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Subject	Focus	Activities	Useful website
Accounting	• To interpret the meaning and features of consignment accounts. • To analyse why consignment is not a sale and explain the important terms used in consignment accounts. • To interpret the use and importance of financial appraisal techniques in the investment decision making process To make recommendations as to how the performance of a business, as revealed by a business could be improved.	• Prepare a Prezi presentation comprising the following – ➤ Interpretation of the meaning and features of consignment accounts. ➤ Reasons explaining why consignment is not a sale. ➤ Explain the terms used in consignment accounts. • Present a report on the usefulness of financial appraisal techniques in investment decision. OR • Prepare a Ted Ed Flipped Lesson on the topic	www.myaccountinglab.com, www.bized.co.uk www.cie.org.uk, http://www.accounting-world.com/ https://www.investopedia.com/ https://study.com/search/text/academy.html?q=accounting#/topresults/accounting
Biology	**Genetic technology:** • To explain that genetic engineering is the deliberate manipulation of genetic material to modify specific characteristics of an organism.	• Schematically illustrate the steps involved in genetic engineering. • Create flash cards on importance of various enzymes and their sources used in gene tranfer.	https://www.youtube.com/watch?v=R0UTROqFC8Q https://www.youtube.com/watch?v=9fl4dcgE5EQ

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	• To explain the roles of restriction endonucleases, DNA ligase, plasmids, DNA polymerase and reverse transcriptase in the transfer of a gene into an organism. • To explain why a promoter may have to be transferred into an organism as well as the desired gene. • To explain how gene expression may be confirmed by the use of marker genes coding for fluorescent products. • To explain that gene editing is a form of genetic engineering involving the insertion, deletion or replacement of DNA at specific sites in the genome. • To describe and explain the steps involved in the polymerase chain reaction (PCR). • To describe and explain how gel electrophoresis is used to	• Research in the databases that provide information about nucleotide sequences of genes and genomes, and amino acid sequences of proteins and protein structures. • Diagrammatically explain the process of PCR and highlight its significance. • Create a presentation on the process of gel electrophoresis and its significance along with microarrays in Biology.	https://www.youtube.com/watch?v=B3Pn8cgReug https://www.youtube.com/watch?v=9RljrdaOUUc https://www.youtube.com/watch?v=Rd-ypr9c6Ok https://www.youtube.com/watch?v=mN5IvS96wNk

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	separate DNA fragments of different lengths. • To outline how microarrays are used in the analysis of genomes and in detecting mRNA in studies of gene expression.		
Business Studies	Topic – Finance and accounting strategy • To assess the impact of accounting data and ratio analysis on business strategy.	• Learners to select a large business in UAE and calculate various ratios from the financial statements. Each learner should prepare a presentation and suggest strategies to improve profitability, liquidity, gearing, investment, and financial efficiency ratios.	www.bized.co.uk www.tutor2u.net
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,	• Practice writing electronic configuration of transition elements and ions. • Explore the shapes of d subshell.	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

- 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

- Analyse the graph and suggest possible reason for the trends.
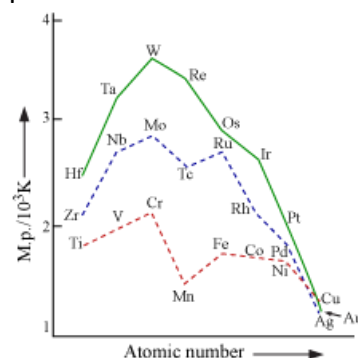
- Research about ligands, prepare a flow chart to show various types of ligands. Understand the differences between coordination number and valency.

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

- Describe and explain ligand exchanges in terms of competing equilibria
- Deduce expressions for the stability constant of a ligand substitution using Kstab and explain its importance.
- Explain ligand exchange in terms of stability constants, Kstab, and understand that a large Kstab is due to the formation of a stable complex ion

Reaction Kinetics:
- To design an experimental technique to measure the rate of a reaction
- To determine the rate equation, order of reaction, rate constant, half-life of a reaction, rate-determining step.
- To construct and use rate equations of the form rate = k[A]^m[B] ^{n} and find the rate constant
- To determine the value of rate constant using half-life method

