BTEC SCIENCE CURRICULUM MAP

FURTHER STUDY

Biology, Chemistry or Physics university study
Post-graduate study

CAREER PATHS

Researcher, Forensic Scientist, Biochemist, Education and Training

SKILLS

Critical analysis, interpretation, evaluation

Assessment: Unit 4 and Unit 9 are coursework units, approximately one assignment will be completed in each unit in each half term

Assessment: Unit 5 - additional mock paper depending on external exam dates
Unit 5 - external exams in Biology, Chemistry and Physics

Assessment: one short answer assessment approximately 30 marks in each subject area Biology, Chemistry and Physics on the principles and applications of science.
Formal Mock Paper, using past paper, mark scheme and grade boundaries

Unit 4 and Unit 9 are coursework units, approximately one assignment will be completed in each unit each half term

Human Regulation and Reproduction

- ❑ Describe the organisation and function of the nervous system in relation to cardiovascular and respiratory requirements.
- ❑ Describe how homeostatic mechanisms maintain normal function.
- ❑ Describe the structure and function of reproductive anatomy.
- ❑ Describe how hormones are involved in gamete development and conception.

Laboratory Techniques and their Application

- ❑ Explain how health and safety measures in a scientific organisation comply with legislation.
- ❑ Describe the potential hazards relevant to different scientific working environments.
- ❑ Prepare and test the purity of an organic liquid and draw conclusions.
- ❑ Describe the industrial manufacture and testing of an organic liquid.
- ❑ Prepare and test the purity of an organic solids and draw conclusions.
- ❑ Describe the industrial manufacture and testing of an organic solid.

Assessment: short answer assessment, approximately 30 marks, based on science investigation skills, practical scientific procedures and techniques, and the physiology of human body systems

With the examination units taken in January the Autumn term of both year 12 and year 13 will be heavily weighed to the taught elements unit 1 and 5

Science Investigation Skills, Practical Scientific Procedures and Physiology of Human Body Systems

- ❑ Formulate a hypothesis for an investigation
- ❑ Selection of appropriate equipment, techniques and standard procedures
- ❑ Understand risks and hazards associated with the investigation
- ❑ Produce a clear, logically ordered method to obtain results
- ❑ Produce a clear, logically ordered method to obtain results
- ❑ Collect data accurately/reliably and to appropriate levels of precision
- ❑ Explain the functional role of the musculoskeletal system in the human body
- ❑ Describe the effect of disorder of muscles and joints and possible corrective treatment(s)
- ❑ Describe the gross anatomy and function of the organs of the lymphatic system.
- ❑ Describe the effect disorder on the lymphatic system and possible corrective treatment(s)
- ❑ Use chromatographic techniques to produce chromatograms.

YEAR 13

Principles and Applications of Science II

- ❑ Understand the uses of substances including catalysts
- ❑ Understand purification, extraction and manufacture of a range of chemicals including titanium and aluminium
- ❑ Understand exothermic and endothermic reactions and processes
- ❑ Know the definitions and measurements of a range of standard enthalpy changes

The five coursework units are split over the two years with units 2 and 8 in year 12, units 9 split between them and units 4 and 6 in year 13

Assessment: one short answer assessments each 30 marks. In each subject area, Biology, Chemistry and Physics covering reactions, body systems and the behaviosur of materials.
Assessment: Mock exam using past papers, markschemes and grade boundaries

Principles and Applications of Science

- ❑ Demonstrate understanding of scientific concepts, procedures, processes and techniques and their application
- ❑ Understand ionic and covalent bonding and intermolecular forces
- ❑ Understand the quantities used in chemical reactions, the physical properties of elements and the periodic table
- ❑ Understand the ultrastructure and function of organelles, recognise cell organelles from electron micrographs and the use of light microscopes
- ❑ Understand the features common to all waves Understand the industrial application of diffraction

YEAR 12

Assessment: One short answer assessment approximately 30 marks in each subject area Biology, Chemistry and Physics on the principles and applications of science

Assessment: One further short answer assessments each 30 marks. In each subject area, Biology, Chemistry and Physics covering cells, bonding and electromagnetic waves

Assessment: Transition test - 30 marks of short answer questions based on the transition work from GCSE

SCIENCE SKILL
Scientific knowledge and conceptual understanding

SCIENCE SKILL
The nature, processes and methods of science

SCIENCE SKILL
Analysis, evaluation and measurement

SCIENCE SKILL
Experimental skills and investigations