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|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Expressions and equations           | <p>Understand equality and the meaning of the equals sign</p> <p>Simplify expressions by collecting like terms</p> <p>Solve one-step equations using inverse operations</p> <p>Use algebra to represent relationships</p> <p>Work with fact families and equivalence</p>                           | <p>Pupils simplify expressions and solve one-step equations accurately</p> <p>Pupils understand equivalence and balance in equations</p> <p>Pupils develop a foundation for algebraic manipulation at GCSE</p>          |
| Place value, ordering and rounding  | <p>Understand place value of integers and decimals</p> <p>Order and compare numbers</p> <p>Position numbers on a number line</p> <p>Round to powers of 10 and decimal places</p> <p>Use inequality symbols (<math>&lt;</math>, <math>&gt;</math>, <math>=</math>)</p>                              | <p>Pupils order, compare and round numbers confidently</p> <p>Pupils understand number size and value accurately</p> <p>Pupils develop a foundation for estimation and number work at GCSE</p>                          |
| Four operations (support)           | <p>Use written and mental methods for addition, subtraction, multiplication and division</p> <p>Apply the order of operations (BIDMAS)</p> <p>Select efficient calculation strategies</p> <p>Solve multi-step problems in context</p> <p>Check answers using inverse operations and estimation</p> | <p>Pupils calculate accurately using all four operations</p> <p>Pupils apply operations to solve problems efficiently</p> <p>Pupils develop a foundation for multi-step problem solving at GCSE</p>                     |
| Averages and range                  | <p>Calculate mean, median, mode and range</p> <p>Interpret data from tables and lists</p> <p>Compare data using averages and spread</p> <p>Understand when different averages are useful</p> <p>Solve problems involving data</p>                                                                  | <p>Pupils calculate and interpret averages and range accurately</p> <p>Pupils compare datasets using appropriate measures</p> <p>Pupils develop a foundation for statistical analysis at GCSE</p>                       |
| Rounding and estimation             | <p>Round numbers to decimal places and significant figures</p> <p>Estimate calculations using rounding</p> <p>Use estimation to check answers</p> <p>Understand accuracy and approximation</p> <p>Apply estimation in problem solving</p>                                                          | <p>Pupils round and estimate accurately and efficiently</p> <p>Pupils use estimation to check and evaluate answers</p> <p>Pupils develop a foundation for accuracy and bounds at GCSE</p>                               |
| Graphing data                       | <p>Interpret and construct tables and charts</p> <p>Draw and read bar charts and line graphs</p> <p>Plot and interpret coordinates in four quadrants</p> <p>Understand relationships shown in graphs</p> <p>Compare and interpret data visually</p>                                                | <p>Pupils construct and interpret graphs accurately</p> <p>Pupils analyse and compare data using graphical representations</p> <p>Pupils develop a foundation for graph work and interpretation at GCSE</p>             |
| Fractions, decimals and percentages | <p>Convert between fractions, decimals and percentages (FDP)</p> <p>Recognise and use equivalent forms</p> <p>Compare FDP values</p> <p>Find percentages of amounts</p> <p>Solve problems using FDP in context</p>                                                                                 | <p>Pupils move fluently between fractions, decimals and percentages</p> <p>Pupils solve problems using the most efficient form</p> <p>Pupils develop a foundation for percentage and proportional reasoning at GCSE</p> |
| Directed number                     | <p>Understand and use negative numbers in context</p> <p>Order and compare positive and negative numbers</p> <p>Perform the four operations with integers (<math>\pm</math>)</p>                                                                                                                   | <p>Pupils calculate confidently with positive and negative numbers</p> <p>Pupils apply integer rules accurately in different contexts</p>                                                                               |

|                                      |                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                          |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                      | Apply rules for addition and subtraction of negatives<br>Begin multiplication and division with negatives                                                                                                                                                                              | Pupils develop a foundation for algebra and GCSE number work                                                                                                                                                             |
| Fractions and percentages of amount  | Find fractions of quantities<br>Calculate percentages of amounts<br>Use multipliers and efficient methods<br>Convert between fractions and percentages when solving problems<br>Apply skills to real-life contexts                                                                     | Pupils calculate fractions and percentages of amounts accurately<br>Pupils choose efficient methods for solving problems<br>Pupils develop a foundation for proportion and percentage work at GCSE                       |
| Perimeter and area                   | Calculate perimeter of 2D shapes<br>Find area of rectangles, triangles and parallelograms<br>Break compound shapes into simpler parts<br>Use appropriate units ( $\text{cm}^2$ , $\text{m}^2$ )<br>Apply perimeter and area in problem solving contexts#                               | Pupils calculate perimeter and area accurately for a range of shapes<br>Pupils solve problems involving compound shapes<br>Pupils develop a foundation for area and geometry at GCSE                                     |
| Speed, distance and time             | Understand the relationship between speed, distance and time<br>Use and rearrange the formula:<br>$\text{speed} = \text{distance} / \text{time}$<br>Calculate speed, distance or time from given values<br>Use correct units (e.g. km/h, m/s)<br>Solve multi-step problems in context  | Pupils calculate speed, distance and time accurately<br>Pupils rearrange and apply the formula confidently<br>Pupils develop a foundation for ratio, proportion and GCSE formula work                                    |
| Four operations with decimal numbers | Add and subtract decimal numbers accurately<br>Multiply and divide decimals (incl. by 10, 100, 1000)<br>Understand place value with decimals<br>Apply written methods to decimal calculations<br>Solve problems involving decimals in context                                          | Pupils perform all four operations with decimals confidently and accurately<br>Pupils apply place value understanding to support calculation<br>Pupils develop a foundation for decimal and calculator work at GCSE      |
| Properties of number                 | Identify factors and multiples<br>Find prime numbers and understand prime factorisation<br>Use squared and cubed numbers<br>Apply divisibility rules<br>Use number properties to solve problems and justify reasoning                                                                  | Pupils identify and use number properties confidently (factors, multiples, primes)<br>Pupils apply these properties to solve and explain problems<br>Pupils develop a foundation for number theory and reasoning at GCSE |
| Add and subtract fractions           | Add and subtract fractions with the same denominator<br>Add and subtract fractions with different denominators<br>Find equivalent fractions to support calculations<br>Simplify answers and convert between improper fractions and mixed numbers<br>Solve problems involving fractions | Pupils add and subtract fractions accurately and efficiently<br>Pupils use equivalence to support calculations confidently<br>Pupils develop a foundation for fraction work and algebra at GCSE                          |
| Angles and polygons                  | Identify and measure angles<br>Use angle facts (straight line, around a point, vertically opposite)                                                                                                                                                                                    | Pupils calculate missing angles accurately using known facts                                                                                                                                                             |



