

Subject Overview Mathematics – Year 7

Students will build on their work from primary school, gaining fluency with increasingly more varied and challenging types of number. They will gain a strong grounding in geometric and algebraic skills, as well as having plenty of opportunity to develop as confident problem solvers, able to articulate their mathematical reasoning.

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge & Skills	U1 Prime Factors (14 Lessons) Decompose numbers into their prime factors. Find and use the HCF and LCM. U2 Directed Numbers (10 Lessons) Understand $+$ $-$ $\times$ $\div$ with directed numbers. U3 Alegbra (12 Lessons) Forming, simplifying, expanding & factorising algebraic expressions. Checkpoint 1 • Prime factors • HCF & LCM • Calculations with directed numbers • Simplifying & factorising algebraic expressions	U4 Ratio (15 Lessons) Understand how ratios are used to share quantities. U5 Fractions & Decimals (13 Lessons) Use the equivalence of fractions and decimals. Order and calculate fluently with fractions. Checkpoint 2 • Simplifying ratio • Sharing by ratio • Ordering fractions • $+$ $-$ $\times$ $\div$ mix numbers • Convert between FDP	U6 Percentages (10 Lessons) Convert between fractions, decimals and percentages. Calculate confidently with percentages. U7 Equations (10 Lessons) Form and solve multi-step algebraic equations using formal balancing. U8 Estimating (8 Lessons) Using rounding to find approximations to complex calculations Checkpoint 3 • Percentage calculations • Expressing percentages • Solve linear equations • Round to d.p & s.f. • Estimating by rounding • Using a scientific calculator	Y9 Measures (10 Lessons) Measure lengths & angles accurately. Convert metric units. U10 Data Graphs (8 Lessons) Use a variety of graphs and charts to display data. U11 Angle Reasoning (4 Lessons) Know the basic angle facts and use them to solve geometric problems.	U11 Angle Reasoning (6 Lessons) Continued from HT4 U12 Perimeter & Area (13 Lessons) Find the area & perimeter of 2D shapes: rectangles, triangles, trapezia, circles. U13 2D & 3D Shapes (8 Lessons) Constructing 2D shapes & nets of 3D shapes and understand their special properties. AP1 Assessment • Percentages • Equations • Rounding & estimating • Metric conversions • Data graphs • Angle problems • Area & perimeter	U13 2D & 3D Shapes (7 Lessons) Continued from HT5. U14 Averages (10 Lessons) Compare sets of data using averages and measures of spread. U15 Transformations (12 Lessons) Rotate, reflect, translate and enlarge 2D shapes on a coordinate grid.
Beyond The Curriculum	YouTube Learn how prime numbers protect online data. Cryptography - YouTube Encryption Numberphile Human Resource Machine A game for IOS & Android. Understand how coding works. Makes use of ordering operation & logical thought.	Eureka! Museum (Halifax) You may visit& see interactive exhibits on science and maths, ideal for exploring ratio & proportions. Rastrick Food Club Join the RHS Food Club & make delicious food whilst exploring ratios & proportion through recipes.	Rastrick Coding Club Learn how to write fun computer programmes, making use of the thinking skills you develop through working with algebra. Go supermarket shopping Round the price of things, you buy and keep an estimate of how much you spend. (Suggested to do on next visit)	RHS Gardening Club Explore growing different plant types using your measuring skills. Rastrick Textile Club Imagine, design & make your own fashions. Your work with measurements is a key to success here.	Paper Origami YouTube Instructions Making a Cube Making a triangular prism Making a cone Making a tetrahedron Making other 3D shapes Rastrick STEM Club Explore the links between science & maths with shapes.	Rastrick Pokemon Club Gotta catch 'em all? Join to explore and delve into the stats that set their skills apart. Rastrick Athletics Club Join RHS Track & Field. Track your performance overtime using statistics & graphs.

