The Winchester School

Aim High Progress Study Programme _ (Year 13) -October _2022

Subject	Focus	Activities	Useful website
Accounting	• To evaluate the performance of a business based on budgeted information. • To make recommendations as to how the performance of a business, as revealed by a business could be improved.	Download an annual report of a company; understand the Profit and Loss of the company for 3 years. Present a budget for next year by taking into consideration the various changes in expenses and income.	www.myaccountinglab.com, www.bized.co.uk www.tutor2u.net www.cie.org.uk,
Biology	**PHOTOSYNTHESIS:** • To Elucidate the three steps of Light dependent reaction and signify it over light independent reaction. • To justify the independence of Light independent reaction with emphasis on the steps involved.	• Schematically illustrate the purpose of photosynthesis and transfer of energy from light to complex organic molecules. • Interpret graphs showing the effects of limiting factors. • Draw a labelled diagram of a palisade cell and a chloroplast and write a summary of how they are adapted for photosynthesis.5. .Produce an	• http://www.biologymad.com/ • http://faculty.uca.edu/johnc/Chloroplast_and_microbodies.jpg • http://www.teachnet.ie/foneill/cyclic.html • http://www.saps.plantsci.cam.ac.uk/worksheets/ssheets/ssheet10.htm

Aim High Progress Study Programme _ (Year 13) -October _2022

	• To elaborate the adaptations of CAM plants/the biochemistry of C4 **Coordination:** • Compare the nervous and endocrine systems as communication systems, that co-ordinate responses	annotated diagram of the light-dependent stage. • Add bullet points to build understanding of photolysis, photosystems, chain of electron carriers / ATP production and reduction of NADP. • Investigate the effect of light intensity and light wavelength on the Hill reaction, using a very simple protocol. • Give a brief outline of the main types of photosynthetic pigments, distinguishing between primary and accessory pigments. • Sketch out absorption and action spectra, explaining the similarities and differences between the two. 1. Make a model of Axon with post and pre synaptic endings and Label it correctly. 2. Make a flow diagram to explain the Nervous system. 3. Prepare a presentation on the saltatory movement of nerve impulse.	• http://www.wiley.com/college/boyer/0470003790/animations/photosynthesis/photosynthesis.htm http://www2.estrellamountain.edu/faculty/farabee/biobk/BioBookNERV.html https://www.youtube.com/watch?v=e3Nq-P1ww5E

Aim High Progress Study Programme _ (Year 13) -October _2022

	to changes in the internal and external environment. • Explain the importance of the myelin sheath (saltatory conduction) in determining the speed of nerve impulses and the refractory period. • Explain the sliding filament model of muscular contraction including the roles of troponin, tropomyosin, calcium ions and ATP • Explain the roles of the hormones FSH, LH, oestrogen and progesterone in controlling changes in the ovary and uterus during the human menstrual cycle • Describe the role of gibberellin in the germination of wheat or barley	4. Create a 10 quiz questions on the role of hormone in human body coordination. •	https://www.youtube.com/watch?v=HYLyhXRp298, https://www.youtube.com/watch?v=L41TYxYUqqs

The Winchester School

Aim High Progress Study Programme _ (Year 13) -October _2022

Business Studies	• To analyze the need and purpose of strategic management	• Evaluate the usefulness of SWOT to a large business-like KFC.	www.tutor2u.net www.dineshbakshi.com www.cie.org.uk www.slideshare.net.tutor2u.net
Chemistry	**Chemical Energetics (Entropy & Gibbs Free Energy)** • To predict and justify the sign of entropy changes • To measure the entropy changes for a reaction using the standard entropy values • To suggest the feasibility of a reaction using Gibbs free energy • To explain the effect of temperature on the spontaneity of a reaction **Equilibria**	• Compare the entropy changes for various states of matter to justify the relationship between entropy and the number of microstates • Prepare a power-point presentation on the significance of Gibbs free energy • Calculate entropy changes using standard entropy values and relate Gibbs free energy to entropy and enthalpy • Research and write an article on the effect of temperature on feasibility of a reaction.	http://study.com/academy/lesson/the-relationship-between-enthalpy-h-free-energy-g-and-entropy-s.html https://chemed.chem.purdue.edu/genchem/topicreview/bp/ch21/gibbs.php https://byjus.com/questions/how-is-gibbs-free-energy-related-to-enthalpy-and-entropy/ https://jackwestin.com/resources/mcat-content/acid-base-equilibria/conjugate-acids-and-bases

