



# The Winchester School



## Aim High Progress Study Programme \_ (Year 12) December \_2024

Subject	Focus	Activities	Useful website
Accounting	<p><b>Application of Marginal costing</b></p> <ul style="list-style-type: none"><li>To analyse the usefulness of Managerial Accounting in businesses</li><li>To develop independent problem-solving skills</li></ul>	<ul style="list-style-type: none"><li>Apply marginal costing concepts to make decisions on limited resources, make or buy, accepting orders.</li><li>Complete all MCQ questions and structures on the topics covered so far.</li><li>Practice question from past paper 2016 – 2020 (Feb/March and May/June series)</li></ul>	<p><a href="http://www.myaccountinglab.com">www.myaccountinglab.com</a> <a href="http://www.cie.org.uk">www.cie.org.uk</a>, Accounting Text books</p>
Arabic (Arabs)	<p><b>TOPIC:</b> قصة الحرباء</p> <p><b>Learning objectives:</b></p> <p>أن يصف الطالب وجهات نظر الشخصيات أن يصف الصفات الداخلية والخارجية للشخصيات ويوضح وجهة نظرهم في فكرة القصة أن يبين الطالب تأثير العبارات في إظهار المشاعر</p>	<p>يحدد دلالة عنوان القصة مدعمًا رأيه بالأدلة يشرح ارتباط العنوان بمدلول القصة ويذكر الأدلة من النص يميز العبارات التي ساهمت في إظهار مشاعر الشخصيات أن يحلل تطور وجهة نظر الراوي في القصة أن يصف وجهات نظر الشخصيات</p>	<p><a href="https://www.uae-study.com/2020/07/Solve-lesson-look-outside-window-grade-12.html">https://www.uae-study.com/2020/07/Solve-lesson-look-outside-window-grade-12.html</a> <a href="https://seraj-uae.com/file/3862/">https://seraj-uae.com/file/3862/</a></p>



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Islamic Studies Arabs	السنن الربانية: TOPIC: <b>Learning objectives:</b> 1. توضيح مفهوم السنن الربانية وأقسامها. 2. تحديد السنن الشرعية في القرآن الكريم والسنة النبوية. 3. معرفة أهمية السنن الربانية للفرد والمجتمع.	4- بالتعاون مع زملائك حدد الوسائل التي تعين على معرفة السنن الربانية. 3- اذكر أهمية السنن الربانية وكيف يحقق المؤمن الإيمان بها. تحديد السنن الشرعية في القرآن الكريم والسنة النبوية . معرفة أهمية السنن الربانية للفرد والمجتمع.	<a href="https://khutabaa.com/index.php/ar/discussions/">https://khutabaa.com/index.php/ar/discussions/</a>
Islamic Studies Non Arabs	TOPIC: ALLAH'S MESSENGER AND SOCIAL LIFE <b>Learning objectives:</b> <b>To signify the keenness of Prophet (P.B.U.H) on building coherent society.</b> <b>-To infer a link between communal peace and the development of Islamic State.</b>	Explore, how Prophet (P.B.U.H) used to demonstrate his keenness to build a coherent society. How important is to develop a link between communal peace and the development of Islamic State?	<a href="https://lastprophet.info/the-prophet-muhammad-saw/social-life/66/prophet-muhammads-relationships-with-his-family-and-relatives">https://lastprophet.info/the-prophet-muhammad-saw/social-life/66/prophet-muhammads-relationships-with-his-family-and-relatives</a>



