KS5 Curriculum Sequencing – Homework/Prep Time Work and Private Study Work: *BTEC Applied Science*

BTEC Applied Science homework, prep time work and private study work policy

All homework, prep time work and private study work in ***BTEC Applied Science*** is set on Edulink homework with a clear set date, due date and time allocation.

Homework	4 hours of homework will be set for each student across each section of the course. This can vary in terms of weighting between the units and across teachers. Homework will be checked for completion in future lessons.
Prep time work	3 hours of prep time work will be set for Applied Science per fortnight. Prep time work is linked to previously studied topic areas in order to prep for assessments and/or prepping for future lesson content. Prep time work reading and note taking is also set looking ahead to topics in future lessons. Prep time work will be checked for completion in future lessons.
Private study work	2 hours of private study work will be set each fortnight across the units being studied at the time. Private study will consist of various different types of activities. Private study work is not checked for completion but evidence of completion will show through assessments.

Sequencing of homework, prep time work and private study work

Unit 1 Year 12 Term 1/Part of Term 2 (Exam)

Biology

Chemistry

Physics

Area of subject learning checklist	Homework/Prep Time Work and Private Study work set
Cell Theory Ultrastructure and Function of Eukaryotic, Prokaryotic and Bacterial.	P 37 from student book, draw own timeline of cell theory, images can be added and further information that is not in book. P45 assessment practice 1.11 (revision cards) P46 assessment practice 1.13 Revision workbook P20 Q1a. P23 Q3a
Recognise cells from electron micrograph Magnification calculation	P38-40 from student book write down key terms, make notes, assessment practice 1.9, 1.10 Revision workbook P4 Q2a & b P21 Q b
Gram-positive and gram-negative bacteria.	Revision workbook P23 Q3 b & c
Palisade mesophyll cells in a leaf	Student book P46-48 key terms written

Sperm and egg cells in reproduction Root hair cells in plants White blood cells Red blood cells.	Revision workbook P5 3a & b P7 Q5
Understand the structure and function of epithelial tissue Understand the structure and function of endothelial tissue Understand the structure and function of muscular tissue Understand the structure and function of nervous tissue	Student book P52 – Key terms Revision workbook P6 Q4 a & b P22 Q2a, b, c P24 Q4 a, b & c
Understand the features common to all waves Graphical representation of wave features Understand the difference between transverse and longitudinal waves	Student book P57 – Key terms
Understand concepts of displacement, coherence, path difference, phase difference, superposition as applied to diffraction gratings Understand the industrial application of diffraction gratings (emission spectra & identifying gases)	Student book P63, 65, 67 – Key terms Revision workbook P17 Q3b P37 Q4a P38 Q4b
$v = f\lambda$	Revision workbook P35 Q3a
Understand the concept and applications of stationary waves resonance Musical Instruments calculation of speed $v = \sqrt{\frac{T}{\mu}}$	Student book P69 Key terms P72 assessment practice 1.16 Revision workbook P15 2a, b & c P16 Q3a P35 Q3a & b
Understand the principles of fibre optics refractive index $n = \frac{c}{v} = \frac{\sin i}{\sin r}$ total internal reflection	Student book P74-75 Key terms Revision workbook P18 Q4a, b & c

calculation of critical angles at a glass–air interface: $\sin c = \frac{1}{n}$	
Understand the applications of fibre optics in medicine to include endoscopes	Research uses of fibre optics in medicine and explain, with diagrams how these work.
Understand the applications of fibre optics in communication, to include: analogue and digital signals: analogue-to-digital conversion, broadband.	Student book P79 step by step: Analogue to digital conversion should be put into own words. P80 – Check your knowledge questions Revision workbook P19 Q4d (6 marker)
Understand that all electromagnetic waves travel with the same speed in a vacuum	Student book P82, frequencies, sources and applications of e/m spectrum. Make own table, do not copy, can add diagrams and images etc.
Be able to use the inverse square law in relation to the intensity of a wave: $I = \frac{k}{r^2}$	Student book P83, assessment practice 1.19 Revision workbook P14, Q1d
Understand how the regions of the electromagnetic spectrum are grouped according to the frequency. Understand how the applications of electromagnetic waves in communications are related to frequency, including: Satellite communication, mobile phones, Bluetooth, infrared, Wi-Fi.	Revision workbook P13, 1a, b & c. P32, Q1b
Understand the electronic structure of atoms	Revision workbook, P8 Q1a, b & c
Understand ionic bonding Understand covalent bonding Understand metallic bonding	Student book P8-13 all key terms Revision workbook P8 Q1d & e P27, Q2a, b & c
Understand the following intermolecular forces: van der Waals, dipole-dipole, hydrogen bonding	Student book P12-14 diagrams of each intermolecular forces. P13 assessment practice 1.2
Quantitative Chemistry	Student book P16 assessment practice 1.3, assessment practice 1.4
Quantities in Chemistry	Student book P18-21 Key terms P20 assessment practice 1.5 Revision workbook P28, Q3 b

