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Subject	Focus	Activities	Useful website
Pure Mathematics	TRIGONOMETRY • 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 . **Differentiation**	• 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. A computer cannot obviously listen to and comprehend music as we do, so computers represent it mathematically by its constituent sound waves. And this means sound engineers need to know at least the basics of trigonometry. And the good music that these sound engineers produce is used to calm us from our	**https://revisionmaths.com/advanced-level-maths-revision/pure-maths/trigonometry** **https://www.onlinemath4all.com/reciprocal-relation-of-trigonometric-ratios.html** **https://studywell.com/maths/pure-maths/trigonometry/trigonometric-identities/** **https://www.mathcentre.ac.uk/resources/uploaded/mc-ty-doubleangle-2009-1.pdf** **https://intl.siyavula.com/read/maths/grade-12/trigonometry/04-trigonometry-02** **https://byjus.com/jee/trigonometric-ratios-of-compound-angles/** https://revisionmaths.com/advanced-level-maths-revision/statistics/discrete-random-variables https://www.youtube.com/watch?v=oHcrna8Fk18&list=PLvxOuBpazmsNIHP5cz37oOPZx0JKyNszN

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	Apply Standard differentiation of algebraic, Trigonometric ,exponential and logarithmic functions. Apply Chain rule of differentiation for composite functions . Apply product rule of differentiation for differentiating Product of two functions . • The expression of a sin$\theta + bcos\ \theta$os in the forms Rsin($\theta \pm \alpha$) and Rcos($\theta \pm \alpha$) **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. **Statistics 2** **Continuous random variables**	hectic, stress full life – All thanks to trigonometry. • Model a situation on discrete random variable from a real life situation. • Summaries your learning and prepare notes on discrete random variables with examples • Research and summarise findings with examples on real life application of a probability density function. • Make notes to summarise learning that includes formulae and solved examples. • List down examples of population and sample. • 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	https://www.youtube.com/watch?v=nEiQyOyMVCA 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

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	• 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. **Sampling** • Understand the distinction between a sample and a population, and appreciate the necessity for randomness in choosing samples • Recognise that a sample mean can be regarded as a random variable **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 may include friction, tension in an inextensible string and thrust in a connecting rod	acting in the system and applying Newton's laws of motion	https://revisionmaths.com/advanced-level-maths-revision/mechanics/newtons-laws-motion https://www.vivaxsolutions.com/maths/alpulleys.aspx https://www.a-levelphysicstutor.com/m-kinetics-con-partcls.php

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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.		
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 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.teachict.com/as_a2_ict_new/ocr/A2_G063/331_systems_cycle/slc_stages/miniweb/pg4.htm

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	• Create a data dictionary for a given situation • 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/pyt hon-intermediate-en-WL8e4?curriculum_id=4f89dab3d78 8890003000096 Object diagram notes: http://en.wikipedia.org/wiki/Object_diagram
Chemistry	**Transition elements:** • Explain the properties of transition metals. Also, compare properties with s block elements. • 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	• 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_Transi

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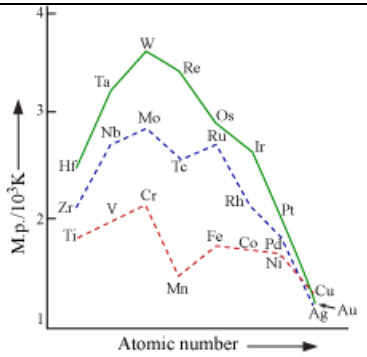
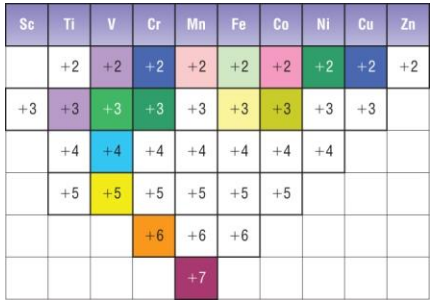
	and ammonia molecules and hydroxide and chloride ions • Describe the shapes of transition metal complexes. • explain qualitatively that ligand exchange may occur, including the complexes of copper(II) ions with water and ammonia molecules and hydroxide and chloride ions • explain the origin of colour 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 • 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	  • Research about ligands, prepare a flow chart to show various types of ligands. Understand the differences between coordination number and valency.	tion_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/ 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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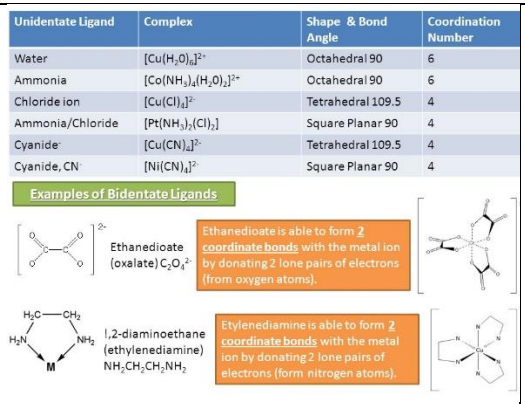
	understand that a large *K*stab is due to the formation of a stable complex ion **Equilibria** • To use solubility product for sparingly soluble salts • To justify the formation of a precipitate using common ion effect. • To deduce partition coefficient (Kpc) for a solute partitioned between two immiscible solvents and use it in calculations.	 • Practice writing the equations of transition metals complexes with various ligands and suggest observable changes. Write an expression for *Kstab*. • Create a research paper on the importance of common ion effect (give some real-life examples).	https://www.chem.tamu.edu/class/fyp/keeney/chapter18b-f07.pdf https://www.chem.purdue.edu/gchelp/howtosolveit/Equilibrium/Solubility_Products.htm https://www.chemguide.co.uk/physical/ksp/commonion.html https://instruct.uwo.ca/chemistry/020inter/SolubilityProductNotes.pdf