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Biology	<p><b><u>Nucleic acids and protein synthesis</u></b></p> <p><b><u>Structure and replication of DNA</u></b></p> <ul style="list-style-type: none"><li>• To Describe the structure of nucleotides, including the phosphorylated nucleotide ATP</li><li>• To describe the structure of RNA and DNA and explain the importance of base pairing and the different hydrogen bonding between bases.</li><li>• <b><u>Replication of DNA:</u></b> To describe the semi-conservative replication of DNA during interphase</li></ul>	<ul style="list-style-type: none"><li>• Illustrate diagrammatically semiconservative mode of DNA replication.</li><li>• Create a model of double helix structure of DNA</li><li>• Research on the contribution of scientist on the discovery of DNA structure</li></ul>	<ul style="list-style-type: none"><li>• <a href="http://accessexcellence.org/AB/GG/">http://accessexcellence.org/AB/GG/</a></li><li>• <a href="http://www.schoolcool.co.uk/a-level/biology/dna-and-the-genetic-code/revise-it/dna-replication">http://www.schoolcool.co.uk/a-level/biology/dna-and-the-genetic-code/revise-it/dna-replication</a></li><li>• <a href="http://www.thealevelbiologist.co.uk/replication-of-dna">http://www.thealevelbiologist.co.uk/replication-of-dna</a></li></ul>
Chemistry	<p><b>ALKANES</b></p> <ul style="list-style-type: none"><li>• To understand the general unreactivity of alkanes, including towards polar reagents</li><li>• To describe the chemistry of alkanes as exemplified by the following reactions of ethane:<ul style="list-style-type: none"><li>• Combustion</li><li>• substitution by chlorine and by bromine</li></ul></li></ul>	<p>Practice writing balanced equations showing complete and incomplete oxidation.</p> <p>Compare combustion of simple alkanes and higher alkanes.</p>	<p><a href="http://www.a-levelchemistry.co.uk/16-alkanes.html">http://www.a-levelchemistry.co.uk/16-alkanes.html</a></p>



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	<ul style="list-style-type: none"><li>• To describe the mechanism of free-radical substitution at methyl groups with particular reference to the initiation, propagation and termination reactions</li><li>• To explain the use of crude oil as a source of both aliphatic and aromatic hydrocarbons</li><li>• To suggest how cracking can be used to obtain more useful alkanes and alkenes of lower Mr from larger hydrocarbon molecules</li></ul> <p><b><u>ALKENES:</u></b></p> <ul style="list-style-type: none"><li>• To describe the chemistry of alkenes as exemplified, where relevant, by the following reactions of ethene and propene (including the Markovnikov addition of asymmetric electrophiles to alkenes using propene as an example):</li><li>• addition of hydrogen, steam, hydrogen halides and halogens</li><li>• oxidation by cold, dilute, acidified manganate(VII) ions to form the diol</li></ul>	<p>- Prepare an INFOGRAPHIC poster to show reactivity of alkanes</p> <p>Research about chemical properties of alkanes and prepare a poster showing the chemical reactions suitable mechanism.</p> <ul style="list-style-type: none"><li>• Prepare an INFOGRAPHIC poster to compare reactivity of alkanes and alkenes.</li><li>• Create a concept map to show reactions of alkenes.</li><li>• Polymers are necessary evils in today's world. Justify the statement.</li><li>• Practice identifying products in oxidation reactions of alkenes acidified manganate(VII) ions under dilute and cold in addition to hot and concentrated conditions.</li></ul>	<p><a href="https://alevelnotes.com/Alkanes/138">https://alevelnotes.com/Alkanes/138</a></p> <p><a href="https://chemstuff.co.uk/unit-2/functional-groups/alkanes/">https://chemstuff.co.uk/unit-2/functional-groups/alkanes/</a></p> <p><a href="https://revisionworld.com/a2-level-level-revision/chemistry/organic-chemistry/alkanes">https://revisionworld.com/a2-level-level-revision/chemistry/organic-chemistry/alkanes</a></p> <p><b>ONLINE QUIZ</b></p> <p><a href="http://en.mcqslearn.com/a-level/chemistry/alkanes-reaction-mcq.php">http://en.mcqslearn.com/a-level/chemistry/alkanes-reaction-mcq.php</a></p> <p><a href="http://en.mcqslearn.com/a-level/chemistry/sources-of-alkanes-mcq.php">http://en.mcqslearn.com/a-level/chemistry/sources-of-alkanes-mcq.php</a></p> <p><a href="http://www.a-levelchemistry.co.uk/29-alkenes.html">http://www.a-levelchemistry.co.uk/29-alkenes.html</a></p>
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	<ul style="list-style-type: none"><li>• oxidation by hot, concentrated, acidified manganate(VII) ions leading to the rupture of the carbon-carbon double bond in order to determine the position of alkene linkages in larger molecules</li><li>• To describe the mechanism of electrophilic addition in alkenes,</li><li>• using bromine/ethene and hydrogen bromide/propene as examples</li><li>• To describe the characteristics of addition polymerisation as exemplified by poly(ethene) and PVC</li></ul>		<p><a href="http://www.s-cool.co.uk/a-level/chemistry/aliphatic-compounds/revise-it/alkenes">http://www.s-cool.co.uk/a-level/chemistry/aliphatic-compounds/revise-it/alkenes</a></p> <p><a href="https://revisionworld.com/a2-level-level-revision/chemistry/organic-chemistry/alkenes">https://revisionworld.com/a2-level-level-revision/chemistry/organic-chemistry/alkenes</a></p> <p><a href="http://chubbyrevision.weebly.com/alkenes.html">http://chubbyrevision.weebly.com/alkenes.html</a></p>
Business Studies	<b>Topic – Capacity Utilisation</b> <ul style="list-style-type: none"><li>• To analyse how capacity utilisation can be measured.</li><li>• To discuss the implications of operating under or over maximum capacity</li></ul>	<b>Research Based Task</b> <p>Using a concert/theatre venue or airline company as an example, you are required to research and evaluate the implications of operating under and over capacity.</p>	<p><a href="http://tutor2u.net/business/production/capacity-utilisation.html">http://tutor2u.net/business/production/capacity-utilisation.html</a></p> <p><a href="http://wikitextbook.co.uk/index.php/Capacity_utilisation_(A">http://wikitextbook.co.uk/index.php/Capacity_utilisation_(A</a></p>



