



Year 8 Curriculum – 2024-2025

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	Autumn Term		Spring Term		Summer Term	
	1	2	1	2	1	2
Key Concepts	Ratio and scale (Weeks 1-2) Multiplicative change (Weeks 3-4) Multiplying and dividing fractions (Weeks 5-6)	Working in the cartesian plane (Weeks 7-9) Representing data (Weeks 10-12) Tables and probability (Week 13)	Brackets, equations and inequalities (Weeks 14-16) Sequences (Week 17) Indices (Week 18)	Fractions and percentages (Weeks 19-20) Standard form (Weeks 21-22)	Developing number sense (Week 23) Angles in parallel lines and polygons (Weeks 24-26) Area of trapezia and circles (Weeks 27-28)	Lines of symmetry and reflection (Week 29) The data handling cycle (Weeks 30-33) Measure of location (Weeks 34-35)
Knowledge & Understanding (National Curriculum) <i>Skills are across the whole year.</i>	<p style="text-align: right;"><i>*(H) indicates that it may be for higher ability only</i></p> <p>Number</p> <ul style="list-style-type: none"> ● Revisit Y7 comparing and ordering, rounding, order of operations, time units, money, fractions and percentages ● Write numbers of any size in standard form ● Use negative fractional indices (H) ● Round to a given number of dp and sf ● Multiply and divide fractions ● Multiply and divide mixed number fractions ● Converting between units of time ● Order of operations ● Calculate with money ● Use estimation ● Convert metric units of length and area (H) ● Use error interval notation 					



- Understand Fractions and Decimals
- Express one number as a fraction of another
- Explore calculator and non-calculator methods
- Percentage increase and decrease
- Using multipliers
- Express one quantity as a percentage of another, compare two quantities using percentages greater than 100%
- **Finding the original after percentage change (H)**

Algebra

- Revise and extend Y7 coverage to include more complex expressions, solving equations and sequences.
- Working with indices
- **Explore powers of powers (H)**
- Expand over a single bracket
- Simplify expressions involving brackets
- Identify and use formulae, expressions, identities and equations
- Expand a pair of binomials
- Solve inequalities
- Form and solve equations with brackets
- Identify and use formulae, expressions, identities and equations
- **Form and solve equations and inequalities with unknown on both sides (H)**
- Conversion graphs
- Direct proportion graphs (H)
- Using coordinates
- Plotting graphs in the form:
 - $y=k$, $x=k$
 - $y=kx$
 - $y=x+a$
 - $y=mx+c$
- **Exploring gradient (H)**
- **Exploring non-linear graphs (H)**
- **Find the rule for the nth term of a linear sequence (H)**



Ratio, proportion, rates of change

- Understand and use scale factors
- Scale diagrams and maps
- Currency conversions
- Conversion graphs
- Similar shapes
- **Direct proportion graphs (H)**
- Review and extend Y7 work on metric units
- **Convert area and volume measures (H)**
- Understand and use ratio notation
- Divide into a ratio
- Work out parts and wholes
- understand pi as a ratio
- **Use the form 1:n (H)**
- **Link gradient and ratio (H)**

Geometry and Measure

- Revise and extend Y7 content on using geometric notation, angles in triangles and quadrilaterals and constructing shapes
- Circumference of a circle
- Area of a trapezium
- Area of a circle
- Area of compound shapes
- Work with scale factors
- Recognise line symmetry
- Reflect shapes in a given line
- **Standard ruler and compass construction (H)**
- **Explore diagonals of quadrilaterals (H)**
- Angles in parallel lines
- Interior and exterior angles of polygons
- Angles formed by diagonals of quadrilaterals
- Find and prove simple geometric facts



Probability

- Review and extend Y7 coverage, construct a sample space diagram for a single event, Venn diagrams and probability
- Construct sample spaces for more than one event
- Use sample spaces to find probabilities
- Use tables and Venn diagrams to find probabilities
- Use the product rule for finding total number of outcomes

Statistics

- Review and extend Y7 coverage, calculate the mean, the median and range.
- Recognise different types of data
- Construct and interpret frequency tables, grouped and ungrouped, and two-way tables
- Collecting data
- Multiple bar charts
- Line graphs
- Misleading graphs
- Find the mode
- Identify outliers
- Compare distributions using statistical measures
- **Find the mean from a grouped or ungrouped frequency table (H)**
- Scatter graphs
- Correlation
- Lines of best fit

Develop Fluency

- 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 powers and roots.
- Select and use appropriate calculation strategies to solve increasingly complex problems
- Use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships
- Substitute values in expressions, rearrange and simplify expressions, and solve equations
- Move freely between different numerical, algebraic, graphical and diagrammatic representations (for example, equivalent fractions, fractions and decimals, and equations and graphs).



