

2022-2023 Year 12 Curriculum and Assessment Plan for Physics

The curriculum and assessment of pupils at this stage of education has been carefully designed to					
<p>Half Term 1:</p> <p>All pupils will know: The topic of Measurements and their Errors as outlined by the AQA Physics specification 7408 AS and A-level Physics Specification Specifications for first teaching in 2015 (aqa.org.uk)</p> <p>All pupils will be assessed by: By short recall activities, electronic automatically marked homework's and longer answer short tests focussed on the topics. There will also be a longer exam as part of the data gathering for the whole year group twice a year.</p> <p>Impact- Why do we teach this? Content in this section is a continuing study for a student of physics. A working knowledge of the specified fundamental (base) units of measurement is vital. Likewise, practical work in the subject needs to be underpinned by an awareness of the nature of measurement errors and of their numerical treatment. The ability to carry through reasonable estimations is a skill that is required throughout the course and beyond.</p>	<p>Subject specific skills being developed:</p> <ul style="list-style-type: none"> Identifying Errors Link between sig. figs and uncertainty Combining uncertainty Estimation <p>Reading Skills needed for this unit:</p> <p>Key Vocabulary: SI units, uncertainty, Precision, repeatability, reproducibility, resolution and accuracy</p> <p>Opportunity for cross-curricular skill development</p> <ul style="list-style-type: none"> Maths Graph drawing and interpretation 	<p>Half Term 2:</p> <p>All pupils will know: The topic of Mechanics and Materials as outlined by the AQA Physics specification 7408 AS and A-level Physics Specification Specifications for first teaching in 2015 (aqa.org.uk)</p> <p>All pupils will be assessed: By short recall activities, electronic automatically marked homework's and longer answer short tests focussed on the topics. There will also be a longer exam as part of the data gathering for the whole year group twice a year.</p> <p>Impact - Why do we teach this? Vectors and their treatment are introduced followed by development of the student's knowledge and understanding of forces, energy and momentum. The section continues with a study of materials considered in terms of their bulk properties and tensile strength. As with earlier topics, this section and also the following section Electricity would provide a good starting point for students who prefer to begin by consolidating work.</p>	<p>Subject specific skills being developed:</p> <ul style="list-style-type: none"> Conditions for equilibrium Distinguish between instantaneous and average Using graph gradient to determine physical properties <p>Reading Skills needed for this unit:</p> <p>Key Vocabulary: Scalar, vector, equilibrium, moments, free-body diagrams,</p> <p>Opportunity for cross-curricular skill development</p> <ul style="list-style-type: none"> Scale drawing Graph drawing and interpretation Maths 	<p>Half Term 3:</p> <p>All pupils will know: The topic of Mechanics and Materials as outlined by the AQA Physics specification 7408 AS and A-level Physics Specification Specifications for first teaching in 2015 (aqa.org.uk)</p> <p>All pupils will be assessed: By short recall activities, electronic automatically marked homework's and longer answer short tests focussed on the topics. There will also be a longer exam as part of the data gathering for the whole year group twice a year.</p> <p>Impact - Why do we teach this? Vectors and their treatment are introduced followed by development of the student's knowledge and understanding of forces, energy and momentum. The section continues with a study of materials considered in terms of their bulk properties and tensile strength. As with earlier topics, this section and also the following section Electricity would provide a good starting point for students who prefer to begin by consolidating work.</p>	<p>Subject specific skills being developed:</p> <ul style="list-style-type: none"> Conditions for equilibrium Distinguish between instantaneous and average Using graph gradient to determine physical properties <p>Reading Skills needed for this unit:</p> <p>Key Vocabulary: Scalar, vector, equilibrium, moments, free-body diagrams,</p> <p>Opportunity for cross-curricular skill development</p> <ul style="list-style-type: none"> Scale drawing Graph drawing and interpretation Maths
<p>Half Term 4:</p> <p>All pupils will know: The topic of Waves as outlined by the AQA Physics specification 7408 AS and A-level Physics Specification Specifications for first teaching in 2015 (aqa.org.uk)</p> <p>All pupils will be assessed: By short recall activities, electronic automatically marked homework's and longer answer short tests focussed on the topics. There will also be a longer exam as part of the data gathering for the whole year group twice a year.</p> <p>Impact - Why do we teach this? GCSE studies of wave phenomena are extended through a development of knowledge of the characteristics, properties, and applications of travelling waves and stationary waves. Topics</p>	<p>Subject specific skills being developed:</p> <ul style="list-style-type: none"> Graphical analysis Determining frequency from stationary waves Interference investigation <p>Reading Skills needed for this unit:</p> <p>Key Vocabulary: amplitude, frequency, wavelength, phase, longitudinal, harmonic, refraction, diffraction, interference,</p>	<p>Half Term 5:</p> <p>All pupils will know: The topic of Electricity as outlined by the AQA Physics specification 7408 AS and A-level Physics Specification Specifications for first teaching in 2015 (aqa.org.uk)</p> <p>All pupils will be assessed: By short recall activities, electronic automatically marked homework's and longer answer short tests focussed on the topics. There will also be a longer exam as part of the data gathering for the whole year group twice a year.</p> <p>Impact - Why do we teach this? This section builds on and develops earlier study of these phenomena from GCSE. It provides opportunities for the development of practical skills at an early stage in the course and lays the</p>	<p>Subject specific skills being developed:</p> <ul style="list-style-type: none"> Simple Circuit Construction Design and construct potential divider circuits <p>Reading Skills needed for this unit:</p> <p>Key Vocabulary: Current, Resistivity, Superconductivity, thermistors, potential divider, electromotive force, internal resistance</p>	<p>Half Term 6:</p> <p>All pupils will know: The topic of Particles & Radiation as outlined by the AQA Physics specification 7408 AS and A-level Physics Specification Specifications for first teaching in 2015 (aqa.org.uk)</p> <p>All pupils will be assessed: By short recall activities, electronic automatically marked homework's and longer answer short tests focussed on the topics. There will also be a longer exam as part of the data gathering for the whole year group twice a year.</p> <p>Impact - Why do we teach this? This section introduces students both to the fundamental properties of matter, and to electromagnetic radiation and quantum phenomena.</p>	<p>Subject specific skills being developed:</p> <ul style="list-style-type: none"> Use of prefixes <p>Reading Skills needed for this unit:</p> <p>Key Vocabulary: nuclide, antiparticle, positron, gluon, graviton, baryon, meson, quark, photoelectric, annihilate</p>

