

Applied Science Level 3 Extended Certificate

Curriculum content:

Half Term	Year 12	Year 13																					
Autumn Term	<p>ASC1 Key Concepts in Science:</p> <table border="1"> <thead> <tr> <th>Biology</th> <th>Chemistry</th> <th>Physics</th> </tr> </thead> <tbody> <tr> <td>Cell structure</td> <td>Atomic structure</td> <td>Useful energy and efficiency</td> </tr> <tr> <td>Transport mechanisms</td> <td>Periodic table</td> <td>Electricity and circuits</td> </tr> <tr> <td>The Heart</td> <td>Amount of substance</td> <td>Dynamics</td> </tr> <tr> <td>Homeostasis</td> <td>Bonding and Structure</td> <td></td> </tr> <tr> <td>Breathing and cellular respiration</td> <td>Enthalpy changes</td> <td></td> </tr> <tr> <td>Photosynthesis and food chain productivity</td> <td></td> <td></td> </tr> </tbody> </table> <p>ASC3 Science in the Modern World: This is a pre-release exam with a different topic set by the exam board before each exam series. The aim of this unit is to build on the applied contexts explored by learners to enable them to analyse and evaluate scientific information, to develop critical thinking skills and to understand the use of the media to communicate scientific ideas and theories. Learners will develop an understanding of how science is used in organisations and of the roles and responsibilities of their scientifically-qualified staff.</p>	Biology	Chemistry	Physics	Cell structure	Atomic structure	Useful energy and efficiency	Transport mechanisms	Periodic table	Electricity and circuits	The Heart	Amount of substance	Dynamics	Homeostasis	Bonding and Structure		Breathing and cellular respiration	Enthalpy changes		Photosynthesis and food chain productivity			<p>ASC4 The Human body:</p> <ul style="list-style-type: none"> • Digestive system and Diet • Musculo skeletal system and movement • Oxygen transport and physiological measurements • Structure and function of the nervous system and the brain • Nerve impulses <p>ASC6b Medical Physics: This unit will provide learners with an understanding of some key aspects of medical physics and how physics forms the basis of the technology which can be used in the diagnosis and treatment of illness. They will consider the principals involved in a range of equipment used for diagnosis and treatment, and how these principles are used to provide modern healthcare technology. They will learn about different diagnostic techniques and different types of therapy. They will also learn about the nature and application of radioactivity, X-rays, thermography, magnetic resonance, ultrasound, endoscopy and lasers. The unit requires learners to understand the physics of these areas and be able to perform calculations relevant to their use. Learners will perform specific experiments with radioisotopes and light, safely and to a high standard. They will apply their knowledge to a range of situations and make judgements as to which techniques are appropriate in specific situations.</p>
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Spring Term	<p>ASC2 Applied Experimental techniques: Students carry out a series of practical's linked to the work of Unit 1 Key Concepts in science. They then complete a write up which forms their NEA portfolio.</p>	<p>ASC5 Investigating Science: In this unit, learners will:</p> <ul style="list-style-type: none"> ○ use secondary sources to research a scientific topic and develop an outline for the practical ○ investigation 																					
Summer Term	<table border="1"> <thead> <tr> <th>Biology</th> <th>Chemistry</th> <th>Physics</th> </tr> </thead> <tbody> <tr> <td>Rate of respiration</td> <td>Volumetric analysis</td> <td>Resistivity</td> </tr> <tr> <td>Light-dependent reactions of Photosynthesis</td> <td>Colorimetric analysis</td> <td>Specific Heat capacity</td> </tr> </tbody> </table>	Biology	Chemistry	Physics	Rate of respiration	Volumetric analysis	Resistivity	Light-dependent reactions of Photosynthesis	Colorimetric analysis	Specific Heat capacity													
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		<ul style="list-style-type: none">○ plan the practical investigation and justify the approaches suggested○ prepare risk assessments and carry out the practical investigation○ record data in an appropriate format○ analyse data to draw conclusions○ evaluate the techniques used and the outcomes achieved○ produce a scientific report on their investigation○ prepare a presentation of their investigation for an appropriate audience.	
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Skills:

- skills required for independent learning and development
- a range of generic and transferable skills
- the ability to solve problems
- the skills of project-based research, development and presentation
- the ability to apply mathematical and ICT skills
- the ability to apply learning in vocational contexts.

Assessment:

This course is 50% non-examined assessment through portfolio (NEA) and 50% external examination. Only one near pass across the 6 units is allowed to secure a grade in this course.

Unit	Assessment	When	Length/ Marks	Weighting on extended certificate
ASC1	Exam	Jan Year 1	1 hour 30 min/ 60 marks	16.6%
ASC2	NEA/Portfolio	May Year 1	-	16.6%
ASC3	Exam	Jan Year 1	1 hour 30 min/ 60 marks	16.6%
ASC4	Exam	Jan Year 2	1 hour 30 min/ 60 marks	16.6%
ASc5	NEA/Portfolio	May Year 2	-	16.6%
ASc6b	NEA/Portfolio	May Year 2	-	16.6%

More information on the specifications and assessments for Applied Science can be found on the AQA website at

<https://www.aqa.org.uk/subjects/science/applied-general/science>