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		Produce your findings in the form of a well-structured report or a Presentation.	_level_BS) , provides useful additional material
Economics	<p>Topic - Monetary policy</p> <ul style="list-style-type: none"> <li>▫ To analyse the different tools of monetary policy.</li> <li>▫ To evaluate the effects of monetary policy measures on government macroeconomic aims.</li> </ul>	<p>Research Based Task:</p> <ol style="list-style-type: none"> <li>1. Research and analyse how a reduction in interest rates would affect the amount of savings and borrowing and discuss its impact on the level of demand in the economy and how it would affect the main macroeconomic indicators.</li> <li>2. Research on how changes in the money supply can affect the level of demand in the economy and the impact of changes in the money supply on the main macroeconomic indicators.</li> <li>3. Research and examine how changes in the money supply or monetary policy can impact their everyday lives,</li> </ol>	<p><a href="https://www.tutor2u.net/economics/reference/fiscal-deficits-and-the-national-debt">https://www.tutor2u.net/economics/reference/fiscal-deficits-and-the-national-debt</a></p> <p><a href="https://www.tutor2u.net/economics/reference/progressive-and-regressive-taxes">https://www.tutor2u.net/economics/reference/progressive-and-regressive-taxes</a></p> <p><a href="https://www.tutor2u.net/search?q=fiscal+policy">https://www.tutor2u.net/search?q=fiscal+policy</a></p> <p><a href="https://www.youtube.com/watch?v=uBaTPugw3M4">https://www.youtube.com/watch?v=uBaTPugw3M4</a></p> <p><a href="http://www.youtube.com/watch?v=uBaTPugw3M4">www.youtube.com/watch?v=uBaTPugw3M4</a></p>