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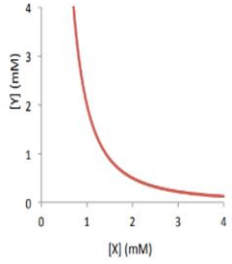
		• Practice solubility product expressions for five sparingly soluble salts • Solve complex questions based on Ka, pKa, Kw, Ksp, and Kpc from past papers. • Prepare a power-point presentation on chromatography and the principle of partition coefficient. • Analyse the given graph and answer the questions The figure opposite shows the solubility curve for salt (a) Is the stoichiometry of the salt? (i) XY (ii) X_2Y (iii) XY_2? (b) What is the value of the solubility constant? (i) 2×10^{-3} (ii) 2×10^{-6} (iii) 2×10^{-9} (iv) 4×10^{-9}  •	
Biology	**Inherited Changes** • Explain that gene mutation occurs by substitution, deletion and insertion of	• Design 10 questions For Kahoot on the link https://create.kahoot.it/#user/0589a	• http://www.contexo.info/DNA_Basics/Meiosis.htm

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	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. **Selection and Evolution:** • Justify the role of following the terms gene pool, reproductive isolation, speciation, allopatric speciation, sympatric speciation, polyploidy, autopolyploid, allopolyploid. Describe the differences between continuous and discontinuous variation and explain the genetic basis of continuous and discontinuous variation.	3f9-6572-4955-8b62-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. • Construct a flow chart to show how a gene mutation can lead to symptoms of sickle cell anaemia • Create a mind map on the factors influencing selection and variation. • Compare between natural selection and artificial selection.	• 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 • http://www.wellcometreeoflife.org/ • https://www.youtube.com/watch?v=aTftyFboC_M • https://www.youtube.com/watch?v=fHS-OY9XDZc

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		• Make a presentation on the selective breeding, focusing on it's commercial aspect. • Research and describe examples of allopatric and sympatric speciation. • Discuss in groups how Darwin, using Darwin's finches as an example, suggested that isolation of populations leads to speciation. • Use drawings / photographs of Darwin's finches to annotate to explain speciation by isolation.	
Physics	**<u>Capacitance</u>** • Analyse graphs of the variation with time of potential difference, charge and current for a capacitor discharging through a resistor • recall and use $\tau = RC$ for the time constant for a capacitor discharging through a resistor	• Sketch Voltage-time, Current-time and Charge-time graphs for charging and discharging of a capacitor. • State and explain in terms of the kinetic model	• https://www.savemyexams.co.uk/a-level/physics/aqa/17/revision-notes/7-fields--their-consequences/7-7-capacitor-charge--discharge/7-7-1-charge--discharge-graphs/

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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	• 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	• https://www.scienceandmathsrevision.co.uk/topic/charging-and-discharging-capacitors/ • 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
English Language	*Analyse how language has changed over time.*	*Take an extract from Hard Times written by Charles Dickens.* Analyse the grapholgy, grammar, semantics and lexis in the given extract. Also comapre all three with modern language and evaluate hpw lanuage has changed.	teachingenglish.org.uk/sites/teacheng/files/Dickens_Hard_Times_extract.pdf

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Arabic **(Arabs)**	TOPIC: قصيدة على قدر أهل العزم قصة نظرة الاستعارة (Learning objectives: - أن يحلل النص الشعري تحليلا فنيًا. - أن يحدد الصورة الفنية في النص النص - أن يقارن بين نصين أدبيين مقارنة أدبية - أن يحدد دور التصوير والقيم البلاغية في النص . - أن يحلل دور المكان في القصة - يميز نوعي الاستعارة ويمثل لهما بالشواهد	يبحث عن مناسبة القصيدة يدلل على غرض القصيدة من الأبيات (ألفاظ – تراكيب – صور – أساليب) يحلل العاطفة في الأبيات مع الدليل عليها يحلل عناصر القصة (شخصيات زمكان عقدة حل أحداث) يدلل على تقنيات الكاتب (سرد وصف حوار استرجاع مفارقة) يضع نهاية مختلفة للقصة مع / عكس سير الأحداث يميز بين الاستعارة والتشبيه يدلل على نوعي الاستعارة من القرآن والشعر	https://www.youtube.com/watch?v=ab5seIsGMMI https://www.youtube.com/watch?v=Ub_XTxURZnY https://www.youtube.com/watch?v=kJb13j88GKc
Islamic Education (Arabs)	TOPIC: **حديث الأفك – عظة وعبرة** **السنن الربانية** (Learning objectives: **يستنتج الأحكام الواردة في سورة النور** **يبين الآثار السلبية للشائعات على الفرد والمجتمع**	بين عاقبة قذف المحصنات المؤمنات يشرح الأحكام التي تناولتها الآيات يبين خصائص السنن الربانية	https://www.youtube.com/watch?v=t64cEqKIHHI

