

Maths Year 8 Curriculum

Curriculum Intent: All pupils will study Mathematical concepts within the six strands of Algebra, Number, Shape space and measure, Ratio and proportion, Data Handling and Probability. Within each topic area work will be introduced in a logical order with content broken down into “small steps” to reflect the building blocks of Maths. Pupils will develop fluency in reasoning and problem solving helping to prepare pupils for the rigorous demands of the subject. Opportunities are given for all pupils to make links between topics. Pupils will develop their skills through varied and intelligent practise in order to move from novice learners to experts with each “small step”

	Autumn Term 1			Autumn Term 2		
Main Topic	Proportional reasoning			Representations		
Secondary Topics	Ratio and scale Understanding ratio and its link to multiplication. Use Ratio notation. Reduce ratios to simplest form. Solve ratio problems. Calculate the circumference of a circle.	Multiplicative change Use scale factors, linking to ratio, to solve simple direct proportion problems. Convert between currencies, including using graphs. Draw and interpret scale diagrams and maps.	Multiplying and dividing fractions Multiply and divide a fraction by an integer Multiply and divide a fraction by a fraction	Working in the Cartesian plane Plot and interpret straight line graphs. Understand and use the equations of a straight line, including lines parallel to the axes. Make links between direct proportion and straight lines of the form $y=kx$. Model situations by translating them into expressions, formulae and graphs.	Representing data Draw and interpret scatter graphs. Understand correlation. Draw and use line of fit. Understand grouped, discrete and continuous data. Design and use one and two way tables	Probability List outcomes using sample space diagrams for one and two events Find probabilities using tables and Venn diagrams
Curriculum links	Revisit area Revisit equations Revisit converting improper fractions and mixed numbers Links to fractions of an amount			Revisit calculation with directed number Link to solving one and two step linear equations Revisit Venn diagrams and set notation		
Cross-curricular links	Geography – Map scales Science - Magnification			Geography – data Science – data representation, relationships between variables		
Interleaving of skills	Unit conversions Equivalent fractions	Proportion Unit conversions		Substitution Solving equations	Plotting coordinates Reading from a graph	Multiplying and adding fractions
Literacy	Key Words: For every, Ratio, Order, Equal Parts, Divide, Proportion (al), Multiplier, Units, Share, Total, Factors, Simplify, Compare, Scale, Total Parts, Denominator, Circumference, Diameter, Gradient, Steep, Proportion, Double, Linear, Conversion, Exchange Rate, Currency, Origin, Constant, Similar, Corresponding, Enlargement, Scale Factor, Not to Scale, Plan, Conversion, Units, Product, Numerator, Unit Fraction, Denominator, Integer, Square, Non-unit Fraction, Commutative, Whole, Quotient, Numerator, Denominator, Reciprocal, Convert, Simplify, Factors, Improper Fraction, Mixed Number, Evaluate, Expression			Key Words: Quadrant, Origin, Parallel, Vertical/ Horizontal, Equation, Graph, Diagonal, Multiple, Linear, Scale, Gradient, Steepness, Intercept, Straight Line, Negative, Incline, Difference, Sequence, Substitution, Table of Values, Curve, Symmetrical, Equidistant, Midpoint, Relationship, Variable, Correlation, Positive/ Negative, Line of best fit, Origin, Outlier, Extrapolate, Non-linear, Qualitative/ Quantitative, Discrete/ Continuous, Frequency, Total, Grouped, Range, Class, Estimate, Less than/ Greater than, Grouped Frequency, Sample Space, Outcome, Equally Likely, Unbiased, Denominator, Sample, Union, Intersection, Possibilities, Product		
Cultural capital	Currency conversions for foreign travel Conversion graphs for changing units Reading maps and scale			Use of scatter graphs to compare information Links to statistics used in the media – include misleading graphs		
Careers	Transferable skills: Problem solving, attention to detail, thinking skills, investigative skills, communication, resilience, determination			Transferable skills: Problem solving, attention to detail, thinking skills, investigative skills, communication, resilience, determination		

	Specific careers –			Specific careers –		
Assessment	KMP Mid-year exam End of year exam	KMP Mid-year exam End of year exam	KMP Mid-year exam End of year exam	KMP Mid-year exam End of year exam	KMP Mid-year exam End of year exam	KMP Mid-year exam End of year exam

