

## KEY STAGE THREE CURRICULUM KNOWLEDGE AND SKILLS MAPPING TOOL SUBJECT: Mathematics 2019 onwards

		KNOWLEDGE			SKILLS		
<b>YEAR 7</b>		Number – to choose appropriate methods of calculation and number manipulation Algebra – to begin to form expressions and use for formulae and substitution, including spotting patterns and sequences and applying to linear graphs Ratio and Proportion – begin to see ratios and understand multiplicative relationships Geometry – find areas of basic 2D shapes, understand measures and apply angle rules Statistics – analyse and display data in effective ways, and interpret correctly Probability – understand the language of probability and calculate probabilities of events			<ul style="list-style-type: none"> <li>• Fluency</li> <li>• Problem Solving</li> <li>• Reflection</li> <li>• Mathematical Reasoning</li> <li>• Linking topics</li> <li>• Multiplicative reasoning</li> <li>• Modelling</li> <li>• Concrete-Pictorial-Abstract concepts</li> <li>• Use of mathematical language</li> </ul>		
		<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
	<b>Content</b>	Unit 1 – Number Skills Unit 2 – Decimals and Measures	Unit 3 – Expressions, Functions and Formulae Unit 4 – Sequences and Graphs	Unit 5 – Fractions Unit 6 – Ratio and Proportion	Unit 6 – Ratio and Proportion (continued) Unit 7 – Analysing and Displaying Data	Unit 8 – Probability Unit 9 – Lines and Angles	Unit 9 – Lines and Angles (continued) Unit 10 - Transformations
	<b>Skills</b>	Calculating with the four operations Money and time Negative numbers Factors, multiples, primes and square numbers Decimals and rounding Length, mass and capacity Scales and measures Working with decimals Simple perimeter and area	Functions and function machines Simplifying expressions Writing expressions Substitution Writing formulae Sequences Pattern sequences Coordinates and midpoints Extending sequences Straight line graphs Position-to-term rules	Comparing fractions Simplifying fractions Working with fractions Fractions and decimals Understanding percentages Percentages of amounts Direct proportion Writing ratios Using ratios	Ratios, proportions and fractions Proportions and percentages Mode, median and range Displaying data Grouping data Averages and comparing data Line graphs and more bar charts	Language of probability Calculating probability Experimental probability Expected outcomes and theoretical probability Measuring and drawing angles Lines, angles and triangles	Drawing triangles accurately Calculating angles Angles in a triangle Quadrilaterals Congruency and enlargements Symmetry Reflection Rotation Translations Combined transformations

	<b>Assessment</b>	2 x unit tests	2 x unit tests	1 x unit test	2 x unit tests	1/2 x unit tests	2 x End of year tests 1/2 x unit test
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		KNOWLEDGE			SKILLS		
<b>YEAR 8</b>		Number – use calculations effectively, including powers and roots, in a wide range of circumstances Algebra – solve equations and use brackets and factorising to problem solve, including applying to shape problems Ratio and Proportion – greater depth of ratio and proportion understanding, including sharing amounts and relationship to decimals, fractions and percentages Geometry – Area and Volume of 2D and 3D shapes, develop further angle understanding, including angles in parallel lines Statistics – Use more charts to display and analyse data, and develop an understanding of misleading charts			<ul style="list-style-type: none"> <li>• Fluency</li> <li>• Problem Solving</li> <li>• Reflection</li> <li>• Mathematical Reasoning</li> <li>• Linking topics</li> <li>• Multiplicative reasoning</li> <li>• Modelling</li> <li>• Concrete-Pictorial-Abstract concepts</li> <li>• Use of mathematical language</li> </ul>		
		<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
	<b>Content</b>	Unit 1 – Number Unit 2 – Area and Volume	Unit 3 – Statistics, Graphs and Charts Unit 4 - Expressions and Equations	Unit 5 – Real-life Graphs Unit 6 – Decimals and Ratio	Unit 6 – Decimals and Ratio (continued) Unit 7 – Lines and Angles	Unit 8 – Calculating with Fractions Unit 9 – Straight-line Graphs	Unit 10 – Percentages, Decimals and Fractions Unit 11 - Constructions
	<b>Skills</b>	Calculations Divisibility and division Calculating with negative integers Powers, roots and brackets Multiples and factors Introduction to standard form Area of triangles, parallelograms and trapezia	Pie charts Using tables Stem and leaf diagrams Comparing data Scatter Graphs Misleading graphs Algebraic powers Expressions and brackets Factorising expressions One-step and Two-step equations	Conversion graphs Distance-Time graphs Line graphs Real-life graphs Curved graphs Ordering decimals and rounding Place value calculations	Calculations with decimals Ratio and proportion with decimals Angles in quadrilaterals Alternate angles and proof Angles in parallel lines Exterior and interior angles Solving geometrical	Ordering fractions Adding and subtracting fractions Multiplying and dividing fractions Calculating with mixed numbers Direct proportion on graphs Gradients Equations of straight lines Parallel and perpendicular lines	Fractions and decimals Equivalent proportions Writing percentages Percentages of amounts, with and without a calculator Accurately construct triangles Perpendicular bisectors Angle bisectors Accurately drawing

		Volumes of cubes and cuboids 2D representations of 3D solids Surface area of cubes and cuboids Measures	The balancing method		problems		30, 45 and 60 degree angles
	<b>Assessment</b>	2 x unit tests	2 x unit tests	1 x unit test	2 x unit tests	2 x unit tests	2 x End of year tests 2 x unit test