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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,
Economics	• To critically evaluate the growth and expansion of monopolistic firms	• Based on the following link https://blog.ed.ted.com/2018/10/01/heres-the-real-danger-that-facebook-google-and-the-other-tech-monopolies-pose-to-our-society/ • And your theoretical knowledge make a case for and against large firms	www.tutor2u.net www.projectsyndicate.com
Business Studies	**Topic: Investment Appraisal -** • To learn and apply the quantitative analysis and to learn the significance of each technique.	1. Explain why appraising investment projects is essential. 2. Evaluate the usefulness of the following methods: • Payback Period Method • Average Rate of Return Method	www.bized.co.uk www.tutor2u.net Newspapers and Magazines Text Book

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		• Net Present Value Method	
Travel & Tourism	• To Analyze and evaluate the importance of destination marketing taking into consideration 4P's of marketing using **ANSOFF & BCG Matrix** for Brand Positioning	• 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. • Visit the sites, collect data, pick up brochures, etc.	• https://www.encyclopedia.com/places/asia/arabian-peninsula-political-geography/united-arab-emirates
Physics	**Magnetic fields** • To understand forces between current-carrying conductor and predict the direction of the forces. • To know the direction of force on a charge moving in a magnetic field. • To define magnetic flux density and the tesla and solve problems using the equation $F = BIL \sin\theta$, with directions as interpreted by Fleming's left-hand rule • To derive the expression $V_H = \frac{BI}{ntq}$ for the Hall voltage, where t = thickness	• Find why two parallel currents attract and two antiparallel currents repel. • Research on how Hall voltage creates a voltage difference across an electrical conductor • Describe the working of a hall probe	https://www.britannica.com/science/Hall-effect https://courses.lumenlearning.com/physics/chapter/22-10-magnetic-force-between-two-parallel-conductors/ https://courses.lumenlearning.com/boundless-physics/chapter/magnetic-force-on-a-moving-electric-charge/

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	Ideal Gases • Solve problems using the equation of state for an ideal gas • Interpret Brownian motion in terms of the movement of molecules • State the assumptions of the kinetic theory of gases • Deduce a relationship between pressure, volume and the microscopic properties of the molecules of a gas • relate the kinetic energy of the molecules of a gas to its temperature	• State and explain in terms of the kinetic model • Examine what happens to the pressure inside a tyre when more molecules at the same temperature are pumped into the tyre • Explain Boyle's law and applications • State the ideal gas equation and explain kinetic model • State the relation between temperature and molecular kinetic theory	http://physicsnet.co.uk/a-level-physics-as-a2/thermal-physics/thermal-energy/ https://www.youtube.com/watch?v=ZwXtPW0gdD0 http://hyperphysics.phy-astr.gsu.edu/hbase/thermo/firlaw.html http://www.physics.usyd.edu.au/super/life_sciences/TP/TP-rev-questions.pdf

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Chemistry	**<u>Entropy and Gibbs free energy:</u>** • To determine that entropy is the measure of the disorder of a system • To predict whether the entropy change for a given process is positive or negative • To calculate entropy change and Gibbs free energy change for a reaction • To suggest the spontaneity of a reaction using Gibbs free energy **<u>Electrochemistry:</u>** • To use the relationship F = Le • To describe methods used to measure the standard electrode potentials of: -metals or non-metals in contact with their ions in aqueous solution • Calculate a standard cell potential by combining two standard electrode potentials **<u>Transition elements</u>:** • Explain the properties of transition metals. Also, compare properties with s block elements.	• Make a power-point presentation showing what is entropy, entropy changes, predicting entropy. • Compare the entropy changes for: Diamond and graphite, liquids and gases • Prepare a TeDEd lesson to recall Gibbs free energy and calculating $\Delta G^{\ominus}$ • Solve past paper questions based on – entropy, Gibbs free energy. • Justify the statement in the picture below, citing examples from daily life.  • Construct electrochemical cell consisting of a metal and its ion in aqueous solution	http://www.chemguide.co.uk/ http://www.cie.org.uk/ http://2ndlaw.oxy.edu/gibbs.html http://study.com/academy/lesson/the-relationship-between-enthalpy-h-free-energy-g-and-entropy-s.html http://www.a-levelchemistry.co.uk/41-kinetics.html http://hyperphysics.phy-astr.gsu.edu/hbase/Chemical/electrochem.html http://chem.libretexts.org/Core/Analytical_Chemistry/Electrochemistry/Basics_of_Electrochemistry/Electrochemical_Cells