The Winchester School

Aim High Progress Study Programme _ (Year 13) -October _2022

	• To outline the theory of conjugate pairs in acid-base reaction • To relate pH, Ka, pKa and Kw and use them in calculations. • To determine the pH of buffer solutions **Chemistry of Carboxylic acids and Acyl chlorides:** • To outline the reactions of carboxylic acids in the formation of acyl chlorides. • To recognize the ability of some carboxylic acids to be further oxidized • To deduce the relative acidities of carboxylic acids, phenols and alcohols • To apply the concept of electronegativity to explain the acidities of chlorine-substituted ethanoic acids.	• Prepare a quiz on identification of conjugate acid/conjugate base for acid-base reactions • Solve a minimum of five questions from paper 4 relating pH, Ka, Kw, pKa • Prepare a power-point presentation on the role of buffers in real life (e.g. maintaining blood pH) • Practice five questions based on Henderson-Hasselbalch equation • Practice writing names of derivatives of carboxylic acids. • Create a checklist for nomenclature of derivatives of carboxylic acids. • Compare the physical and chemical properties of derivatives of carboxylic acids, giving a justifications for your choice. • Design step by step animation to show reaction mechanism that operates in acyl chlorides. Clearly	https://www.chemguide.co.uk/physical/acidbaseeqia/kw.html https://study.com/skill/practice/converting-between-ka-and-pka-questions.html https://byjus.com/chemistry/henderson-hasselbalch-equation/ https://climatescienceteaching.org/resources/buffers-oceans/downloads/How_Does_A_Buffer_Maintain_Ph.pdf https://chem.libretexts.org/Textbook_Maps/Organic_Chemistry/Map%3A_Organic_Chemistry_(McMurry)/Chapter_21%3A_Carboxylic_Acid_Derivatives%3A_Nucleophilic_Acyl_Substitution_Reactions/21.01_Naming_Carboxylic_Acid_Derivatives

The Winchester School

Aim High Progress Study Programme _ (Year 13) -October _2022

	• To describe the hydrolysis of acyl chlorides • To describe the reactions of acyl chlorides with alcohols, phenols, ammonia and primary amines • To analyze the relative ease of hydrolysis of acyl chlorides, alkyl chlorides and aryl chlorides including the condensation (addition-elimination) mechanism for the hydrolysis of acyl chlorides	showing curly arrows, partial charges and lone pair of electrons. • Compare and contrast relative ease of hydrolysis of acyl chlorides, alkyl chlorides and aryl chlorides including the condensation mechanism for the hydrolysis of acyl chlorides • Write an article for newspaper to discuss the importance of derivatives of acyl chlorides.	https://www.britannica.com/science/carboxylic-acid https://www.chemguide.co.uk/mechanisms/addelim/alcohol.html https://en.wikipedia.org/wiki/Acyl_chloride
Economics	• To analyze the relevance of economic efficiency in the context of modern-day economies.	Learning Menu on Economic Efficiency & Resource Allocation - **Attempt any three tasks from the learning Menu –** 1.Prepare a Sway presentation or a Prezi on the TRAGEDY OF THE COMMONS with the help of relevant examples.	www.tutor2u.net www.dineshbakshi.com www.cie.org.uk www.slideshare.net

The Winchester School

Aim High Progress Study Programme _ (Year 13) -October _2022

		2. Create a Ted –Ed Lesson on Externalities and Market failure. 2. As a Management consultant you need to reduce costs by a third over the next 2 years for Jones & Tudor, a company in the fashion industry. Produce a Report that summarizes your suggestions to the company. 3. Research on any large infrastructure Project in Dubai and discuss the steps and difficulties involved in the Cost Benefit Analysis. 4 Based on the Articles below1.https://www.tutor2u.net/economics/blog/cost-benefit-analysis-swansea-tidal-lagoon 2.https://www.bbc.com/news/business-51443629 Outline the steps in the COBA using the information given. Explain the limitations of	

Aim High Progress Study Programme _ (Year 13) -October _2022

		the CBA. Share your findings on an A3 Poster. 5. Create an Infographic presentation on Cost Benefit Analysis illustrating the same with the help of real- world examples. 6. Draw a cartoon strip depicting the different reasons of market failure. 7. Watch the video clip https://www.youtube.com/watch?v=wnjx6KETmi4 and write a well- balanced newspaper article on "Climate Change is a classic example of market failure and an imminent threat rather than a hoax" 8. Using the Case study of Google /Microsoft /Apple or Amazon explain the policies/strategies the company might have adopted to achieve dynamic efficiency. •	

