

Yearly Overview

Subject: Year 9 Maths

| Term 1   | Term 2   | Term 3  | Term 4  | Term 5  | Term 6   |
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| <p><b>Prior knowledge:</b><br/>           Know the meaning of and recall prime numbers. Understand the use of notation for powers. Know how to round to the nearest whole number, 10, 100, 1000 and to decimal places. Multiply and divide numbers by powers of 10. Know how to identify the first significant figure in any number. Approximate by rounding to the first significant figure in any number. Fluently recall and apply multiplication facts up to <math>12 \times 12</math>. Know and use column addition and subtraction. Know the formal written method of long</p> | <p><b>Prior knowledge:</b><br/>           Understand the equivalence between fractions, decimals, and percentages. Simplify a fraction by cancelling common factors. Know basic algebraic notation. Simplify an expression by collecting like terms. Know how to multiply a single term over a bracket. Substitute positive numbers into expressions and formulae. Calculate with negative numbers. Understand that fractions, decimals and percentages are different ways of representing the same proportion. Convert between mixed numbers and top-</p> | <p><b>Prior knowledge:</b><br/>           Understand and use ratio notation. Divide an amount in a given ratio. Use a term-to-term rule to generate a sequence. Find the term-to-term rule for a sequence. Describe a sequence using the term-to-term rule. Use angles at a point, angles at a point on a line and vertically opposite angles to calculate missing angles in geometrical diagrams. Know that the angles in a triangle total <math>180^\circ</math>.</p> | <p><b>Prior knowledge:</b><br/>           Apply the four operations to proper fractions, improper fractions and mixed numbers. Use calculators to find a percentage of an amount using multiplicative methods. Identify the multiplier for a percentage increase or decrease. Use calculators to increase (decrease) an amount by a percentage using multiplicative methods. Know that percentage change = <math>\frac{\text{actual change}}{\text{original amount}}</math>. Choose the required inverse operation when solving an equation. Solve linear equations by balancing when the</p> | <p><b>Prior knowledge:</b><br/>           Use coordinates in all four quadrants. Write the equation of a line parallel to the x-axis or the y-axis. Draw a line parallel to the x-axis or the y-axis given its equation. Identify the lines <math>y = x</math> and <math>y = -x</math>. Draw the lines <math>y = x</math> and <math>y = -x</math>. Substitute positive and negative numbers into formulae. Convert between fractions, decimals and percentages. Understand the use of the 0-1 scale to measure probability. Work out theoretical probabilities for events with equally likely outcomes. Know how to represent a</p> | <p><b>Prior knowledge:</b><br/>           Know the meaning of discrete data. Interpret and construct frequency tables. Construct and interpret pictograms, bar charts, pie charts, tables and vertical line. Understand the mean, mode and median as measures of typicality (or location). Find the mean, median, mode and range of a set of data. Find the mean, median, mode and range from a frequency table.</p> |

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| <p>multiplication and short division. Apply the four operations with fractions and mixed numbers. Convert between an improper fraction and a mixed number. Use a protractor to measure angles to the nearest degree. Use a ruler to measure lengths to the nearest millimetre. Understand coordinates in all four quadrants. Work out a multiplier given two numbers. Understand the concept of an enlargement.</p> | <p>heavy fractions. Write one quantity as a fraction of another.</p>   |  | <p>solution is a whole number or a fraction. Know how to use formulae to find the area of rectangles, parallelograms, triangles and trapezia. Know how to find the area of compound shapes.</p> | <p>probability. Know that the sum of probabilities for all outcomes is.</p>   |  |
| <b>Term 1 knowledge</b>   | <b>Term 2 knowledge</b>  | <b>Term 3 knowledge</b>  | <b>Term 4 knowledge</b>   | <b>Term 5 knowledge</b>   | <b>Term 6 knowledge</b>  |
| <p>This term:<br/>Identify and use the prime factorisation of a number. Understand and use standard form. Calculate with negative numbers. Apply the correct</p>  | <p>This term:<br/>Understand the meaning of probability. Explore experiments and outcomes. Develop understanding of probability.</p> | <p>This term:<br/>Explore the uses of ratio. Investigate the connection between ratio and proportion. Solve problems involving proportional reasoning. Solve</p> | <p>This term:<br/>Calculate with fractions. Calculate with percentages. Solve linear equations with the unknown on one side.</p>  | <p>This term:<br/>Plot and interpret linear graphs. Plot and quadratic graphs. Model real situations using linear graphs. Explore experiments and outcomes.</p> | <p>This term:<br/>Explore types of data. Construct and interpret graphs. Select appropriate graphs and charts. Investigate averages. Explore ways of</p> |

