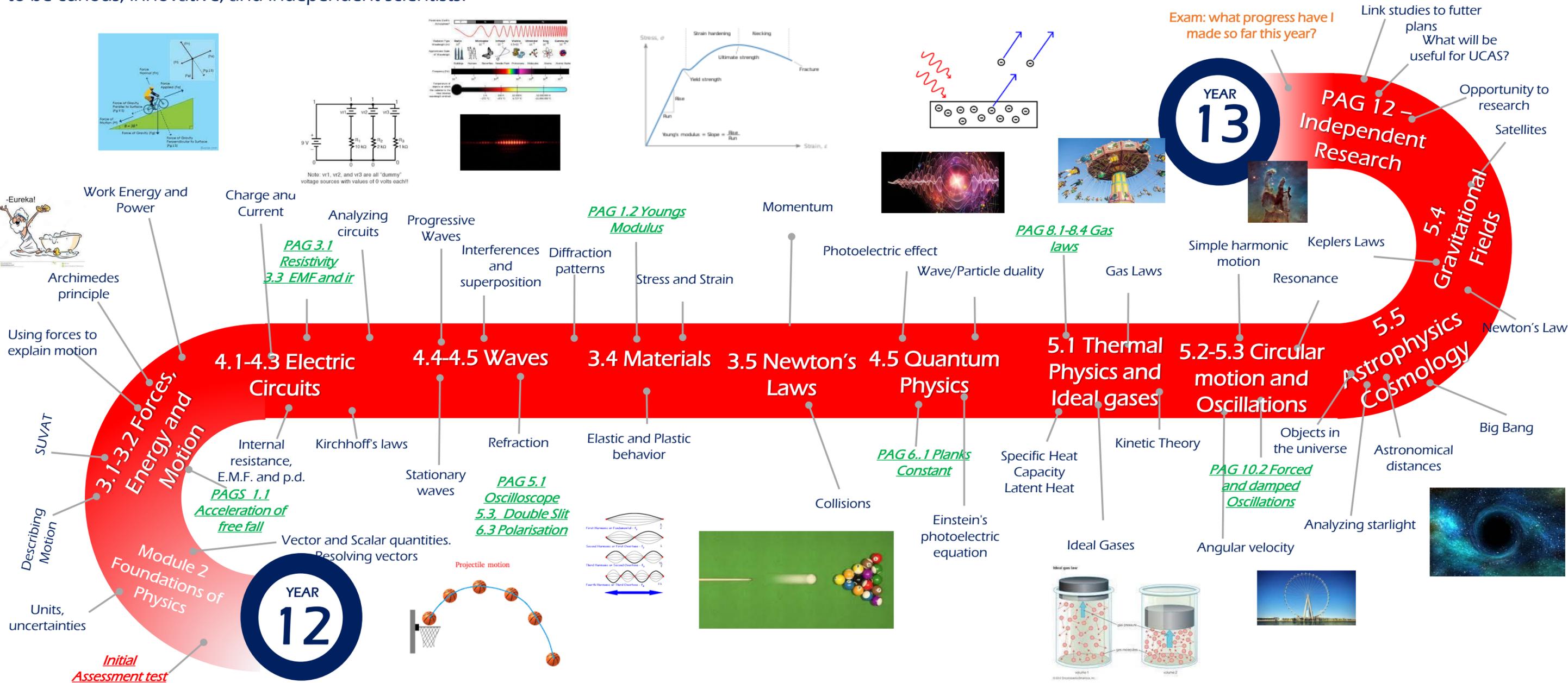


What will you be learning in Year 12 Physics?