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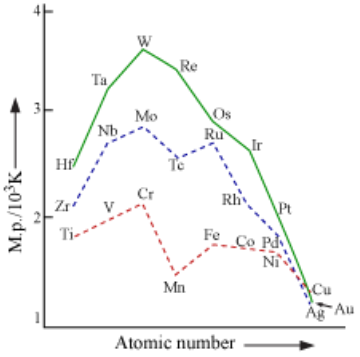
	• describe and explain the reactions of transition elements with ligands to form complexes, including the complexes of copper(II) and cobalt(II) ions with water and ammonia molecules and hydroxide and chloride ions • Describe the shapes of transition metal complexes. • explain qualitatively that ligand exchange may occur, including the complexes of copper(II) ions with water and ammonia molecules and hydroxide and chloride ions • explain the origin of colour in transition element complexes resulting from the absorption of light energy as an electron moves between two non-degenerate d orbitals using non degenerate concepts. • Describe, in qualitative terms, the effects of different ligands on absorption, and hence colour, using the complexes of copper(II) ions with water and ammonia molecules and hydroxide and chloride ions as ligands • Describe and explain ligand exchanges in terms of competing equilibria	• Calculate the Avogadro constant for the electrolysis of aqueous copper sulfate • Make a questionnaire (at least 10 questions) on calculating SEP using electrochemical cells. • Practice writing electronic configuration of transition elements and ions. • Explore the shapes of d subshell. • Analyse the graph and suggest possible reason for the trends. 	https://xtremepapers.xyz/revision/a-level/chemistry/inorganic/transition/features.php https://chem.libretexts.org/Textbook_Maps/General_Chemistry/Map%3A_General_Chemistry_(Petrucci_et_al.)/23%3A_The_Transition_Elements/23.1%3A_General_Properties_of_Transition_Metals http://www.docbrown.info/page07/ASA2ptable2.htm https://www.memrise.com/course/161010/ocr-chemistry-a2-f325-definitions/3/

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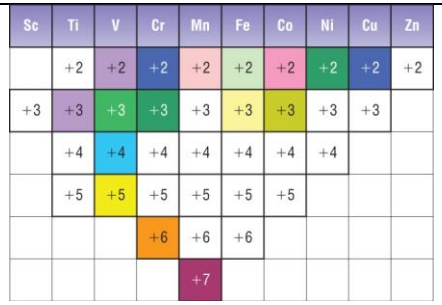
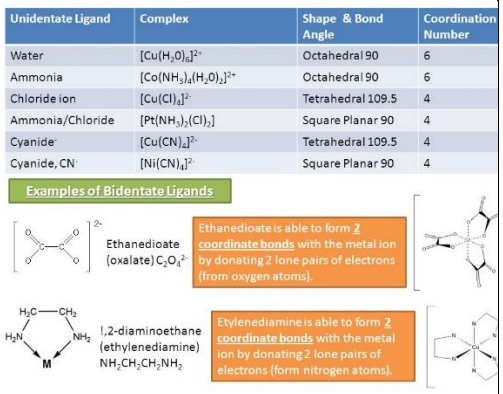
	• Deduce expressions for the stability constant of a ligand substitution using *K*stab and explain its importance. • Explain ligand exchange in terms of stability constants, *K*stab, and understand that a large *K*stab is due to the formation of a stable complex ion	 • Research about ligands, prepare a flow chart to show various types of ligands. Understand the differences between coordination number and valency.  • Practice writing the equations of transition metals complexes with	https://revisionworld.com/a2-level-level-revision/chemistry/periodic-table/transition-metals http://chemed.chem.purdue.edu/genchem/topicreview/bp/ch12/complex.php

