Curriculum Map – Applied Science – Year 12

Immanuel College
Church of England Academy

	Term 1	Term 2	Term 3
Key focus	Unit 1 – Principles and Applications of Biology: cells, tissues and biological molecules. Unit 2 – Principles and Applications of Chemistry: atomic and electronic structure, bonding and periodicity.	Unit 1 – Principles and Applications of Biology: cellular transport and enzyme activity. Unit 2 – Principles and Applications of Chemistry: physical and organic chemistry. Unit 4 – Practical Scientific Procedures and Techniques: Learning Aims A and B.	Units 1 and 2: revision and preparation for external assessment. Unit 4: completion of coursework and assessment requirements.
Purpose of the scheme	Develop secure foundations in Biology and Chemistry and establish the scientific vocabulary and representations needed for further study.	Develop application of biological and chemical knowledge while introducing practical scientific procedures and techniques.	Consolidate and apply knowledge from Units 1 and 2 and complete the relevant Unit 4 assessment work.
Pre read (suggested)	Revisit relevant GCSE Biology and Chemistry knowledge. Suggested reading or accessible scientific media may be used to introduce new contexts.	Review relevant GCSE Science knowledge and practical skills; engage with accessible examples of Biology and Chemistry in real-world contexts.	Use revision materials, previous feedback and targeted resources to revisit key knowledge and scientific skills.
Key knowledge and skills	Cell structure and function; specialised cells and tissues; biological molecules; atomic structure; electronic structure; bonding; periodicity and properties of elements.	Diffusion, osmosis, facilitated diffusion and active transport; enzyme activity; physical chemistry; quantitative chemistry; organic chemistry; practical laboratory procedures and scientific investigations.	Retrieval and application of Units 1 and 2; calculations; interpretation of graphs, tables and diagrams; unfamiliar contexts; scientific explanations and extended responses; completion and evaluation of practical coursework.
Key words/ vocabulary	Cells, organelles, prokaryotic, eukaryotic, tissue, specialisation, carbohydrates, proteins, lipids, atoms, electrons, ionic, covalent, periodicity.	Diffusion, osmosis, concentration gradient, active transport, enzymes, equilibrium, concentration, moles, organic chemistry, functional group, accuracy, reliability, validity.	Application, interpretation, calculation, evaluation, accuracy, precision, reliability, validity, evidence, scientific terminology.
Exam board	Pearson level 3 BTEC		
End point	Students have established the biological and chemical foundations needed to continue through the qualification.	Students complete the taught Unit 1 and Unit 2 content and develop the practical skills required for Unit 4.	Students complete the external assessment preparation for Units 1 and 2 and the relevant Unit 4 coursework.
Assessment method	Initial assessment; classroom questioning and assessment; retrieval; application activities; practical work.	Classroom assessment; practical investigations; retrieval and application; coursework and assessment activities.	Mock and practice examinations; external assessment; coursework completion; teacher feedback and targeted revision.
Wider reading / links / research	Mathematics – scientific notation and calculations. Biology and Chemistry – current scientific developments and applications. Healthcare and laboratory science.	Mathematics – significant figures, means, equations and data handling. Sport, healthcare, food science and laboratory science.	Mathematics – calculations, graphs and data interpretation. Current scientific developments and progression opportunities.
Careers links	Biomedical scientist; research chemist; laboratory technician; forensic scientist; healthcare professions.	Chemical engineer; biomedical scientist; laboratory technician; forensic scientist; pharmaceutical scientist; healthcare professions.	Research scientist; biomedical scientist; laboratory technician; engineer; healthcare and scientific careers.