Subject Curriculum Overview for Academic Year 2022/2023

Subject: Mathematical Studies	Subject Leader: Claire Teague	Year Group:12	AUTUMN TERM
Topic	**Key Learning Points**	**Key Vocabulary**	**Assessments**
The use of spreadsheets	• Use excel spreadsheets to solve simple problems and more complex problems, including writing their own spreadsheets with formula • Use excel to produce clear, well set out graphs, be able to change data sets, change graph types, label and change axis as needed	Cell, column, row, formula, commands $*/+- sum, format	Students will complete tutorial work and assignments on each topic. There will be a summative assessment at the end of each topic. Both the assignments and the topic end tests are based on past exam questions and include new and old material. After each assignment and topic end test there will be an opportunity for students to review their understanding. Teachers will provide students with targeted feedback, based on their test performance. At the end of the term students will have a longer summative assessment based on past exam questions including approximately 50% of questions designed to review past topics to improve recall.
Algebra	• Use the order of operations to consistently achieve the correct answer to maths problems • Substitute numbers in to algebraic expressions and equations • Expand single brackets and double brackets • Factorise single and double brackets • Solve simple and complex equations • Rearrange equations	Solve, factorise, expand, rearrange	
Percentages	• Make comparisons of amounts using percentages • Calculate reverse percentage and solve problems using reverse percentages • Use repeated change to solve problems including compound interest and depreciation calculations • Calculate Annual Equivalent rates for various savings accounts • Understand the difference between nominal rates and AER and make investment decisions based on AER	Annual equivalent rate, nominal rate,	
Data	• Identify and describe discrete and continuous data and primary and secondary data • produce good quality questionnaires, identify poor questions • understand the difference between a population and a sample • Identify and describe different sampling methods	Discrete, continuous, primary, secondary, population, sample, census, quota, random, bias, cluster, stratified, systematic.	
Fermi estimation	• Gain an understanding of how modelling in maths is used to develop solutions to real life problems • Understand Fermi estimation, how it can be used and how it is presented in the context of the exam	Assumptions, mathematical modelling.	

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Topic	**Key Learning Points**	**Key Vocabulary**	**Assessments**
Data representation: dot plots, Stem and leaf diagrams, including finding median and interquartile range	• Know how to represent data in a clear way, using stem and leaf diagrams. Use these to find median and interquartile range	Stem, leaf, median . interquartile range, upper quartile, lower quartile	Students will complete tutorial work and assignments on each topic. There will be a summative assessment at the end of each topic. Both the assignments and the topic end tests are based on past exam questions and include new and old material. After each assignment and topic end test there will be an opportunity for students to review their understanding. Teachers will provide students with targeted feedback, based on their test performance. At the end of the term students will have a longer summative assessment based on past exam questions including approximately 50% of questions designed to review past topics to improve recall.
Cumulative frequency curves and box and whisker plots	• Be able to produce cumulative frequency curves and box and whisker diagrams • Be able to interpret cumulative frequency curves and box and whisker diagrams • Find mode and median from grouped data. Calculate estimated mean from a table of discrete and continuous data. Understand why this calculation is an estimate, interpret this mean. Be able to compare two sets of data using these averages	Frequency, cumulative frequency, skewed. Estimated mean, grouped data	
Estimated mean Standard deviation	• Calculate standard deviation • Use this measure of spread to interpret data, and compare to other sets of data	Standard deviation, variance, sigma	
Histograms	• Be able to produce histogram from given data • Be able to complete apart completed histogram by recreating the original data • Be able to interpret histograms	Histogram, class width, frequency density	
Introduction to tax and national insurance calculations	• Be able to calculate the tax due for an individual on a given salary • Be able to calculate national insurance for an individual on a given salary	Income tax, taxable pay, net pay, gross pay, personal allowance, basic and higher rate, PAYE , personal pension National insurance, lower limit, upper limit	

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Subject:	Subject Leader:	Year Group:	SUMMER TERM
Topic	**Key Learning Points**	**Key Vocabulary**	**Assessments**
Savings accounts	• Identify the nominal rate of a savings account and the AER. Understand why the AER is important for making a comparison between accounts. Define the AER of a savings account and calculate the AER for a savings account	Annual Earnings Rate, nominal rate, capital, principal	Students will complete tutorial work and assignments on each topic. There will be a summative assessment at the end of each topic. Both the assignments and the topic end tests are based on past exam questions and include new and old material. After each assignment and topic end test there will be an opportunity for students to review their understanding. Teachers will provide students with targeted feedback, based on their test performance. At the end of the term students will have a longer summative assessment based on past exam questions including approximately 50% of questions designed to review past topics to improve recall.
Straight line graphs	• Identify the equation for simple straight lines. Plot straight line graphs by using a table of values to find coordinates (including lines with negative gradients). Identify gradients from a graph, identify y intercepts from a graph. • Find the equation of a line given the graph, identify parallel or perpendicular lines from their equations.	Gradient, Y intercept, quadrants	
Financial problems solving	• Understand the terms Consumer Price index, and retail price index. Use the indexes to calculate prices and compare prices from different points in time. • Understand how to convert one currency to another, use this skill to answer questions. • Understand how the stock exchange works. Calculate profits and losses on share sales. • Understand how student loans work, and be able to calculate basic repayments interest charges etc with the use of a spreadsheet.	CPI, RPI, Index, Foreign exchange, Bid, ask and mid-market price, Stock exchange, ordinary shares, dividends	
Area, volume and shape	• Recall facts about perimeter and area learned at GCSE, use these in conjunction with Fermi estimation • recall facts on similarity and congruence, use these to solve problems • Recall Pythagoras' theorem, use to solve problems • Investigate similarity and the relationship between surface area and volume		

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How parents can support learning in the subject this academic year

Ensure your child completes all homework set and is revising for tests in class which will be set at the end of each topic. Ensure your child asks the class teacher if unsure of anything covered in class, A levels are much more complex than the learning they have done before and they need to ensure understanding before moving on. Mathematics topics are hierarchical in nature and missed topics (or even single lessons) will cause gaps in their knowledge making future topics difficult to grasp. They should take a proactive approach to missed content using their text books to read sections missed and ensure that they attempt home works from missed lesson, they should ensure they catch up with all work missed. They should come and ask if they are unsure of any topic whether it is because they have missed lessons or are simply unsure of a topic.

Recommended Reading

AQA mathematical studies text book given by school
AQA mathematical studies revision guide – given near to exam
Preliminary materials produced by exam board on 1 March prior to exam season
GCSE text books and class notes will be useful to remain the students of past knowledge (although this will be covered in class)
Maths Watch and BBC bite sized are useful resources for many maths topics.

Points to note