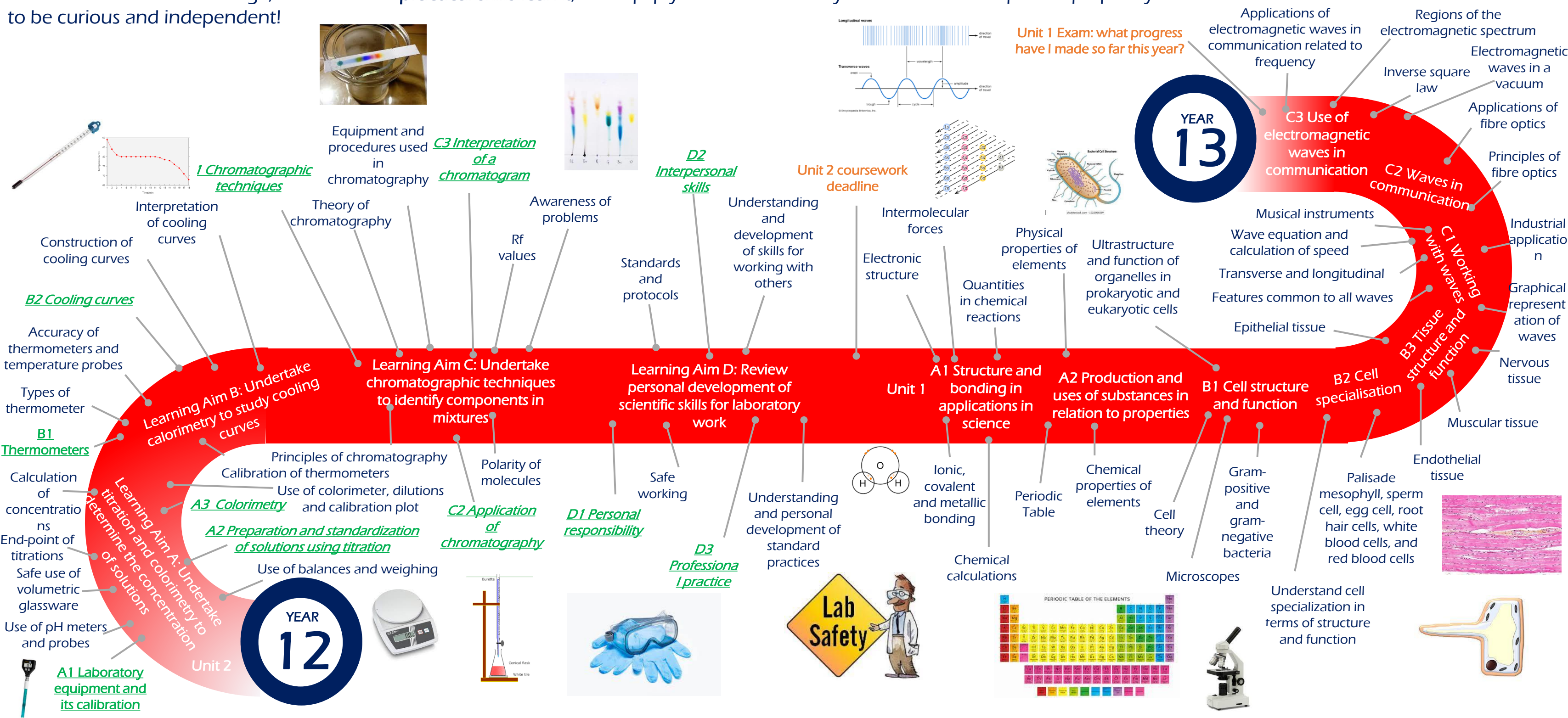


What will you be learning in Year 12 BTEC Science?

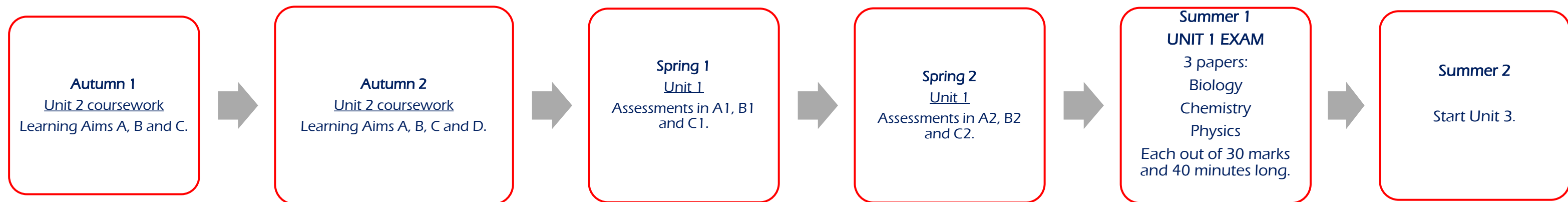


The topics you will study in Year 12 build on your knowledge and understanding of the GCSE content to provide the foundations and principles for further study in areas of science.

