



Year 8 Curriculum Intent

Mathematics is a language; international, universal and timeless. We want all students to experience the beauty, power and enjoyment of Mathematics, developing a sense of curiosity about the subject with a clear understanding of many aspects. We are committed to ensuring all students are Mathematically fluent, enabling them to adapt to challenges that life presents. We foster a 'can do' attitude and we promote the fact that it is good to do 'hard things'.

Year 8 Curriculum Overview

Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
- Block 1 – Ratio & scale - Block 2 – Multiplicative change - Block 3 – Multiplying & dividing fractions	- Block 4 – Working in the cartesian plane - Block 5 – Representing data - Block 6 – Tables & Probability	- Block 7 – Brackets, equations & inequalities - Block 8 - Sequences - Block 9 – Indices	- Block 10 – Fractions & percentages - Block 11 – Standard index form - Block 12 – Number sense	- Block 13 – Angles in parallel lines & polygons - Block 14 – Area of trapezia & circles - Block 15 – Line symmetry & reflection	- Block 16 – The data handling cycle - Block 17 – Measures of location

Key Question

- What is the same and what is different when we look at a ratio and a fraction? - Do all conversion graphs start at the origin? - How is finding a fraction of an amount the same as multiplying by a fraction?	- Why is it a good idea to use three coordinates when plotting a straight-line graph? - Why might it be a risk to make an estimate outside of the range of your data? - What does P(event) mean?	- What is the difference between a term and an expression? - How can you tell by looking at the rule for the nth term of a sequence whether it is linear or not? - What is the difference between a base and an index?	- Why is 0.3 the same as 30% and not 3%? - Why is it more efficient to write 4×10^{50} in standard form rather than as an ordinary number?	- How do you know when two or more lines are parallel? - Why do we use the perpendicular height when finding the area of a triangle and not the sloping height? - Do all regular polygons have lines of symmetry?	- What is the difference between discrete and continuous data? - Why is it helpful to order data when finding averages? - Which one is it most helpful for?
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Key Vocabulary

- Proportion - Colon - Product - Multiplier - Quotient - Reciprocal	- Origin - Gradient - Correlation - Outlier - Intersection - Union	- Coefficient - Expression - Term - Fibonacci - Exponent - Base	- Growth - Standard form - Integer - Bounds - Estimate - Significant figure	- Transversal - Corresponding - Alternate - Co-interior - Regular - Congruent	- Hypothesis - Primary/Secondary data - Frequency - Mean - Median - Mode
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	The knowledge you will need to recall:	How you will apply this knowledge:	This links to:
1	- Understand and use ratio notation. - Apply multiplicative change techniques to solve problems involving direct proportion. - Multiply and divide fractions.	- Make connections between number relationships, and their algebraic and graphical representations. - Interpret when the structure of a numerical problem requires additive or multiplicative or proportional reasoning. Move freely between different numerical, algebraic, graphical and diagrammatic representations. - Select and use appropriate calculation strategies to solve increasingly complex problems. Interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning.	- Year 6: Ratio - Year 7: Solving problems with multiplication & division. Year 7: Developing number sense. - Year 7: Fraction, decimal, percentage equivalence. Year 7: Equality and equivalence
2	- Begin to understand how algebraic equations can be represented graphically in the Cartesian plane. - Represent and interpret data in a variety of tables, graphs and charts. - Use a range of tables and diagrams to find probabilities.	- Move freely between different numerical, algebraic, graphical and diagrammatic representations. - Use language and properties precisely to analyse statistics. - Use language and properties precisely to analyse probability.	- Year 7: Use and understand algebra notation. - Year 6: Coordinates. - Year 7: Place value and ordering integers and decimals
3	- Use and understand brackets, equations and Inequalities within algebraic contexts. - Understand how sequences can be formed from algebraic expressions. - Know and apply the addition and subtraction rules of indices.	- Begin to model situations mathematically and express results using a range of formal representations. - Use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships. Move freely between different numerical, algebraic, graphical, and diagrammatic representations. - Use language and properties precisely to analyse algebraic expressions. Begin to model situations mathematically and express the results using a range of formal mathematical representations.	- Year 7: Equality and equivalence. - Year 7: Sequences. Year 7 Understand and use algebraic notation. - Year 8: Brackets, equations and inequalities.
4	- Solve more complex fraction and percentages problems, including the use of a multiplier. - Understand and use standard index form. - Be able to round and estimate calculations.	- Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics. - Select and use appropriate calculation strategies to solve increasingly complex problems. - Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics. Use a calculator and other technologies to calculate results accurately and then interpret them appropriately.	- Year 7: Fractions and percentages of amounts. - Year 7: Place value and ordering integers and decimals. - Year 7: Developing Number Sense.
5	- Investigate angles in parallel lines and polygons. - Discover area of trapezia and circles. - Reflect in given lines, including equations of lines.	- Use language and properties precisely to analyse 2D shapes. Begin to reason deductively in geometry, including using geometrical constructions. - Select and use appropriate formulae and calculations to solve increasingly complex problems. - Use language and properties precisely to analyse 2D shapes. - Begin to reason deductively in geometry.	- Year 7: Developing geometric reasoning. - Year 7: Solving problems with multiplication and division. - Year 8: Working in the Cartesian plane
6	- Collect, interpret and represent data with a range of statistical diagrams. - Use and understand the different measures of location.	- Set up a statistical enquiry. Choose the most appropriate diagram for a given set of data. - Choose the most appropriate average.	- Year 8: Representing data. - Year 7: Place value & ordering integers & decimals.