The Winchester School

Aim High Progress Study Programme _ (Year 13) -October _2022

Mathematics Edexcel	**Pure Mathematics 3** **Exponential and logarithms** • Understand the relationship between logarithms and indices, and use the laws of logarithms (excluding change of base) • Interpret the definition and properties of e^x and lnx, including their relationship as inverse functions and their graphs • Apply logarithms to solve equations and inequalities in which the unknown appears in indices • Analyze and apply rules of logarithms to transform a given relationship to linear form, and hence determine unknown constants by considering the gradient and/or intercept. **Statistics 1**	**Pure Mathematics** Research on the application of logarithms in **measurement Scale: Richter, Decibel, etc.** Research on the application of logarithms to measure the acidic, basic or neutral of a substance that describes the chemical property in terms of pH value Research on the real-life application of logarithms in measuring sound intensity Research on the real-life application of logarithms in calculating complex values **Statistics 1** What is Bayer's theorem ?How does this related with conditional probability Model a situation on conditional probability from a real life situation. **Statistics 2** Research and summarise findings with examples on real life application of linear combination of random variables. Make notes to summarise learning that includes formulae and solved examples.	**https://revisionmaths.com/advanced-level-maths-revision/pure-maths/calculus/exponentials-and-logarithms** **https://www.examsolutions.net/tutorials/exam-questions-logarithms/** **https://www.katesmathlessons.com/intro-to-logarithms-p3.html** **https://www.youtube.com/watch?reload=9&v=gxIRIDjMhg0** **Statistics 1** https://revisionmaths.com/advanced-level-maths-revision/statistics/permutations-and-combinations https://revisionmaths.com/advanced-level-maths-revision/statistics/probability https://www.youtube.com/watch?v=wTlbovKpTME **Statistics 2**

The Winchester School

Aim High Progress Study Programme _ (Year 13) -October _2022

	Probability, Permutations and combinations • Solve problems involving permutation and combinations of a set of objects • Evaluate probability in simple cases • Apply sample space to evaluate the probability. • Add and multiply probability in appropriate cases. • Apply Venn diagrams and tree diagrams to calculate the probability. • Show that events are mutually exclusive or independent. • Able to calculate conditional probability using formula. • Model situations involving probability. **STATISTICS 2** **Linear combination of random variables**	Research and summarise findings with examples on real life application of a probability density function. List down examples of population and sample. **Mechanics** Find situations which can be modeled as motion in a straight line with constant acceleration Record your journey from Dubai to Abudhabi and draw a speed time graph representing the journey and calculate average speed from the graph	https://revisionmaths.com/advanced-level-maths-revision/statistics/continuous-random-variables https://www.youtube.com/watch?v=LJHN5o5YGSA https://revisionmaths.com/advanced-level-maths-revision/statistics/sampling https://www.statlect.com/probability-distributions/normal-distribution-linear-combinations https://stattrek.com/random-variable/combination.aspx https://www.youtube.com/watch?v=AGc8KgAah3E https://revisionmaths.com/advanced-level-maths-revision/statistics/continuous-random-variables **Mechanics**

Aim High Progress Study Programme _ (Year 13) -October _2022

	• Solve problems using the result of E(aX + b), Var(aX+b), E(aX+bY) and Var(aX+bY) • Define the distribution of X+Y ,if X and Y have independent poisson distribution • Define the distribution of aX+bY, if X and Y both are independently normal distributed **<u>Continuous random variables</u>** • understand the concept of a continuous random variable, and recall and use properties of a probability density function • use a probability density function to solve problems involving probabilities, and to calculate the mean and variance of a distribution.		http://fhsmaths.weebly.com/kinematics-of-a-particlea- straight-line.html http://www.mathsbox.org.uk/revisionnotes/AQA%20Mechanics%201%20Revision%20Notes.pdf

