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Aim High Progress Study Programme _ (Year 13) -December _2021

Subject	Focus	Activities	Useful Websites/Apps
Accounting	<ul style="list-style-type: none"> To develop independent problem-solving skills To get familiarize with the A level topics 	<ul style="list-style-type: none"> Revise all the topics covered so far in the A level syllabus. Revise the topic of budgeting and practice questions on the same. Practice question from past paper 2016 – 2020 (Feb/March and May/June series) 	www.myaccountinglab.com , www.bized.co.uk www.tutor2u.net www.cie.org.uk ,
Economics	<ul style="list-style-type: none"> To consolidate all the A level Topics covered so far To develop independent researching skills and student led lessons on 	Revise all the topics covered so far in the A level syllabus. <ul style="list-style-type: none"> Based on the gap analysis complete the un -attempted structured questions from the Pre- Mock examinations. Complete all MCQ questions on the A level topics covered so far from the A level Work book. Read Pages 57-60 (A Level work book)on Government Micro-economic intervention and prepare an Infographic on measures governments adopt to correct market failure. Read Article on Wage Determination on Pages 60 -61(A Level work book) and complete the Activity based learning exercise . 	www.tutor2u.net www.s-cool www.bized.ac.uk www.xtremepapers.com



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<p>Business Studies</p>	<p><u>External economic influence on business</u></p> <ul style="list-style-type: none"> To analyses the possible impact on business strategies of changes in tax rates, interest rates and exchange rates and <p>To discuss the external economic influence on business</p>	<p>RESEARCH TASK -</p> <ul style="list-style-type: none"> Find out the current rate of unemployment for your region and that for your country as an average. Research the rate of inflation for your country and how this has changed over the last 12 months. Find out the current central bank base rate and how this has changed over the last 12 months. Write a report of these economic changes to the chief executive officer of one of your country's major companies explaining: The likely affect of the changes on the business the possible strategies the business could adopt to respond to these changes. 	<p>www.bized.co.uk</p> <p>www.tutor2u.net</p> <p>www.s-cool.co.uk</p> <p>www.businesscasestudies.co.uk</p>
<p>Travel & Tourism</p>	<p><u>Communicating the destination brand</u></p> <p>To discuss Stakeholders in the process and their roles, and analyse the impact of them working together.</p>	<p>Write a detailed report on:</p> <ul style="list-style-type: none"> national tourism organizations (NTOs) regional tourism organizations local tourism organizations commercial travel and tourism organizations (for profit) non-commercial travel and tourism organizations (not for profit) 	<p>www.aalep.eu/key-tourism-stakeholders-eu-28,</p> <p>http://stravelandtourism.weebly.com/public-private-and-voluntary-sector.html</p>



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		<p>Using the list on this webpage www.aalep.eu/key-tourism-stakeholders-eu-28, select a country such as Poland or Malta (or France/Spain that also has a UNESCO World Heritage Site.</p> <p>Investigate the stakeholders listed, and categorise them according to the content listed above. Research other organisations, such as Tourism Concern or WWF, that are involved in those destinations. Identify local and regional organisations that are not listed. (I)</p> <p>From the categories and research, build up what each stakeholder is doing and how they create synergy.</p>	
<p>Physics</p>	<p><u>Circular Motion</u></p> <ul style="list-style-type: none"> • To analyze the kinematics of uniform circular motion • Centripetal acceleration and centripetal force. <p><u>Oscillations</u></p>	<ul style="list-style-type: none"> • Practice application of angular frequency • Solve past paper questions applying the concept of Electric potential and field strength in graph questions 	