	Half-term 1	Half-term 2	Half-term 3	Half-term 4	Half-term 5	Half-term 6	
Spell It	HW 1	• Writing and simplifying ratios	• Dividing fractions • Dividing with mixed numbers	• Sample space diagrams • Venn diagrams • Probabilities from Venn diagrams	• Index rules with positive indices • Index rules with negative indices • Simplifying expressions using index laws	• Rounding decimals • Estimating calculations • Calculating with roots and powers • Using the correct order of operations	• Rounding integers using significant figures • Rounding decimals using significant figures • Finding the area of circles • Finding the area of sectors
	HW 2	• Using equivalent ratios to find unknown amounts	• Reading and plotting coordinates • Plotting horizontal, vertical and diagonal lines • Plotting straight line graphs	• Algebraic notation • Algebraic terminology • Expanding single brackets • Factorising into one bracket	• Converting between fractions, decimals and percentages • Finding fractions of amounts without a calculator • Finding percentages of amounts without a calculator • Percentage change without a calculator	• Converting units of length • Converting units of mass • Converting units of capacity • Estimating and measuring length • Estimating and measuring mass • Estimating and measuring capacity • Converting units of time	• Reflection • Designing and using questionnaires • Drawing and interpreting tally charts
Review it	HW 3	• Sharing amounts in a given ratio	• Finding equations of straight-line graphs • Interpreting equations of straight-line graphs • Finding equations of real-life straight-line graphs	• Simplifying expressions containing non-linear terms • Simplifying expressions containing multiple variables • Expanding single brackets and simplifying expressions	• Percentage change with a calculator • Writing numbers as percentages of other numbers	• Angles on a line and about a point • Vertically opposite angles	• Drawing and interpreting pictograms • Drawing bar charts • Interpreting bar charts • Drawing line graphs • Interpreting line graphs
	HW 4	• Solving proportion problems • Value for money • Currency conversion	• Graphs of direct and inverse proportion • Constructing direct proportion equations	• Substituting into algebraic formulae • Substituting into real-life formulae	• Using standard form with positive indices	• Angles in triangles • Angles in quadrilaterals • Combining angle facts • Angles in polygons	• Drawing stem-and-leaf diagrams • Interpreting stem-and-leaf diagrams • Drawing pie charts • Interpreting pie charts
Apply it	HW 5	• Drawing and interpreting scale diagrams • Interpreting real-life graphs	• Plotting scatter graphs • Interpreting scatter graphs	• Mixed problems: solving equations with two or more steps • Constructing and solving equations • Reading and drawing inequalities on number lines • Solving single inequalities • Changing the subjects of formulae	• Using standard form with negative indices	• Angles on parallel lines • Using quadrilateral properties to find angles	• Presenting data and making conclusions
	HW 6	• Multiplying fractions • Multiplying with mixed numbers	• Collecting and recording data using tables	• Term-to-term rules for numerical sequences • Term-to-term rules for sequences of patterns • Substituting into position-to-term rules	• Multiplying and dividing numbers in standard form	• Finding the area of triangles • Finding the area of parallelograms • Finding the area of trapeziums • Mixed problems: Finding the area of rectangles, triangles, parallelograms and trapeziums	• Calculating the range • Calculating the median • Finding the mode • Calculating the mean • Choosing suitable averages and solving problems
Beyond the curriculum	Independent learning – You can use the independent learning feature of SPARX to look to consolidate work not set in your weekly homework, look at new content or you could do some XP boost to gain more points on SPARX!						