Calculate missing angles  
Understand properties of polygons  
Find interior and exterior angles (intro)  
Use reasoning to justify angle calculations

Pupils apply properties of polygons confidently  
Pupils develop a foundation for geometric reasoning and GCSE angle work



## 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 |
|--------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------|--------|---------|---------|---------|
| Autumn | <div>Ratio, proportion and rates of change</div> <div><b>Ratio</b></div> <div>VIEW</div>                 | <div>Ratio, proportion and rates of change</div> <div><b>Proportion and scale</b></div> <div>VIEW</div> | <div>Algebra</div> <div><b>Algebraic manipulat...</b></div> <div>VIEW</div>   | <div>Algebra</div> <div><b>Coordinates and graphs</b></div> <div>VIEW</div>         | <div>Number</div> <div><b>Multiply and divide fractions</b></div> <div>VIEW</div> | <div>Geometry and measures</div> <div><b>Symmetry and reflection</b></div> <div>VIEW</div> |                                                                                      |        |        |         |         |         |
| Spring | <div>Geometry and measures</div> <div><b>Area, volume and density</b></div> <div>VIEW</div>              | <div>Algebra</div> <div><b>Equations and inequalities</b></div> <div>VIEW</div>                         | <div>Number</div> <div><b>Percentages</b></div> <div>VIEW</div>               | <div>Algebra</div> <div><b>Indices</b></div> <div>VIEW</div>                        | <div>Number</div> <div><b>Standard form</b></div> <div>VIEW</div>                 | <div>Statistics</div> <div><b>Interpret and represent data</b></div> <div>VIEW</div>       |                                                                                      |        |        |         |         |         |
| Summer | <div>Geometry and measures</div> <div><b>Angles in parallel lines and polygons</b></div> <div>VIEW</div> | <div>Probability</div> <div><b>Tables and probability</b></div> <div>VIEW</div>                         | <div>Geometry and measures</div> <div><b>Circles</b></div> <div>VIEW</div>    | <div>Statistics</div> <div><b>Graphs and charts</b></div> <div>VIEW</div>           | <div>Algebra</div> <div><b>Sequences</b></div> <div>VIEW</div>                    | <div>Revision and consolidation</div> <div></div> <div></div>                              |                                                                                      |        |        |         |         |         |
|        | Week 1                                                                                                   | Week 2                                                                                                  | Week 3                                                                        | Week 4                                                                              | Week 5                                                                            | Week 6                                                                                     | Week 7                                                                               | Week 8 | Week 9 | Week 10 | Week 11 | Week 12 |
| Autumn | <div>Ratio, proportion and rates of change</div> <div><b>Ratio</b></div> <div>VIEW</div>                 | <div>Ratio, proportion and rates of change</div> <div><b>Proportion and scale</b></div> <div>VIEW</div> | <div>Number</div> <div><b>Directed number</b></div> <div>VIEW</div>           | <div>Algebra</div> <div><b>Algebraic manipulation</b></div> <div>VIEW</div>         | <div>Algebra</div> <div><b>Coordinates and graphs</b></div> <div>VIEW</div>       | <div>Number</div> <div><b>Multiply fractions</b></div> <div>VIEW</div>                     |                                                                                      |        |        |         |         |         |
| Spring | <div>Geometry and measures</div> <div><b>Area and volume</b></div> <div>VIEW</div>                       | <div>Algebra</div> <div><b>Equations</b></div> <div>VIEW</div>                                          | <div>Number</div> <div><b>Fractions and percentages</b></div> <div>VIEW</div> | <div>Number</div> <div><b>Decimal arithmetic and rounding</b></div> <div>VIEW</div> | <div>Algebra</div> <div><b>Expressions and indices</b></div> <div>VIEW</div>      | <div>Number</div> <div><b>Standard form</b></div> <div>VIEW</div>                          | <div>Statistics</div> <div><b>Interpret and represent data</b></div> <div>VIEW</div> |        |        |         |         |         |
| Summer | <div>Geometry and measures</div> <div><b>Angles in polygons</b></div> <div>VIEW</div>                    | <div>Probability</div> <div><b>Tables and probability</b></div> <div>VIEW</div>                         | <div>Geometry and measures</div> <div><b>Circles</b></div> <div>VIEW</div>    | <div>Statistics</div> <div><b>Graphs and charts</b></div> <div>VIEW</div>           | <div>Algebra</div> <div><b>Sequences</b></div> <div>VIEW</div>                    | <div>Geometry and measures</div> <div><b>Symmetry and reflection</b></div> <div>VIEW</div> |                                                                                      |        |        |         |         |         |

