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Subject	Focus	Activities	Useful website
Accounting	• To differentiate between managerial accounting and financial accounting. • To list the elements and uses of managerial accounting.	• Research and present a Sway presentation showing differentiation between managerial accounting and financial accounting and also list the elements of managerial accounting. • Identify the areas in accounting where the elements of managerial accounting is applied and show the purpose of dividing accounting into managerial and financial accounting. Present your findings in a word document with suitable examples.	www.accounting-simplified.com/financial-accounting/accounting-concepts-and-principles/ www.dineshbakshi.com www.cie.org.uk www.sway.com
Business Studies	Operations Management • To analyze and distinguish between Production and Productivity and why firms always attempt to increase their productivity.	• Prepare a SWAY presentation and differentiate between Production and Productivity • Choose two businesses familiar to you. Explain the concepts production and productivity. Suggest ways in which each of these businesses could increase	www.bized.co.uk www.tutor2u.net www.dineshbakshi.com www.sway.com

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		productivity. Present your ideas using flow charts/diagrams. • Explain how to calculate the productivity of any business using productivity formula	
Business Studies	To analyze the concept of "rationality" and applications to behavioural economics	**LEARNING MENU FOR YEAR 13 ECONOMICS** **1.Appetizer (Everyone Shares) (5 Marks)** • Identify four individual purchases or decisions made recently which might be regarded as irrational. **2.Entree (Select One) (10 marks)** • Explain the extent to which these irrational decisions might be explained by behavioural economics. • Explain the concept of Rationality from the point of	www.Tedtalks www.cie.uk.org www.s_cool www.tutor2u.net www.projectsyndicate

		view of a consumer. Are all consumers necessarily rational? **3. Side Dishes (Select One) (25 marks)** • Research on the topic of Behavioural Economics and evaluate the effectiveness of behavioural nudges in economic policy making by governments. Create an Interactive Ted- Ed Lesson • Discuss the real world applications of behavioural economics and present your findings as a Sway or Near Pod Presentation. **4.Dessert (Optional) (20 marks)** • Watch a Ted Talk –Predictably Irrational and in a Pod Cast discuss the key points and whether you necessarily agree with the speaker.	

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Travel & Tourism	• To analyse how market research and analysis define the tourism market.	• Research on two types of destination that have continued to grow in popularity over the last five years. • If you were tour operator specializing in offering touring holidays, explain how you might use this research the information from this research data. • Explain two reasons why European city destinations might have gained in popularity over the recent years.	Text Books/journals Internet and other sources.
Biology	**Inherited Changes** • Solve genetics problems involving monohybrid and dihybrid crosses, including those involving autosomal linkage, sex linkage, codominance, multiple alleles and gene interactions (the term epistasis does not need to be used; knowledge of the expected ratio for various types of epistasis is not required. The focus is on problem solving) • Solve Problems using genetic diagrams involving test crosses • use the chi-squared test to test the significance of differences between	• Create 10 Kahoot questions on monohybrid and di hybrid crosses. • Draw annotated diagrams, using colors or shading, to show how two adjacent cells (haploid number 2) can produce 4 genetically different gametes by independent assortment. • Using the symbols A and a for the alleles of a gene located on one homologous pair, and B and b for the other homologous pair, draw diagrams to show how independent assortment leads to genetic variation.	http://www.contexo.info/DNA_Basics/Meiosis.htm http://highered.mcgrawhill.com/sites/0072495855/student_view0/chapter28/animation__how_meiosis_works.html

	observed and expected results (the formula for the chi-squared test will be provided) (see Mathematical requirements) **Homeostasis in mammals** 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 and are the effectors for controlling the water potential of the blood. **Homeostasis in Plants** 1.Analyze how the stomatal aperture is regulated in response to the requirements for uptake of carbon.	• Outline how fertilization leads to increased genetic variation. • Modelling using pipe cleaners to consolidate learning of independent assortment and crossing. 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. source, converted to, involvement of liver, re-use of some parts)	https://www.youtube.com/watch?v=OZUjKBRkfMs&index=3&list=PL6492ADB337276EC3 https://www.khanacademy.org/science/high-school-biology/hs-human-body-systems/hs-body-structure-and-homeostasis/a/homeostasis • https://www.britannica.com/science/homeostasis