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	<ul style="list-style-type: none">To apply the principle of angular frequency and phase difference and express the period in terms of both frequency and angular frequency <p><u>Electric Field</u></p> <ul style="list-style-type: none">To recall the concept of electric force, electric field strength and potential <p><u>Capacitance</u></p> <ul style="list-style-type: none">Apply the concept of Capacitance in circuits with capacitors connected in series and parallel.	<ul style="list-style-type: none">Solve questions applying the concept of centripetal accelerationRevise calculations involving Capacitance, charge and pd in circuits with different combinations of capacitors connected together.Recall the experiments to find the gain of both inverting and non-inverting amplifiersPractice calculations involving internal energy of a system doing work	
Chemistry	<p><u>Lattice Energy:</u></p> <ul style="list-style-type: none">Use Born-Haber cycle to calculate lattice energy of ionic compoundDetermine enthalpy changes of solution and enthalpy changes of hydrationInterpret and explain qualitatively the variation in solubility of the hydroxides and sulfates in terms of relative magnitudes of the enthalpy change of	<ul style="list-style-type: none">Construct Born-Haber cycle for ionic compounds– labelling each enthalpy change.Compare the solubility of group 2 hydroxides with those of group 2 sulfates – justify the trend seen citing enthalpy valuesSolve minimum 5 past paper questions based on calculating	<p>http://www.docbrown.info/page07/delta2Hb.htm</p> <p>http://alevelchem.com/aqa_a_level_chemistry/unit3.5/s351/02.htm</p> <p>http://chubbyrevision-a2level.weebly.com/thermodynamics.html</p> <p>http://www.scienceskool.co.uk/uploads/9/5/5/0/9550437/thermodynamics_and_born_haber.pdf</p>



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	<p>hydration and the corresponding lattice energy</p> <p>Further Aspects of Equilibria:</p> <ul style="list-style-type: none">• To determine the pH of buffer solutions and outline their uses in daily life.• To use solubility product for sparingly soluble salts and justify the effect of common ion.• To deduce partition coefficient (K_{pc}) for a solute partitioned between two immiscible solvents and use it in calculations. <p>Chemistry of Carboxylic acids and Acyl chlorides:</p> <ul style="list-style-type: none">• 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	<p>enthalpy changes using Born-Haber cycle</p> <ul style="list-style-type: none">• Justify the role of buffers in maintaining blood pH – give equations• Express K_{sp} with units for 5 sparingly soluble salts• Prepare a Power-point presentation on application of partition coefficient• Solve at least two past paper questions on calculating K_{pc} <ul style="list-style-type: none">• 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.	<p>http://www.chemguide.co.uk/physical/equilibmenu.html</p> <p>http://www.chemguide.co.uk/physical/acidbaseeqia/buffers.html</p> <p>http://alevelchem.com/aga_a_level_chemistry/unit3.4/s3403/05.htm</p> <p>http://study.com/academy/lesson/partition-coefficient-definition-and-calculation.html</p> <p>https://chem.libretexts.org/Textbook Maps/Organic Chemistry/Map%3A A Organic Chemistry (McMurry)/Chapter 21%3A Carboxylic Acid Derivatives%3A Nucleophilic Acyl Substitution Reactions/21.01 Naming Carboxylic Acid Derivatives</p> <p>https://www.britannica.com/science/carboxylic-acid</p> <p>https://www.chemguide.co.uk/mechanisms/addelim/alcohol.html</p>
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	<p>acidities of chlorine-substituted ethanoic acids.</p> <ul style="list-style-type: none">• To describe the hydrolysis of acyl chlorides• To describe the reactions of acyl chlorides with alcohols, phenols, ammonia and primary amines	<ul style="list-style-type: none">• Design step by step animation to show reaction mechanism that operates in acyl chlorides. Clearly 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.	<p>https://en.wikipedia.org/wiki/Acyl_chloride</p>
Biology	<p>PHOTOSYNTHESIS:</p> <ul style="list-style-type: none">• 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.	<ul style="list-style-type: none">• 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.	<ul style="list-style-type: none">• http://www.biologymad.com/• http://faculty.uca.edu/johnc/Chloroplast_and_microbodies.jpg• http://www.teachnet.ie/fone/ill/cyclic.html



