

**INTENT**

The ambitious curriculum in Mathematics will provide students with opportunities to develop skills linked to numerical thinking, as well as an awareness of the application of numerical, geometric and abstract algebraic

### Bilton School Planning for Progress over Time Programme of Study

**The bigger picture:**

We look to develop the following skills in our mathematicians:  
**FLUENCY** • Quick and accurate recall of key facts • Knowledge/selection of appropriate techniques/strategies.  
**REASONING** • Applying logical thinking to a situation to derive the correct problem solving strategy • The bridge between fluency and problem solving.  
**PROBLEM SOLVING** • Finding a way to apply knowledge and skills to answer unfamiliar types of problems.

This skill sets allows our learners to flourish with the skills needed to function in an ever evolving world.

### Level 3 Certificate in Mathematics (Core Maths)

Core Maths											
Topic	GCSE Topic Revision	Percentages	Sampling	Personal Finances	Data	Representing data	Finances	Critical analysis	Normal Distribution	Correlation	Pre release material
Progress and assessment	PPEs in Feb and ongoing mini assessments throughout the year										
Homework	Independent research and learning overarching the course										
Literacy (including reading)	‘Two for Two’ and ‘Three for Three’ shared with students. Problem solving questions integrated into lessons.										
Social, Moral, Spiritual and Cultural Development	Whole course designed around maths in the real world, tax, national insurance, mortgages, criticizing newspaper articles and statistics is especially prevalent in the climate of “fake news”										
British Values and Cultural Capital	Use MWB in classrooms to develop independence, self-esteem and build confidence. Within lessons, respect is encouraged and anything other than this is challenged. Mistakes are welcomed and used as discussion points to address misconceptions. A variety of approaches to solving problems are taught and discussed. Students are encouraged to develop resilience (linked to developing life-long learners).										
End Points	Useful facts and formulae – To calculate the volume and surface area of prisms and spheres	Percentages	To understand the data handling cycle and the various types of data. To carry out a random sample.	To analyse the key parts of a payslip.	To calculate averages from stem and leaf diagrams and use back to back stem and leaf diagrams to compare data.	To construct a box and whisker plot.	To understand some of the key aspects of how a mortgage is calculated.	To understand what is meant by critical analysis and to analyse the clarity of statements focusing on the use of language.	An introduction to the Normal distribution and its key features.	Plotting scatter graphs.	Introduction to the pre-release material.
	Useful facts and formulae – Calculating speed, distance time and Mass, density, volume.	Percentages 2	To understand and carry out stratified sampling.	To calculate TAX	To calculate averages from tables and grouped frequency tables.	To use a cumulative frequency graph to represent data.	To calculate Interest rates including AER for savings and investments.	To analyse the clarity of statements based on figures which must have calculations to back them up.	To calculate intervals and probabilities from the standard normal distribution.	Understanding the different types of correlation and comment on them including reference to strength.	Critically analysing the pre-release material.
	To write numbers in standard form and calculate with them.	Introduction to personal finance. To effectively budget.	To be able to compare and use all sampling methods including random, stratified, Cluster and quota.	Calculating National Insurance.	Measures of spread – Range, Quartiles and inter quartile ranges.	To compare data sets using both box and whisker and cumulative frequency graphs.	To calculate inflation.	To critically analyse statements focusing on various assumptions and understand what assumptions are acceptable.	To calculate more complex intervals and probabilities.	Understand the features of a line of best fit and plot one.	Calculations that could be based on the pre-release material.
	Rounding to d.p. and s.f. in order to make estimations.		To calculate the mean, median and mode being able to justify which gives the best representation.	To understand methods of controlling debt including credit cards and various types of loan.	Measures of spread – Standard deviation.	To construct Histograms.	To use exchange rates.	To understand how the selectivity and sampling methods can obscure results.	To standardise values	Straight line graphs, link to $y=mx+c$ .	
				To calculate VAT and other percentages.		To analyse and interpret Histograms.	Consolidation/catch up of all finance.	To analyse graphs to see how they might be misleading.	To calculate probabilities from a normal distribution.	To calculate equation of regression on the calculator.	
							To use exchange rates.	Choosing the correct method – advantages and disadvantages of different statistical values and diagrams.		Plotting more complex lines of regression.	
										To calculate Pearson’s product moment correlation coefficient and understand what it means.	
								Consolidation/catch up of data analysis.		To calculate Pearson’s product moment correlation coefficient and understand what it means.	
										Understand the difference between correlation and causation.	

**IMPLEMENTATION**