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		• Create a presentation on the working principle of the stomatal opening.	
Chemistry	**<u>Lattice Energy</u>** • Demonstrate an understanding of the terms lattice energy, ionisation energy, enthalpy change of atomisation and electron affinity • Determine enthalpy changes that cannot be found by direct experiment • Use Born-Haber cycle to calculate lattice energy of ionic compound • Interpret and explain qualitatively the trend in the thermal stability of the nitrates and carbonates in terms of the charge density of the cation and the polarisability of the large anion • Determine enthalpy changes of solution and enthalpy changes of hydration • Interpret and explain qualitatively the variation in solubility of the hydroxides and sulfates in terms of relative magnitudes of the enthalpy change of hydration and the corresponding lattice energy **Benzene and its compounds:**	• Display electron affinity, ionisation energy and enthalpy of atomisation in the form of chemical equation • Draw Born-Haber cycle for ionic solids – labelling each step. • Plot graph of lattice energy versus factors affecting it for group 1 and group 2 compounds • Apply Hess's law to the Born-Haber cycle to measure the enthalpy changes and compare those values with those calculated theoretically • Prepare an infographic poster on the trends in the thermal stability of Group 2 nitrates and carbonates. • Make a PowerPoint presentation on the solubility of Group 2 hydroxides comparing it with that of Group 2 sulfates	http://www.docbrown.info/page07/delta2Hb.htm http://alevelchem.com/aqa_a_level_chemistry/unit3.5/s351/02.htm http://chubbyrevision-a2level.weebly.com/thermodynamics.html http://www.chemguide.co.uk/inorganic/group2/thermstab.html http://www.chemguide.co.uk/physical/energetics/solution.html http://www.scienceskool.co.uk/uploads/9/5/5/0/9550437/thermodynamics_and_born_haber.pdf

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	– Interpret and use the general, structural, displayed and skeletal formulae of the following classes of compound: i) **arenes** (ii) **halogenoarenes** (iv) **acyl chlorides** **understand and use systematic nomenclature of simple aromatic molecules with one benzene ring** – **and one or more simple substituents, for example 3-nitrobenzoic acid, 2,4,6-tribromophenol** – describe and explain the shape of, and bond angles in, the **benzene** molecules in terms of σ and π bonds – **describe the chemistry of arenes** – **describe the mechanism of electrophilic substitution in arenes,** – **Interpret the difference in reactivity between benzene and chlorobenzene predict whether halogenation will occur in the side-chain or in the aromatic ring in arenes depending on reaction conditions**	• Research on 'Lattice energy of dissociation' **Activity:** – Create a Infographic poster to explain and apply rules of Nomenclature to name benzene and its compounds. – Create a 3D model to explain the structure of benzene. • Bond angles • Hybridization • Sigma and pi bonds • Planar structure – Prepare a flow chart to describe all the reactions of benzene clearly mentioning conditions required and reagents required.	**Nomenclature of benzene** http://colapret.cm.utexas.edu/courses/Nomenclature_files/Benzene%20&%20%20Derivatives.htm https://www2.chemistry.msu.edu/faculty/reusch/virttxtjml/nomen1.htm **Chemistry of Benzene** https://en.wikibooks.org/wiki/A-level_Chemistry/OCR_(Salters)/Reactions_of_arenes **Practice problems based on benzene and its compounds.** http://www.a-levelchemistry.co.uk/unit-4.html

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		– Create a list of questions using bloom's taxonomy starting with lower order to higher order. – Write an article discussing Importance of benzene and its compounds in the real life.	**Uses of Benzene** http://www.ehow.com/about_5262758_uses-benzene.html
Physics	**Circular Motion** • To understand the motion in a circle • To analyze the kinematics of uniform circular motion Centripetal acceleration and centripetal force. **Oscillations** • **To describe simple examples of free oscillations** • To investigate the motion of an oscillator using experimental and graphical methods	• Some theme park rides involve rotation in a vertical circle. Investigate on how a person on such a ride must have a resultant force. • Research on how the centripetal force is provided in a child on a playground roundabout, a passenger in a car going round a corner. • Experiment with a motion sensor placed under a bouncing mass on a spring. Displacement,	www.cie.org.uk www.Islandphysics.com http://www.physicsclassroom.com/mmedia/circmot/ucm.cfm http://www.tap.iop.org/mechanics/circular/224/page_46476.html http://znotes.org/a2-physics/

