Mathematics Key Stage 3 Overview

Key Stage 3 - Key Priorities

1. **Challenge by Depth, not Acceleration -** For high attaining students, we aim to make use of Maths Mastery resources to go deeper into mathematical concepts to stretch and challenge students.
2. **Develop Problem Solving Skills -** Given that problem solving is a key skill necessary for top grades at GCSE, we create opportunities to develop problem solving skills in students by explicitly teaching problem-solving strategies.
3. **Focus on developing numeracy -** To ensure that every child can access the curriculum, where necessary, teachers will create opportunities to develop students number work and numerical skills.
4. **Consolidation Weeks -** Students learn Maths by doing, not by listening. A good proportion of each lesson will be students independently practicing key concepts. Time is built into the curriculum for classes to revisit non-negotiable topics previously taught, and independently practice for an extended period of time.

Year 7

YEAR 7	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7		Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
	Numbers and Numerals	**Calculations with Decimals**	**Order of Operations**	**Factors and Multiples**		CONSOLIDATION WEEK		HALF-TERM	**Negative Numbers**		**Introduction to Algebra**			CONSOLIDATION WEEK	END OF TERM ACTIVITIES
Winter	• Place Value • Commutativity • Associativity • Distributivity	• Conversion between measurements • Multiplication with large and small numbers • Division with large and small numbers[5]	• Priority of Operations • Using brackets	• Factors and HCF • Multiples and LCM • Composite Numbers and • Squares and Cubes			Prime Factor Decomposition		• What are Positive and Negative Numbers? • Comparing Positive and Negative Numbers? • Addition and Subtraction with Negative Numbers • Multiplication and Division of Negative Numbers		• Notation • Substitution • Collecting Like Terms	• Expanding Brackets • Expanding and Simplify • Factorising	• Equations • Forming Expressions and Equations		
	Angles			**Classifying 2D Shapes**		**Area of 2D Shapes**		HALF-TERM	**Area of 2D Shapes**	**Fractions**			CONSOLIDATION WEEK		
Spring	• Measuring Angles • Describing Angles • Angles on a straight line • Angles around a point	• Vertically Opposite Angles • Alternate Angles • Corresponding Angles • Allied Angles	• Angles in Triangles • Angles in Quadrilaterals	• Names of Shapes • Different Types of Triangles • Properties of Quadrilaterals • Lines of Symettry • Rotational Symettry		• Perimeter • Areas of Rectangles, Triangles, Paralellograms			• Area of Trapeziums, Rectilinear Shapes, Compound Shapes (not Circles)	• What is a Fraction? • Equivalent Fractions • Fractions to Decimals • Fractions of Amounts	• Mixed Numbers to Improper Fractions • Addition and Subtracton of Fractions	• Multiplication of Fractions • Division of Fractions • Mixed Calculations			
	FDP	**Percentages**			**Coordinates**	HALF-TERM	EXAM WEEK		**Transforming 2D Shapes**	FIX IT WEEK	**Constructions**	CONSOLIDATION WEEK	END OF YEAR ACTIVITIES		
Summer	• Converting between fractions, decimals and percentages • Ordering fractions, percentages and decimals	• Percentages of Amount • Percentages of Amount (over 100%) • Percentages with a calculator	• Percentage Increases and Decreases • Percentage Multipliers • Percentage Change	• Simple Interest • Calculating original value	• Plotting Coordinates • Midpoint between two coordinates • Horizontal and Vertical Lines • Problem Solving on a Coordinate Grid				• Vector Notation • Translations • Rotatations • Reflections		• Using construction equipment • Perpendicular Bisectors • Angle Bisectors • Contrcuting Triangles				

Year 8

YEAR 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7		Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
	Equations		**Inequalities**		**Sequences**		CONSOLIDATION	HALF-TERM	**Angles Review**	**Angles in Polygons**		**Pythagoras**		CONSOLIDATION WEEK	END OF TERM ACTIVITIES
Winter	• Expresssions and Identities • Two Step Equations • Equations with unknowns on both sides • Equations with Brackets • Equations with Fractions • Equations from Worded Problems • Equations from Angles and Shapes		• Inequality Notation • Inequality Representation • Satisfying Inequalities • Solving Inequalities • Forming and Solving Inequalities		• Term to Term Rule • Missing Values • Arithmetic Sequences • Nth Term Rule • Decreasing Sequences • Finding a particular term in a sequence • Is this a term in the sequence? • Pattern Sequences				• Angles on a Straight Line • Angles Around a Point • Angles in Triangles • Angles in Parallel Lines	• Polygons • Sum of Interior Angles • Finding missing angles in a polygon • Exterior Angles • Problem Solving with Angles in a Polygons		• Squares and Square Roots • Finding lengths of sides • Prove this is a right angled triangle • Long side or Short side? • Coordinates and Pythagoras • Compound Shapes and Pythagoras • 3D Pythagoras • Area of an Isosceles Triangle			
	Ratio		**Linear Graphs**		**Univariate Data**		HALF-TERM		**Univariate Data**	**Bivariate Data**	**Rounding**		**Changing the Subject**			
Spring	• Simplest Form • Sharing Ratio • Sharing from a Difference • Ratios in Real Life • Fractions in Ratios • Unit Ratios		• Coordinate (Recap) • Horizontal and Vertical Lines • Plotting using an xy table • Gradient • Gradient between two points • Parallel and Perpendicular Lines • Equation of a Line (y = mx + c)		• Types of Data • Tally Charts • Comparing Bar Charts and Pie Charts • Mean • Using Mean • Changing the Mean				• Mode, Median and Range • Changes to averages • Finding averages from a Frequency Table	• Representing Bivariate Data • Correlation • Lines of Best Fit • Interpolation, Extrapolation and Truncating Axes	• Rounding using a Number Line • Rounding to Decimal Places • Significant Figures • Rounding a given number of significant figures • Estimation • Problem Solving with Estimation		• Finding the value of a subject by substitution • Changing the Subject (One/Two Steps) • Changing the Subject (Unknown's on Both Sides)	CONSOLIDATION WEEK		
	Circles		**Volume and Surface Area**						**Bearings**		**Surds**				
Summer	• Parts of the Circle • Circumference • Perimeter of Semi-Circles • Arc Length • Area and Sector Area • Area of Compound Shapes • Problem Solving with Circles		• Areas of Shapes • Faces, Edges, Vertices • Nets • Surface Area of Cuboids • Prisms • Surface Area of Prisms • Surface of Cylinders • Volume by Counting Cubes • Volume of Cuboids • Volume of Prisms • Volume and Surface Area		HALF-TERM	EXAM WEEK			• Bearings • Bearings and Parallels • Problem Solving w/ Bearings	FIX IT WEEK	• Squares and Cubes • Square Roots and Cube Roots • Irrational Numbers • Exact Values • Estimating Values of Surds	CONSOLIDATION		END OF YEAR ACTIVITIES		