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	<p>Coordination</p> <ul style="list-style-type: none"> • Explain the importance of the myelin sheath (saltatory conduction) in determining the speed of nerve impulses and the refractory period. • 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 <p>Homeostasis: Homeostasis in mammals</p> <ol style="list-style-type: none"> 1. Justify that homeostasis in mammals requires complex systems to maintain internal conditions near constant. 2. With help of annotated diagram of kidney, describe how it remove wastes from the blood 	<p>.Produce an annotated diagram of the light-dependent stage.</p> <ol style="list-style-type: none"> 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. 4. Create a 10 quiz questions on the role of hormone in human body coordination. <ol style="list-style-type: none"> 1. Participate in class discussion to review knowledge of homeostasis. 2. Review understanding of nitrogen-containing waste by producing a 2-columned table, listing the different nitrogenous waste products and making brief notes on each one (e.g. 	<ul style="list-style-type: none"> • http://www.saps.plantsci.cam.ac.uk/worksheets/ssheets/ssheet10.htm • http://www.wiley.com/college/boyer/0470003790/animations/photosynthesis/photosynthesis.htm <p>http://www2.estrellamountain.edu/faculty/farabee/biobk/BioBookNERV.html</p> <p>https://www.youtube.com/watch?v=e3Nq-P1ww5E</p> <p>https://www.youtube.com/watch?v=HYLyhXRp298,</p> <p>https://www.youtube.com/watch?v=L41TYxYUqqs</p> <p>https://www.youtube.com/watch?v=OZUjKBRkfMs&index=3&list=PL6492ADB337276EC3</p> <p>https://www.khanacademy.org/science/high-school-</p>
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	<p>and are the effectors for controlling the water potential of the blood.</p> <p>Homeostasis in Plants 1.Analyze how the stomatal aperture is regulated in response to the requirements for uptake of carbon.</p> <p>Energy and respiration:</p> <ul style="list-style-type: none"> • Justify the production of a small yield of ATP from anaerobic • respiration and the formation of ethanol in yeast and lactate in mammals, including the concept of oxygen debt; 	<p>source, converted to, involvement of liver, re-use of some parts)</p> <ul style="list-style-type: none"> • Use diagrams and models, conduct a research, to illustrate the structure of ATP, release of energy when phosphate is removed and its origin / recycling from ADP and inorganic phosphate. • Enlist the features that make ATP the universal energy currency. 	<p>biology/hs-human-body-systems/hs-body-structure-and-homeostasis/a/homeostasis https://www.britannica.com/science/homeostasis</p> <p>http://www.biologyinmotion.com/atp/index.html</p> <p>http://www.science.smith.edu/departments/Biology/</p> <p>https://www.youtube.com/watch?v=1-g73ty9v04</p> <ul style="list-style-type: none"> •
<p>Art and Design</p>	<ul style="list-style-type: none"> • To explore and show personal vision and commitment through an interpretative and creative response . 	<p>Communication: purposeful exploration with every possible means of resources and show personal vision and commitment through an interpretative and creative response .</p>	<ul style="list-style-type: none"> • www.studentartguide.com
<p>English</p>	<ul style="list-style-type: none"> • To revise the various theories provided in Paper 3 and 4 	<ul style="list-style-type: none"> • Research on language and self- identity. • Research on theories and theorists of child language acquisition 	<p>https://penstory.wordpress.com/tag/as-level-english-language-9093/</p>



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<p>Mathematics</p>	<p><u>Pure Mathematics</u> <u>Differentiation</u></p> <ul style="list-style-type: none"> • Use the derivatives of e^x, $\ln x$, $\sin x$, $\cos x$, $\tan x$, $\tan^{-1} x$, together with constant multiples, sums, differences and composites • Differentiate products and quotients using product and quotient rule. <p>Evaluate and use the first derivative of a function which is defined parametrically or implicitly.</p>	<p>Self evaluate and summarise your learning in the form of notes, mind map with variety of examples.</p>	<p>https://www.khanacademy.org/math/ap-calculus-ab/ab-differentiation-1-new/ab-2-8/a/product-rule-review https://tutorial.math.lamar.edu/classes/calci/productquotientrule.aspx https://www.mathcentre.ac.uk/resources/uploaded/mc-ty-product-2009-1.pdf https://revisionmaths.com/advanced-level-maths-revision/pure-maths/calculus/parametric-differentiation.</p>
	<p><u>Mechanics</u> <u>Forces and Equilibrium</u></p> <p>Apply Newton's laws of motion to the linear motion of a particle of constant mass moving under the action of constant forces, which may include friction, tension in an inextensible string and thrust in a connecting rod</p> <p>Solve simple problems which may be modelled as the motion of a particle moving</p>	<p>Create questions for connected particles like a car towing a trailer by means of either a light rope or a light rigid towbar. Consider all the forces acting in the system and applying Newton's laws of motion</p>	<p>https://www.vivaxsolutions.com/maths/alpulleys.aspx</p> <p>https://www.a-levelphysicstutor.com/m-kinetics-con-partcls.php</p>



