<p>Lots of maths skills around rearranging and deriving equations are developed as part of this chapter. A lot of graph work linked to the equations, including gradients and area under the graph.</p>	<p>Lots of maths skills around rearranging and deriving equations are developed as part of this chapter. A lot of graph work linked to the equations, including gradients and area under the graph.</p>	<p>Using equations, rearranging equations, unit conversions, standard form, significant figures.</p>

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Character development			Resilience required for some challenging maths concepts.		
Equality/Diversity opportunities					
Homework/Independent learning	Set of AS papers given in the run up to mocks. Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.	Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.
CIAG coverage/links	Links with engineering – how do we design bridges/buildings to prevent resonance?		Links with astronomy and space research – explains how we can calculate information in space		Links with energy generation and how electricity is actually generated

Curriculum Map KS5 Physics

Spring Term Year 13	Ch24 – Particle Physics – M6 Teacher 1	Ch21 – Capacitance – M6 Teacher 2	Ch26 – Nuclear Physics – M6 Teacher 1	Ch25 – Radioactivity – M6 Teacher 2	Ch27 – Medical Imaging – M6 Teacher 1/2
Content- WHAT will be learned? What previous learning can be linked? Why this order/ sequence ?	Combines work done on electric and magnetic fields together. <ul style="list-style-type: none"> Alpha scattering experiment The nucleus Antiparticles, hadrons and leptons Quarks Beta decay 	<ul style="list-style-type: none"> Capacitors Energy stored by capacitors Charging and discharging capacitors Uses of capacitors 	This chapter ties in or references multiple other chapters, so is better covered towards the end of the course. <ul style="list-style-type: none"> Einstein’s mass energy equation Binding energy Nuclear fission Nuclear fusion 	Follows on well from work on capacitance, as both show exponential decay. <ul style="list-style-type: none"> Radioactivity Nuclear decay equations Half life Radioactive decay calculations Radioactive dating 	This chapter ties in or references multiple other chapters, so is better covered towards the end of the course. <ul style="list-style-type: none"> X-rays CAT scans The gamma camera PET scans Ultrasound Acoustic impedance Doppler imaging
Skills- What will be developed?	Applying knowledge on electric fields to an experiment scenario. Questioning what we know about particles to further our understanding.	Using and rearranging equations, including equations involving exponentials (a new skill for some students), using maths skills to decide if a relationship is exponential		Using and rearranging equations, including equations involving exponentials, using maths skills to decide if a relationship is exponential	Applying knowledge to a range of different scenarios, based on what properties are needed.
Key ‘How’/‘Why’ Questions- What powerful knowledge will be gained? What areas/themes/concepts will be explored?	How do particles interact? What are the fundamental building blocks of everything?	What is a capacitor? How do they charge and discharge?	How do positively charged protons stay in close proximity in the nucleus? Why do elements undergo fission and fusion?	Why are some isotopes radioactive? Can we make any predictions about a radioactive substance?	How can physics be used in medicine?
SEND- how will support be seen? Seating plans? Simplified questions?	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.	All students have a textbook and access to Uplearn, featuring revision videos and quizzes, to help support their learning. Worked examples are used frequently when introducing a topic. Modelling of answers with a visualiser takes place often. Key vocabulary is pointed out in lessons and used frequently, for both content and skills.
Assessment- What? Why? Progress checks are formative and assessments are summative	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	Feb Mock – A2 Paper 1 on Module 3 & 5. End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.	End of topic test, using past exam questions. Exam questions used in lessons/for homework as part of ongoing formative assessment. Questions included on power points to check understanding as we go.
What memory for learning skills will be required- modelling? Concrete answers? Retrieval?	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.	Modelling used throughout, progress checks built into, opportunity for retrieval built in towards the end of the topic.
Literacy- reading, extended accurate writing and oracy opportunities					Extended writing opportunities explaining the physics behind each of these scanners
Numeracy/computing skills	Using equations, rearranging equations, unit conversions, standard form, significant figures,	Using equations, rearranging equations, unit conversions, standard form, significant figures, using exponential equations and logs, graph skills	Using equations, rearranging equations, unit conversions, standard form, significant figures, graph skills	Using equations, rearranging equations, unit conversions, standard form, significant figures, using exponential equations and logs, graph skills	
Character development	Aspiration – looking at the idea that even if we think we know everything about a topic, it is worth continuing to study it – this is how we now know about quarks				
Equality/Diversity opportunities					

Curriculum Map KS5 Physics

<p>Homework/Independent learning</p>	<p>Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.</p>	<p>Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.</p>	<p>Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.</p>	<p>Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.</p>	<p>Homework is set to reinforce work done in lessons, and practise skills already learnt. Retrieval homeworks are set, to reinforce work covered in previous terms, and keep students reviewing knowledge from earlier in the course. Students have access to UpLearn for independent learning.</p>
<p>CIAG coverage/links</p>			<p>Links to careers in nuclear power stations or possible development of nuclear fusion as a means of energy generation</p>		<p>Lots of ties with medical physics and radiography</p>