| Topic                         | Skills                                                                                                                                                                                                                                                                                                        | End Point                                                                                                                                                                                                         |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ratio                         | Understand and use ratio notation (a:b)<br>Simplify ratios<br>Share quantities in a given ratio<br>Solve problems using multiplicative reasoning<br>Link ratio to fractions and scaling<br>Apply ratio in real-life contexts                                                                                  | Pupils use and simplify ratios confidently<br>Pupils divide quantities accurately in a given ratio<br>Pupils develop a foundation for proportion and GCSE ratio problems                                          |
| Proportion and scale          | Understand and use direct proportion<br>Use scale factors to enlarge or reduce quantities<br>Solve problems involving best value and unit rates<br>Link proportion to multiplicative reasoning<br>Apply proportion in real-life contexts                                                                      | Pupils solve problems involving proportion and scaling confidently<br>Pupils apply multiplicative reasoning across contexts<br>Pupils develop a foundation for GCSE ratio, proportion and similarity              |
| Algebraic Manipulation        | Simplify expressions by collecting like terms<br>Expand single and double brackets<br>Factorise expressions into a single bracket<br>Substitute into more complex expressions<br>Manipulate algebraic expressions fluently                                                                                    | Pupils simplify, expand and factorise expressions accurately<br>Pupils manipulate algebra with confidence and efficiency<br>Pupils develop a foundation for GCSE algebra and equation solving                     |
| Directed number (support)     | Perform the four operations with positive and negative integers<br>Apply rules for multiplying and dividing negatives<br>Understand and use order of operations (BIDMAS) with directed numbers<br>Interpret negative numbers in context (e.g. temperature, money)<br>Solve problems involving directed number | Pupils calculate confidently with directed numbers across all operations<br>Pupils apply integer rules accurately in problem-solving contexts<br>Pupils develop a foundation for algebra and GCSE number fluency# |
| Coordinates and graphs        | Plot and read coordinates in four quadrants<br>Draw and interpret linear graphs<br>Identify and use horizontal and vertical lines<br>Find coordinates from graphs<br>Recognise relationships between variables                                                                                                | Pupils plot and interpret graphs accurately<br>Pupils understand relationships between variables visually and algebraically<br>Pupils develop a foundation for linear graphs and functions at GCSE                |
| Multiply and divide fractions | Multiply fractions (including mixed numbers)<br>Divide fractions using the reciprocal method<br>Simplify fractions and answers<br>Convert between mixed numbers and improper fractions<br>Apply fraction operations in contextual problems                                                                    | Pupils multiply and divide fractions accurately and efficiently<br>Pupils apply fraction methods confidently in problem solving<br>Pupils develop a foundation for algebra and GCSE fraction work                 |
| Symmetry and reflection       | Identify and describe lines of symmetry<br>Reflect shapes in horizontal, vertical and diagonal lines<br>Use and interpret coordinates when reflecting shapes<br>Recognise properties of symmetrical shapes<br>Apply transformations in problem-solving contexts                                               | Pupils reflect shapes accurately across different axes<br>Pupils identify and use symmetry in geometric contexts<br>Pupils develop a foundation for transformations and geometry at GCSE                          |

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|                                           |                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                |
| Area, volume and density                  | Calculate area of 2D shapes (incl. compound shapes)<br>Calculate volume of prisms<br>Understand and use density = mass $\div$ volume<br>Rearrange formulas for density problems<br>Use correct units ( $\text{cm}^2$ , $\text{cm}^3$ , $\text{g/cm}^3$ )<br>Solve multi-step problems in context | Pupils can calculate area and volume accurately for a range of shapes<br>Pupils can apply and rearrange the density formula confidently<br>Pupils develop a foundation for GCSE mensuration and formula work   |
| Equations and inequalities                | Solve linear equations (including multi-step and with brackets)<br>Solve equations with unknowns on both sides<br>Form equations from worded problems<br>Understand and solve inequalities<br>Represent solutions on a number line                                                               | Pupils solve a range of equations accurately and efficiently<br>Pupils represent and interpret inequalities clearly<br>Pupils develop a foundation for algebraic solving and GCSE equation work                |
| Percentages                               | Convert between fractions, decimals and percentages<br>Calculate percentage increase and decrease<br>Find percentages of amounts using multipliers<br>Solve reverse percentage problems<br>Apply percentages in real-life contexts (e.g. finance, growth)                                        | Pupils calculate and apply percentages fluently<br>Pupils solve multi-step percentage problems confidently<br>Pupils develop a foundation for proportion, finance and GCSE percentage work                     |
| Indices                                   | Calculate perimeter of 2D shapes<br>Find area of triangles, parallelograms, trapezia<br>Solve problems with compound shapes<br>Use correct units and conversions                                                                                                                                 | Pupils calculate perimeter and area accurately<br>Pupils apply methods to multi-step problems<br>Foundation for GCSE mensuration                                                                               |
| Standard form                             | Write numbers in standard form ( $a \times 10^n$ )<br>Convert between ordinary numbers and standard form<br>Order and compare numbers in standard form<br>Perform calculations with standard form ( $\times$ and $\div$ )<br>Use standard form in real-life contexts                             | Pupils convert fluently between standard form and ordinary numbers<br>Pupils calculate accurately using standard form<br>Pupils develop a foundation for GCSE number, including indices and large/small values |
| Decimal arithmetic and rounding (support) | Add, subtract, multiply and divide decimal numbers<br>Apply place value understanding in calculations<br>Round decimals to decimal places and significant figures<br>Estimate calculations to check answers<br>Solve problems involving decimals in context                                      | Pupils calculate accurately with decimals using all four operations<br>Pupils round and estimate effectively to check solutions<br>Pupils develop a foundation for accuracy, bounds and GCSE number work       |
| Interpret and represent data              | Construct and interpret bar charts, pie charts and line graphs<br>Calculate and compare averages (mean, median, mode)<br>Understand and use frequency tables<br>Compare datasets using range and averages<br>Draw conclusions and make inferences from data                                      | Pupils represent data accurately using appropriate charts<br>Pupils interpret and compare data using statistical measures<br>Pupils develop a foundation for data analysis and GCSE statistics                 |