Unidentate Ligand	Complex	Shape & Bond Angle	Coordination Number
Water	$[Cu(H_2O)_6]^{2+}$	Octahedral 90	6
Ammonia	$[Co(NH_3)_4(H_2O)_2]^{2+}$	Octahedral 90	6
Chloride ion	$[Cu(Cl)_4]^{2-}$	Tetrahedral 109.5	4
Ammonia/Chloride	$[Pt(NH_3)_2(Cl)_2]$	Square Planar 90	4
Cyanide⁻	$[Cu(CN)_4]^{2-}$	Tetrahedral 109.5	4
Cyanide, CN⁻	$[Ni(CN)_4]^{2-}$	Square Planar 90	4

Examples of Bidentate Ligands

Ethanedioate (oxalate) $C_2O_4^{2-}$ — Ethanedioate is able to form **2 coordinate bonds** with the metal ion by donating 2 lone pairs of electrons (from oxygen atoms).

I,2-diaminoethane (ethylenediamine) $NH_2CH_2CH_2NH_2$ — Etylenediamine is able to form **2 coordinate bonds** with the metal ion by donating 2 lone pairs of electrons (form nitrogen atoms).

- Practice writing the equations of transition metals complexes with various ligands and suggest observable changes. Write an expression for Kstab.

- Plan an investigation to find the order of a reaction using concentration of the reactant. Evaluate your method and identify the source of error.
- Draw graphs to represent first, second and zero order of a reaction (rate vs concentration and concentration vs time)

http://www.a-levelchemistry.co.uk/41-kinetics.html
https://www.chemguide.co.uk/physical/basicrates/orders.html

http://www.chemistryrules.me.uk/hfhf/hfhf3.htm
https://chem.libretexts.org/Bookshelves/Physical_and_Theoretical_Chemistry_Textbook_Maps/Supplemental_Modules_(Physical_and_Theoretical_Chemistry)/Kinetics/02%3A_Reaction_Rates/2.03%3A_First-Order_Reactions
https://www.savemyexams.co.uk/a-level/chemistry/cie/22/revision-notes/5-physical-chemistry-a-level-only/5-6-reaction-kinetics-a-level-only/5-6-3-half-life/

	• To predict the order that would result from a given reaction mechanism and vice versa • To outline the different types of catalysis	• Solve five numeral questions from Paper 4 based on using the rate law to find rate constant/order of reaction • Prepare a write-up on applications of half-life method • Make a Power-Point presentation on reaction mechanism and order of reaction • Compare the two catalysis reactions – each involving the role of Fe^{+2}/Fe^{+3} ion	
Economics	• To develop independent learning and research skills using the Flipped classroom method on Ed Puzzle	Complete the following tasks. You could work in groups: Flipped Learning on the Topic of Nationalization vs privatization Please go through the resources and complete the following tasks Task 1: Based on the videos and the attached files discuss the arguments for and against Privatization vs Nationalization. • **Task 2:** Research examples of industries	• https://www.tutor2u.net/economics/reference/government-intervention-privatisation • https://www.tutor2u.net/economics/reference/development-strategies-privatisation

		that have been privatised over the last 15 years. Find evidence to determine whether the change of ownership has been successful or not. Examine the reasons.	
Travel and Tourism	• To analyse obstacles in creating a brand and evaluate in context how these might limit the effectiveness of the brand or its success.	Make extensive research on • How is funding different for Visit Florida and Visit England? • Which is most likely to be effective and why? • What limitations are there for each?	www.campaignlive.co.uk/article/1101605/visitengland-funding-domestic-tourism-promotion# • www.orlandosentinel.com/news/politics/os-visit-florida-spending-tourism-20160326-story.html • www.visitflorida.com/en-us/about-visit-florida.html • www.floridatrend.com/article/14761/visit-florida--reinvented
Pure Mathematics	**Pure Mathematics** **COMPLEX NUMBERS** • Carry out operations of addition, subtraction, multiplication and division of two complex numbers expressed in Cartesian form $x + iy$	Research on the application of Complex numbers in • Electrical engineering - Fourier transforms are used in understanding oscillations that occur both in alternating current and in signals modulated by electromagnetic waves.	https://www.mathsisfun.com/numbers/complex-numbers.html https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:complex/x2ec2f6f830c9fb89:imaginary/v/introduction-to-i-and-imaginary-numbers https://tutorial.math.lamar.edu/classes/alg/ComplexNumbers.aspx https://www2.clarku.edu/faculty/djoyce/complex/ https://www2.clarku.edu/faculty/djoyce/complex/

