



Academic Learning Plan 2024-2025

Mathematics – Year 7

Intent : The Mathematics Department aims to encourage and develop the joy of problem solving. Students will leave Wadham School with essential mathematical skills for everyday life, to enable them to live their life in all its fullness. Students are actively encourage to try and sometimes fail. Mathematics is not somethings done to you but a subject that students actively engage in. Everyone is capable of being successful in Mathematics.



	Term 1			Term 2	
Year 7 Units	7.1 Sequences	7.2 Understand and use algebraic notation	7.3 Equality and equivalence	7.4 Place value and ordering integers and decimals	7.5 Fractions, decimal and percentage equivalence
Content (National curriculum)	<p>Move freely between different numerical, algebraic, graphical and diagrammatic representations</p> <p>Make and test conjectures about patterns and relationships</p> <p>Use a calculator and other technologies to calculate results accurately and then interpret them appropriately</p> <p>Generate terms of a sequence from a term-to-term rule</p> <p>Recognise arithmetic sequences</p> <p>Recognise geometric sequences and appreciate other sequences that arise</p>	<p>Move freely between different numerical, algebraic, graphical and diagrammatic representations</p> <p>Use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships</p> <p>Recognise and use relationships between operations including inverse operations</p> <p>Model situations or procedures by translating them into algebraic expressions</p> <p>Substitute values in expressions, rearrange and simplify expressions</p> <p>Use and interpret algebraic notation including:</p> <p>ab in place of axb</p> <p>$3y$ in place of $y+y+y$ and $3xy$</p> <p>a^2 in place of axa</p> <p>ab in place of axb</p> <p>a/b in place of $a÷b$</p> <p>Generate terms of a sequence from a term-to-term rule</p> <p>Produce graphs of linear functions of one variable</p>	<p>Use algebra to generalise the structures of arithmetic, including to formulate mathematical relationships</p> <p>Simplify and manipulate algebraic expressions to maintain equivalence by collecting like terms</p> <p>Use approximation through rounding to estimate answers</p> <p>Use algebraic methods to solve linear equations in one variable</p>	<p>Consolidate their understanding of the number system and place value to include decimals</p> <p>Understand and use place value for decimals, measures and integers of any size</p> <p>Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols $=, \neq, <, \leq, \geq$</p> <p>Work interchangeably with terminating decimals and their corresponding fractions</p> <p>Round numbers to an appropriate degree of accuracy</p> <p>Describe, interpret and compare observed distributions of a single variable through: the median and the range</p> <p>Interpret and compare numbers in standard form</p>	<p>Consolidate their understanding of the number system and place value to include decimals, fractions</p> <p>Move freely between different numerical representations (for example, equivalent fractions, fractions and decimals)</p> <p>Extend their understanding of the number system, make connections between number relationships</p> <p>Express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1</p> <p>Define percentage as 'number of parts per hundred', interpret percentages as a fraction or a decimal</p> <p>Compare two quantities using percentages</p> <p>Work with percentages greater than 100%</p> <p>Interpret pie charts</p>
Literacy	Within Core Knowledge written in exercise books and in Knowledge Organisers.				
Knowledge organiser	In booklets: Individual Student copies (all Subjects)				
Assessment	Whole year group assessment in Term 1 and 2 + Topic Exit Tickets				
GCSE AO Link	Assessing all AO				
Homework	Sparx				
CEIAG	Software Engineer	Statistician	Library Technical	Nutritionist	Air Traffic Controller
Enrichment	Termly Maths Challenge				



