

Curriculum Intent

Students develop:

1. An essential knowledge and understanding of different areas of the subject and how they relate to each other.
2. A deep appreciation of the skills, knowledge and understanding of scientific methods.
3. Competence and confidence in a wide variety of practical, mathematical and problem solving skills.
4. Their interest in and enthusiasm for the subject of science, including developing an interest in further study and careers associated with the application of science.
5. An understanding of how science is used in multiple areas and fields across the world and potential careers, experiencing and developing skills in practical areas regularly used in scientific industries.

Applied Science helps students to appreciate the realistic uses and application of all aspects of science and how this supports everyday lives and is involved in the production and analysis of a wide variety of products and services.

What do students *do* with this knowledge or these skills?

The requirements of the qualification will mean that learners develop the transferable and higher order skills which are valued by higher education providers and employers. For example, when studying Unit 3: Science Investigation Skills, learners will develop skills including how to plan investigations, collecting, analysing, and presenting data and communicating results which support some of the skills learners need to progress to higher education, employment, self-employment or training. The qualification carries UCAS points and is recognised by higher education providers as contributing to meeting admission requirements for many courses if taken alongside other qualifications as part of a two-year programme of learning, including, but not exclusively, those which are science-related.

BTEC Nationals provide transferable knowledge and skills that prepare learners for progression to university. The transferable skills that universities value include:

- the ability to learn independently
- the ability to research actively and methodically
- being able to give presentations and being active group members.

BTEC learners can also benefit from opportunities for deep learning where they are able to make connections among units and select areas of interest for detailed study. BTEC Nationals provide a vocational context in which learners can develop the knowledge and skills required for particular degree courses, including:

- reading scientific and technical texts
- effective writing
- analytical skills
- practical skills
- preparation for assessment methods used in degrees.

How does the KS5 curriculum build on that from KS4?

The Applied Science curriculum builds on knowledge, skills and behaviours developed across scientific study at KS4. It utilises practical skills and understanding established throughout biology, chemistry and physics studies at KS4. Each unit studied allows for connections to be made with KS4 study and further development of this to KS5; including where different scientific disciplines are closely linked in real-world applications of science.

What new knowledge or skills are students taught?

Term	Year 12	Year 13
Autumn	<ul style="list-style-type: none"> • Principles and Applications of Science <ul style="list-style-type: none"> ○ Periodicity and properties of elements ○ Structure and functions of cells and tissues 	<ul style="list-style-type: none"> • Science Investigation Skills <ul style="list-style-type: none"> ○ Revision and preparation for exam • Practical Scientific Procedures and Techniques <ul style="list-style-type: none"> ○ Use of titration and colorimetry • Human Regulation and Reproduction <ul style="list-style-type: none"> ○ The interrelationship and nervous control of the cardiovascular and respiratory systems
Spring	<ul style="list-style-type: none"> • Principles and Applications of Science <ul style="list-style-type: none"> ○ Waves in communication • Science Investigation Skills <ul style="list-style-type: none"> ○ Planning and completing a scientific investigation ○ Enzymes in action ○ Plants and their environment 	<ul style="list-style-type: none"> • Practical Scientific Procedures and Techniques <ul style="list-style-type: none"> ○ Use of calorimetry ○ Using chromatographic techniques to identify components in mixtures • Human Regulation and Reproduction <ul style="list-style-type: none"> ○ The interrelationship and nervous control of the cardiovascular and respiratory systems ○ The homeostatic mechanisms used by the human body
Summer	<ul style="list-style-type: none"> • Science Investigation Skills <ul style="list-style-type: none"> ○ Plants and their environment ○ Energy content of fuels ○ Electrical circuits 	<ul style="list-style-type: none"> • Practical Scientific Procedures and Techniques <ul style="list-style-type: none"> ○ Scientific skills for laboratory work ○ Revision and preparation for exam • Human Regulation and Reproduction <ul style="list-style-type: none"> ○ The role of hormones in the regulation and control of the reproductive system.
Rationale for this sequencing	<ul style="list-style-type: none"> • The BTEC Extended Certificate provides a flexible approach to teaching. The specification is divided into 4 different units to be completed across the two years; these cover different applications and concepts within Applied Science and there are numerous links between different units. There will be weekly practical sessions in addition to more theoretical lessons; these will closely link to the specification and to either the internally assessed assessments or in preparation for the two externally assessed units. 	

Additional support at home

<p>Additional reading for enjoyment, enhancement and extension</p>	<ul style="list-style-type: none"> • All A Level/Level 3 Science textbooks relevant to topic areas (Biology/Chemistry/Physics) • New Scientist Magazine • Gastrophysics - Charles Spence • Brief Answers to the Big Questions – Stephen Hawking • A Perfect Planet: Our One in a Billion World Revealed - Huw Cordey • Unlocking The Universe - Stephen Hawking and Lucy Hawking
<p>Online resources to practice, consolidate and revise</p>	<ul style="list-style-type: none"> • Seneca • Pearson published resources
<p>Workbooks & revision guides to practice, consolidate and revise</p>	<ul style="list-style-type: none"> • BTEC National Applied Science Student Book 1 • Revise BTEC National Applied Science Revision Guide • Revise BTEC National Applied Science: Revision Workbook