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	يوضح مفهوم السنن الربانية وأقسامها **يدلل على أهمية السنن الربانية**	يحرص على الاستفادة م السنن الربانية	
	TOPIC: OBEDIENCE AND COMPLIANCE IS THE PATH TO FAITSURAH NUR AYAH 46-57 (Learning objectives: - **TO ELUCIDATE THE SIGNIFICANCE OF FOLLOWING PROPHET (P.B.U.H)** **- TO ANALYZE THE BENEFITS OF FOLLOWING THE EXAMPLE OF PROPHET (P.B.U.H)** TOPIC: EXTREMISM LEARNING OBJECTIVES; **To elucidate the concept of extremism and moderation in Islam**	https://www.youtube.com/watch?v=vrrEOKmFLbc&ab_channel=QuranWeekly • WATCH THE VIDEO BY USING THE LINK AND CONTEMPLATE THE IMPORTANCE IS TO OBEY PROPHET (P.B.U.H)? WHY ALLAH MADE IT OBLIGATORY FOR US AND MAKE IT A PART OF OUR FAITH?	https://www.youtube.com/watch?v=t64cEqKIHHI ▫ https://www.youtube.com/watch?v=CaNcLo1S5KA&ab_channel=PracticalIslam

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	-To evaluate the consequences of extremism on an individual and society	RECORD A VIDEO ON HOW HAS U.A.E SUCCESSFULLY IMPLEMENTED STRATEGIES AGAINST EXTREMISM? MENTION IN YOUR VIDEO THEIR EFFORTS TOWARDS THIS ISSUE	
Art and Design	AO1, AO2 and AO3 learners to explore and build on their subject of interest. To encourage independent expression and the development of a critical, reflective practice.	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
Accounting	• To develop independent problem-solving skills • To get familiarize with the A level topics	• 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.comwww.cie.org.uk, Accounting Text books

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Economics	• To consolidate all the A level Topics covered so far • To develop independent researching and analytical skills	• Revise the A level syllabus topics covered for the Pre-Mocks. • Prepare group Presentations on the following topics: ➢ Characteristics of Developing countries ➢ Characteristics of developed countries ➢ Characteristics of emerging economies.	www.tutor2u.net www.s-cool www.bized.ac.uk www.xtremepapers.com World Development Report Human Development Report
Business studies	**Topic: Marketing analysis** • To measure and interpret the elasticity of demand -price, income, and promotional • To evaluate the impact of elasticity results on business decisions	• Research and discuss how elasticity data can help a business make decisions and the likely impact of these decisions on the business. • Present your findings in the form of a Report. Use real-world examples.	www.youtube.com/watch?v=1XXhpHJTglg – video introducing elasticity as a concept. www.youtube.com/watch?v=pyuOcDjul8s– video about the usefulness of elasticity data
Travel and Tourism	• To Revise the functions of Destination management organization. • To Analyze the impact of Tourism development	• Write a report on the economic, social cultural impact of tourism on LEDC's	https://www.hotelmize.com/blog/what-is-destination-management-and-why-is-it-important/

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	To Revise the destination marketing research and analysis concepts.	Analyse the market research methods and tools used to analyse the destination popularity.	
Psychology	PSYCHOLOGY and ABNORMALITY Organisation	To describe Treatment and management of obsessive-compulsive and related disorders. The four explanations for OCD - 'treating' assignments on the worksheet, 'Explaining and Treating OCD', to present back to the class. The group activity sheet at: www.psychlotron.org.uk/resources/abnormal/A2_AQB_abnormal_anxiety_OCDdexplainingtreatingactivity.pdf Evaluate leadership and leadership styles. use studies to evaluate the following key terms• restricted samples • usefulness • ethics • validity • quantitative data • reliability • longitudinal studies	www.psychlotron.org.uk/resources/abnormal/A2_AQB_abnormal_anxiety_OCDdexplainingtreatingactivity.pdf

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Sociology	To assess the theories of Durkheim and Weber in relation to their perspectives on Religion	Research on the sociologists Emile Durkheim and Max Weber and their views on the inclusive and exclusive approach to religion Make a graphic organizer to demonstrate your ideas. Translate the ideas into writing a journal entry on the theories of Durkheim and Weber in relation to their perspectives on Religion	www.sociology.org.uk www.tes.co.uk