- Use the result that, for a polynomial equation with real coefficients, any non-real roots occur in conjugate pairs
- Represent complex numbers geometrically by means of an Argand diagram
- Carry out operations of multiplication and division of two complex numbers expressed in polar form

$$r(\cos\theta + i\sin\theta) \equiv re^{i\theta}$$

- Find the two square roots of a complex number

NUMERICAL SOLUTION

- locate approximately a root of an equation, by means of graphical considerations and/or searching for a sign change
- Create simple iterative formula of the form $x_{n+1} = F(x_n)$ relates to the equation being solved, and use a given iteration, or an iteration based on a given rearrangement of an equation, to determine a root to a prescribed degree of accuracy.

VECTORS

- Quantum mechanics- A "particle" may be in a very well defined state (like an electron in atom), but still having no strictly defined coordinates. Not only that it's impossible to measure the coordinates - the "particle" just doesn't have them. Particle without coordinates is not actually a particle, it's something else.
- **Mass spectrometry** - finding out what materials are made of
- **Image and movie compression** (e.g. jpg, mp3) allowing us to watch movies
- **Equalisers** for music which can change the amount of bass or treble in your music
- **Seismometers** that detect volcanoes

Research on the application of numerical analysis in

1. Making Weather Predictions

Advanced computer simulations have made it possible to make weather predictions by computing numerical data from weather forecasting equipment such as weather satellites. This is done by making a mathematical model of a particular location and using computer based Numerical Analysis to obtain precise numerical values that are used for determining weather changes.

https://mathworld.wolfram.com/ArgandDiagram.html#:~:text=An%20Argand%20diagram%20is%20a,represents%20its%20complex%20argument.
https://www.sciencedirect.com/topics/mathematics/argand-diagram
https://www.mathscard.co.uk/online/numerical-methods/
https://www.youtube.com/watch?v=PwHIWoJsjoo
https://www.mathsgenie.co.uk/c3-numerical-methods.html
https://www.tes.com/teaching-resource/a-level-maths-numerical-methods-notes-and-worksheet-6146990
http://chubbyrevision-a2level.weebly.com/numerical-methods.html
https://www.cuemath.com/algebra/dot-product/
https://www.mathsisfun.com/algebra/vectors-dot-product.html
https://www.ck12.org/calculus/vector-equation-of-a-line/lesson/Vector-Equation-of-a-Line-MAT-ALY/

	• Use standard notations for vectors • carry out addition and subtraction of vectors and multiplication of a vector by a scalar, and interpret these operations in geometrical terms • Calculate the magnitude of a vector, and use unit vectors, displacement vectors and position vectors • Understand the significance of all the symbols used when the equation of a straight line is expressed in the form r = a + tb, and find the equation of a line, given sufficient information • Determine whether two lines are parallel, intersect or are skew, and find the point of intersection of two lines when it exists		
Statistics 1	**Topic: Normal Distribution and Permutation and Combinations** • Solve problems concerning a variable X, where $X \sim N(\mu, \sigma^2)$	Model a situation on normal distribution from a real-life situation. Summarise your learning and prepare notes on normal distribution with examples.	https://revisionmaths.com/advanced-level-maths-revision/statistics/normal-distribution https://revisionmaths.com/advanced-level-maths-revision/statistics/permutations-and-combinations

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Mechanics1	• Recognise practical situations where the distribution is a suitable model. • Understand the terms permutation and combination, and solve simple problems involving selections • Solve problems about arrangements of objects in a line, including those involving repetition and restriction • Evaluate probabilities with the calculations using permutation and combination **Energy, Work and Power** • analyze the concepts of gravitational potential energy and kinetic energy, and use appropriate formulae • understand and use the relationship between the change in energy of a system and the work done by the external forces, and use in appropriate	Model a situation on permutation and combinations from real life situation. Prepare notes on how to distinguish between permutation and combination using real life situations. Make notes on cases where the motion may not be linear, e.g. a child on a smooth curved 'slide', where only overall energy changes need to be considered. solve problems involving the instantaneous acceleration of a car moving on a hill against a resistance.	https://www.youtube.com/watch?v=2tuBREK_mgE https://www.youtube.com/watch?v=zQAmwgZgObk https://www.physicsclassroom.com/calcpad/energy https://revisionmaths.com/advanced-level-maths-revision/mechanics/work-energy-power https://alevelmaths.co.uk/mechanics/work-energy-and-power/