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|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Angles in parallel lines and polygons | Use angle facts in parallel lines (corresponding, alternate, co-interior)<br>Calculate missing angles<br>Find interior and exterior angles of polygons<br>Apply angle rules in multi-step problems<br>Justify solutions using geometric reasoning                                                                                                             | Pupils solve angle problems involving parallel lines and polygons accurately<br>Pupils apply angle rules confidently in unfamiliar contexts<br>Pupils develop a foundation for GCSE geometry and formal reasoning                                                |
| Tables and probability                | List outcomes using tables and sample spaces<br>Calculate probabilities of single events<br>Calculate probabilities of combined events<br>Understand and use probability scale (0–1)<br>Express probabilities as fractions, decimals or percentages                                                                                                           | Pupils calculate probabilities accurately for single and combined events<br>Pupils use structured methods (tables/sample spaces) to organise outcomes<br>Pupils develop a foundation for GCSE probability and multiplicative reasoning                           |
| Circles                               | Identify parts of a circle (radius, diameter, circumference)<br>Understand and use circle terminology<br>Calculate circumference and area of a circle<br>Use formulas involving $\pi$ (pi)<br>Solve problems involving circles in context                                                                                                                     | Pupils calculate circumference and area using circle formulas accurately<br>Pupils apply circle knowledge to solve problems<br>Pupils develop a foundation for GCSE circle geometry and mensuration                                                              |
| Graphs and charts                     | Develop multiplicative reasoning (ratio, proportion, percentages)<br>Extend algebra fluency (manipulation, equations, graphs)<br>Apply number skills (fractions, decimals, standard form)<br>Build geometric understanding (area, volume, angles, transformations)<br>Interpret and analyse data and probability<br>Solve multi-step problems across contexts | Pupils apply mathematical skills fluently across topics<br>Pupils reason, generalise and solve multi-step problems confidently<br>Pupils develop a secure foundation for GCSE content and exam-style questions, particularly in algebra, proportion and geometry |
| Sequences                             | Generate sequences from rules and patterns<br>Find and use the $n$ th term of linear sequences<br>Recognise and describe different types of sequences<br>Extend sequences and predict future terms<br>Link sequences to algebraic representation                                                                                                              | Pupils find and use $n$ th terms of linear sequences confidently<br>Pupils represent and describe sequences algebraically<br>Pupils develop a foundation for GCSE sequences and algebra                                                                          |



## Year 9

|        | Week 1                                                                                 | Week 2                                                                 | Week 3                                                                    | Week 4                                                                             | Week 5                                                                                                  | Week 6                                                                             | Week 7                                                                                          | Week 8                                                                                           | Week 9                                                                        | Week 10                                                                                              | Week 11                                                                     | Week 12                                                           |
|--------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------|
| Autumn | <div>Number</div> <div><b>Properties of number</b></div> <div>VIEW</div>               | <div>Number</div> <div><b>Percentages</b></div> <div>VIEW</div>        |                                                                           | <div>Geometry and measures</div> <div><b>Area and volume</b></div> <div>VIEW</div> |                                                                                                         |                                                                                    | <div>Algebra</div> <div><b>Equations, inequalities and formulae</b></div> <div>VIEW</div>       |                                                                                                  | <div>Number</div> <div><b>Fractions</b></div> <div>VIEW</div>                 | <div>Ratio, proportion and rates of change</div> <div><b>Rates</b></div> <div>VIEW</div>             |                                                                             | <div>Number</div> <div><b>Standard form</b></div> <div>VIEW</div> |
| Spring | <div>Number</div> <div><b>Maths and money</b></div> <div>VIEW</div>                    |                                                                        | <div>Algebra</div> <div><b>Straight line graphs</b></div> <div>VIEW</div> |                                                                                    | <div>Ratio, proportion and rates of change</div> <div><b>Ratio and proportion</b></div> <div>VIEW</div> |                                                                                    | <div>Geometry and measures</div> <div><b>Constructions and congruence</b></div> <div>VIEW</div> |                                                                                                  | <div>Geometry and measures</div> <div><b>Similarity</b></div> <div>VIEW</div> |                                                                                                      | <div>Algebra</div> <div><b>Algebraic manipulation</b></div> <div>VIEW</div> |                                                                   |
| Summer | <div>Geometry and measures</div> <div><b>Pythagoras' theorem</b></div> <div>VIEW</div> | <div>Algebra</div> <div><b>Non-linear graphs</b></div> <div>VIEW</div> |                                                                           | <div>Probability</div> <div><b>Sets and probability</b></div> <div>VIEW</div>      |                                                                                                         | <div>Geometry and measures</div> <div><b>Transformations</b></div> <div>VIEW</div> |                                                                                                 | <div>Algebra</div> <div><b>Simultaneous equations</b><br/>(optional block)</div> <div>VIEW</div> |                                                                               | <div>Geometry and measures</div> <div><b>Trigonometry</b><br/>(optional block)</div> <div>VIEW</div> |                                                                             |                                                                   |