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		various ligands and suggest observable changes. Write an expression for *Kstab*.	
Biology	**Inherited Changes** **<u>Gene Mutation</u>** • Explain that gene mutation occurs by substitution, deletion and insertion of base pairs in DNA and outline how such mutations may affect the phenotype. • Outline the effects of mutant alleles on the phenotype in the following human conditions: albinism, sickle cell anaemia, haemophilia and Huntington's disease • Explain the relationship between genes, enzymes and phenotype with respect to the gene for tyrosinase that is involved with the production of melanin • Gene Expression: Explain the function of transcription factors in gene expression in eukaryotes **Selection and Evolution:** • Justify the role offollowing the terms gene pool, reproductive isolation, speciation, allopatric speciation,	• Design 10 questions For Kahoot on the link https://create.kahoot.it/#user/0589a3f9-6572-4955-8b62-a01f5a6da9b4/kahoots/created. • Produce a list of causes of genetic variation for sexually reproducing organisms and for asexually reproducing organisms (i.e. only mutation), as well as causes of environmental variation (disease, edaphic factors, climate, water availability, etc.) • Outline the changes that occur to give base substitution, deletion and insertion mutations. Point out how frameshift mutations arise. Learners can produce.	• http://www.contexo.info/DNA_Basics/Meiosis.htm • http://highered.mcgraw-hill.com/sites/0072495855/student_view0/chapter28/animation__how_meiosis_works.html • http://www.dnaftb.org/dnaftb/27/concept/index.html • http://www.who.int/genomics/public/geneticdiseases/en/index2.html • http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/M/Mutations.html • http://learn.genetics.utah.edu/content/variation/sources/ • http://darwiniana.org/evolution.htm • http://www.eoearth.org/article/Genetic_variation

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	sympatric speciation, polyploidy, autopolyploid, allopolyploid. • Describe the differences between continuous and discontinuous variation and explain the genetic basis of continuous and discontinuous variation.	• Construct a flow chart to show how a gene mutation can lead to symptoms of sickle cell anemia. • Create a mind map on the factors influencing selection and variation. • Compare between (i) natural selection and artificial selection (ii) allopatric and sympatric speciation. • Discuss in groups how Darwin, using Darwin's finches as an example, suggested that isolation of populations leads to speciation.	• http://www.wellcometreeoflife.org/ • https://www.youtube.com/watch?v=aTftyFboC_M • https://www.youtube.com/watch?v=fHS-OY9XDZc • https://www.huffingtonpost.com/james-a-shapiro/variation-and-selection-w_b_1522314.html
Art and Design	• To develop personal practice of key concepts and improve their practical skills in a wide range of traditional and contemporary techniques.	• Explore and build on the investigation and exploring possibilities based on the painter you study.	• www.studentartguide.com
English	• Difference between Speech and Writing	• Watch a TED video and read the transcript of the same at the bottom of the same web page. What is the effect of the speech on the audience when you read it as opposed to watch it? Is there a difference in the impact created.	www.ted.com

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Mathematics	**<u>Pure Mathematics</u>** **<u>TRIGONOMETRY</u>** • Understand the relationship of the secant, cosecant and cotangent functions to cosine, sine and tangent. • Use properties and graphs of all six trigonometric functions for angles of any magnitude. • Use trigonometrical identities for the simplification and exact evaluation of expressions, and in the course of solving equations, and select an identity or identities appropriate to the context, showing familiarity in particular with the use of – $\sec^2 t + t an^2 t = 1$,$\operatorname{cosec}^2 t + \cot^2 t = 1$ • The expansions of sin(A ± B), cos(A ± B) and tan(A ± B) . • Double Angle formulae for sin 2A, cos 2A and tan 2A . • The expression of a $\sin\theta + bcos\ \theta$os in the forms Rsin$(\theta \pm \alpha)$ and Rcos$(\theta \pm \alpha)$	• Research on the application of trigonometry in naval and aviation industries • Research on the application of trigonometry in cartography (creation of maps). Also **trigonometry** has its **applications** in satellite systems and criminology • Research on the application of trigonometry in music - music, as you know sound travels in waves and this pattern though not as regular as a sine or cosine function, is still useful in developing computer music. • Model a situation on discrete random variable from a real life situation. • Summarise your learning and prepare notes on discrete random variables with examples .	**<u>https://revisionmaths.com/advanced-level-maths-revision/pure-maths/trigonometry</u>** **<u>https://www.onlinemath4all.com/reciprocal-relation-of-trigonometric-ratios.html</u>** **<u>https://studywell.com/maths/pure-maths/trigonometry/trigonometric-identities/</u>** **<u>https://www.mathcentre.ac.uk/resources/uploaded/mc-ty-doubleangle-2009-1.pdf</u>** **<u>https://intl.siyavula.com/read/maths/grade-12/trigonometry/04-trigonometry-02</u>** **<u>https://byjus.com/jee/trigonometric-ratios-of-compound-angles/</u>**

