



Dallam School

Mathematics Curriculum Overview

Department: AQA Mathematical Studies (Core Maths)
Year Group: 12

AUTUMN		SPRING		SUMMER	
Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Theme / Topic	Theme / Topic	Theme / Topic	Theme / Topic	Theme / Topic	Theme / Topic
<i>Personal finance and analysis of data</i>	<i>Personal finance and modelling & estimation</i>	<i>The Normal Distribution</i>	<i>Correlation, regression and confidence intervals</i>	<i>Critical analysis and revision</i>	<i>END OF COURSE</i>
By the end of this half term pupils will know (<i>key knowledge, including tier 3 vocabulary</i>)					
<ul style="list-style-type: none"> ➤ Percentages ➤ Budgeting ➤ Income ➤ National insurance tax ➤ Controlling debt ➤ APR/AER ➤ Data and sampling ➤ Averages ➤ Measures of spread ➤ Box and whisker plots ➤ Cumulative frequency ➤ Histograms 	<ul style="list-style-type: none"> ➤ Mortgages ➤ Savings and investments ➤ VAT and other percentages ➤ Exchange rates ➤ Inflation ➤ Modelling ➤ Standard form ➤ Estimation techniques ➤ Useful facts and formulae 	<ul style="list-style-type: none"> ➤ Features of a normal distribution ➤ The standard normal distribution ➤ Calculating probabilities 	<ul style="list-style-type: none"> ➤ Lines of best fit ➤ Regression lines ➤ Pearson's product moment correlation coefficient ➤ The sample mean ➤ Confidence intervals 	<ul style="list-style-type: none"> ➤ Criticising the arguments of others ➤ Ways of summarising data and different types of report writing ➤ Comparison of results from a model with real data 	END OF COURSE
They will understand (<i>key concepts</i>)					
<ul style="list-style-type: none"> ➤ Apply the correct method of finding insurance (income or national insurance) and when one/both isn't necessary in certain scenarios. ➤ The difference between APR and AER and when they should be calculated. ➤ The difference between working out a single instalment, the total loan, or the APR. 	<ul style="list-style-type: none"> ➤ The difference between working out a mortgage repayment and the remaining balance of a mortgage. ➤ Work out the original amount knowing VAT has been added or the new amount given the VAT. ➤ Work between different currencies in a problem-solving context. ➤ Apply different modelling techniques 	<ul style="list-style-type: none"> ➤ Standardise scores and how this can be used to find probabilities when a variable is normally distributed. ➤ Sketch a normal distribution, and how this can be helpful when working out different proportions/probabilities from the curve. ➤ Use your table of probabilities to work backwards to find the 	<ul style="list-style-type: none"> ➤ Describe and analyse correlation in the context of the question, including using the PMCC. ➤ Use the equation of a regression line to predict results. ➤ Use the line of best fit to predict results. ➤ Use the plotted mean to make the line of best fit/regression line as accurate as possible. ➤ Know how to apply different levels of 	<ul style="list-style-type: none"> ➤ Which data to confirm with the written reports ➤ How to write a response to a statement made in media, political, marketing campaigns ➤ Why organisations might misrepresent data ➤ What constitutes bias 	END OF COURSE

<ul style="list-style-type: none"> ➤ Use bounds to work out the maximum/minimum amount earned in a savings account. ➤ Apply a certain sampling technique and why it may be more appropriate than another. ➤ Use different averages, and why one may be more appropriate than another. ➤ Use a different measure of spread, and why one may be more appropriate than another. ➤ Use different forms of analysing and presenting data, and why some may be more appropriate than others. 	<p>to provide as accurate an estimation calculation as possible.</p> <ul style="list-style-type: none"> ➤ Apply a variety of skills (potentially learned at GCSE) in different contexts to allow for as accurate answers as possible. ➤ State any assumptions made during an estimation calculation. 	<p>correct value, given the probability.</p>	<p>confidence intervals to different sized samples.</p>		
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They will know how to (*key skills*)

<ul style="list-style-type: none"> ➤ Budget and manage flows of money. ➤ Interpret pay slips. ➤ Work out income tax for both low and high earners. ➤ Work out National insurance tax for both low and high earners. ➤ Work out student loan repayments. ➤ Work out APR using the given formula. ➤ Work out the value of an instalment when paying back a loan. ➤ Calculate the AER of an investment. 	<ul style="list-style-type: none"> ➤ Work out how long a mortgage will take to be paid off. ➤ Find outstanding mortgage balances at different points throughout a payment plan. ➤ Work out the price of a product before and after VAT is added. ➤ Convert between different currencies. ➤ Understand the concept of inflation and the effects these can have on goods and services. ➤ Using familiar quantities, or quantities that are 	<ul style="list-style-type: none"> ➤ Understand the features of a normal distribution and how this can be used to model real life situations. ➤ Sketch a normal distribution from its standard deviation and mean. ➤ Use the standard normal distribution and a calculator/table of values to work out probabilities. ➤ Work out a standardised score and use this to help calculate probabilities. 	<ul style="list-style-type: none"> ➤ Understand how to plot a scatter graph. ➤ Describe the correlation by eye and interpret what this means. ➤ Find and plot the plotted mean to help with the accuracy of the line of best fit. ➤ Use a calculator to find the line of regression. ➤ Plot the line of regression and understand what this means in context. ➤ Use the equation of a regression line to predict information. ➤ Use a calculator to calculate Pearson's 	<ul style="list-style-type: none"> ➤ Criticising mathematical arguments ➤ Clearly communicating the mathematical arguments ➤ Critically analyse data quoted in media, political campaigns and marketing 	<p>END OF COURSE</p>
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<ul style="list-style-type: none"> ➤ Work out the interest accumulated knowing the AER or nominal rate. ➤ The advantages and disadvantages of different sampling techniques. ➤ Describe different sampling techniques and when they should be used. ➤ Define different data terms. ➤ Work out different averages. ➤ Represent data in a stem and leaf diagram. ➤ Work with the inter-quartile range, range, and standard deviation. ➤ Construct and interpret box and whisker plots. ➤ Find averages from a frequency table. ➤ Construct and interpret a cumulative frequency diagram. ➤ Construct and interpret histograms. 	<p>easier to estimate, answer real life estimation questions.</p> <ul style="list-style-type: none"> ➤ Work with putting very large and very small numbers in and out of standard form. ➤ State assumptions you are making whilst answering an estimation style question. 		<p>Moment Correlation Coefficient and understand what this means in context.</p> <ul style="list-style-type: none"> ➤ Be able to work out the standard error. ➤ Understand the term confidence intervals and how they can be used to give a range of possibilities rather than a single point estimate. ➤ Be able to construct confidence intervals. 		
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