|        | Week 1                                                                      | Week 2                                                   | Week 3                                                    | Week 4 | Week 5                                                                  | Week 6 | Week 7                                                                                       | Week 8 | Week 9                                                                               | Week 10                                                                       | Week 11                                                     | Week 12                                                                   |
|--------|-----------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------|--------|-------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------------|
| Autumn | Number<br><b>Properties of number</b><br><a href="#">VIEW</a>               | Number<br><b>Percentages</b><br><a href="#">VIEW</a>     |                                                           |        | Geometry and measures<br><b>Area and volume</b><br><a href="#">VIEW</a> |        | Algebra<br><b>Equations and inequalities</b><br><a href="#">VIEW</a>                         |        | Number<br>Fractions<br><a href="#">VIEW</a>                                          | Ratio, proportion and rates of change<br><b>Rates</b><br><a href="#">VIEW</a> |                                                             | Number<br>Standard form<br><a href="#">VIEW</a>                           |
| Spring | Number<br><b>Four operations</b><br><a href="#">VIEW</a>                    | Number<br><b>Maths and money</b><br><a href="#">VIEW</a> |                                                           |        | Algebra<br><b>Straight line graphs</b><br><a href="#">VIEW</a>          |        | Ratio, proportion and rates of change<br><b>Ratio and proportion</b><br><a href="#">VIEW</a> |        | Geometry and measures<br><b>Constructi... and congruence</b><br><a href="#">VIEW</a> |                                                                               | Geometry and measures<br>Similarity<br><a href="#">VIEW</a> | Algebra<br>Algebraic manipulation<br><a href="#">VIEW</a>                 |
| Summer | Geometry and measures<br><b>Pythagoras' theorem</b><br><a href="#">VIEW</a> | Algebra<br>Non-linear graphs<br><a href="#">VIEW</a>     | Probability<br><b>Probability</b><br><a href="#">VIEW</a> |        | Geometry and measures<br><b>Transformations</b><br><a href="#">VIEW</a> |        |                                                                                              |        | Geometry and measures<br><b>Angles in polygons</b><br><a href="#">VIEW</a>           |                                                                               |                                                             | Geometry and measures<br>Angles in parallel lines<br><a href="#">VIEW</a> |

| Topic                                | Skills                                                                                                                                                                                                                                                                | End Point                                                                                                                                                                                                  |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Properties of number                 | Use factors, multiples and prime numbers<br>Apply prime factorisation (incl. factor trees)<br>Find HCF and LCM<br>Use powers and roots (indices basics)<br>Apply number properties in problem solving and reasoning                                                   | Pupils use number properties fluently (HCF, LCM, primes)<br>Pupils apply index and factorisation skills accurately<br>Pupils develop a foundation for GCSE number, algebra and proof                       |
| Percentages                          | Calculate percentage increase and decrease<br>Use multipliers (e.g. 1.15, 0.8)<br>Solve reverse percentage problems<br>Work with compound percentages (growth/decay)<br>Apply percentages in real-life contexts (finance, interest)                                   | Pupils solve multi-step percentage problems confidently<br>Pupils use multipliers and reverse methods fluently<br>Pupils develop a foundation for GCSE proportion, finance and higher-tier problem solving |
| Area and volume                      | Calculate area of 2D shapes (incl. compound shapes)<br>Calculate volume of prisms and 3D shapes<br>Use and convert units correctly ( $\text{cm}^2$ , $\text{cm}^3$ , $\text{m}^2$ , $\text{m}^3$ )<br>Apply formulas for area and volume<br>Solve problems in context | Pupils calculate area and volume accurately across a range of shapes<br>Pupils apply formulas confidently in multi-step problems<br>Pupils develop a foundation for GCSE mensuration and geometry          |
| Equations, inequalities and formulae | Solve linear equations (including brackets and unknowns both sides)<br>Solve two-step and multi-step equations                                                                                                                                                        | Pupils solve equations and inequalities accurately and efficiently                                                                                                                                         |

|                           |                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                     |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | Form equations from worded problems<br>Understand and solve inequalities<br>Represent solutions on a number line                                                                                                                                                                                     | Pupils interpret and represent solutions clearly<br>Pupils develop a foundation for GCSE algebra and problem solving                                                                                                |
| Fractions                 | Add, subtract, multiply and divide fractions<br>Convert between mixed numbers and improper fractions<br>Simplify and find equivalent fractions<br>Apply fraction operations in multi-step problems<br>Link fractions to ratio and algebra contexts                                                   | Pupils calculate fluently with fractions across all operations<br>Pupils apply fraction skills confidently in problem solving<br>Pupils develop a foundation for GCSE algebra, ratio and higher-tier number work    |
| Rates                     | Understand and use rates (e.g. speed, density, pressure)<br>Use and rearrange formulas (e.g. speed=distance/time)<br>Convert between units (e.g. km/h $\leftrightarrow$ m/s)<br>Solve multi-step problems involving rates<br>Interpret rates in real-life contexts                                   | Pupils calculate and interpret rates accurately<br>Pupils rearrange and apply formulas confidently<br>Pupils develop a foundation for GCSE ratio, proportion and formula work                                       |
| Standard form             | Write numbers in standard form ( $a \times 10^n$ )<br>Convert between ordinary numbers and standard form<br>Order and compare numbers in standard form<br>Perform calculations ( $\times$ and $\div$ ) with standard form<br>Use standard form in real-life contexts                                 | Pupils convert fluently between standard form and ordinary numbers<br>Pupils calculate accurately using standard form<br>Pupils develop a foundation for GCSE indices, number and scientific notation               |
| Four operations (Support) | Use written and mental methods for addition, subtraction, multiplication and division<br>Apply order of operations (BIDMAS)<br>Work with integers and decimals<br>Select efficient calculation strategies<br>Check answers using estimation and inverse operations                                   | Pupils calculate accurately using all four operations<br>Pupils apply methods efficiently in multi-step problems<br>Pupils develop a foundation for GCSE number and problem solving                                 |
| Maths and Money           | Calculate simple and compound interest<br>Use percentages in financial contexts (e.g. profit, loss, tax, discounts)<br>Solve problems involving income, expenditure and budgeting<br>Interpret financial information (tables, statements)<br>Apply multi-step problem solving in real-life scenarios | Pupils apply percentage methods confidently in financial contexts<br>Pupils solve multi-step problems involving money accurately<br>Pupils develop a foundation for GCSE financial maths and proportional reasoning |
| Straight line graphs      | Plot and interpret straight line graphs ( $y=mx+c$ )<br>Identify gradient and intercept<br>Find the equation of a line from a graph<br>Plot graphs from equations<br>Interpret graphs in real-life contexts                                                                                          | Pupils plot and interpret linear graphs confidently<br>Pupils understand gradient and intercept and form equations of lines<br>Pupils develop a foundation for GCSE algebra, graphing and functions                 |