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		such as borrowing rates or purchasing power.	<a href="http://www.youtube.com/watch?v=UAA6LavH-0U">www.youtube.com/watch?v=UAA6LavH-0U</a>
Psychology	Topic <b>Cognitive Psychology</b>	Activities Choose any or preferably all 4 studies and create either of these two,  A Glogster poster with videos, images and text.  A animoto/movie maker video compiling all the studies learnt.	<a href="http://www.glogster.com">www.glogster.com</a> <a href="http://www.animoto.com">www.animoto.com</a> <a href="http://www.psychologyabout.com">www.psychologyabout.com</a> <a href="http://www.s-cool.co.uk">www.s-cool.co.uk</a> <a href="http://www.thestudentroom.co.uk/wiki/A-Level_Psychology">www.thestudentroom.co.uk/wiki/A-Level Psychology</a>
Physics	<b>DC Circuits</b> <b>Internal Resistance</b> <b>Kirchoff's law</b>	<ul style="list-style-type: none"> <li>❖ Understand the effects of the internal resistance of a source of e.m.f. on the terminal potential difference.</li> <li>❖ Recall Kirchhoff's first law and understand that it is a consequence of conservation of charge.</li> <li>❖ Recall Kirchhoff's second law and understand that it is a consequence of conservation of energy.</li> <li>❖ Derive, using Kirchhoff's laws, a formula for the combined resistance of two or more resistors in series</li> </ul>	Kirchhoff's laws: <a href="https://studynova.com/lecture/physics/electricity-and-magnetism/kirchhoffs-laws/">https://studynova.com/lecture/physics/electricity-and-magnetism/kirchhoffs-laws/</a>  Teacher notes and learner worksheets from the IoP on Kirchhoff's laws: <a href="https://spark.iop.org/episode-117-kirchhoffs-laws">https://spark.iop.org/episode-117-kirchhoffs-laws</a> Circuit Construction Kit DC – Virtual Lab simulation:



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			<a href="https://phet.colorado.edu/en/simulation/circuit-construction-kit-dc-virtual-lab">https://phet.colorado.edu/en/simulation/circuit-construction-kit-dc-virtual-lab</a>
Sociology	Types of data, methods and research design	Make a 3-minute video on different types of data with examples.	<a href="https://revisesociology.com/2016/01/03/research-methods-sociology/">https://revisesociology.com/2016/01/03/research-methods-sociology/</a> (introduction to research methods in sociology, providing an overview of primary and secondary data and methods of collection) <a href="http://www.ool.co.uk/blog/studying-sociology-gcse-and-sociology-a-level-10-research-methods-secondary-sources-ofdata/">www.ool.co.uk/blog/studying-sociology-gcse-and-sociology-a-level-10-research-methods-secondary-sources-ofdata/</a> (overview of primary and secondary sources of data, with examples to illustrate) <a href="http://www.sociology.org.uk/notes/methsec1.pdf">www.sociology.org.uk/notes/methsec1.pdf</a> (detailed notes on secondary data)



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English Language	Imaginative Writing To enhance descriptive writing skills	Practice descriptive writing using real situations as prompts. For instance, choose a location in a mall and observe your surroundings. Take notes on what you see, hear, feel.... Then give yourself 1 hour to write a piece based on your observations.	<a href="http://study.com/academy/lesson/descriptive-writing-definition-techniques-examples.html">http://study.com/academy/lesson/descriptive-writing-definition-techniques-examples.html</a>
Art and Design	AO1, AO2 and AO3 Strong evaluation and the ability to critically analyse appropriate resources to identify, modify and execute works as they progress.	Research into the work of practitioners, other cultures and other disciplines helps to further ideas and stimulate new ways of observing a subject to achieve an individual response.	<a href="http://www.studentartguide.com">www.studentartguide.com</a>
Information Technology	Hardware and software <ul style="list-style-type: none"><li>Evaluate the features of different types of user Interfaces</li><li>Types of software and their features</li><li>Differentiate between Compilers, Interpreters and Linkers.</li></ul>	Encourage your child to complete below activity:  Activity 1: Compiler vs Interpreter Sorting Game  - Provide child with a set of statements describing compilers and interpreters (e.g., Translates code into machine code, Executes code line-by-line).	<a href="http://cambridgeinternational.org/images/662482-2025-2027-syllabus.pdf">cambridgeinternational.org/images/662482-2025-2027-syllabus.pdf</a>