The Winchester School

Aim High Progress Study Programme _ (Year 13) -October _2022

	Mechanics 1 : **Chap 1 : Velocity and acceleration** • To work with scalar and vector quantities for distance and speed • To use equations of constant acceleration • To sketch and read displacement–time graphs and velocity–time graphs • To solve problems with multiple stages of motion.		
Psychology	Abnormal Psychology	• Assess the different explanations of schizophrenia and delusional disorder.	AS /A level Psychology textbook or any other General Psychology textbooks. You may refer to the below links for additional information. https://www.verywellmind.com/what-is-the-biological-perspective-2794878
Physics	**Quantum Physics** • To explain photoelectric phenomena in terms of	○ Research on ❖ Use band theory to explain why the resistivity of an intrinsic	www.cie.org.uk www.s-cool.co.uk/a-level/physics/quantum-physics

	photon energy and work function energy • To recall and use the relation for the de Broglie wavelength λ = h/p • show an appreciation of the association between energy and mass as represented by E = mc2 and recall and use this relationship • **Understand the significance of the terms mass defect and mass excess in nuclear reactions** • **Define and understand the terms mass defect and binding energy** • **Sketch the variation of binding energy per nucleon with nucleon number**	semiconductor increases as the temperature decreases. ❖ When electromagnetic radiation of wavelength 2000nm is incident on a metal surface, the maximum kinetic energy of the electrons released is found to be 4.0 x 10^{-20}J. Determine the work function of the metal in Joules. ❖ Learners will need to get used to the idea of expressing both masses and energies in this context in eV and MeV. It can equally be applied to masses too because mass and energy must be thought of as being interchangeable. As you progress through the unit, they should come to have a feeling for the quantities of energy and mass involved. ❖ Practical to simulate radioactive decay (see online resources). This involves using a large number of small wooden cubes (at least 500), each	www.physicsandmathstutor.com/physics-revision/alevel-cie/topic-25-26http://www.tap.iop.org/atoms/radioactivity/515/page_47139.html http://www.youtube.com/watch?v=rXer6qidxQM http://www.youtube.com/watch?feature=player_embedded&v=AgwDNLBRqjQ http://www.youtube.com/watch?v=ogSTvmouXkM&feature=player_embedded

Aim High Progress Study Programme _ (Year 13) -October _2022

	• Explain the relevance of binding energy per nucleon to nuclear fusion and to nuclear fission • Define the terms activity and decay constant and recall and solve problems using A = λN • Infer and sketch the exponential nature of radioactive decay and solve problems using the relationship x = x0e–λt, where x could represent activity, number of undecayed nuclei or received count rate	with one face painted a particular color. Dice would be a perfectly acceptable alternative. They should draw an appropriate graph using the results, and thus become familiar with the concept of exponential decay ❖ Learners research the link between the activity and the number of nuclei, and find out what the decay constant is	
Sociology	To assess the sociological perspectives on Globalisation	Research on the sociologists and their theories on globalization. Make a graphic organizer to demonstrate your ideas. Translate the ideas into writing a journal entry on the perspectives and their relation to current global issues	www.sociology.org.uk www.tes.co.uk

The Winchester School

Aim High Progress Study Programme _ (Year 13) -October _2022

English Language	Linguistic	Research and create a visual presentation on the following topic: • What is linguistics? • How is the study of linguistics important? • List the names of some prominent linguists and their contribution to society. How do you think has language evolved over the years?	https://linguistics.ucsc.edu/about/what-is-linguistics.html
Travel and Tourism	• To Analyze and evaluate the importance of destination marketing taking into consideration 4P's of marketing.	Here's an opportunity to put your knowledge of the Four P's into practice! You will select one of the destinations for pleasure tourism. Create a poster and a brochure advertising your excursion	Using the Internet, The Encyclopedia of DUBAI, and other sources. Visit the sites, collect data, pick up brochures, etc.
ICT	**Analysis and Design** • analyse and evaluate different methods of researching a situation (including: questionnaires, interviews, observation, document analysis) • describe the content of the requirements specification,	Create a presentation to explain different methods of researching a situation including: questionnaires, interviews, observation, and document analysis. Create a word document to how to use the research data to determine what the data collection forms and screen layouts will look	https://www.teach-ict.com/as_a2_ict_new/ocr/A2_G063/331_systems_cycle/slc_stages/miniweb/pg4.htm

