



## Mathematics

‘A person who never made a mistake never tried anything new.’ Albert Einstein

### Curriculum Vision

Mathematics is a key life skill and is a language through which ideas can be explored, explained, and developed. The underlying aim in all mathematics teaching is to give children an understanding of the patterns and processes of mathematics. Through problem solving, the focus is to enable them to see the uses and purposes of what they are learning and its application to life skills, and to be resilient and independent learners.

### Year 10 Topic Map

	AUTUMN		SPRING		SUMMER	
Topics	Reasoning with shape	Reasoning with algebra	Working with shape	Proportional reasoning	Data	Working with number
<b>Key Knowledge</b> (not exhaustive)	Congruence, similarity, and enlargement  Trigonometry	Representing solutions of equations and inequalities  Simultaneous Equations	Angles and bearings  Working with circles  Vectors	Ratios and fractions  Percentages and Interest  Probability	Collecting, representing, and interpreting data	Non calculator methods  Types of number and sequences  Indices and roots
<b>Key Skills</b>	<p>A01: Use and apply standard techniques: accurately recall facts, terminology, and definition; use and interpret notation correctly; accurately carry out routine procedures or set tasks requiring multi-step solutions.</p> <p>A02: Reason, interpret and communicate mathematically: make deductions, inferences and draw conclusions from mathematical information; construct chains of reasoning to achieve a given result; interpret and communicate information accurately; present arguments and proofs; assess the validity of an argument and critically evaluate a given way of presenting information.</p> <p>A03: Solve problems within mathematics and in other contexts: translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes; make and use connections between different parts of mathematics; interpret results in the context of the given problem; evaluate methods used and results obtained; evaluate solutions to identify how they may have been affected by assumptions made.</p>					
<b>Key Vocabulary</b> (not exhaustive)	Congruent, similar, scale factor, centre of enlargement, Sine, cosine, tangent, hypotenuse, opposite, adjacent, less than, greater than, solve, simultaneous, North, clockwise, radius, diameter, circumference, arc, segment, sector, vector, column vector, scalar, magnitude, population, sample, random, stratified, nth term, difference, arithmetic, reciprocal.					



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### Year 11 Topic Map

	AUTUMN		SPRING		SUMMER
Topics	Graphs	Algebra	Reasoning	Revision and communication	Revision
<b>Key Knowledge</b> <i>(not exhaustive)</i>	Gradients and lines  Non-linear graphs  Using graphs	Expanding and factorising  Changing the subject  Functions	Multiplicative reasoning  Geometric reasoning  Algebraic reasoning	Transforming and constructing  Listing and describing	Informed by mocks
<b>Key Skills</b>	<p>A01: Use and apply standard techniques: accurately recall facts, terminology, and definition; use and interpret notation correctly; accurately carry out routine procedures or set tasks requiring multi-step solutions.</p> <p>A02: Reason, interpret and communicate mathematically: make deductions, inferences and draw conclusions from mathematical information; construct chains of reasoning to achieve a given result; interpret and communicate information accurately; present arguments and proofs; assess the validity of an argument and critically evaluate a given way of presenting information.</p> <p>A03: Solve problems within mathematics and in other contexts: translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes; make and use connections between different parts of mathematics; interpret results in the context of the given problem; evaluate methods used and results obtained; evaluate solutions to identify how they may have been affected by assumptions made.</p>				
<b>Key Vocabulary</b> <i>(not exhaustive)</i>	Gradient, y- intercept, quadratic, exponential, constant, factorise, expand, factor, subject, rearrange, formula, equation, expression, identity, function, input, output, prove, translation, reflection, composite, origin, linear, constant of proportionality, density, mass, volume, force, pressure, inverse proportion, corresponding, adjacent, alternate, co interior, cyclic quadrilateral, cord, tangent, coefficient, Fibonacci, eliminate, counter example, region, vertex, invariant, asymptote, sine, cosine, tangent, period, tree diagram, product rule, union, complement, intersect, interquartile range, correlation, surd, collinear,				