|                             |                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                       |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ratio and proportion        | <p>Simplify and use ratios in different forms</p> <p>Divide quantities in a given ratio</p> <p>Solve problems involving direct proportion</p> <p>Interpret and construct proportional relationships</p> <p>Apply ratio and proportion in multi-step contexts (e.g. scaling, recipes, maps)</p>                     | <p>Pupils solve ratio and proportion problems confidently and accurately</p> <p>Pupils apply multiplicative reasoning in unfamiliar contexts</p> <p>Pupils develop a foundation for GCSE proportion, graphs and higher-tier problem solving</p>       |
| Construction and congruence | <p>Use ruler and compass constructions (e.g. bisectors, perpendicular lines, triangles)</p> <p>Construct accurate geometric diagrams</p> <p>Understand and apply congruence conditions (SSS, SAS, ASA, RHS)</p> <p>Solve problems using congruence reasoning</p> <p>Justify solutions with geometric reasoning</p> | <p>Pupils construct geometric figures accurately using standard methods</p> <p>Pupils apply congruence conditions to solve and justify problems</p> <p>Pupils develop a foundation for GCSE geometry, proofs and reasoning</p>                        |
| Similarity                  | <p>Understand and use similar shapes</p> <p>Identify and calculate scale factors (length, area, volume)</p> <p>Solve problems involving enlargement and proportional change</p> <p>Link similarity to ratio and geometry</p> <p>Apply similarity in multi-step problem solving</p>                                 | <p>Pupils identify and use similarity to solve problems accurately</p> <p>Pupils apply scale factors across different measures (length, area, volume)</p> <p>Pupils develop a foundation for GCSE geometry, ratio and higher-tier problem solving</p> |
| Algebraic manipulation      | <p>Expand and factorise quadratic expressions</p> <p>Rearrange formulae</p> <p>Simplify complex algebraic expressions</p> <p>Solve problems involving algebraic manipulation</p> <p>Link algebra skills to equations and graphs</p>                                                                                | <p>Pupils manipulate algebraic expressions fluently and accurately</p> <p>Pupils rearrange formulas and factorise confidently</p> <p>Pupils develop a foundation for GCSE algebra, including quadratics and higher-tier problems</p>                  |
| Pythagoras                  | <p>Understand and apply Pythagoras' theorem</p> <p>Find missing sides in right-angled triangles</p> <p>Use squares and square roots accurately</p> <p>Apply Pythagoras in problem-solving contexts</p> <p>Identify when Pythagoras is appropriate</p>                                                              | <p>Pupils use Pythagoras' theorem accurately to find unknown sides</p> <p>Pupils apply the theorem confidently in a range of problems</p> <p>Pupils develop a foundation for GCSE geometry and trigonometry</p>                                       |
| Non-linear graphs           | <p>Recognise and plot quadratic and other non-linear graphs</p> <p>Identify key features (e.g. curves, intercepts, turning points)</p> <p>Generate tables of values for non-linear functions</p> <p>Interpret graphs in context</p> <p>Compare linear and non-linear relationships</p>                             | <p>Pupils plot and interpret non-linear graphs accurately</p> <p>Pupils recognise key features of quadratic graphs</p> <p>Pupils develop a foundation for GCSE graphs, functions and algebra</p>                                                      |
| Probability                 | <p>Use set notation (e.g. <math>\in</math>, <math>\cup</math>, <math>n</math>)</p> <p>Represent sets using Venn diagrams</p> <p>List outcomes and use sample spaces</p>                                                                                                                                            | <p>Pupils use set notation and diagrams to represent relationships clearly</p>                                                                                                                                                                        |

