

Yearly overview Year 10

Mathematics

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<p>Prior Knowledge: Knowledge of basic geometric words /rules. Plot coordinates in all four quadrants. Be able to substitute numbers into formulae including squared variables. Multiplication & division of a set of numbers without a calculator. Find mean, median, mode & range for set of numbers.</p>	<p>Prior Knowledge: Round numbers to the nearest 1000, nearest 100, nearest 10, nearest integer, significant figure, and decimal places. Estimate calculations involving decimals. How to change between fractions, decimals, and percentages. Work out a percentage of a given quantity. Able to find area/perimeter of basic shapes and recall formula.</p>	<p>Prior Knowledge: Add, subtract and multiply integers. Multiply a two digit by one digit number. Simplify expressions with more than one variable.</p>	<p>Prior Knowledge: Collecting 'like' terms. Multiplication and division of simple algebraic terms. Expanding double brackets. Powers of Variables. Finding common denominators of numerical fractions. Creating expressions and equations, given situations. Simple Factorisation. Design and use tally charts for discrete and grouped data. Design and use two-way tables for discrete and grouped data. Coordinates.</p>	<p>Prior Knowledge: Recall squares up to 15 x 15 (and their associated roots) Recall cubes of 2,3,4,5 and 10 (and their associated roots). Multiply/divide by powers of ten. Use angle measurer, ruler, and compasses to draw/measure lines /angles circles accurately. Expanding double brackets. Solving Linear equations. Manipulating 'simple' expressions. Substitution into formulae including those with powers. Subtract a decimal from 1. + and x decimals. +, - and x fractions. Understand and use the probability scale. For an event the</p>	<p>Prior Knowledge: Measures of average including mean, median and mode. Accurate use of ruler and protractor. Construct and interpret a pictogram, bar chart and pie chart. Interpret a stem-and-leaf diagram. Arranging numbers on number lines. Solving linear & quadratic equations. Plotting linear graphs. Ordering negative numbers. Substitution. Square numbers, Roots</p>

				total probability for all possible outcomes = 1. Find the probability of mutually exclusive events. Calculate theoretical probabilities.	
Term 1 knowledge	Term 2 knowledge	Term 3 knowledge	Term 4 knowledge	Term 5 knowledge	Term 6 knowledge
<p>This term: Find and use the interior/exterior/sum of interior angles of regular/irregular polygons. Understand the structure of $y = mx + c$ and be able to answer questions around this. To complete value tables and plot more complex graphs. Calculate the mean for a frequency distribution. Find modal class for grouped data. Find mean for grouped data. Find median class for grouped data. Stem & leaf diagrams. Frequency polygons.</p>	<p>This term: Estimate answers to calculations. Round to a given number of significant figures. Upper & lower bounds. Increase or decrease a quantity by a given percentage. Express one quantity as a percentage of another. Work out a percentage increase or decrease. Work out compound interest. Work out reverse percentage problems. Calculate area/perimeter of compound shapes, including circles (using Pi)</p>	<p>This term: Collect like terms. Multiply out brackets (by a number which may be negative). Cancelling fractions. Adding and subtracting fractions. Solving equations where the unknown appears once only. Multiply out expressions with brackets such as $3(x+2)$ or $5(x-2)$. Factorise expressions such as $6a+8$ and x^2-3x. Expand (and simplify) harder expressions such as $x(x^2-5)$ and $3(x+2)-5(2x-1)$.</p>	<p>This term: Change the subject of a formula (Linear). Change the subject of the formula, including cases where the subject appears twice, or where a power or root of the subject appears e.g. $V=v(PR)$, and find P. Classify and know the difference between various types of data. Use a variety of different sampling methods. Identify possible sources of bias in the design and use of data collection sheets and questionnaires. Reflect in mirror lines (inc. $x=2$, $y=x$ etc.) /</p>	<p>This term: Use Index notation. Use and calculate with standard form. Understand and use compound units e.g. Speed. Understanding how to construct and interpret distance-time graphs from real life situations. Calculating density and understanding the units. Use a ruler and compasses to do standard constructions. Find loci to include points, lines, regions with the aid of above constructions. Factorise and solve simple quadratic</p>	<p>This term: Identifying and measuring angles then be able to use bearings to identify a given point, identifying sequences, using nth term and quadratic nth term. To be able to construct triangles using given angles, transform shapes across a set of axis. Use a cumulative frequency diagram to estimate the median and interquartile range. Construct and interpret a box plot. Compare 2 sets of data using box plots. To display inequalities on a number line. To describe a list of</p>

	Find the surface area of 3D shapes using rectangles/triangles Find the volume of cuboids/right prisms		lines/planes of symmetry in 2D/3D Rotate shapes with specified direction, centre, and angle/turn. Translate shapes by a given vector. Enlarge a shape using a centre of enlargement and positive scale factor. Distinguish properties that are preserved under transformations.	equations. Solve quadratic equations by using the quadratic formula. To solve simultaneous equations graphically and algebraically. Find the simple probability of equally likely outcomes. List outcomes from two independent events. Find relative probabilities. Use relative probabilities to predict the number of times a particular result will occur. Compare experimental data and theoretical probabilities.	numbers, possibly from a number line as an inequality, e.g. $-5 \geq x \geq 8$. To solve simple inequalities: $12 > 2n > 5$, for integer n. To solve inequalities such as $4 > 5x - 2$. To solve inequalities with variables on both sides such as $3x + 9 > 5x$. Solve Pythagoras problems in 2D. Recall/use Trig relationships in right angle triangles and real-life problems in 2D.
Future Knowledge: Recall/use Trig relationships in right angle triangles and real-life problems in 2D. Find the equation of a line through two points or through one point with given gradient. Constructing & using	Future Knowledge: Use algebraic fractions. What is the Max and Min Perimeter of a rectangle? Understand how to use successive percentages. Extend to Sectors & Cones	Future Knowledge: Factorise harder quadratic expressions. Solve linear equations with fractional coefficients, in which the unknown appears on either or both sides of the equation. Solve equations by	Future Knowledge: Change the subject of the formula, including cases where the subject appears twice, or where a power or root of the subject appears e.g. $V=v(PR)$, and find P. Coordinates in 3-dimensions	Future Knowledge: Use stratified sample methods. Use index notation and index laws for fractional powers such as $16^{-\frac{3}{4}}$. Calculating pressure and understand the units.	Future Knowledge: To recognise 'real-life' situations which involve solving simultaneous equations and solve to find solutions. Compare two box plots. Solve inequalities, by drawing: $y > 3$, $y > 2x - 2$, $7 - x > y$ and $x > 0$.

time series graphs to analyse data		completing the square such as $x^2 - 10x + a$, writing them in the form $(x+b)^2 + c$. Simplify harder rational expressions.	Transform 2D shapes by a combination of transformations or describe them fully. Enlarge a shape using a centre of enlargement and fractional/negative scale factor		Solve harder inequalities such as $26 + n > 4n - 7$. To display solutions to inequalities graphically using shaded regions. Surd values. Know the exact values of sin, cos and tan at key angles (0, 30, 45, 60, 90 degrees).
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