# *Mathematics department* Curriculum Outline 2026-27

## Year 8 Theta

| | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| Topic/theme | Number: Number skill<br>Geometry: Area and Volume | Geometry: Area and Volume- continue<br>Statistics: Statistics, graphs and charts | Algebra: Expressions and equations<br>Algebra: Real-life graphs | Algebra: Real-life graphs- continue<br>Number: Decimals and ratio | Geometry: Lines and angles<br>Number: Calculating with fractions | Algebra: Straight-line graphs<br>Number: Percentages, Decimals and Fractions |
| Key Skills | - Use written method to add and subtract decimals<br>-Calculate with money<br>-Estimate answers to calculation<br>- Use the four operations with integers<br>-Calculate using square, square root, cube and cube root<br>-Substitute numbers into formulae involving powers, roots and brackets<br>-Use index notation<br>-Write numbers as the product of its prime factors and use them | --Interpret and draw pie charts, line graphs, stem and leaf diagram and scatter graphs<br>-Calculate the mean from a frequency table<br>-Design and use two-way tables, tables from a grouped data<br>-Compare two set of data using statistics or the shape of the graphs<br>- Choose the most appropriate average to use<br>-Draw a line of best-fit on a scatter graphs<br>-Describe the type | -Understand and simplify algebraic powers<br>-Substitute values into formulae involving powers<br>-Expand brackets<br>-Make and simplify algebraic expressions<br>-Factorize expressions<br>Find the inverse of a simple function<br>-Solve simple equations, two-step equations, using the balance method<br>- Solve real-life problems using | -Round numbers to an appropriate degree of accuracy<br>-Order integer values and decimals<br>- Multiply decimals with up to two decimal places, any number by 0.1 and 0.001<br>-Four operations with decimals<br>- Multiply and divide by decimals, divide by 0.1 and 0.01<br>-Use ratios involving decimals and solve problems<br>-Solve engineering problems using ratio | - Classify quadrilaterals by their geometric names<br>-Solve geometric problems using the side and angle properties of special quadrilaterals and triangles<br>-Identify alternate and corresponding angles on a diagram<br>-Solve simple problem using properties of angles in parallel and intersecting lines<br>-Calculate the sum of the interior and | - Recognize when values are in direct proportion and solve problems<br>-Plot a straight-line graph and worm out its gradient<br>-Plot a graph of a linear function, find the midpoint of a line segments<br>-Write an equation of a straight-line in the form of y=mx+c<br>-Identify and describe practical examples of direct proportion, solve problems |

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| | to calculate the HCF and LCM<br><br>-Derive and use the formula for the area of a triangle, parallelogram, trapezium<br>-Calculate the area of compound shapes<br>-Calculate the volume of cubes and cuboids and solve problems<br>-Use 2D representation of 3D solids<br>-Calculate the surface area of cubes and cuboid<br>- Convert between metric measures for area, volume and capacity<br>-Know rough metric equivalents and equivalents of imperial measures | of correlation<br>-Explain why a graph or chart could be misleading | equations<br><br>-Draw, use and interpret conversion graphs, distance-time graph, line graphs, complex real-life graphs<br>-Plot the graph of a function from a real-life problem<br>- Discuss and interpret linear and non-linear graphs from a range of sources<br>-Solve problems by drawing graphs | and proportion, unit ratios | exterior angles of polygons<br>-Solve geometric problems by setting up equations and showing reasoning<br><br>-Add and subtract fractions with any size denominator<br>-Multiply and divide integers and fractions by a fraction<br>- Convert fractions to decimals<br>-Write one amount as fraction of another<br>-Find the reciprocal of a number<br>- Use the four operations with mixed numbers<br><br>- | -Recall equivalent fractions and decimals<br>-Recognize recurring and terminating decimals<br>-Order fractions by converting them to decimals or equivalent fractions<br>-Use equivalence of fractions, decimals and percentages to compare proportions<br>-Express one number as a percentage of another<br>-Work out a percentage increase or decrease<br>-Use a multiplier to calculate percentages<br>Use unitary method to solve percentage problems |
| Previous learning and next steps | -Finding the difference between integers | - Adding and subtracting numbers | - Calculating square and cube of a | -Rounding any numbers with | -Sum of the angles in any quadrilaterals | - Carry out multiplication |

