

## 2023-24 Year 10 Curriculum and Assessment Plan for Trilogy Combined Science (Physics)

The curriculum and assessment of pupils at this stage of education has been carefully designed to enhance students understanding of the ways in which objects can affect each other at a distance or when in contact.					
<p><b>Half Term 1:</b></p> <p><b>All pupils will know:</b> The Topic Energy as outlined by the AQA Trilogy Specification page 121-127 <a href="#">GCSE Combined Science: Trilogy Specification Specification for first teaching in 2016 (aqa.org.uk)</a></p> <p><b>All pupils will be assessed:</b> 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><b>Impact - Why do we teach this?</b> The concept of energy emerged in the 19th century. The idea was used to explain the work output of steam engines and then generalised to understand other heat engines. It also became a key tool for understanding chemical reactions and biological systems. Limits to the use of fossil fuels and global warming are critical problems for this century. Physicists and engineers are working hard to identify ways to reduce our energy usage.</p>	<p><b>Subject specific skills being developed:</b></p> <ul style="list-style-type: none"> <li>● Reading skills</li> <li>● Vocabulary skills</li> <li>● Investigative skills</li> <li>● How science works</li> <li>● STEM</li> <li>● Math skills</li> </ul> <p><b>Reading Skills needed for this unit:</b></p> <p><b>Key Vocabulary:</b> Conservation, efficiency, potential, kinetic, power, renewable, non-renewable, work done</p> <p><b>Opportunity for cross-curricular skill development</b></p> <ul style="list-style-type: none"> <li>● Graph drawing</li> <li>● Calculations</li> <li>● Algebra</li> </ul>	<p><b>Half Term 2:</b></p> <p><b>All pupils will know:</b> The Topic Electricity as outlined by the AQA Trilogy Specification page 127-135 <a href="#">GCSE Combined Science: Trilogy Specification Specification for first teaching in 2016 (aqa.org.uk)</a></p> <p><b>All pupils will be assessed:</b> 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><b>Impact - Why do we teach this?</b> Electric charge is a fundamental property of matter everywhere. Understanding the difference in the microstructure of conductors, semiconductors and insulators makes it possible to design components and build electric circuits. Many circuits are powered with mains electricity, but portable electrical devices must use batteries of some kind. Electrical power fills the modern world with artificial light and sound, information and entertainment, remote sensing and control. The fundamentals of electromagnetism were worked out by scientists of the 19th century. However, power stations, like all machines, have a limited lifetime. If we all continue to demand more electricity this means building new power stations in every generation – but what mix of power stations can promise a sustainable future?</p>	<p><b>Subject specific skills being developed:</b></p> <ul style="list-style-type: none"> <li>● Reading skills</li> <li>● Vocabulary skills</li> <li>● Investigative skills</li> <li>● How science works</li> <li>● STEM</li> <li>● Math skills</li> </ul> <p><b>Reading Skills needed for this unit:</b></p> <p><b>Key Vocabulary:</b> Charge, Current, Resistance, Potential Difference, Series, Parallel, ACDC, National Grid</p> <p><b>Opportunity for cross-curricular skill development</b></p> <ul style="list-style-type: none"> <li>● Graph drawing</li> <li>● Calculations</li> <li>● Algebra</li> </ul>	<p><b>Half Term 3:</b></p> <p><b>All pupils will know:</b> The Topic Electricity as outlined by the AQA Trilogy Specification page 127-135 <a href="#">GCSE Combined Science: Trilogy Specification Specification for first teaching in 2016 (aqa.org.uk)</a></p> <p><b>All pupils will be assessed:</b> By short recall activities, electronic automatically marked homework's and longer answer short tests focussed on the topics. 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<p><b>Half Term 4:</b></p> <p><b>All pupils will know:</b> The Topic Atoms and Isotopes as outlined by the AQA Trilogy Specification page 138-143 <a href="#">GCSE Combined Science: Trilogy Specification Specification for first teaching in 2016 (aqa.org.uk)</a></p> <p><b>All pupils will be assessed:</b> 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><b>Impact - Why do we teach this?</b></p>	<p><b>Subject specific skills being developed:</b></p> <ul style="list-style-type: none"> <li>● Reading skills</li> <li>● Vocabulary skills</li> <li>● Investigative skills</li> <li>● How science works</li> <li>● STEM</li> <li>● Math skills</li> </ul> <p><b>Reading Skills needed for this unit:</b></p> <p><b>Key Vocabulary:</b> Atom, nucleus, proton, neutron, electron, atomic number, mass number, alpha particle,</p>	<p><b>Half Term 5:</b></p> <p><b>All pupils will know:</b> The Topic Forces as outlined by the AQA Trilogy Specification page 143-155 <a href="#">GCSE Combined Science: Trilogy Specification Specification for first teaching in 2016 (aqa.org.uk)</a></p> <p><b>All pupils will be assessed:</b> 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><b>Impact - Why do we teach this?</b> Engineers analyse forces when designing a great variety of machines and instruments, from road bridges and</p>	<p><b>Subject specific skills being developed:</b></p> <ul style="list-style-type: none"> <li>● Reading skills</li> <li>● Vocabulary skills</li> <li>● Investigative skills</li> <li>● How science works</li> <li>● STEM</li> <li>● Math skills</li> </ul> <p><b>Reading Skills needed for this unit:</b></p> <p><b>Key Vocabulary:</b> Scalar, vector, weight, resultant, elasticity, displacement, speed, acceleration, inertia,</p>	<p><b>Half Term 6:</b></p> <p><b>All pupils will know:</b> The Topic Forces as outlined by the AQA Trilogy Specification page 143-155 <a href="#">GCSE Combined Science: Trilogy Specification Specification for first teaching in 2016 (aqa.org.uk)</a></p> <p><b>All pupils will be assessed:</b> 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><b>Impact - Why do we teach this?</b> Engineers analyse forces when designing a great variety of machines and instruments, from road bridges and</p>	<p><b>Subject specific skills being developed:</b></p> <ul style="list-style-type: none"> <li>● Reading skills</li> <li>● Vocabulary skills</li> <li>● Investigative skills</li> <li>● How science works</li> <li>● STEM</li> <li>● Math skills</li> </ul> <p><b>Reading Skills needed for this unit:</b></p> <p><b>Key Vocabulary:</b> Scalar, vector, weight, resultant, elasticity, displacement, speed, acceleration, inertia,</p>

<p>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>beta particle, gamma ray, penetration, ionisation, half-life</p> <p><b>Opportunity for cross-curricular skill development</b></p> <ul style="list-style-type: none"> <li>● Graph drawing</li> <li>● Calculations</li> <li>● Algebra</li> </ul>	<p>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>stopping distance, braking distance, momentum</p> <p><b>Opportunity for cross-curricular skill development</b></p> <ul style="list-style-type: none"> <li>● Graph drawing</li> <li>● Calculations</li> <li>● Algebra</li> </ul>	<p>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>stopping distance, braking distance, momentum</p> <p><b>Opportunity for cross-curricular skill development</b></p> <ul style="list-style-type: none"> <li>● Graph drawing</li> <li>● Calculations</li> <li>● Algebra</li> </ul>
<p><b>Ensuring this curriculum meets the needs of all pupils:</b> 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><b>Enrichment opportunities:</b></p> <ul style="list-style-type: none"> <li>●</li> </ul>					
<p><b>Career opportunities/ links:</b></p>					