Aim High Progress Study Programme _ (Year 13) -October _2022

	system specification and design specification • identify a flow of data through a system and create a data flow diagram (DFD) and a system flowchart • design and evaluate data collection forms and screen layouts • design and evaluate validation routines • create a data dictionary for a given situation evaluate suitable hardware and software for a new system	like – You need to explain the importance of knowing the fields, field types and lengths.	
Computer Science	**System software:** To investigate how an OS can maximize the use of resources To explain the ways in which the user interface hides the complexities of the hardware from the user	Encourage your child to create a PowToon to include the following: □ What are operating systems for (remembering the examples you have seen and worked with)? □ What can all operating systems do?	http://courses.cs.vt.edu/~csonline/NumberSystems/Lessons/DecimalToBinaryConversion/index.htm http://en.wikibooks.org/wiki/A-level_Computing/AQA/Problem_Solving,_Programming,_Data_Representation_and_Practical_Exercise/Fundamentals_of_Data_Representation/Binary_number_system

The Winchester School

Aim High Progress Study Programme _ (Year 13) -October _2022

		▯ Design an graphical user interface of his own which is user-friendly and can work on all smart devices.	www.python.org.
Arabic (Arabs)	TOPIC: **التصوير الفني في القرآن الكريم** **لله أشد حبًا** (Learning objectives: * أن يحلل النص القرآني تحليلا أدبيا . * أن يحدد الصورة الفنية في النص القرآني * أن يقارن بين نصين قرآنيين مقارنة أدبية * أن يصف الحالة النفسية للرجل في بعض المواقف . * أن يحدد دور التصوير والقيم البلاغية في الحديث الشريف .	يقرأ الآيات قراءة صحيحة منغمة يبحث عن مواضع أخرى للتصوير الفني في القرآن يشرح الأمثلة التي توصل إليها في القرآن يحلل أهمية أسلوب التصوير في فهم المعنى يطبق استراتيجية التصوير وضرب الأمثال بأمثلة من القرآن والحديث يستخرج القيم البلاغية في الحديث الشريف يقارن بين الصورة في هذا الحديث وحديث أصحاب السفينة	https://www.youtube.com/watch?v=t3OfUrXNvcQ https://www.youtube.com/watch?v=A9iZaJZBRqU https://www.youtube.com/watch?v=78-GlWxUwwY https://www.youtube.com/watch?v=xF9ZramPvHg

The Winchester School

Aim High Progress Study Programme _ (Year 13) -October _2022

	- أن يقارن بين نصين من حيت الصورة الفنية البيوع المحرمة 1 يبين بعض أنواع البيوع المحرمة الزواج طريق الاستعفاف 2 يس تنتج الآثار المترتبة على العفة		
Islamic Education (Non Arabs	TOPIC: THE SLANDER AGAINST AYESHA (RA) **Learning objectives:** To appreciate the magnificient character of Ayesha(RA)	SEARCH AN EXAMPLE FROM SEERAH THAT SHOWS HOW DOES SPREADING RUMOR IS DANGEROUS. HOW CAN WE SAVE OURSELVES FROM BELIEVING THE RUMORS? RECORD THE VIDEO.	https://www.iqrasense.com/islamic-history/the-slander-against-ayesha-ra-mother-of-the-believers-and-her-vindication-by-allah.html

The Winchester School

Aim High Progress Study Programme _ (Year 13) -October _2022

	To comprehend the consequences of rumors on individual and society TOPIC: THE SLANDER AGAINST AYESHA (RA) and moral lesson **Learning objectives:** To elucidate the importance of staying away from slandering. - To evaluate the benefits of staying away from slandering.	*WRITE AN ESSAY ON THE IMPORTANCE OF* THE WISDOM BEHIND THE PUNISHMENT OF MORAL CRIMES AS MENTIONED IN QURAN.ADD IN YOUR ESSAY HOW CAN THESE PUNISHMENTS SAVE A SOCIETY TO BECOME RUIN.	
Islamic Education (Arabs)	1 البيوع المحرمة يبين بعض أنواع البيوع المحرمة 2 الزواج طريق الاستعفاف يستنتج الآثار المترتبة على العفة	يقدم أدلة على تحريم هذه البيوع يبين الآثار المترتبة على الزنا وأدلة تحريمه من القرآن والسنة	https://www.youtube.com/watch?v=3KNd1tw2nxE https://www.youtube.com/watch?v=4yUopIDxYBY

The Winchester School

Aim High Progress Study Programme _ (Year 13) -October _2022

Art& Design	To explore and build on their subject of interest. To encourage independent expression and the development of a critical, reflective practice. Independent personal study.	To reflect growing independence in the refinement and development of ideas and personal outcomes. To engage in original experimentation with a range of media, materials and techniques, including wet and dry mediums. To investigate critical reflection in the process that helps artists and designers to learn what works and what doesn't.	www.studentartguide.com