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| links | -Calculating squares and square root of numbers<br>-Finding the factors of any numbers<br>-Draw accurately shapes<br>- Converting the measures of length and area | accurately<br>-Find the mean, mode, median<br>-Describing coordinates<br>-Calculating squares and square root of numbers | number<br>-Simplifying expressions<br>-Finding the factor of numbers-<br>Converting between miles and kilometers<br>-Substituting into formulae<br>-finding equivalent ratios | confident<br>-Describing and writing place values with confidence -<br>Adding and subtracting numbers<br>- Simplifying ratios | -Identifying alternate and corresponding angles<br>-Finding missing angles<br>-Adding and subtracting fractions<br>-Finding equivalent fractions and decimals | -Reading and plotting coordinates<br>-To be able to name polygons and understanding what regular polygon is |
| | -What is the difference in the surface area temperature of the Moon between midday and midnight?<br>What size of square wall can be covered using a roll of wallpaper?<br>-How often will the Sun, Earth and Venus be in alignment?<br>-How many fish can you keep healthy ij the fish tank?<br>-Does every 3D shape have a net? | -How could a car sales company use pie charts to show its sales?<br>-How rich is the average billionaire?<br>-How much energy does a moving car have?<br>-How fast do you need to cycle to travel around a square block in 5 minutes? | -Ho much energy does a moving car have?<br>-How fast will you need to cycle to travel around a square block in 5 minutes?<br>-Is it cheaper to buy an IPad in the UK or France?<br>-How long does a snap-and –shake light stick last?<br>-What trend could a business look in graphs?<br>-Does multiplying one number by | - Does multiplying one number by another always make a number bigger?<br>-How do mountain bikes get up a steep hill? | -What is a mathematical proof?<br>-Why are triangles being used in constructions?<br>-What different shapes can you use to tile the wall?<br>-How did the Ancient Egyptians write fractions over 4000 years ago<br>Knowing: - Angles on a straight line<br>-Angles around a point<br>-Subtracting integers from 90, 180 and 360<br>-What different shapes can you make when you | -How artists use congruency in their artwork<br>-Is there symmetry in snowflakes<br>-What symmetry are there in nature?<br>-What does it mean when scientists say, 'The earth rotated about its axis'?<br>-How many squares of a chess board can the knight land on? |

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| | | | another always make it bigger?<br>-How do mountain bikes get up a steep hill? | | intersect pairs of parallel lines?<br>- After turning, a bolt appears to be in the same position? | |
| Literacy opportunities/ VIPERS | Spelling key ***vocabulary*** correctly ***(VIPERS)***<br>Promoting the use of ***Mathematical language*** during lessons<br>Developing literacy through ***discussion using the correct mathematical terminology***, reasoning and problem solving tasks<br>Create opportunities for explanation of learning, ***expressing mathematical conclusion*** after completing investigative task<br>Pupils to design a ***worded question*** based on learning<br>Comprehension activities while learning about famous mathematicians- Diversity links | | | | | |
| Wider reading fiction/ non-fiction | Display mathematical Tier 3 vocabulary around the classroom<br>Introduce new terminology but also consolidate previously used terms wherever possible<br>Use key vocabulary in context so pupils begin to understand when/how to use it<br>Comprehension activities while learning about famous mathematicians | | | | | |
| Numeracy Opportunities | Applied fluency and connecting different area of mathematics in a range of real-life contexts<br>Making connections how mathematics can be used in every-day life situations – 'Window to the Wider World'<br>Interlinking different area of mathematics<br>Reason using the mathematical strategies and solve problems | | | | | |
| SMSC and British Values/Window into the wider world | Linslade pupils receive both support and challenge needed to become increasingly confident in arithmetic, fluency, reasoning and problem solving in all areas of Mathematics. The curriculum is carefully designed and sequenced to provide our learners with an aspirational bridge between lower and upper school, understanding the world and in their future careers. We build on prior knowledge so that our learners leave us having achieved fluency in this creative and highly interconnected discipline. They will be ready to start upper school and feeling confident, prepared and with a way of thinking that will provide them with a platform to become the leaders of tomorrow. During their time with us, our learners are given the opportunity to apply their ever-growing knowledge to reasoning and problem solving questions so that they can deepen their understanding and appreciation of the beauty of mathematics. By regularly working on real-life problems, our curriculum allows learners to look through the window to the wider world and see how the maths that are taught in lessons will be applied in everyday life. | | | | | |