

2023-2024 Year 11 Curriculum and Assessment Plan for GCSE Physics

<p>The curriculum and assessment of pupils at this stage of education has been carefully designed to enable students to express physical laws and models in mathematical forms.</p>					
<p>Half Term 1:</p> <p>All pupils will know: The Topic Atoms and Isotopes as outlined by the AQA Trilogy Specification page 36-43 GCSE Physics Specification Specification for first teaching in 2016 (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? Ionising radiation is hazardous but can be very useful. Although radioactivity was discovered over a century ago, it took many nuclear physicists several decades to understand the structure of atoms, nuclear forces and stability. Early researchers suffered from their exposure to ionising radiation. Rules for radiological protection were first introduced in the 1930s and subsequently improved. Today radioactive materials are widely used in medicine, industry, agriculture and electrical power generation.</p>	<p>Subject specific skills being developed:</p> <ul style="list-style-type: none"> • Reading skills • Vocabulary skills • Investigative skills • How science works • STEM • Math skills <p>Reading Skills needed for this unit:</p> <p>Key Vocabulary: Atom, nucleus, proton, neutron, electron, atomic number, mass number, alpha particle, beta particle, gamma ray, penetration, ionisation, half-life</p> <p>Opportunity for cross-curricular skill development</p> <ul style="list-style-type: none"> • Graph drawing • Calculations • Algebra 	<p>Half Term 2:</p> <p>All pupils will know: The Topic Forces as outlined by the AQA GCSE Physics page 43-59 GCSE Physics Specification Specification for first teaching in 2016 (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? Engineers analyse forces when designing a great variety of machines and instruments, from road bridges and fairground rides to atomic force microscopes. Anything mechanical can be analysed in this way. Recent developments in artificial limbs use the analysis of forces to make movement possible.</p>	<p>Subject specific skills being developed:</p> <ul style="list-style-type: none"> • Reading skills • Vocabulary skills • Investigative skills • How science works • STEM • Math skills <p>Reading Skills needed for this unit:</p> <p>Key Vocabulary: Scalar, vector, weight, resultant, elasticity, displacement, speed, acceleration, inertia, stopping distance, braking distance, momentum, lever, gear, moment,</p> <p>Opportunity for cross-curricular skill development</p> <ul style="list-style-type: none"> • Graph drawing • Calculations • Algebra 	<p>Half Term 3:</p> <p>All pupils will know: The Topic Magnetism and Electromagnetism as outlined by the AQA Trilogy Specification page 67-72 GCSE Physics Specification Specification for first teaching in 2016 (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? Electromagnetic effects are used in a wide variety of devices. Engineers make use of the fact that a magnet moving in a coil can produce electric current and also that when current flows around a magnet it can produce movement. It means that systems that involve control or communications can take full advantage of this.</p>	<p>Subject specific skills being developed:</p> <ul style="list-style-type: none"> • Reading skills • Vocabulary skills • Investigative skills • How science works • STEM • Math skills <p>Reading Skills needed for this unit:</p> <p>Key Vocabulary: magnetic poles, repel, permanent, induced, electromagnetism, solenoid,</p> <p>Opportunity for cross-curricular skill development</p> <ul style="list-style-type: none"> • Graph drawing • Calculations • Algebra
<p>Half Term 4:</p> <p>All pupils will know: The Topic Space Physics as outlined by the AQA Trilogy Specification page 72-76 GCSE Physics Specification Specification for first teaching in 2016 (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? Questions about where we are, and where we came from, have been asked for thousands of years. In the past century, astronomers and</p>	<p>Subject specific skills being developed:</p> <ul style="list-style-type: none"> • Reading skills • Vocabulary skills • Investigative skills • How science works • STEM • Math skills <p>Reading Skills needed for this unit:</p> <p>Key Vocabulary: Star, Planet, Dwarf Planet, Orbit, Galaxy, Protostar, red giant, white dwarf, black</p>	<p>Half Term 5:</p> <p>All pupils will know: The Topic Waves as outlined by the AQA Trilogy Specification page 59-67 GCSE Physics Specification Specification for first teaching in 2016 (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? Wave behaviour is common in both natural and man-made systems. Waves carry energy from one place to another and can also carry information. Designing</p>	<p>Subject specific skills being developed:</p> <ul style="list-style-type: none"> • Reading skills • Vocabulary skills • Investigative skills • How science works • STEM • Math skills <p>Reading Skills needed for this unit:</p> <p>Key Vocabulary: Longitudinal, transverse, oscillation, displacement, amplitude, frequency,</p>		

<p>astrophysicists have made remarkable progress in understanding the scale and structure of the universe, its evolution and ours. New questions have emerged recently. 'Dark matter', which bends light and holds galaxies together but does not emit electromagnetic radiation, is everywhere – what is it? And what is causing the universe to expand ever faster?</p>	<p>dwarf, red super giant, supernova, black hole, neutron star, satellite, red-shift</p> <p>Opportunity for cross-curricular skill development</p> <ul style="list-style-type: none"> ● Graph drawing ● Calculations ● Algebra 	<p>comfortable and safe structures such as bridges, houses and music performance halls requires an understanding of mechanical waves. Modern technologies such as imaging and communication systems show how we can make the most of electromagnetic waves</p>	<p>time period, electromagnetic wave,</p> <p>Opportunity for cross-curricular skill development</p> <ul style="list-style-type: none"> ● Graph drawing ● Calculations ● Algebra 		<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>					