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	• To understand and use the terms amplitude, period, frequency, angular frequency and phase difference and express the period in terms of both frequency and angular frequency **Electric Field** • To understand the force between two point charges in free space or air. • To understand field strength of a point charge in free space or air • To define potential at a point in terms of the work done in bringing unit positive charge from infinity to the point.	velocity and acceleration graphs can be produced and analysed. **(**Experiment with a tethered trolley and ticker tape. Produce a graph and analyse the motion for the first half of an oscillation • Experiments to find g using a simple pendulum, or to determine the stiffness of a spring from an oscillating mass-spring system. **(**Analyse the graph as sinusoidal and revise the idea of the relationship between sin θ and θ • Recognize the analogy between certain qualitative and quantitative aspects of gravitational field and electric field.	https://www.physicsclassroom.com/class/estatics/Lesson-3/Coulomb-s-Law https://www.khanacademy.org/test-prep/mcat/physical-processes/electrostatics-1/a/electric-potential

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Art and Design	• Recording ideas, observations and insights confidently and with focus, to inform personal interests and concerns.	• Demonstrate reflective, critical and independent judgements regarding ideas, intentions and progress as they start with the concept.	www.studentartguide.com
English	• To be introduced to the syllabus and expectations of English Language. • To compare and contrast texts from varied sources and forms.	• Read the syllabus to be thorough with the contents and criteria. • Read through various texts from resources such as speeches, diaries, biographies, articles, blog.etc. Identify the differences in the form, content, style, targeted audience and any other similarities or differences. • Research and familiarise themselves on theories with regards to Language Acquisition and English as a Global Language etc.	• http://www.cie.org.uk/images/128605-2015-syllabus.pdf

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Mathematics	**<u>Pure Mathematics 3</u>** **<u>Polynomials</u>** • Able to divide a polynomial with another polynomial using long division. • Able to apply theorem to identify the factor of a polynomial • Able to apply remainder theorem to evaluate the remainder obtained when a polynomial is divided by another polynomial. • Able to factorise cubic polynomial. **<u>Statistics 1 –</u>** **<u>Chapter 1 : Representation of Data :</u>** • To display numerical data in stem-and-leaf • diagrams, histograms and cumulative frequency graphs • To interpret statistical data presented in • various forms • To select an appropriate method for displaying data. **<u>Mechanics 1 :</u>** **<u>Chapter 1 : Velocity and acceleration</u>** • 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	• In magazines and newspapers you frequently come across data representations in a variety of forms. You are to ask yourself questions such as: How was the data collected? Does the representation give a fair picture of the data? Are the data reliable? What purpose do the presenters of the data have? Identify discrete and continuous data. • 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. • Research and summarise findings with examples on real life application of the poisson distribution.	https://revisionmaths.com/advanced-level-maths-revision/statistics/poisson-distribution https://www.youtube.com/watch?v=2zK3KpV3bx4 https://quizlet.com/40561697/edexcel- maths-s2-definitions-flash-cards/ https://quizlet.com/2088772/s2-definitions- flash-cards/ http://pmt.physicsandmathstutor.com/download/Maths/A-level/S2/Topic-Qs/Edexcel-Set-1/S2%20Sampling%20methods.pdf https://www.toppr.com/guides/physics/motion/equations-of-motion/#:~:text=In%20case%20of%20uniform%20acceleration,)%20and%20acceleration(a).&text=The%20three%20equations%20are%2C,v%20%3D%20u%20%2B%20at https://physics.info/motion-equations/

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	graphs. • To solve problems with multiple stages of motion. <u>Statistics 2</u> <u>Chapter 1: The Poisson Distribution</u> • Calculate probabilities for the poisson distribution • Use the poisson distribution as a model • Use the poisson distribution to approximate the binomial distribution Use the normal distribution to approximate the poisson distribution		
Information Technology	**Emerging Technology** To describe different emerging technologies and evaluate the impact of emerging technologies on individuals and their lifestyle	Encourage your child to research and create a sway presentation on the following emerging technology topics. Also mention the advantages and disadvantages of each: • 3D printing • 4G and 5G cellular communications • artificial intelligence • augmented reality, biometrics. • cloud computing	https://revisionworld.com/a2-level-level-revision http://www.cie.org.uk/programmes-and-qualifications/cambridge-advanced/cambridge-international-as-and-a-levels/