The Periodic Table (Period, Groups, Layouts) Understand the physical properties of elements: first ionisation energy, electron affinity, atomic/ionic radius, electronegativity, trends	Revision workbook P10-11 Q2a, b, c & d Student book 23-27 Key terms
Understand the chemical properties of elements: products and reactivity, oxidation, reduction, displacement reactions.	Student book P30-36 Key terms Revision workbook P10-11 Q2a, b c & d P30 6 marker

Unit 2 Year 12 Term 2/Term 3 (Coursework)

Learning Aim A - Undertake titration and colorimetry to determine the concentration of solutions	Directed to complete coursework – Suggested links to read and makes notes from with useful information. http://www.titrations.info/acid-base-titration https://edu.rsc.org/experiments/titrating-sodium-hydroxide-with-hydrochloric-acid/697.article https://www.chemguide.co.uk/physical/acidbaseeqia/phcurves.html https://www.youtube.com/watch?v=qsO25xpE6xc https://www.youtube.com/watch?v=4AYY2mvcgmY https://www.youtube.com/watch?v=amWObRIpvyU
Learning Aim B - Undertake calorimetry to study cooling curves	Directed to complete coursework – Suggested links to read and makes notes from with useful information. https://www.youtube.com/watch?v=EAgbknIDKNo https://www.youtube.com/watch?v=hbRYOAbW1Dc https://isaacphysics.org/concepts/cc_cooling_curves?stage=all https://www.rcboe.org/cms/lib/GA01903614/Centricity/Domain/1951/Heating%20and%20Cooling%20Curves%20new.pdf
Learning Aim C - Undertake chromatographic techniques to identify components in mixtures	Directed to complete coursework – Suggested links to read and makes notes from with useful information. https://www.youtube.com/watch?v=hu7vNKWZ3-E https://www.youtube.com/watch?v=WYLXdQV8FuI https://www.chemguide.co.uk/analysis/chromatography/thinlayer.html

	https://www.biotopics.co.uk/as/amino_acid_chromatography.html
Learning Aim D - Review personal development of scientific skills for laboratory work	Directed to complete coursework – Suggested links to read and makes notes from with useful information to apply and reference in coursework. All of the above links to reflect upon their method and techniques throughout the 3 learning aims.

Unit 3 Year 13 (Exam)

Enzymes Protein Structure Enzymes as biological catalysts in chemical reactions Factors that can affect enzyme activity	Revision workbook P40-46 Numerous exam type questions, can be broken down depending what has been taught when.
Diffusion of molecules Factors affecting the rate of diffusion Arrangement and movement of molecules	Revision workbook P47-51. Numerous exam type questions, can be broken down depending what has been taught when.
Plants and their environment Factors that can affect plant growth and/or distribution Sampling techniques Sampling sizes	Revision workbook P60-63 Numerous exam type questions, can be broken down depending what has been taught when.
Electrical circuits Use of electrical components in series and parallel circuits Equations Energy Usage	Revision workbook P52-59 Numerous exam type questions, can be broken down depending what has been taught when.
Energy content of fuels Fuels Hazards associated with fuels Units of energy	https://www.youtube.com/watch?v=0KtldwnUQ0Q

Unit 8 Year 13 (Coursework)

Learning aim A: Understand the impact of disorders of the musculoskeletal system and their associated corrective treatments	Directed to complete coursework – Suggested links to read and makes notes from with useful information. https://my.clevelandclinic.org/health/articles/12254-musculoskeletal-system-normal-structure--function#:~:text=What%20is%20the%20musculoskeletal%20system,posture%20and%20help%20you%20move. https://www.kenhub.com/en/library/anatomy/the-musculoskeletal-system https://www.youtube.com/watch?v=gSW2ryFmihk https://www.england.nhs.uk/ourwork/clinical-policy/ltc/our-work-on-long-term-conditions/musculoskeletal/
Learning aim B: Understand the impact of disorders on the physiology of the lymphatic system and the associated corrective treatments	Directed to complete coursework – Suggested links to read and makes notes from with useful information. https://www.cancerresearchuk.org/what-is-cancer/body-systems-and-cancer/the-lymphatic-system-and-cancer#:~:text=The%20lymphatic%20system%20is%20a,fighting%20bacteria%20and%20other%20infections https://www.medicalnewstoday.com/articles/303087#swollen-lymph-nodes https://my.clevelandclinic.org/health/articles/21199-lymphatic-system https://www.youtube.com/watch?v=I7orwMgTQ5I https://www.youtube.com/watch?v=q6yY_JghI50
Learning Aim C - Explore the physiology of the digestive system and the use of corrective treatments for dietary related diseases	Directed to complete coursework – Suggested links to read and makes notes from with useful information. https://www.youtube.com/watch?v=Og5xAdC8EUI https://www.youtube.com/watch?v=a0yGDipKWlo https://my.clevelandclinic.org/health/body/7041-digestive-system#:~:text=What%20organs%20make%20up%20the,pancreas%2C%20gall%20bladder%20and%20liver. https://www.hopkinsmedicine.org/health/wellness-and-prevention/digestive-enzymes-and-digestive-enzyme-supplements#:~:text=Types%20of%20Digestive%20Enzymes&text=Amylase%20(made%20in%20the%20mouth,the%20pancreas%3B%20breaks%20down%20proteins) https://www.niddk.nih.gov/health-information/digestive-diseases