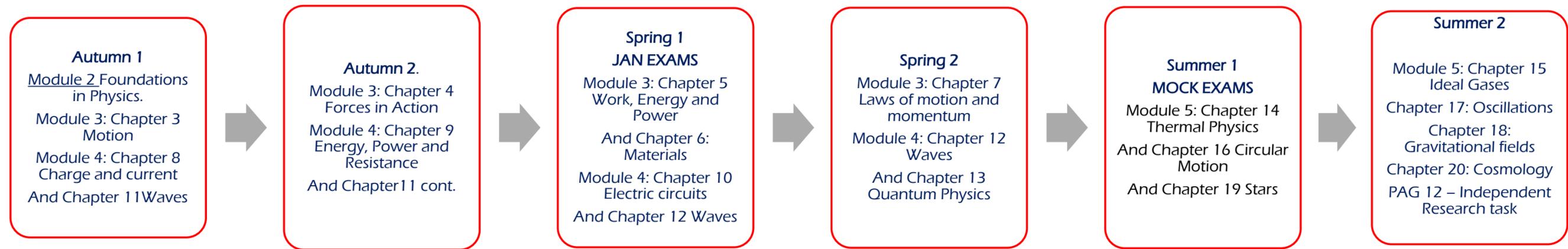


The topics you will study in Year 12 build on your knowledge and understanding of the GCSE content to provide the foundations and principles for further study in science.

This foundation of knowledge, as well as the practical skills learnt, will equip you well. The skills you learn in each topic will prepare you for future career as well as to be curious, innovative, and independent scientists!



Keeping a track of your progress: Your teacher will be assessing your progress informally every lesson. In addition, you will have regular pieces of assessed homework and end of unit tests. You will be expected to keep track of your progress and work with your teachers to plan consolidation and to fill in gaps.



The Big Picture—Intent: The first year of A level study provides students with a broad and balanced overview of the fundamental ideas and concepts in Physics. The course aims to develop a enjoyment of the practice of physics by exploring fundamental concepts and applying them to a range of problem solving scenarios. It explores the worlds of mechanics, electric circuits and waves and particles.

**Year 1 2
Physics**

Content / Units	Skills	Knowledge	Prior— KS4	Next
OCR A Physics H556 Module 1 – Practical skills in Physics Module 2 – Foundations of Physics Module 3 – Forces and Motion Module 4 – Electrons waves and photons	AO1 - Demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures. AO2 Apply knowledge and understanding of scientific ideas, processes, techniques and procedures: • in a theoretical context • in a practical context • when handling qualitative data • when handling quantitative data. AO3 Analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to: • make judgements and reach conclusions • develop and refine practical design and procedures.	Develop knowledge and understanding of: Practical skills (planning, implementing, analysis and evaluation), Module 3: Forces and Motion The aim of Module 3 is to be able to explain the effect of forces on objects in terms of their velocity and shape. Students will become confident to explore the effect of forces numerically. Module 4: Electrons waves and photons The aim of Module 4 is to understand the fundamental principles of electric circuits and explain the behaviours of currents. The module also explores the transfer of energy through waves and the phenomenon of wave particle duality.	Pupils studied: Energy Electric Circuits Particle Model Atomic Structure Forces Electromagnetism Space	Topics coming up: Thermal Physics and Gas Laws, Circular motion and oscillations, fields, nuclear physics, cosmology, medical physics.