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	<p>vertically or on an inclined plane with constant acceleration solve simple problems which may be modelled as the motion of connected particles.</p>		
	<p><u>Statistics 1</u> <u>Probability</u></p> <ul style="list-style-type: none"> • Evaluate probability in simple cases • Apply sample space to evaluate the probability. • Add and multiply probability in appropriate cases. 	<p>Summarise probability using a spider Diagram or any ICT tool. Practice exam style Questions.</p>	<p>https://revisionmaths.com/advance-d-level-maths-revision/statistics/permutations-and-combinations</p> <p>https://revisionmaths.com/advance-d-level-maths-revision/statistics/probability</p>
	<p><u>Statistics 2</u> <u>Continuous Random Variable</u></p> <ul style="list-style-type: none"> • Solve application problems using the result of $E(aX + b)$, $Var(aX+b)$, $E(aX+bY)$ and $Var(aX+bY)$ • Apply probability density function to solve application problems involving 	<p>Self-evaluate and summarise your learning in the form of notes, mind map with variety of examples</p>	<p>https://www.statlect.com/probability-distributions/normal-distribution-linear-combinations</p> <p>https://revisionmaths.com/advance-d-level-maths-revision/statistics/continuous-random-variables</p>



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	probabilities and to calculate the mean and variance of a distribution.		
Information Technology	<p>Networks</p> <ul style="list-style-type: none"> To describe components within a network and understand band width, bit rate, bit streaming and the importance of bandwidth To understand different methods of data transmission describe protocols. 	<ul style="list-style-type: none"> Explore the files available on an organization’s file server. Find out what documents and permissions that are available to employees. Research about the different types of networking networking devices. 	<p>https://fossbytes.com/networking-devices-and-hardware-types/</p> <p>https://en.wikibooks.org/wiki/Network_Plus_Certification/Devices/Common_Devices</p>
Computer Science	<p>Declarative programming (Prolog):</p> <ul style="list-style-type: none"> To demonstrate an ability to solve a problem by writing appropriate facts and rules based on supplied information To demonstrate an ability to write code that can satisfy a goal using facts and rules 	<ul style="list-style-type: none"> Encourage your child to develop a software project to include the following: Create a software database which can handle the files using Prolog concept 	<p>Prolog:</p> <p>www.learnprolognow.org/lpnpag.php?pageid=implementations</p> <p>Tutorial guide to prolog:</p> <p>www.learnprolognow.org/lpnpag.php?pageid=online</p>



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Psychology	<ul style="list-style-type: none">To elaborate on: abnormal Psychology Anxiety Disorders Phobias	<ul style="list-style-type: none">Consider any one of these phobias (Anxiety disorders) to illustrate using a case study.Make a powerpoint presentation on agoraphobia, blood phobia or dog phobia.Your research should include an explanation from one school of thought- Behavioural (classical conditioning) Psychoanalytic (Freud, 1909),Biomedical/genetic (Ost, 1992) OR cognitive (e.g. DiNardo et al., 1988).	www.psychexchange.co.uk ; www.intute.com ; www.hola.karoo.net www.psychologyabout.com
Sociology	To assess the role of cults and sects in religion	Research on the different cults and sects in different countries. Make a table to display the countries and the sects of religion in each of the countries. Prepare a prezi – presentation to exhibit your findings at a global level	www.sociology.org.uk www.tes.co.uk



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History	To research on how important were the personalities of the leaders of the Great Powers in shaping the Cold War?	<ul style="list-style-type: none">• Watch all parts of Isaacs' <i>Cold War</i>.<ul style="list-style-type: none">• These differences can be collated and classified: which are points of detail, which are points of argument (i.e. interpretative points, but not sufficient in themselves to identify the historian's overall interpretation), and finally the essential difference in the interpretation as a whole.	https://www.youtube.com/watch?v=GQbZSNS2mgY
Global perspectives	Research Report	For your chosen topic for the Research Report: <ul style="list-style-type: none">• Write an alternative research question. This should be linked to you're a-level subjects of whatever course you intend to pursue in university.• Research the contrasting perspectives in the issue of focus.• Identify the methods and methodologies you will employ and justify these. Analyse why you believe they are suitable and what shortcomings may be predicted.	Suitable research sources chosen by the learner.



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| | | <ul style="list-style-type: none">• Engage yourself in research as per the methods and methodologies decided upon.• Continue entries in the research log. Ensure that you enter the references as you will use them in your citation. Be more evaluative on the comments section of the log. | |
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