

Yardleys Curriculum Aims

- To achieve academic excellence
- To educate the 'whole child' so they are ready for life
- · To work collaboratively and ethically to provide education of the highest standard

MATHS – KEY STAGE 4

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Currie			NIAW
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INTENT: At Yardleys, we want our pupils to see Mathematics as a universal language that allows us conceptualise and communicate ideas clearly across the curriculum and beyond. Throughout our curriculum, we develop mathematicians that are empowered with the knowledge, attitude and strategies to reason, generalise and simplify complex problems into their composite parts. Our pupils are fluent in the key mathematical processes so that they may become flexible and creative problem solvers that are resilient when faced with challenges.

Year 10 - Foundation

Year 10 starts the KS4/GCSE curriculum. It uses prior knowledge from KS3 as a key starting point to introduce new topic areas. This idea of revisiting and "building on" is the rationale to the maths KS4 curriculum.

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SUBSTANTIVE KNOWLEDGE	• Factors, Multiples, Powers & Roots	Substitution	 Solving & Representing inequalities
	 Rounding & Estimation 	 Solving Linear Equations 	RATIO
	Basic Angles & Parallel Lines	 Angles in Tringles & Quads 	• Expand & Factorise (Double Brackets)
	Bearings, Maps & Scales	 Angles in Polygons 	Standard Form
	Indices	Pie Charts	Rearranging
	 Expand & Factorise (Single Brackets) 	 Averages & Range 	Simultaneous Equations
	FDP: Equivalence & Four Rules	Probability	Straight Line Graphs
	• % of an Amount	 Area & Perimeter (inc. Circles) 	• y = mx + c
	Expressing as a %	Distance-Time Graphs	
DISCIPLINARY KNOWLEDGE	• Develop fluency - select and use	• Develop fluency - select and use	• Develop fluency - select and use appropriate
	appropriate calculation strategies involving	appropriate calculation strategies, with the	calculation strategies, with the aid of ratios
	all types of numbers.	aid of algebra when needed.	when needed.

	 Reason mathematically - making connections between different types of topics which involve angles. Solve problems - use of formal mathematical knowledge and skills to solve a variety of mathematical problems. 	 Reason mathematically – making use of algebraic skills to reason in geometry questions. Solve problems - use of formal mathematical knowledge and skills to solve a variety of mathematical problems. 	 Reason mathematically - making connections between solving equations (Term 2) & simultaneous equations Solve problems - use of formal mathematical knowledge and skills to solve a variety of mathematical problems.
		Year 10 - Higher	
SUBSTANTIVE KNOWLEDGE	 Factors, Multiples, Powers & Roots Indices Solving Linear Equations Represent & Solve Inequalities Linear Graphs, y = mx + c Parallel & Perpendicular Lines Inequalities & Regions RATIO Factorise & Solve all types of Quadratics Pythagoras & SOH CAH TOA Sine Rule & Cosine Rule Non-Calc Trig 	 Angles in Polygons SURDS Direct & Inverse Proportion Perimeter, Circumference & Area Algebraic Fractions Algebraic Proof Probability Probability Trees Venn Diagrams 	 Cumulative Frequency & Box Plots Histograms Averages from Frequency Tables Percentage Calculations Similarity (Length, Area, Volume) Surface Area & Volume of all 3D shapes Triple Brackets Equating Coefficients Rearranging
DISCIPLINARY KNOWLEDGE	 Develop fluency - select and use appropriate calculation strategies involving all types of numbers, powers & roots. Reason mathematically - making connections between different types of topics which involve straight line graphs, in the form y=mx+c. Solve problems - use of formal mathematical knowledge and skills to solve a variety of mathematical problems. 	 Develop fluency - select and use appropriate calculation strategies, with the aid of algebra when needed. Reason mathematically – making use of algebraic skills to reason in geometry questions. Solve problems - use of formal mathematical knowledge and skills to solve a variety of mathematical problems. 	 Develop fluency - select and use appropriate statistical calculation strategies. Reason mathematically - making connections between all the different types of data calculations, graphs & charts Solve problems - use of formal mathematical knowledge and skills to solve a variety of mathematical problems.
Year 11 - Foundation			
Year 11 concludes the KS4/GCSE curriculum. Pupils are now fluent in the main areas of mathematics and are now able to tackle higher level concepts. The curriculum emphasises the connections between topics and encourages pupils to bring together their knowledge to tackle unseen problems.			
SUBSTANTIVE KNOWLEDGE	 Number Sequences Pythagoras & SOH CAH TOA Volume of Prisms 	 Vectors Transformations (TRRE) Congruence & Similarity 	

	 Volume & Surface Area of 3D shapes % of an Amount Expressing as a % Proportionality & Best Buys % Change & Reverse % Probability Frequency Trees 	 Review of ANGLES (Basic Angle Facts, Angles in triangles & Quads, Angles in Polygons) Averages & Range from Tables Frequency Tables Scatter Graphs Time Series Straight Line Graphs Quadratic & other Non-Linear Graphs 	
DISCIPLINARY KNOWLEDGE	 Develop fluency - select and use appropriate calculation strategies involving all types of numbers and become more confident with the use of percentages. Reason mathematically - making connections between different types of topics which fractions, decimals & fractions. Solve problems - use of formal mathematical knowledge and skills to solve a variety of mathematical problems. 	 Develop fluency - select and use appropriate statistical calculation strategies. Reason mathematically - making connections between all the different types of data calculations, graphs & charts. Solve problems - use of formal mathematical knowledge and skills to solve a variety of mathematical problems. 	
		Year 11 - Higher	
SUBSTANTIVE KNOWLEDGE	 Number Sequences Iteration Functions & Inverse Functions Identities & Brackets Factorising ALL quadratics Completing the Square Quadratic Formula Graph Sketching Invariance Pythagoras & SOH CAH TOA Sine & Cosine Rules Non-Calc Trig Circle Theorems Equation of a Circle & Tangents Vectors 	 Linear Simultaneous Equations Non-Linear Simultaneous Equations Algebraic Fractions Algebraic Proof Gradient to a Curve & Area Under a Curve Error Intervals Cumulative Frequency Histograms Probability & Venns Similarity, Volume & Surface Area Transformations of Graphs 	
DISCIPLINARY KNOWLEDGE	Develop fluency - select and use appropriate calculation strategies involving	• Develop fluency - select and use appropriate statistical calculation strategies.	

 all types of numbers and become more confident working with a calculator. Reason mathematically - making connections between different types of topics which involve Pythagoras & Trigonometry. Solve problems - use of formal mathematical knowledge and skills to solve a variety of mathematical problems. 	 Reason mathematically - making connections between all the different types of data calculations, graphs & charts. Solve problems - use of formal mathematical knowledge and skills to solve a variety of mathematical problems. 	
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