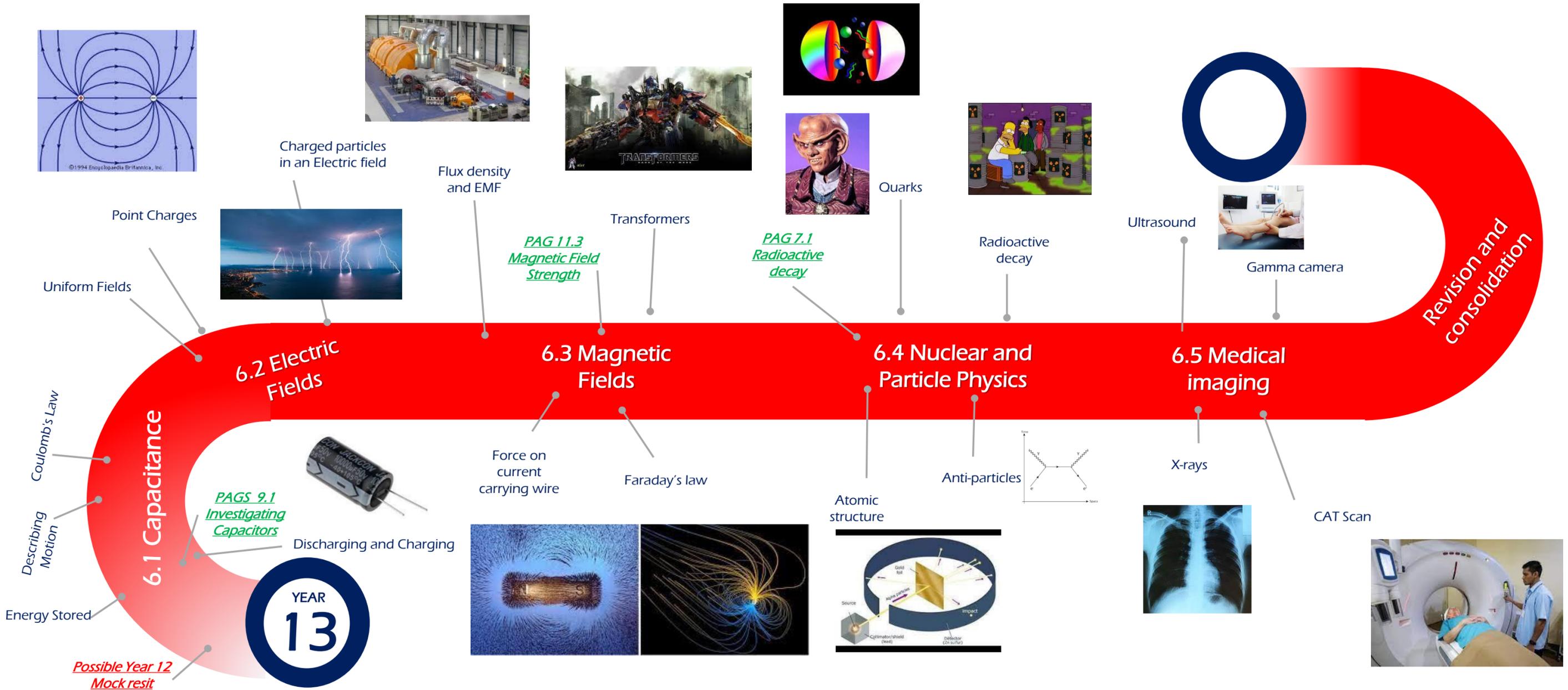
Implementation	Marches Futures Links	Summative Assessment
Five 55 minute lessons per week, split between two teaching staff – one three times, the other, twice. Most tasks are completed independently, but there are opportunities for class discussions, paired discussions and small group practical work. Lessons and homework tasks also build initiative, research skills, retrieval practice, organisation, mathematical and literacy skills. Practical sessions are completed to help consolidate understanding, and to develop new skills and techniques. Many of these are PAG tasks and so count towards the practical endorsement at the end of the full A level course. Past paper questions are used throughout the topics to assess understanding. Mark schemes are also used to help stress the need to use A level specific terminology. A01 and A02 are embedded within the lessons with A03 tasks and discussions are covered as appropriate.	Links to careers and further studies are signposted throughout the course. These include university degrees in Physics, Maths, Engineering, astrophysics. Apprenticeship opportunities in engineering, aviation, mechanics, business. Practical work and PAGs give students opportunities to work collaboratively and develop their LORIC skills. There are explicit links throughout the course for students to evaluate how the subject matter relates to society and enables them to understand contemporary issues as responsible citizens. Independent study enables students to develop research skills and become responsible for closing knowledge gaps.	Each topic has an end of unit test which contains a mixture of multiple choice, short and long answer questions. The tests are made using past paper questions and contain a range of AO1, AO2 and AO3 questions. Three exams: Modelling Physics (100 Marks) Exploring Physics (100 Marks) Unified Physics (85 Marks) AS exams: Breadth in Physics (H156/01) Depth in Physics (H156/02)
Impact: By the end of the Year students will be confident with the fundamental and more complex principles, knowledge and application of this knowledge . They will be able to understand what they need to do in response to all exam style questions and LOR questions; they will be able to revise effectively as they head towards studying Science degrees		

What will you be learning in Year 13 Physics?