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		<ul style="list-style-type: none"><li>- Ask your child to sort the statements into two categories: Compiler or Interpreter.</li><li>- Encourage discussion and clarification.</li></ul> <p>Activity 2: Programming Language Research</p> <ul style="list-style-type: none"><li>- Assign students a programming language (e.g., Python, Java, C++).</li><li>- Ask them to research and answer:</li><li>- Is the language compiled or interpreted?</li><li>- What are the advantages and disadvantages of this approach?</li><li>- How does the language's compilation/interpretation process work?</li></ul>	
Computer Science	Develop the ability to write efficient pseudocode, which helps in planning and visualizing algorithms before actual coding.	Design simple programs that require the use of both procedures and functions. For example, create a program to calculate the area and perimeter of different shapes.	<a href="https://www.w3schools.com/">https://www.w3schools.com/</a>



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		You are tasked with developing a program for a library system. The system should manage book loans and returns. Implement the requirements using procedures and functions:	
Statistics 1	<p><u>Discrete random variables</u></p> <ul style="list-style-type: none"> <li>• use formulae for probabilities for the binomial and geometric distributions, and recognise practical situations where these distributions are suitable models.</li> <li>• use formulae for the expectation and variance of the binomial distribution and for the expectation of the geometric distribution.</li> </ul>	<p>Model a situation on discrete random variable from a real life situation.</p> <p>Compare and contrast Binomial distribution and Geometric distribution.</p>	<p><a href="https://www.statisticshowto.com/probability-and-statistics/binomial-theorem/binomial-distribution-formula/">https://www.statisticshowto.com/probability-and-statistics/binomial-theorem/binomial-distribution-formula/</a></p> <p><a href="https://www.cuemath.com/geometric-distribution-formula/">https://www.cuemath.com/geometric-distribution-formula/</a></p>
Pure Mathematics	<p><u>Pure Mathematics 1</u></p> <p><b>Functions:</b></p> <ul style="list-style-type: none"> <li>• Identify the range of a given function and find the composition of two given functions</li> </ul>	<p>Research on the real-life applications of functions.</p> <p>Make notes on different transformations on the function <math>y = f(x)</math> with examples.</p>	<p><a href="https://www.intmath.com/functions-and-graphs/2a-domain-and-range.php">https://www.intmath.com/functions-and-graphs/2a-domain-and-range.php</a></p> <p><a href="https://mathbitsnotebook.com/Algebra1/Functions/FNDoMainRange.html">https://mathbitsnotebook.com/Algebra1/Functions/FNDoMainRange.html</a></p>



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	<ul style="list-style-type: none"><li>• Illustrate the relation between a one – one function and its inverse</li><li>• Understand and use transformations of the graph of <math>y = f(x)</math></li></ul>	Take coordinates of any 2 points, find midpoint, length and gradient of the line joining them using required formulae	<a href="https://www.bbc.co.uk/bitesize/guides/z3brdmn/revision/4">https://www.bbc.co.uk/bitesize/guides/z3brdmn/revision/4</a>  <a href="https://www.onlinemathlearning.com/function-transformation-hsf-bf3.html">https://www.onlinemathlearning.com/function-transformation-hsf-bf3.html</a> <a href="https://revisionmaths.com/advanced-level-maths-revision/pure-maths/geometry/coordinate-geometry">https://revisionmaths.com/advanced-level-maths-revision/pure-maths/geometry/coordinate-geometry</a>
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