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	Statistics 1 **Topic: Discrete random variables** • Construct a probability distribution table for a discrete random variable X. • Calculate the expectation, E(X),and variance,Var(X), of a discrete random variable. • Calculate binomial probabilities using the notation X~B(n,p) • Calculate expectation and variance for a binomial distribution. • Calculate geometric probabilities using the notation X~Geo(x) • Calculate expectation of a geometric distribution • Recognise practical situations where these distributions are suitable models **Mechanics** • To apply Newton's laws of motion to the linear motion of a particle of constant mass moving under the action of constant forces, which mayinclude friction, tension in an inextensible string and thrust in a connecting rod	• Apply Newton's laws to such cases and frame equations. • 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	https://revisionmaths.com/advanced-level-maths-revision/statistics/discrete-random-variables https://www.youtube.com/watch?v=oHcrna8Fk18&list=PLvxOuBpazmsNIHP5cz37oOPZx0JKyNszN https://www.youtube.com/watch?v=nEiQyOyMVCA https://revisionmaths.com/advanced-level-maths-revision/mechanics/newtons-laws-motion https://www.vivaxsolutions.com/maths/alpulleys.aspx

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	• To solve simple problems which may be modelled as the motion of a particle moving vertically or on an inclined plane with constant acceleration • solve simple problems which may be modelled as the motion of connected particles.		https://www.a-levelphysicstutor.com/m-kinetics-con-partcls.php
Information Technology	**<u>Analysis and Design</u>** • Analyse and evaluate different methods of researching a situation (including: questionnaires, interviews, observation, document analysis) • Describe the content of the requirements specification, 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	• 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 like – You need to explain the importance of knowing the fields, field types and lengths.	https://www.teach-ict.com/as_a2_ict_new/ocr/A2_G063/331_systems_cycle/slc_stages/miniweb/pg4.htm

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	• Evaluate suitable hardware and software for a new system		
Computer Science	Object-oriented programming (OOP) • To demonstrate an ability to solve a problem by designing appropriate classes • To demonstrate an ability to write code that demonstrates the use of classes, inheritance, polymorphism and containment (aggregation)	• Encourage your child to develop a software project to include the following: • Create a database which can handle the files using OOPS concept.	OOP programming with Python: www.codecademy.com/courses/python-intermediate-en-WL8e4?curriculum_id=4f89dab3d7888890003000096 Object diagram notes: http://en.wikipedia.org/wiki/Object_diagram
Psychology	To explore the following: • Consumer Behaviour • Health • Organisation	• The psychological environment and how it impacts consumer behaviour. • Evaluate adherence to medical advice, measuring non-adherence, improving adherence in a health setting. • Evaluate leadership and leadership styles.	Psychology textbook
Sociology	• To assess the theories of Neo Functionalists and Neo Marxists in relation to their perspectives on Religion	• Research on the sociologists Neo Functionalists and Neo Marxists and their perspectives on religion • Make a mind map to demonstrate your ideas. Translate the ideas into writing a journal entry on the theories of Neo Functionalists and Neo Marxists in	www.sociology.org.uk www.tes.co.uk

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		relation to their perspectives on Religion	