Year 9

YEAR 7	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7		Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
	FDP Conversions		**Algebra Review**	**Simultaneous Equations**		CONSOLIDATION	**Linear Graphs Review**	HALF-TERM	**Pythagoras**		Ratio Review	Similarity and Enlargement			END OF TERM ACTIVITIES
	▪ Converting bewteen Fractions Decimals Percentages ▪ Comparing and Ordering Fractions, Decimals and Percentages ▪ Adding, Subtracting, Multiplying and Dividing with FDP		▪ Substitution ▪ Solving Equations ▪ Changing the Subject	• Solving Simultaneous Equations by Elimination • Manipulating Equations by Scaling and Re-arranging • Solving Simultaneous Equations Graphically			• Plotting Linear Graphs from a table of values • y = mx + c • Finding gradients and y-intercepts		▪ Squares and Square Roots ▪ Finding lengths of sides ▪ Prove this is a right angled triangle ▪ Long side or Short side? ▪ Coordinates and Pythagoras ▪ Compound Shapes and Pythagoras ▪ 3D Pythagoras ▪ Area of an Isosceles Triangle		▪ Year 7 Ratio Review ▪ Equivalent Ratios ▪ Ratios to Fractions ▪ Sharing Ratios ▪ Scale Factors and Constants of Proportionality ▪ Unitary Method	▪ Congruence, Enlargement and Similarity ▪ Constants of Proportionality ▪ Centre of Enlargement ▪ Enlargements with Coordinate Grids ▪ Finding the centre of Enlargement ▪ Area and Volume Scale Factors			
Spring	**Angles Review**	**Trigonometry**		**Quadratic Expressions**		CONSOLIDATION	HALF-TERM	**Quadratic Equations**		**Indices**		CONSOLIDATION WEEK	END OF TERM ACTIVITIES		
	▪ Review Year 7 and Year 8 Angles ▪ Angles in Triangles ▪ Angles in Parallel Lines	• Labelling Sides • Sine, Cosine and Tangent Ratios • Missing Sides and Missing Angles • Pythagoras or Trigonometry • Worded Problems and Problem Solving		▪ Expanding Double Brackets ▪ Expanding the Difference of Two Squares ▪ Expanding Cubics ▪ Factorising Quadratics ▪ Factorising Quadratics with Negatives ▪ Factorising Quadratics with the Difference of Two Squares				▪ Zero Sum Property ▪ Solving Quadratic Equations ▪ Solving Quadratic Equations (w/ Re-arranging) ▪ Substituting into a Quadratic Expression ▪ Plotting Quadratic Graphs, w/ xy table ▪ Key features of a Quadratic Graph ▪ Sketching a Quadratic Graph		▪ Addition and Subtraction Rule ▪ Multiplication Rule ▪ Powers of 0 ▪ Negative Indices ▪ Combining Rules ▪ Problems w/ co-efficients and brackets				
Summer	**Standard Form**		**Probability**			HALF-TERM	EXAM WEEK	**Venn Diagrams**	FIX IT WEEK	**Probability with Venn Diagrams**	**Congruence and Constructions**		END OF YEAR ACTIVITIES		
	▪ Converting between Standard Form and Ordinary Numbers ▪ Ordering Standard Form ▪ Correcting Standard Form ▪ Multiplying and Dividing Standard Form ▪ Adding and Subtracting Standard Form		▪ Chance and Probability ▪ Theoretical Probability ▪ Sample Space Diagrams ▪ Probability Trees (with and without replacement) ▪ Frequency Trees ▪ Two Way Tables ▪ Relative Frequency ▪ Expectations and Bias					▪ Intersection ▪ Union ▪ Compliment ▪ Universal Set		▪ Probability w/ Set Notation ▪ Probability w/ Venn Diagrams ▪ Worded Problems	▪ Circle Loci ▪ Equidistant Points ▪ Perpendicular Bisectors ▪ Angle Bisectors ▪ Constructing Triangles ▪ Congruent Triangles w/ Conditions ▪ Congruence Proof ▪ Constructing Angles			