

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.

IMPLEMENTATION

Year 13	3-S	5-P	6-P	7-P	8-P	9-P	11-P	10-P
Topic	The Normal Distribution	Radians	Trigonometric Functions	Trigonometry and Modelling	Parametric Equations	Differentiation	Integration	Numerical Methods
Progress and assessment	End of topic assessments completed using end points as the assessment criteria.							
Homework	Set on Classcharts and will re-enforce the work completed in class.							
Literacy (including reading)	Problem solving questions integrated into lessons.							
Social, Moral, Spiritual and Cultural Development	To model real world situations using mathematics							
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). Students are given a choice of tasks in lessons (red, amber, green/bronze, silver, gold) often linked to their levels of learning. E-safety is promoted through blended learning opportunities (MathsWatch)							
End Points	The normal distribution	Radian measure	Secant, cosecant and cotangent	Addition formulae	Parametric equations	Differentiating $\sin x$ and $\cos x$	Integrating standard functions	Locating roots
	Finding probabilities for the normal distribution	Arc length	Graphs of $\sec x$, $\operatorname{cosec} x$ and $\cot x$	Using the angle addition formulae	Using trigonometric identities	Differentiating exponentials and logarithms	Integrating $f(ax+b)$	Iteration
	The inverse normal distribution function	Areas of sectors and segments	Trigonometric identities	Double-angle formulae	Curve sketching	The chain rule	Using trigonometric identities	The Newton-Raphson method
	The standard normal distribution	Solving trigonometric equations	Inverse trigonometric functions	Solving trigonometric equations	Points of intersection	The product rule	Reverse chain rule	Applications to modelling
	Finding the mean and standard deviation	Small angle approximations		Simplifying $a\cos x \pm b\sin x$	Modelling with parametric equations	The quotient rule	Integration by substitution	
	Approximating a binomial distribution			Proving trigonometric identities		Differentiating trigonometric functions	Integration by parts	
	Hypothesis testing with the normal distribution			Modelling with trigonometric functions		Parametric differentiation	Partial fractions	
						Implicit differentiation	Finding areas	
						Using second derivatives	The trapezium rule	
						Rates of change	Solving differential equations	
							Modelling with differential equations	