This foundation of knowledge, as well as the practical skills learnt, will equip you well. The skills you learn in each topic will prepare you for future career as well as to be curious and independent!



Keeping a track of your progress: Your teacher will be assessing your progress informally every lesson. Your folder should be brought to every lesson, and this will be checked every half term for evidence of work and consolidation. You will have home-works on mathematical skills, projects and will be expected to consolidate every lesson. Record of assessments:



The Big Picture—Intent: An introduction to a vocational sector through applied learning with a focus on principles and applications of science and practical scientific procedures and techniques. The course aims to develop a love of learning by discussing key concepts in biology, chemistry and physics and application of standard laboratory equipment and techniques. Deep dives into the applications of these concepts and techniques in a vocational context and chemical and life science industries.

Year 12
BTEC Applied Science

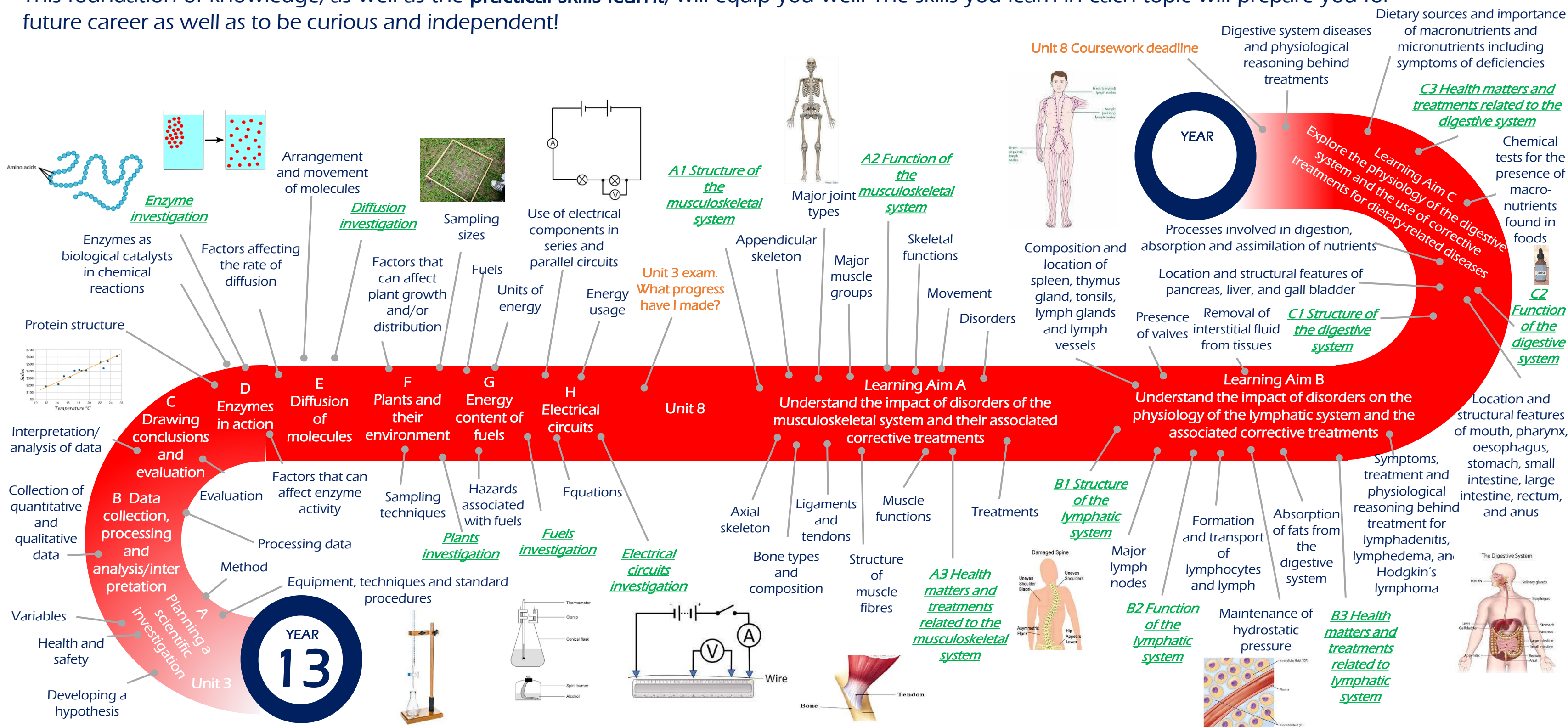
Content / Units	Skills	Knowledge	Prior—KS4	Next—Year 13
<p>Pearson BTEC Level 3 National Certificate in Applied Science. 601/7434/1</p> <p>Principles and Applications of Science I and Practical Scientific Procedures and Techniques.</p>	<p>AO1: Applied Science brings together knowledge and understanding with practical and technical skills. Learners perform vocational tasks that encourage the development of appropriate vocational behaviours and transferable skills, such as those in communication, teamwork, research, problem-solving, and analysis.</p> <p>A02 : Application of knowledge and understanding; in a theoretical context, in a practical context, when handling qualitative data and when handling quantitative data.</p> <p>A03: Analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to; make judgements and reach conclusions, develop and refine practical design and procedures.</p>	<p>Develop knowledge and understanding of: Key concepts in Biology, Chemistry and Physics, which includes: structure and bonding in applications in science, production and use of substances in relation to properties, cell structure and function, cell specialisation, tissue structure and function, working with waves, waves in communication and use of electromagnetic waves in communication.</p> <p>Practical Scientific Procedures and Techniques, which includes: laboratory equipment and its calibration, preparation and standardisation of solutions using titration, colorimetry, thermometers, cooling curves, chromatographic techniques, application of chromatography, interpretation of a chromatogram, personal responsibility, interpersonal skills and professional practice.</p>	<p>Students have studied:</p> <p>Cells biology Organisation Atomic Structure and the Periodic Table Bonding, Structure and Properties Chemical changes</p> <p>Students have completed required practical tasks.</p>	<p>Topics coming up:</p> <p>Planning a scientific investigation, data collection, processing and analysis, drawing conclusions and evaluation, enzymes in action, diffusion of molecules, plants and their environment, energy content of fuels, electrical circuits, structure and function of the musculoskeletal system and related treatments, structure and function of the lymphatic system and related treatments and structure and function of the digestive system and related treatments.</p>