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| <p>order of operations. Explore enlargement of 2D shapes. Use and interpret scale drawings. Use and interpret bearings. Explore ways of representing 3D shapes.</p>  | <p>Understand the concept of a factor. Understand the notation of algebra. Manipulate algebraic expressions. Evaluate algebraic statements. Explore links between fractions, decimals and percentages.</p>   | <p>problems involving compound units. Explore sequences. Develop knowledge of angles. Explore geometrical situations involving parallel lines.</p>  | <p>Solve linear equations with the unknown on both sides. Explore connections between graphs and equations. Investigate circles. Discover pi. Solve problems involving circles. Explore prisms and cylinders.</p>   | <p>Develop understanding of probability. Use probability to make predictions.</p>   | <p>summarising data. Analyse and compare sets of data.</p>   |
| <p>Future knowledge: Jess writes <math>7.1 \times 10^{-5} = 0.0000071</math>. Dawid writes <math>7.1 \times 10^{-5} = 0.000071</math>. Who do you agree with? Give reasons for your answer. Convince me that <math>-3 - -7 = 4</math>. Show me an example of a calculation involving addition of two negative numbers and the solution -10. Show me an example of a sketch where the bearing of A from B is between <math>90^\circ</math> and <math>180^\circ</math>. The bearing of A from B is 'x'. Find the</p> | <p>Future knowledge: Always / Sometimes / Never: if I pick a card from a pack of playing cards then the probability of picking a club is <math>\frac{1}{4}</math>. Label this (eight-sided) spinner so that the probability of scoring a 2 is <math>\frac{1}{4}</math>. What is wrong with this statement and how can it be corrected: <math>52 \times 54 = 58</math>? Ahmed thinks that if <math>y = 2x + 1</math> then <math>x = (y - 1)/2</math>. Maria thinks that if <math>y = 2x + 1</math> then x</p> | <p>Future knowledge: Show me an example of two quantities that will be in proportion. The 4th term of a linear sequence is 15. Show me the nth term of a sequence with this property. Convince me that the nth term of the sequence 2, 5, 8, 11, ... is <math>3n - 1</math>. Convince me that the angles in a triangle total <math>180^\circ</math>. Convince me that the interior angle of a pentagon is <math>540^\circ</math>.</p> | <p>Future knowledge: Convince me that the multiplier for a 150% increase is 2.5. Lucy buys a poncho in a 25% sale. The sale price is £40. Surjeet thinks that the original is £50. Do you agree? Emilija thinks that increasing an amount by 200% is the same as multiplying by 3. Do you agree? Explain your answer. Show me an (one-step, two-step) equation with a solution of -8 (negative, fractional solution).</p> | <p>Future knowledge: Show me a point on this line (e.g. <math>y = 2x + 1</math>). (Given an appropriate distance-time graph) convince me that Ruby is stationary between 10:00 a.m. and 10:45 a.m. Show me a way of listing all outcomes when two coins are flipped. Convince me that there are more than 12 outcomes when two six-sided dice are rolled. Convince me that 7 is the most likely total</p> | <p>Future knowledge: Show me a scatter graph with positive (negative, no) correlation. Marco thinks that 'frequency diagram' is just a 'fancy' name for a bar chart. Do you agree? What's the same and what's different: scatter diagram, bar chart, pie chart? Always / Sometimes / Never: A scatter graph shows correlation.</p> |

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| <p>bearing of B from A in terms of 'x'. Explain why this works.</p> | <p><math>= y/2 - 1</math>. Who do you agree with? What is the same and what is different: 2.5, 25%, 0.025, <math>\frac{1}{4}</math>?</p> | <p>Always / Sometimes/ Never: The sum of the interior angles of an n-sided polygon can be calculated using <math>\text{sum} = (n - 2) \times 180^\circ</math>.<br/>Always / Sometimes/ Never: The sum of the exterior angles of a polygon is <math>360^\circ</math>.</p> | <p>Show me a two-step equation that is 'easy' to solve. What's the same, what's different: <math>2x + 7 = 25</math>, <math>3x + 7 = x + 25</math>, <math>x + 7 = 7 - x</math>, <math>4x + 14 = 50</math>?</p> | <p>when two dice are rolled. Show me an example of an outlier. Convince me why the mean from a grouped set of data is only an estimate. What's the same and what's different: mean, modal class, median, range?<br/>Always / Sometimes / Never: A set of grouped data will have one modal class. Convince me how to estimate the range for grouped data.</p> |  |
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