|                                    |                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                        |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    | <p>Calculate probabilities of combined events</p> <p>Apply probability rules (incl. mutually exclusive events)</p>                                                                                                                                                                                                                                                  | <p>Pupils calculate probabilities of single and combined events accurately</p> <p>Pupils develop a foundation for GCSE probability and formal reasoning</p>                                                                            |
| Transformations                    | <p>Perform reflections, rotations, translations and enlargements</p> <p>Use and describe transformations with correct notation</p> <p>Work with coordinates under transformations</p> <p>Identify invariant points and scale factors</p> <p>Solve problems involving combined transformations</p>                                                                   | <p>Pupils perform and describe transformations accurately</p> <p>Pupils use coordinates and notation confidently</p> <p>Pupils develop a foundation for GCSE geometry, transformations and reasoning</p>                               |
| Simultaneous equations             | <p>Extend algebra fluency (manipulation, graphs, quadratics)</p> <p>Apply ratio, proportion and percentages in complex contexts</p> <p>Develop geometric reasoning (Pythagoras, similarity, transformations)</p> <p>Interpret and analyse data, probability and sets</p> <p>Use and rearrange formulae accurately</p> <p>Solve multi-step, non-routine problems</p> | <p>Pupils apply mathematical skills fluently across all strands</p> <p>Pupils reason, justify and solve complex problems confidently</p> <p>Pupils develop a secure foundation for Edexcel GCSE (both Foundation and Higher tiers)</p> |
| Trigonometry                       | <p>Understand and use sine, cosine and tangent (SOHCAHTOA)</p> <p>Calculate missing sides in right-angled triangles</p> <p>Use a calculator accurately (incl. inverse trig)</p> <p>Identify the appropriate trig ratio to use</p> <p>Apply trigonometry in problem-solving contexts</p>                                                                             | <p>Pupils use trigonometric ratios accurately to find missing sides</p> <p>Pupils select and apply the correct ratio confidently</p> <p>Pupils develop a foundation for GCSE trigonometry and higher-tier geometry</p>                 |
| Angles in polygons (Support)       | <p>Use angle facts in triangles and quadrilaterals</p> <p>Calculate interior angles of polygons</p> <p>Understand and use exterior angle rules</p> <p>Find missing angles using algebra where required</p> <p>Apply reasoning to multi-step angle problems</p>                                                                                                      | <p>Pupils calculate angles in polygons accurately</p> <p>Pupils apply angle rules confidently in problem solving</p> <p>Pupils develop a foundation for GCSE geometry and reasoning</p>                                                |
| Angles in parallel lines (Support) | <p>Use angle facts in parallel lines (corresponding, alternate, co-interior)</p> <p>Calculate missing angles</p> <p>Apply angle rules in multi-step problems</p> <p>Use algebra to represent and solve angle relationships</p> <p>Justify solutions using geometric reasoning</p>                                                                                   | <p>Pupils calculate angles in parallel lines accurately</p> <p>Pupils apply angle rules confidently in problem solving</p> <p>Pupils develop a foundation for GCSE geometry and reasoning</p>                                          |



## Year 10 and 11

### Overview

- |                                                    |                                                                   |
|----------------------------------------------------|-------------------------------------------------------------------|
| 1. Powers – 8 hours                                | 17. Manipulation of Quadratic Expressions and Equations – 5 hours |
| 2. Equations and Formulae – 9 hours                | 18. Probability – 8 hours                                         |
| 3. Approximations and Limits of Accuracy – 5 hours | 19. Vectors – 6 hours                                             |
| 4. Factors, Multiples and Powers – 6 hours         | 20. Inequalities – 6 hours                                        |
| 5. Linear Graphs – 6 hours                         | 21. Circle Theorems – 6 hours                                     |
| 6. Quadratics and <u>Cubics</u> – 11 hours         | 22. Proportion – 7 hours                                          |
| 7. Percentages – 7 hours                           | 23. Advanced Trigonometry – 10 hours                              |
| 8. Pythagoras and Trigonometry – 10 hours          | 24. Constructions/Loci/Bearings – 6 hours                         |
| 9. Angles – 6 hours                                | 25. Surds – 7 hours                                               |
| 10. 2D Shapes/Circles – 7 hours                    | 26. Measures & Graphs – 7 hours                                   |
| 11. Data – 12 hours                                | 27. Algebra 2 – 8 hours                                           |
| 12. Fractions – 9 hours                            | 28. <b>Functions &amp; Iterations – 7 hours</b>                   |
| 13. 3D Shapes – 10 hours                           | 29. Graphs 2 – 9 hours                                            |
| 14. Transformations – 6 hours                      |                                                                   |
| 15. Ratio & Proportion – 7 hours                   |                                                                   |
| 16. Sequences – 6 hours                            |                                                                   |



## Overview

1. Powers
2. Algebra 1
3. Decimals
4. Graphs 1
5. Quadratics 1
6. Percentages
7. Pythagoras and Trigonometry
8. Angles
9. 2D Shapes/Circles
10. Data
11. Algebra 2
12. Fractions
13. 3D Shapes
14. Transformations
15. Ratio and Proportion
16. Sequences
17. Quadratic 2
18. Probability
19. Vectors
20. Inequalities
21. Proportion
22. Constructions, Loci and Bearings
23. Measures and Graphs
24. Algebra 2
25. Graphs 2

## KS3 Maths Progression Map (Years 7–9)

### Algebra & Sequences

| Topic                            | Skills (Progression)                                                                                                                                                                                              | End Point (by Y9)                                                                                              |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Sequences                        | <b>Y7:</b> Continue patterns, term-to-term rules, linear vs non-linear<br><b>Y8:</b> Find nth term (linear), generate sequences algebraically<br><b>Y9:</b> Quadratic sequences, more complex pattern recognition | Pupils can <b>form and use nth terms (linear and some quadratic)</b> and apply sequences in algebraic contexts |
| Algebraic Notation & Expressions | <b>Y7:</b> Use notation, substitute, function machines<br><b>Y8:</b> Expand brackets, simplify expressions<br><b>Y9:</b> Factorise (incl. quadratics), manipulate expressions fluently                            | Pupils can <b>manipulate algebraic expressions confidently</b> , preparing for GCSE algebra                    |
| Equations & Inequalities         | <b>Y7:</b> One-step equations<br><b>Y8:</b> Multi-step equations<br><b>Y9:</b> Equations with brackets, inequalities                                                                                              | Pupils can <b>solve a range of equations and inequalities fluently and accurately</b>                          |



## Number

| Topic                            | Skills (Progression)                                                                                                                | End Point (by Y9)                                                                           |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Place Value & Number Sense       | <b>Y7:</b> Order, round integers/decimals<br><b>Y8:</b> Standard form, bounds<br><b>Y9:</b> Accuracy, estimation, error intervals   | Pupils can <b>work confidently with number, including estimation and limits of accuracy</b> |
| Fractions, Decimals, Percentages | <b>Y7:</b> FDP equivalence<br><b>Y8:</b> Percentage change, fractions in context<br><b>Y9:</b> Reverse percentages, compound change | Pupils can <b>solve multi-step FDP problems in real-life contexts</b>                       |
| Operations                       | <b>Y7:</b> +, -, ×, ÷ methods<br><b>Y8:</b> Order of operations, powers<br><b>Y9:</b> Complex calculations, problem solving         | Pupils can <b>select efficient strategies and solve non-routine problems</b>                |
| Directed Number                  | <b>Y7:</b> Four operations with negatives<br><b>Y8:</b> Negative numbers in context<br><b>Y9:</b> Algebra with negatives            | Pupils can <b>apply directed number fluently within algebra and problem solving</b>         |