	cases the principle of conservation of energy use the definition of power as the rate at which a force does work, and use the relationship between power, force and velocity for a force acting in the direction of motion		
Statistics 2	**Hypothesis Tests** - Understand the difference between one-tailed and two-tailed tests and the terms null hypothesis, alternative hypothesis, significance level, rejection region. - Formulate hypothesis and carry out a hypothesis test in the context of single observation from a population which has a binomial or poisson distribution. Calculate the probabilities of making type I and Type II error.	Research and summarise findings with examples on real life application on hypothesis testing. Make notes to summarise learning that includes formulae and solved examples.	https://stattrek.com/hypothesis-test/hypothesis-testing.aspx https://www.statisticssolutions.com/hypothesis-testing/ https://www.khanacademy.org/math/statistics-probability/significance-tests-one-sample/more-significance-testing-videos/v/hypothesis-testing-and-p-values
Physics	**Quantum Physics** - To explain photoelectric phenomena in terms of photon energy and work function energy	Research on - Use band theory to explain why the resistivity of an intrinsic	www.cie.org.uk

- To recall and use the relation for the de Broglie wavelength $\lambda = h/p$

- To appreciate that, in a simple model of band theory, there are energy bands in solids

- To understand the terms valence band, conduction band and forbidden band (band gap)

- To use simple band theory to explain the temperature dependence of the resistance of metals and of intrinsic semiconductors
- To use simple band theory to explain the dependence on light intensity of the resistance of an LDR

CT scan

Understand the principle of computed tomography

Electromagnetic Induction

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 4.0×10^{-20} J. Determine the work function of the metal in Joules.
- Research on- Why in commercial practice we always use the RMS value of AC and not the peak value or instantaneous value
- What is the average power dissipated when a sinusoidal alternating current with a peak value of 3.0A flows through a 100 ohm resistor.
- Describe how the image of an 8-voxel cube can be developed using CT scanning Infer from appropriate experiments on electromagnetic induction:
- that a changing magnetic flux can induce an e.m.f. in a circuit

www.s-cool.co.uk/a-level/physics/quantum-physics

https://link.springer.com/article/10.1134/1.1187514

https://www.physics-and-radio-electronics.com/electronic-devices-and-circuits/introduction/energy-band-theory-in-solids.html

https://radiopaedia.org/articles/computed-tomography

https://www.medicalnewstoday.com/articles/153201.php

https://byjus.com/physics/magnetic-flux/#:~:text=Magnetic%20flux%20is%20defined%20as,through%20a%20given%20surface%20area.

https://www.khanacademy.org/science/physics/magnetic-forces-and-magnetic-fields/magnetic-flux-faradays-law/a/what-is-magnetic-flux

	• Define magnetic flux and the weber • Define magnetic flux linkage	• that the direction of the induced e.m.f. opposes the change producing it • the factors affecting the magnitude of the induced e.m.f.	
Psychology	• To analyse the Explanations of obsessive-compulsive disorder	Students make presentation on different explanations for obsessive/compulsive disorder (as appropriate) are shared and peer assessed. Show (if necessary) a presentation on the explanations of OCD: **Resources/Website**-www.psychlotron.org.uk/resources/abnormal/A2_AQB_abnormal_anxiety_OCDexplanations&treatments.ppt Write an assignment explaining and Treating OCD' to present back to the class	www.psychlotron.org.uk/resources/abnormal/A2_AQB_abnormal_anxiety_OCDdexplainingtreatingactivity.pdf www.youtube.com/watch?v=KOami82xKec
Sociology	• To evaluate the Direct Effect approach to mass media, with particular focus upon the hypodermic syringe model.	Case Study: Columbine Massacre www.youtube.com/watch?v=2yqe6sdAeZk (Columbine massacre) www.theguardian.com/uk/2000/apr/24/timradford (Computer games linked to violence)	Useful video: www.youtube.com/watch?v=Qt5MjBlvGcY (examination of the hypodermic syringe model) Useful websites:

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		http://news.bbc.co.uk/1/hi/sci/tech/1295920.stm (Columbine massacre parents sue computer game makers) Note: there are numerous examples of cases where the Scream horror movies have been linked to violence. (Explanation and evaluation of hypodermic syringe model) https://abcnews.go.com/Entertainment/films-shows-inspired-real-crimes/story?id=16836535 (real crimes inspired by film / entertainment) Extension activity: Learners to research further examples to illustrate the direct effect of violence in media and people's behaviour	https://revisionworld.com/a2-level-level-revision/sociology/mass-media-0/effect-media-content-audiences-society https://en.wikipedia.org/wiki/Hypodermic_needle_model (explanation of hypodermic syringe model) https://getrevising.co.uk/diagrams/mass_media_effect_models (mind map of media models)
English Language	• To compare and contrast two articles	Analyse the two articles and write a passage stating the differences and comparisons seen in the treatment of disabled people.	https://www.nationalgeographic.com/culture/article/paid-content-technology-is-opening-doors-for-southeast-asias-disabled https://www.cnbc.com/2021/10/29/people-with-disabilities-still-face-barriers-finding-work-during-the-pandemicheres-how-companies-can-help.html

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Art and 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.	Use specialist vocabulary relevant to the investigation. To ensure sources are identified and attributed in a bibliography and present work in a coherent manner and in a format that is relevant to the theme	Welcome (studentartguide.com)
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. 	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	https://www.youtube.com/watch?v=ab5seIsGMMI https://www.youtube.com/watch?v=Ub_XTxURZnY https://www.youtube.com/watch?v=kJb13j88GKc

		يدلل على نوعي الاستعارة من القرآن والشعر	
	أن يحلل دور المكان في القصة - -		
Islamic Education (Arabs)	TOPIC: البيوع المحرمة - القواعد الفقهية **Learning objectives:** 1. يبين بعض البيوع المحرمة في الإسلام 2. يستنتج الحكمة من تحريم هذه البيوع 3. يبين المقصود بالقواعد الفقهية 4. يوضح أهمية القواعد الفقهية	1. يفرق بين أنواع البيوع المحرمة 2. يقترح بدائل للبيوع المحرمة 3. يبين القواعد الخمس الكبرى 4. يضرب أمثلة تطبيقية معاصرة على القواعد الفقهية	https://www.youtube.com/watch?v=3KNd1tw2nxE&t=88s https://www.youtube.com/watch?v=w09SorpEfkE

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| Islamic Education (Non Arabs) | • TOPIC: GOOD CONDUCT & MANNERS

Learning objectives:

To learn the etiquettes of communicating

To highlight the responsibility of social media

To evaluate the consequences of wrong use of social media.

TOPIC: THE PROPHETIC METHOD IN HEALTHCARE

Learning objectives:

To Comprehend the importance of being healthy in multiple areas in our lives

-To analyse the benefits of good health on individual and society. | RECORD a video on the preventive measures one should take in order to save himself/ herself from the wrong use of social media. GIVE SOME SUGGESTIONS TO PREVENT YOUNG CHILDREN FROM USING SOCIAL MEDIA IN A WRONG MANNER.

WRITE DOWN A JOURNAL BASED ON THE BENEFITS OF A HEALTHY LIFESTYLE IN ORDER TO ACHIEVE GOOD HEALTH..HOW WOULD YOU DEFINE THE ROLE OF UAE IN PROVIDING THE BEST FACILITIES IN HEALTH SECTOR. | https://www.youtube.com/watch?v=HreJejiqAlc&t=636s&ab_channel=MuftiMenk

https://www.youtube.com/watch?v=CnpCdBU3S3s&t=248s&ab_channel=QuranWeekly |

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Applied ICT	Theory : • To evaluate the different stages of system life cycle • To discuss different stages in Project management • To evaluate different types of Networks • Practical : • To use advanced spreadsheet functions • To Normalize a data base. • To use image editing tools and graphic animation tools	Solve past paper questions based on the given topics . Create a mind map on different stages in a system life cycle Create a video using audacity and Movie maker Use advanced excel functions and relational database concepts Edit images and animate objects using image editing tools	Audacity, Movie maker , Adobe illustrator, Photoshop www.teach-ict.com
Computer Science	➢ To recognise the use of Reduced Instruction Set Computers (RISC) and Complex Instruction Set Computers (CISC) processors. ➢ To evaluate the four basic computer architectures and the concept of a virtual machine.	➢ To create a mind map to show the differences between RISC and CISC o interrupt handling on CISC and RISC processors ➢ Give examples of the role of virtual machines Evaluate the benefits and limitations of virtual machines	https://www.geeksforgeeks.org/computer-organization-risc-and-cisc/

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