<p>treated include refraction, diffraction, superposition and interference.</p>	<p>Opportunity for cross-curricular skill development</p> <ul style="list-style-type: none"> • Graph drawing and interpretation • Maths 	<p>groundwork for later study of the many electrical applications that are important to society.</p>	<p>Opportunity for cross-curricular skill development</p> <ul style="list-style-type: none"> • Graph drawing and interpretation • Maths 	<p>Teachers may wish to begin with this topic to provide a new interest and knowledge dimension beyond GCSE. Through a study of these topics, students become aware of the way ideas develop and evolve in physics. They will appreciate the importance of international collaboration in the development of new experiments and theories in this area of fundamental research.</p>	<p>Opportunity for cross-curricular skill development</p> <ul style="list-style-type: none"> •
<p>Ensuring this curriculum meets the needs of all pupils: this curriculum has been designed to ensure pupils from all starting points will develop the key curriculum skills and knowledge identified. The curriculum design ensures that each unit forms part of the overall learning journey and there are opportunities for revisiting skills and linking together key pieces of knowledge. Whole Academy policies and practices are followed to tailor the delivery of the curriculum for individuals and groups of students. For example SEND students have individual learning profiles that outline needs/strategies to be used, Whole group RIPs are in place to identify key teaching strategies that will be used with individual teaching groups. Ongoing formative assessment and clear summative assessment points allow individual staff and departments to identify misconception and adjust curriculum appropriately.</p>					
<p>Enrichment opportunities:</p> <ul style="list-style-type: none"> • 					
<p>Career opportunities/ links:</p>					