## Ratio, Proportion & Multiplicative Thinking

| Topic              | Skills (Progression)                                                                                                     | End Point (by Y9)                                                                         |
|--------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Ratio & Proportion | <b>Y7:</b> Basic ratio language<br><b>Y8:</b> Simplifying ratio, sharing<br><b>Y9:</b> Direct proportion, scale problems | Pupils can <b>solve proportional reasoning problems, including scaling and comparison</b> |



## Geometry

| Topic                     | Skills (Progression)                                                                                                                | End Point (by Y9)                                                               |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Angles & Geometry         | <b>Y7:</b> Angle facts, basic geometry<br><b>Y8:</b> Angles in polygons, parallel lines<br><b>Y9:</b> Geometric reasoning and proof | Pupils can <b>solve angle problems and justify reasoning using known facts</b>  |
| Measures & Perimeter/Area | <b>Y7:</b> Basic perimeter/area<br><b>Y8:</b> Area of compound shapes<br><b>Y9:</b> Circles, surface area                           | Pupils can <b>calculate and apply measures in increasingly complex contexts</b> |

## Statistics & Probability

| Topic       | Skills (Progression)                                                                                                | End Point (by Y9)                                                             |
|-------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Statistics  | <b>Y7:</b> Basic charts and averages<br><b>Y8:</b> Compare distributions<br><b>Y9:</b> Interpretation and analysis  | Pupils can <b>interpret, analyse and compare data critically</b>              |
| Probability | <b>Y7:</b> Basic probability, outcomes<br><b>Y8:</b> Combined events<br><b>Y9:</b> Tree diagrams, expected outcomes | Pupils can <b>calculate probabilities of multi-step events systematically</b> |

## Reasoning & Mathematical Thinking (Threaded Across KS3)

| Topic             | Skills (Progression)                                                                                                                    | End Point (by Y9)                                                               |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Reasoning & Proof | <b>Y7:</b> Explain answers, simple justifications<br><b>Y8:</b> Multi-step reasoning<br><b>Y9:</b> Structured reasoning, informal proof | Pupils can <b>justify, prove and communicate mathematical arguments clearly</b> |



## KS3 to Edexcel GCSE Alignment Map (Maths)

### Algebra & Sequences

| KS3 Strand               | KS3 Coverage (Y7–9)                                   | Edexcel GCSE Links                                                         |
|--------------------------|-------------------------------------------------------|----------------------------------------------------------------------------|
| Sequences                | Patterns → term rules → nth term (linear & quadratic) | A16: Generate terms, find nth term (linear/quadratic), recognise sequences |
| Expressions & Algebra    | Notation → substitution → expand → factorise          | A3–A5: Use algebraic notation, simplify, expand, factorise expressions     |
| Equations & Inequalities | One-step → multi-step → brackets → inequalities       | A17–A19: Solve linear equations & inequalities                             |

### Number

| KS3 Strand                             | KS3 Coverage (Y7–9)                           | Edexcel GCSE Links                                  |
|----------------------------------------|-----------------------------------------------|-----------------------------------------------------|
| Place Value & Number                   | Ordering → rounding → bounds                  | N1–N4: Place value, rounding, bounds and estimation |
| Operations                             | Four operations → BIDMAS → problem solving    | N2: Apply calculations accurately and efficiently   |
| Directed Number                        | Negative numbers → operations → algebra links | N4: Use negative numbers in calculation             |
| FDP (Fractions, Decimals, Percentages) | Conversion → % change → reverse % → compound  | N12–N15: FDP equivalence, percentage problems       |

### Ratio & Proportion

| KS3 Strand         | KS3 Coverage (Y7–9)                                 | Edexcel GCSE Links                                            |
|--------------------|-----------------------------------------------------|---------------------------------------------------------------|
| Ratio & Proportion | Basic ratio → sharing → scaling → direct proportion | R1–R3: Ratio, proportion, scaling, direct/indirect proportion |



## Geometry & Measures

| KS3 Strand                     | KS3 Coverage (Y7–9)                                 | Edexcel GCSE Links                                  |
|--------------------------------|-----------------------------------------------------|-----------------------------------------------------|
| Angles & Geometry              | Angle facts → polygons → parallel lines → reasoning | G4–G7: Angle rules, properties, geometric reasoning |
| Area & Volume                  | Area → compound → circles → surface area/volume     | G9–G11: Area, volume, circles                       |
| Transformations *(if included) | Reflections → rotations → enlargements              | G1–G3: Transformations and coordinates              |

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## Statistics & Probability

| KS3 Strand  | KS3 Coverage (Y7–9)                                 | Edexcel GCSE Links                           |
|-------------|-----------------------------------------------------|----------------------------------------------|
| Statistics  | Charts → averages → compare distributions           | S1–S5: Represent, analyse and interpret data |
| Probability | Basic probability → combined events → tree diagrams | P1–P3: Probability calculations and models   |

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## Mathematical Reasoning (Golden Thread)

| KS3 Focus                 | Development                                               | GCSE Outcome                                           |
|---------------------------|-----------------------------------------------------------|--------------------------------------------------------|
| Reasoning & Communication | Explain → justify → multi-step reasoning → informal proof | AO2/AO3: Reason, interpret, justify and solve problems |