	<ul style="list-style-type: none"> → Develop algebraic and graphical fluency, including understanding linear and simple quadratic functions → Use language and properties precisely to analyse numbers, algebraic expressions, 2D and 3D shapes, probability and statistics <p>Reason Mathematically</p> <ul style="list-style-type: none"> → Extend their understanding of the number system; make connections between number relationships, and their algebraic and graphical representations → Extend and formalise their knowledge of ratio and proportion in working with measures and geometry, and in formulating proportional relations algebraically → Identify variables and express relations between variables algebraically and graphically → Make and test conjectures about patterns and relationships; look for proofs or counter examples → Begin to reason deductively in geometry, number and algebra, including using geometrical constructions → Interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning → Explore what can and cannot be inferred in statistical and probabilistic settings, and begin to express their arguments formally <p>Solving Problems</p> <ul style="list-style-type: none"> → Develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems → Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics → Begin to model situations mathematically and express the results using a range of formal mathematical representations → Select appropriate concepts, methods and techniques to apply to unfamiliar and non-routine problems; interpret their solution in the context of the given problem.
<p>Skills</p>	<p>R <i>Develop RESILIENCE</i></p> <ul style="list-style-type: none"> ★ <i>Increase resilience through learning new concepts and building upon knowledge secured at year 7 and Ks2.</i> ★ <i>Making mistakes but being able to learn from and correct those mistakes</i> ★ <i>Attempting multi step problems even if they are not sure of how to get to solution</i>



		<ul style="list-style-type: none"> ★ <i>Making improvements on answers during class discussions (during cold calling)</i> ★ <i>Being able to try another method when problem solving and realising their first method has not worked.</i>
	<p>A Possess AMBITION</p>	<ul style="list-style-type: none"> ★ <i>Attempting questions and developing problem solving strategies</i> ★ <i>Completing homework to a high standard</i> ★ <i>Making detailed corrections to work independently.</i> ★ <i>Participating in group or whole class discussions each lesson</i>
	<p>I Demonstrate INTEGRITY</p>	<ul style="list-style-type: none"> ★ <i>Supporting peers through good manners and conduct, helping each other when somebody doesn't understand.</i> ★ <i>Being polite when somebody offers an incorrect answer.</i> ★ <i>Takes responsibility for actions and demonstrates improved behaviour in subsequent lessons</i>
	<p>S Embed Self-Discovery</p>	<ul style="list-style-type: none"> ★ <i>Independently seeks to make improvements in known areas of weakness outside of lesson time.</i> ★ <i>Discovers how to solve a problem or comes up with an alternative solution.</i> ★ <i>Ask good questions, for example "What would happen if ..."</i>



	<p>E Display EMPATHY</p>			<ul style="list-style-type: none"> ★ Offers equipment to those who don't have it. ★ Shows respect for teacher and fellow students during class discussion. ★ Being polite when somebody offers an incorrect answer. 		
<p>Curriculum Links</p>	<p>In year 6 pupils should recognise proportionality in contexts where relations between quantities are in the same ratio. Pupils should have compared quantities, sizes and scale drawings by solving a variety of problems. Multiplicative problems are seen in HT3 in year 7.</p>	<p>In KS2 students will be taught to draw axes and plot coordinates in all four quadrants. Some graphical representations used in HT1 year 7 with sequences. Algebraic knowledge such as substitution is covered in HT1 Y7.</p>	<p>Algebraic thinking from Y7 HT1 will be extended throughout the content covered in this half term. These topics include, substitution, solving equations, and collecting like terms.</p>	<p>Fractions, decimals and percentages are seen in Y7 HT2 and HT3, which also builds from their knowledge from KS2. Standard form may be seen as a high topic in year 7, but builds from strong knowledge of place value from HT2 Y7 and KS2.</p>	<p>Constructing, measuring and using geometric notation and developing geometric reasoning is covered in Y7 HT5.</p>	<p>Students will revisit KS2 content on representing and interpreting charts, pictograms, tables and calculating averages. Drawing pie charts can also be linked to a fraction of an amount from Y7 HT2 and at Ks2.</p>
<p>Assessment</p>	<p>Each half term will consist of an end of unit assessment which will be teacher assessed and a checkpoint activity that will assess the retention of prior key learning.</p>					
<p>Aspirations & Careers</p>	<p>All pupils need to be numerate and able to use mathematics at both work and in everyday life beyond school. Mathematics is fundamental to future success and closely linked with financial success. It enhanced their ability to infer, problem solve, think logically, spot patterns as well as navigate any chosen career.</p> <p>Promote maths and further maths A levels (in Further Maths option and in classes). Promote careers in finance, engineering, computing etc and emphasise the importance of maths in these areas.</p>					