Implementation		Marches Futures Links		Summative Assessment
<p>Five 55 minute lessons per week, split between three teaching staff – one Physics, two Chemistry and two Biology lessons.</p> <p>Most tasks are completed independently, but there are opportunities for class discussions, paired discussions and small group practical work. Lessons and homework tasks also build initiative, research skills, retrieval practice, organisation, mathematical and literacy skills.</p> <p>Practical sessions are completed as part of unit 2, the internally assessed unit. They practice and develop practical and transferable skills that can be used in potential future careers.</p> <p>Past paper questions are used throughout the topics in unit 1 to assess understanding. Mark schemes are also used to help stress the need to use specific terminology.</p> <p>A01 and A02 are embedded within the lessons with A03 tasks and discussions are covered as appropriate.</p>		<p>Links to careers and further studies are signposted throughout the course. These include university degrees in engineering, sport psychology, nursing, sport and exercise, environmental science, nutrition, healthcare. Apprenticeship opportunities in health and social care, dental nursing, veterinary nursing, engineering, healthcare. Continue with BTEC National foundation diploma, diploma or extended diploma in Applied Science.</p> <p>Practical work gives students opportunities to work collaboratively and develop their LORIC skills. There are explicit links throughout the course for students to evaluate how the subject matter relates to society and enables them to understand contemporary issues as responsible citizens. Independent study enables students to develop research skills and become responsible for closing knowledge gaps.</p>		<p>Each topic in unit 1 has an end of unit test which contains a mixture of multiple choice, short and long answer questions. The tests are made using past paper questions and contain a range of AO1, AO2 and AO3 questions.</p> <p>Students complete 4 learning aims for unit 2, the internally assessed unit.</p> <p>For unit 1, students sit 3 exam papers (Biology, Chemistry and Physics) 40 minutes each.</p>
<p>Impact:</p> <p>By the end of the Year students will be confident with the fundamental and more complex principles, knowledge and application of this knowledge .</p> <p>They will be able to understand what they need to do in response to all exam style questions and LOR questions; they will be able to revise effectively as they head towards studying Science degrees</p> <p>Their practical skills will have developed both in discussing variables and describing methods but also analysing data, interpreting results and suggesting improvements.</p> <p>Links will be made between other sciences as they develop as complete scientists.</p>				

What will you be learning in Year 13 BTEC Science?

