Curriculum Map

Subject: Science – BTEC APPLIED SCIENCE **Year group: 12**

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Content *Declarative Knowledge – 'Know What'*	**Biology external exam preparation:** Structure and functions of cells and tissues **Chemistry external exam preparation:** Structure of an atom, productions and uses of substances in relation to their properties. **Physics external exam preparation:** Waves in communication. Use of electromagnetic waves in communication	**Biology external exam preparation** **Chemistry external exam preparation** **Physics external exam preparation** **Scientific procedures and techniques:** Titration and colorimetry to determine the concentration of solutions.	**Practical Scientific procedures and techniques:** Titration and colorimetry to determine the concentration of solutions.	**Practical Scientific Procedures and techniques:** Undertale calorimetry to study cooling curves	**Practical Scientific Procedures and techniques:** Undertake chromatographic techniques to identify components in mixtures. Unit one exam resit preparation (if needed)	**Practical Scientific Procedure s and techniques:** Review personal development of scientific skills for laboratory work.
Skills *Procedural Knowledge – 'Know How'*	How the practical work carried out by different professionals such as medical professionals, construction industry and communication industry can lead to scientific discoveries such as fibre optics and development of	Using standard laboratory equipment. Ensuring that the equipment being used is calibrated for accuracy. Producing standard solutions	Using standard laboratory equipment. Ensuring that the equipment being used is calibrated for accuracy. Producing standard solutions	Checking the calibration of at least two types of thermometer. An analysis of how the rate of cooling is related to intermolecular forces and the state of the substance.	Analysing results from the paper chromatography and TLC of extracted plant pigments from paper chromatography of amino acids.	How have my practical skills and knowledge developed over the course so far? What areas or skills do I still need to develop further?

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	construction tools and methods					
Key Questions	How do the properties of different elements allow them to be used in different ways by different industries? How are the subjects of biology, chemistry and physics linked to each other?	Why is it important to calibrate equipment? How do you produce a serial dilution? How to produce standard solutions?	Why is it important to calibrate equipment? How do you produce a serial dilution? How to produce standard solutions?	How do the properties of a substance relate to the cooling and warming of a substance? How can you use data to predict the state of different substances at different temperatures?	How do the results of a chromatogram allow scientists to state the amino acids found in a cell or tissue. How is the accuracy of standard chromatography and TLC plates different and similar?	How have my practical skills and knowledge developed over the course so far? What areas or skills do I still need to develop further?
Assessment	External assessment - Unit 1 exams in biology, chemistry and physics.	Submission of unit 2 coursework	Submission of unit 2 coursework	Submission of unit 2 coursework.	Submission of unit 2 coursework	Submission of unit 2 coursework
Literacy / Numeracy / SMSC / Character	Comparing the roles of different professionals in the scientific industry. Calculating the size of an atom Calculating the speed and wavelength of a wave.	Plotting graphs and drawing tables to record results. Calculating the concentration of solutions Analysis of results to confirm accuracy.	Plotting graphs and drawing tables to record results. Calculating the concentration of solutions Analysis of results to confirm accuracy.	Presentation of a report that covers the practical procedures, safety and equipment used. Calculations of the rate of cooling.	Calculate the Rf value of different chromatograms Production of a written report justifying procedures used and suggestions about how to improve the practice.	Submission of a report evaluating the development of skills developed so far.