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	Programming for the web To demonstrate a range of object-based programming techniques	• computer-assisted translation • holographic • 4th generation optical data storage • holographic imaging • quantum cryptography • robotics, Encurage your child to practice coding using Java script by emphasising on the following points: • Recognize data types (including: number, string, Boolean, array, object) • Assign and understand the term variables • Carry out calculations and basic string manipulation	https://www.w3schools.com/js/js_datatypes.asp
Computer Science	**Data Representation:** • Explain why user-defined data types are necessary. • Define and use non-composite data types. • Define and use composite data types.	• Encourage your child to develop a software project to include the following: • A python program to take input as any decimal binary number and convert into denary and hexadecimal number system and vice versa. • A python program to take input as any 8 bit decimal binary and	• http://en.wikibooks.org/wiki/A-level_Computing/AQA/Problem_Solving,_Programming,_Data_Representation_and_Practical_Exercise/Fundamentals_of_Programming/User-defined_data_types • Enumerated types in Pascal: www.pp4s.co.uk/main/tu-enumerated-types.html

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	• Choose and design an appropriate user-defined data type for a given problem. • Describe the different methods of file organisation. • Describe the different methods of file access. • Select an appropriate method of file organisation and file access for a given problem. • Describe and use hashing algorithms. • Describe the format of binary floating-point real numbers. • Convert binary floating-point read numbers into denary and vice versa. • Normalise floating-point numbers. • Explain the consequences of a binary representation only being an approximation to the real number it represents (in certain cases).	find the denary form of the given byte.	• Notes on pointer data type: http://en.wikibooks.org/wiki/A-level_Computing/AQA/Problem_Solving,_Programming,_Operating_Systems,_Databases_and_Networking/Programming_Concepts/Pointers • Pointers in Pascal: www.pp4s.co.uk/main/tu-gaming-prelim-pointers.html • Notes on sets: http://en.wikipedia.org/wiki/Set_(abstract_data_type) • Set data type in Pascal: www.pp4s.co.uk/main/tu-sets-intro.html • Record data type in Pascal: www.pp4s.co.uk/main/tu-records-intro.html

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	• Explain that binary representations can give rise to rounding errors.		
Psychology	• To investigate the various theories on addiction and abnormality	Investigate and analyse the various theories on addiction and abnormality. Griffiths, 2005); kleptomania, pyromania, compulsive gambling); physical and psychological dependence; Schuckit, 1985; Kohn, 2000. • Prepare a presentation that will be used in class for discussion. Be prepared to answer related questions in class.	http://psychology.about.com http://www.cliffsnotes.com http://www.simplypsychology.org https://www.simplypsychology.org/a-level-psychology.html
Geography	• To examine the features of tropical climate and its impact.	Investigate the topic under the following subtopics: • Global distribution and climatic characteristics of humid tropical and seasonally humid tropical environments • The roles of the intertropical convergence zone (ITCZ), subtropical anticyclones, and monsoons.	www.geographylwc.org.uk www.geographypages.com www.geographygeek.co.u www.revisionworld.co.uk/level/geography

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		• The key features of temperature and rainfall and their a annual and diurnal variations in the humid tropical and seasonally humid tropical environments. • Also watch relevant youtube videos on the topic. • Create a presentation of your choice that can be used in class as a teaching/revision resource.	
Sociology	• To analyse the various research methods used in Sociological studies	• Watch the Youtube clips and research Methods, Observation, Experiments, Longitudinal Studies and Case Studies. • Content Analysis and the stages of Research design, Theory and Methods, Methodological Pluralism and Methodological Purism, The Study of Society, Sociology and the Social Sciences and Sociology and the Social Policy Part 1. • Watch TV interviews and report back on what makes them effective and what is not helpful?	www.youtube.com www.sociology.org.uk http://www.cliffsnotes.com/ www.s-cool.co.uk/a-level/sociology https://revisesociology.wordpress.com https://sociologytwynham.com www.revisionworld.com

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		• Find 2 newspaper stories from the following options: Sarah Payne, Children sold in 7 Days, Bombings, War or Drug Trafficking.	
History	• To investigate the origin of the Cold War	• Research with any relevant document or the video links to create a presentation/mindmap on the impact of Bolshevik revolution for the development of Cold War.	https://www.youtube.com/watch?v=cV9G1QUIm7w https://www.youtube.com/watch?v=YVuf3T3k-W0&t=349s https://www.youtube.com/watch?v=hE35X4064fY https://www.youtube.com/watch?v=rjcT8ucTmNs https://www.youtube.com/watch?v=w0Wmc8C0Eq0 https://www.youtube.com/watch?v=rcE3jaMuuy8
Global Perspective	• To analyse the different perspectives on the issue of pandemics/epidemics	• Explore the issue of Epidemics eg. COVID-19 • Watch relevant documentaries on Youtube.	• Relevant sources as chosen by the learner

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		Identify the related issues and contrasting perspectives about this key issue. • Create a research Proposal Poster on any one of the chosen issues	