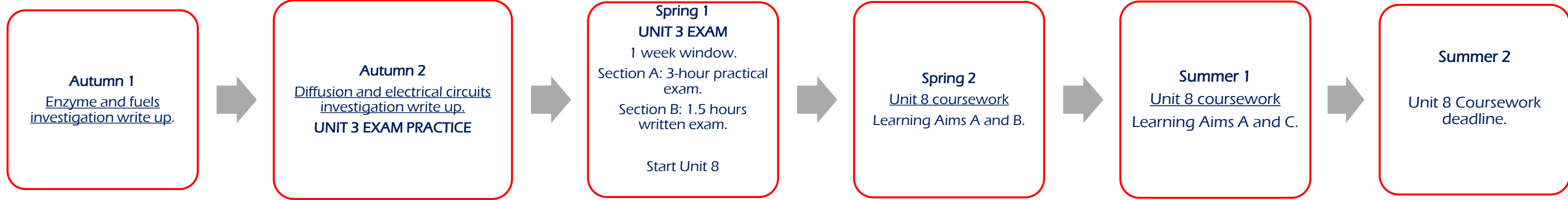


The topics you will study in Year 13 build on your knowledge and understanding of the GCSE content and Year 12 work to provide the foundations and principles for further study in areas of science.

This foundation of knowledge, as well as the **practical skills learnt**, will equip you well. The skills you learn in each topic will prepare you for future career as well as to be curious and independent!



Keeping a track of your progress: Your teacher will be assessing your progress informally every lesson. Your folder should be brought to every lesson, and this will be checked every half term for evidence of work and consolidation. You will have home-works on mathematical skills, projects and will be expected to consolidate every lesson. Record of assessments:



Scheme of Learning Year Overview

The Big Picture—Intent: Students continue to gain an insight into vocational sector through applied learning with a focus on science investigation skills and physiology of human body systems. The course aims to develop a love of learning by learners exploring key concepts in biology, chemistry and physics with a focus on key scientific investigation skills, and research the physiological make up of three human body systems, how the systems function and what occurs during dysfunction. Deep dives into the applications of these concepts and techniques in a vocational context and chemical and life science industries.

Year 13
BTEC Applied
Science

Content / Units	Skills	Knowledge	Prior—KS4	Next—Year 13
Pearson BTEC Level 3 National Certificate in Applied Science. 601/7436/5 Science Investigation Skills and Physiology of Human Body Systems.	AO1: Applied Science brings together knowledge and understanding with practical and technical skills. Learners perform vocational tasks that encourage the development of appropriate vocational behaviours and transferable skills, such as those in communication, teamwork, research, problem-solving, and analysis. AO2 : Application of knowledge and understanding; in a theoretical context, in a practical context, when handling qualitative data and when handling quantitative data. AO3: Analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to; make judgements and reach conclusions, develop and refine practical design and procedures.	Develop knowledge and understanding of: science investigation skills, which includes: planning a scientific investigation, data collection, processing and analysis, drawing conclusions and evaluation, enzymes in action, diffusion of molecules, plants and their environment, energy content of fuels and electrical circuits. Physiology of Human Body Systems, which includes: structure and function of the musculoskeletal system and related treatments, structure and function of the lymphatic system and related treatments and structure and function of the digestive system and related treatments.	Students have studied: Organisation Organic chemistry Electrical circuits Students have completed required practical tasks.	Degree courses Apprenticeships Work

Implementation	Marches Futures Links	Summative Assessment
Five 55 minute lessons per week, split between two teaching staff – split with one teacher having two lessons and the other teacher having three lessons per week. Most tasks are completed independently, but there are opportunities for class discussions, paired discussions and small group practical work. Lessons and homework tasks also build initiative, research skills, retrieval practice, organisation, mathematical and literacy skills. Practical sessions are completed as part of unit 3, the externally assessed unit. They practice and develop practical and transferable skills that can be used in potential future careers. Past paper questions are used throughout the topics in unit 3 to assess understanding. Mark schemes are also used to help stress the need to use specific terminology. Research skills and referencing are developed throughout unit 8, the internally assessed unit. A01 and A02 are embedded within the lessons with A03 tasks and discussions are covered as appropriate.	Links to careers and further studies are signposted throughout the course. These include university degrees in engineering, sport psychology, nursing, sport and exercise, environmental science, nutrition, healthcare. Apprenticeship opportunities in health and social care, dental nursing, veterinary nursing, engineering, healthcare. Continue with BTEC National foundation diploma, diploma or extended diploma in Applied Science. Practical work gives students opportunities to work collaboratively and develop their LORIC skills. There are explicit links throughout the course for students to evaluate how the subject matter relates to society and enables them to understand contemporary issues as responsible citizens. Independent study enables students to develop research skills and become responsible for closing knowledge gaps.	Learning Aims D-H in unit 8 have an end of unit test which contains a short and long answer questions. The tests are made using past paper questions and contain a range of AO1, AO2 and AO3 questions. Students complete 3 learning aims for unit 8, the internally assessed unit. 1 exam in January: Science Investigation Skills (Part A: 3 hour practical exam and Part B 1 hour 30 minutes written exam).

Impact:
By the end of the Year students will be confident to pursue a Science degree and career. Practical skills and fundamental knowledge of the subject will be secure and they will have developed into complete Scientists..