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	Term 3			Term 4	
Year 7 Units	7.6 Solving problems with addition and Subtractions	7.7 Solving problems with multiplication and division	7.8 Fractions and percentages of amounts	7.9 Operations with direct numbers	7.10 Addition & subtraction of fractions
Content	Use formal written methods, applied to positive integers and decimals Recognise and use relationships between operations including inverse operations Derive and apply formulae to calculate and solve problems including; perimeter Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts and pictograms for categorical data, and vertical line (or bar) charts for ungrouped numerical data	Use formal written methods, applied to positive integers and decimals Select and use appropriate calculation strategies to solve increasingly complex problems Recognise and use relationships between operations including inverse operations Use the concepts and vocabulary factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest multiple Change freely between related standard units (time, length, area, volume/ capacity, mass) Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms and trapezia (Higher) Substitute numerical values into formulae and expressions, including scientific formulae Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement) Describe, interpret and compare observed distributions of a single variable through: the mean	Use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions Interpret fractions and percentages as operators	Select and use appropriate calculation strategies to solve increasingly complex problems Use the four operations, including formal written methods, applied to integers, both positive and negative Recognise and use relationships between operations including inverse operations Use square and square roots Use a calculator and other technologies to calculate results accurately and then interpret them appropriately Substitute numerical values into formulae and expressions, including scientific formulae Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors Simplify and manipulate algebraic expressions to maintain equivalence Understand and use standard mathematical formulae	Move freely between different numerical, graphical and diagrammatic representations (for example, equivalent fractions, fractions and decimals) Express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1 Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, ≤ ≥ Select and use appropriate calculation strategies to solve increasingly complex problems Use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative Work interchangeable with terminating decimals and their corresponding fractions
Literacy	Within Core Knowledge written in exercise books and in Knowledge Organisers.				
Knowledge organiser	In booklets: Individual Student copies (all Subjects)				
Assessment	Whole year group assessment in Terms 3 and 4 + Topic Exit Tickets				
GCSE AO Link	Assessing all AO				
Homework	Sparx				
CEIAG	Pharmacist	Economist	Civil Engineer	Financial Analyst	Accountant
Enrichment	Termly Maths Challenges				



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	Term 5		Term 6			
Year 7 Units	7.11 Construction, measuring and notation	7.12 Developing geometric reasoning	7.13 Developing number sense	7.14 Sets and Probability	7.15 Prime numbers and proof	Review of work from the year
Content (National curriculum)	<p>Use language and properties precisely to analyse 2-D shapes Begin to reason deductively in geometry including using geometrical constructions Draw and measure line segments and angles in geometric figures, including interpreting scale drawings Describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right-angles, regular polygons, and other polygons that are reflectively and rotationally symmetric Use the standard conventions for labelling sides and angles Construct and interpret pie charts for categorical, ungrouped and grouped numerical data Identify and construct triangles</p>	<p>Use language and properties precisely to analyse 2-D shapes Begin to reason deductively in geometry including using geometrical constructions Describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right-angles, regular polygons, and other polygons that are reflectively and rotationally symmetric Use the standard conventions for labelling sides and angles Derive and illustrate properties of triangles, quadrilateral, circles, and other plane figures (for example, equal lengths and angles) using appropriate language and technologies Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles Apply angle facts, triangle similarity and properties of quadrilaterals to derive results about angles and sides, and use known results to obtain simple proofs Understand and use the relationship between parallel lines and alternate and corresponding angles (higher) Derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons (higher)</p>	<p>Consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, power and roots Select and use appropriate calculation strategies to solve increasingly complex problems Begin to reason deductively in number and algebra</p>	<p>Record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale Understand that the probabilities of all possible outcomes sum to 1 Enumerate sets and unions/ intersections of sets systematically, using tables, gird and Venn diagrams</p>	<p>Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property Use integer powers and associated real roots (square, cube and higher),, recognise powers of 2, 3, 4, 5 Make and test conjectures about patterns and relationships; look for proofs or counterexamples Begin to reason deductively in number and algebra</p>	<p>Review, assess & reflect</p>
Literacy	Within Core Knowledge written in exercise books and in Knowledge Organisers.					
Knowledge organiser	In booklets: Individual Student copies (all Subjects)					
Assessment	Whole year group assessment in Term 6 + Topic Exit Tickets					
GCSE AO Link	Assessing all AO					
Homework	Sparx					
CEIAG	Architect	Interior Designer	Bank Teller	Meteorologist	Encryption and Decryption	Auditor
Enrichment	Termly Maths Challenge					