	Spring Term 1			Spring Term 2		
Main Topic	Algebraic techniques			Developing number		
Secondary Topics	Brackets, equations and inequalities Expand and factorise into single brackets Form and use expressions, formulae and identities Form and solve equations and inequalities with and without brackets Distinguish between equations, expressions, formulae and identities	Sequences Generate sequences using more complex rules e.g. with brackets and squared terms, both in words and algebraically	Indices Form expressions using indices Understand and use the addition and subtraction rules	Fractions and percentages Develop understanding of fractions, decimals and percentages Evaluate percentage increases and decreases Use multipliers to solve percentage problems Express one number as a percentage of another	Standard index form Convert between numbers in ordinary and standard form Compare numbers given in standard form Calculate with numbers in standard form, with and without a calculator	Number sense Develop mental strategies Convert between metric measures and units Estimation, including rounding to a given number of decimal places Use the order of operations
Curriculum links	Revisit use of directed number Solve equations in context of other maths topics Revisit simplifying expressions			Revisit FDP equivalence Revisit formal methods of calculation for integers and fractions Compare and use ratios in context of FDP		
Cross-curricular links	Use of formulae – Science			Units of measurement – PE, Science Standard form - Science		
Interleaving of skills	Area models for expanding brackets	Fractions, directed numbers	Powers, order of operations		Very large and very small numbers Powers	Rounding Powers of 10 Calculations
Literacy	Key Words: Expression, Equivalent, Positive, Negative, Expand, Identity, Factorise fully, HCF, Like terms, Simplify, Binomial, Quadratic, Solve, Equation, Form, Unknown, Inequality, Satisfy, Check, Solution set, Balance, Side, Unknown, Formula, Identity, Difference, Fibonacci, Algebraic, Substitute, Linear / Non-linear, Expand, Coefficient, Position-to-term, Expression, Coefficient, Product, Simplify, Common Factor, Denominator, Base, Index, Power, Exponent, Indices, Exponent			Key Words: Fraction, Decimal, Percentage, Equivalent, Fraction key, Estimate, Hundredth, Tenth, Decrease, Reduce, Growth, Multiplier, Express, Multiple, Integer, Equivalent, Profit/ Loss, Invest, Original, Increase, Reverse, Original, Percentage, Increase, Express, Reverse, Standard form, Base, Index/ Indices, Power, Exponent, Negative, Place Value, Base, Index/ Indices, Commutative, Power, Exponent, Negative, Commutative, Scientific Notation, Standard form, Reciprocal, Zero, Fraction, Root, Significant, Round, Decimal place, Integer, Over/ Underestimate, Root, Bound, Continuous, Order, Priority, Deposit, Interest, Kilo, Milli, Square units, Dimensions, Cubic units, Perpendicular, 24-hour clock, Leap year		
Cultural capital	N/A			Price increases		

Careers	Transferable skills: Problem solving, attention to detail, thinking skills, investigative skills, communication, resilience, determination Specific careers –			Transferable skills: Problem solving, attention to detail, thinking skills, investigative skills, communication, resilience, determination Specific careers –		
Assessment	KMP Mid-year exam End of year exam	KMP End of year exam	KMP End of year exam	KMP End of year exam	KMP End of year exam	KMP End of year exam

	Summer Term 1			Summer Term 2	
Main Topic	Developing geometry			Reasoning with data	
Secondary Topics	Angles in parallel lines and polygons Review Y7 angles rules Understand and use parallel lines and angles Revisit geometric notation Work out angles in special quadrilaterals Find and use the sum of interior and exterior angles of a polygon Prove simple geometric facts	Area of trapezia and circles Review area of shapes covered in Y7 Calculate the area of a trapezium Calculate the area of a circle and parts of a circle Use significant figures Calculate the area of compound shapes	Line symmetry and reflection Recognise line symmetry in polygons and other shapes Reflect shapes in horizontal, vertical and diagonal lines	The data handling cycle Understand and use primary and secondary sources of data Collect data including using questionnaires Interpret and construct statistical diagrams including multiple bar charts Construct and interpret pie charts Compare distributions using charts Identify misleading graphs	Measures of location and dispersion Revisit the median and mean including finding the total given the mean Find the mean of grouped data Work out the mode and modal class Choosing the appropriate average Comparing distributions using measures
Curriculum links	Revisit forming and solving equations Revisit properties of shapes Revisit equations of straight lines			Revisit finding the range Use algebraic substitution to form lists for averages and the range	
Cross-curricular links	Art – symmetry, 2d and 3d shapes Science – significant figures			Science - averages	
Interleaving of skills	Congruent shapes Angles in triangles	Names of quadrilaterals Multiplication and division	Shape names Equations of lines	Scatter graphs	Addition, subtractions Equations Rounding Midpoints
Literacy	Key Words: Vertically Opposite, Adjacent, Transversal, Parallel, Alternate, Corresponding, Co-interior, Supplementary, Transversal, Isosceles, Scalene, Rhombus, Parallelogram, Trapezium, Kite, Bisect, Delta, Exterior, Regular, interior, sum, Total, Polygon, Demonstration, Proof, Bisect, Bisector, Line segment, Perpendicular, Formula, Area, Perpendicular Height, Trapezia, Compound, Component Shapes, Sector, in terms of π , Radius, Decimal Place, Substitute, Vertical/Horizontal, Congruent, Reflect, Vertex, Perpendicular distance, Object, Image			Key Words: Hypothesis, Sample, Response Box, Biased, Tally, Frequency, Scale, Axes, Fraction, Proportion, Change, Read off, Comparison, Pie chart, Discrete, Continuous, Spread, Consistent, Distribution, Range, Broken Axis, Mislead Average, Modal Value, Represent, Frequency, Subtotal, Estimate, Midpoint, Modal Class, Median, Range, Outlier, Consistent	

Cultural capital	Symmetrical designs in Islamic art Area measurement was used for the world's first tax			Misleading graphs Use of "average"	
Careers	Transferable skills: Problem solving, attention to detail, thinking skills, investigative skills, communication, resilience, determination Specific careers –			Transferable skills: Problem solving, attention to detail, thinking skills, investigative skills, communication, resilience, determination Specific careers –	
Assessment	KMP End of year exam	KMP End of year exam	KMP End of year exam	KMP	KMP