The topics you will study in Year 13 build on your knowledge and understanding of the Year 12 content to provide the foundations and principles for further study in science.

This foundation of knowledge, as well as the practical skills learnt, will equip you well. The skills you learn in each topic will prepare you for future career as well as to be curious, innovative, and independent scientists!



Keeping a track of your progress: Your teacher will be assessing your progress informally every lesson. In addition, you will have regular pieces of assessed homework and end of unit tests. You will be expected to keep track of your progress and work with your teachers to plan consolidation and to fill in gaps.



The Big Picture—Intent: The second 60% of the Physics course builds on the foundations of the first year. It provides students with detailed knowledge and understanding of some more challenging concepts and through these explanations students develop a love of physics and refine their questioning skills. It takes a deep dive into the Newtonian World, Astrophysics, Particle and Nuclear Physics and Medical Physics

**Year 13
Physics**

Content / Units	Skills	Knowledge	Prior— Year 12	Next
OCR A Physics H556 Module 5 - Newtonian World and Astrophysics Module 6 - Particles and Medical Physics	AO1 - Demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures. AO2 Apply knowledge and understanding of scientific ideas, processes, techniques and procedures: • in a theoretical context • in a practical context • when handling qualitative data • when handling quantitative data. AO3 Analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to: • make judgements and reach conclusions • develop and refine practical design and procedures.	Develop knowledge and understanding of: Practical skills (planning, implementing, analysis and evaluation), Module 5: The Newtonian World and Astrophysics The aim of Module 5 is to show the impact Newtonian mechanics has on physics. The microscopic Moton of atoms can be modelled using Newton’s laws and hence provide us with an understanding of macroscopic quantities such as pressure and temperature. In this module, learners will learn about thermal physics, circular Moton, oscillations, gravitational field, astrophysics and cosmology. Module 6: Particle and Medical Physics In this module, learners will learn about capacitors, electric fields, electromagnetism, nuclear physics, particle physics and medical imaging.	Pupils studied: Module 1 – Development of practical skills in physics Module 2 – Foundations of physics Module 3 – Forces and motion Module 4 – Electrons, waves and photons	Degree courses Apprenticeships Work

Implementation	Marches Futures Links	Summative Assessment
Five 55 minute lessons per week, split between two teaching staff – one three times, the other, twice. Most tasks are completed independently, but there are opportunities for class discussions, paired discussions and small group practical work. Lessons and homework tasks also build initiative, research skills, retrieval practice, organisation, mathematical and literacy skills. Practical sessions are completed to help consolidate understanding, and to develop new skills and techniques. Many of these are PAG tasks and so count towards the practical endorsement at the end of the full A level course. Past paper questions are used throughout the topics to assess understanding. Mark schemes are also used to help stress the need to use A level specific terminology. A01 and A02 are embedded within the lessons with A03 tasks and discussions are covered as appropriate.	Links to careers and further studies are signposted throughout the course. These include university degrees in Physics, Maths, Engineering, astrophysics. Apprenticeship opportunities in engineering, aviation, mechanics, business. Practical work and PAGs give students opportunities to work collaboratively and develop their LORIC skills. There are explicit links throughout the course for students to evaluate how the subject matter relates to society and enables them to understand contemporary issues as responsible citizens. Independent study enables students to develop research skills and become responsible for closing knowledge gaps.	Each topic has an end of unit test which contains a mixture of multiple choice, short and long answer questions. The tests are made using past paper questions and contain a range of AO1, AO2 and AO3 questions. Three exams: Modelling Physics (100 Marks) Exploring Physics (100 Marks) Unified Physics (85 Marks)

Impact:
By the end of the Year students will be confident to pursue a Physics degree and career. Practical skills and fundamental knowledge of the subject will be secure and they will have developed into complete Physicists.