Subject Overview Mathematics – Year 7 Building a Mathematician

Students will deepen their foundational mathematical knowledge, address misconceptions, and build confidence in core mathematical concepts. This will be achieved through a strong emphasis on the concrete-pictorial-abstract (CPA) approach to learning mathematics. This methodology will empower students to begin their journey towards becoming numerate citizens.

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge & Skills	U1 Represent Number (14 Lessons) Explore numbers: Order by place value, grasp factors, multiples, squares, and square roots.	U3 HCF, LCM & Rounding (10 Lessons) Recognize odd, even, prime numbers, HCF, LCM. Confidently round using place value.	U6 Representing Data (2 Lessons) Draw and interpret data using tally charts, frequency tables, pictograms, and dual & composite bar charts.	U9 FDP Equivalence (16 Lessons) Explore fractions & decimals: represent, simplify, convert, and grasp common equivalents visually.	U10 Percentages (6 Lessons) Continued from HT4	U13 Area & Perimeter (10 Lessons) Explore perimeter and area for 2D shapes: squares, rectangles, and parallelograms.
	U2 Four Operations (22 Lessons) Use physical manipulatives & pictorial resources to perform four operations without a calculator including $x \div$ by powers of 10.	U4 Directed Numbers (10 Lessons) Understand $+$ $-$ $\times$ $\div$ with directed numbers as well as ordering them.	U7 Ratio (13 Lessons) Simplify & divide amounts using ratios. Represent using bar models.	U10 Percentages (6 Lessons) Represent percentages visually, calculate percentage of amounts, increase or decrease with the aid of bar models	U11 Fraction Calculations (5 Lessons) Understand how to add/subtract fractions pictorially with & with common denominators.	U14 Averages & Spread (9 Lessons) Learn to calculate and interpret mode, median, mean, range, and compare data sets.
	Checkpoint 1 $+$ $-$ $\times$ $\div$ numbers - Order numbers $x \div$ by 10 & 100 - Factors & multiples - Square & square roots	Checkpoint 2 - Prime numbers - Rounding numbers - HCF & LCM $+$ $-$ $\times$ $\div$ directed numbers - Ordering operations	Checkpoint 3 - Bar charts & pictograms - Frequency tables - Simplifying ratio - Sharing by ratio - Recipe problems		AP1 Assessment - Equivalent fractions - Mix numbers - FDP conversion - Calculate % - Writing % - Simplify expressions - Substitution - Linear equations	U15 Measurements (6 Lessons) Master measurement: accurately draw lines, convert metric units, and understand 12/24-hour clocks.
		U6 Representing Data (5 Lessons) See HT3 for details.	U9 FDP Equivalence (4 Lessons) See HT4 for details			U16 Angles & Reasoning (6 Lessons) Draw & measure angles accurately. Solve missing angles problems on lines/points.
Beyond The Curriculum	KenKen - Game Website Number-placement game using all four operations.	Go supermarket shopping Round the price of things, you buy and keep an estimate of how you spend. (Suggested activity).	Eureka! Museum (Halifax) You may visit & see Interactive exhibits on science & maths, ideal for exploring ratio & proportion.	Landscaping game Online game designed you thinking proportionally whilst designing a park.	Rastrick Coding Club Join & write fun computer programmes, making use of the thinking skills you develop through working with algebra.	RHS Gardening Club Join & explore growing different plant types using your measuring skills.
	Human Resource Machine A game for IOS & Android. Understand how coding works. Makes use of ordering operation & logical thought.	YouTube Learn how prime numbers protect online data. Cryptography - YouTube Encryption Numberphile	Rastrick Food Club Join the RHS Food Club & make delicious food whilst exploring ratios & proportion through recipes.	Percentage Games Collection of online games designed to improve understanding.	Rastrick Chess Club Join & through this ancient game, develop strategic thinking and logical thought.	Rastrick Pokemon Club Gotta catch 'em all? Join to explore and delve into the stats that set their skills apart.