



Mathematics: KS3 Progress Grid

Assessment Strands						
Progress	Fluency of Number I can...	Manipulation of Algebra I can...	Calculating in Ratio I can...	Geometrical Reasoning I can...	Analysing Data & Probability I can...	Problem Solving I can...
7 - 9	<ul style="list-style-type: none"> calculate the upper and lower bounds of a rounded answer evaluate numbers or expressions using fractional powers apply the laws of indices to simplify expressions with negative powers 	<ul style="list-style-type: none"> solve a pair of simultaneous equations with different coefficients expand any pair of double brackets factorise and solve quadratic expressions solve simple simultaneous equations both algebraically and graphically plot a quadratic graph state the equation of a line given two points recognise cubic and reciprocal graphs and use these to approximate solutions graphically 	<ul style="list-style-type: none"> find missing lengths in similar shapes perform calculations involving growth and decay such as calculating compound interest find reverse percentages change between compound units such as speed, density and pressure calculate percentage profit and loss solve indirect proportion problems using the unitary method 	<ul style="list-style-type: none"> use trigonometry to find missing angles and lengths in right angled triangles apply Pythagoras' Theorem in a 3D scenario confidently describe any transformation including with negative and fractional values calculate the length of an arc and the area of a sector enlarge a shape using a negative scale and fractional factor find the surface area and volume of a prism 	<ul style="list-style-type: none"> correctly draw a histogram with unequal group widths construct a box plot from a list of data and consider outliers find the quartiles from a list of data draw a tree diagram without replacement and calculate probabilities from it interpolate and extrapolate using a line of best fit calculate the mean from a frequency table 	<ul style="list-style-type: none"> examine generalisations or solutions reached in an activity convey mathematical meaning through precise and consistent use of symbols reflect on lines of enquiry when exploring a task examine critically, improve and justify the choice of mathematical presentation solve increasingly demanding problems and evaluate solutions represent problems with algebraic notation progressively refine the problem to generate better solutions
5 - 6	<ul style="list-style-type: none"> estimate powers and roots of any positive integer perform arithmetic with mixed numbers and improper fractions apply the laws of indices to simplify expressions for multiplied and divided terms, including the zero power write large and small numbers in standard form find the reciprocal of a number perform arithmetic with proper fractions 	<ul style="list-style-type: none"> solve a linear inequality state difference between an expression, equation, identity solve a linear equation with one or two negative unknowns change the subject of a formula where the unknown appears on one side solve a linear equation with positive unknowns on both sides expand a combination of linear brackets state the equation of a parallel line 	<ul style="list-style-type: none"> work confidently with percentage greater than 100% calculate density, mass or volume of an object solve direct proportion problems using the unitary method share into a given ratio calculate the simple interest of money draw and interpret a time-distance graph use a multiplier on a calculator to calculate percentage change 	<ul style="list-style-type: none"> find the interior and exterior angles of a polygon find the area and perimeter of any compound shape produce a construction using a pair of compasses find the area and circumference of a circle enlarge a shape given a positive scale factor find missing angles in parallel lines use Pythagoras' Theorem to find the missing side of a triangle 	<ul style="list-style-type: none"> draw a time series graph display and interpret probability outcomes in a Venn diagram draw a scatter diagram and interpret the correlation draw a tree diagram with replacement and calculate probabilities from it 	<ul style="list-style-type: none"> present a concise, reasoned argument, using diagrams and words Interpret, discuss and synthesise information presented in a variety of mathematical forms use logical argument to establish the truth of a statement choose and correctly use appropriate symbols, diagrams and graphs. try different approaches and find ways of overcoming difficulties that arise
4	<ul style="list-style-type: none"> use estimation within calculations write a number as a product of its prime factors and use this to find HCF and LCM round to any number of significant figures 	<ul style="list-style-type: none"> solve an equation including single brackets, negatives and fractions plot a straight line graph of the form $ax + by = c$ state the gradient and y- intercept of any straight line graph factorise a linear expression 	<ul style="list-style-type: none"> calculate speed, distance or time of an object order fractions, decimal and percentages by converting. 	<ul style="list-style-type: none"> draw the net, plan and side elevation of a 3D shape find the area of triangles, parallelograms and trapeziums use bearings to describe the direction 	<ul style="list-style-type: none"> create a sample space diagram based on two events use a stem and leaf diagram to order numbers and find averages using it 	<ul style="list-style-type: none"> draw simple conclusions and explain reasoning check results and consider whether they are sensible
2 - 3	<ul style="list-style-type: none"> perform arithmetic with decimals identify square and cube numbers calculate square roots list multiples, factors and primes calculate with negative numbers apply the order of operations correctly round to any number of decimal places 	<ul style="list-style-type: none"> simplify multiplied expressions expand a single bracket create and use a formula continue a Fibonacci or geometric sequence draw and interpret a conversion graph plot a straight line graph of the form $y = ax + b$ find the nth term of a linear sequence substitute a negative number into an expression or formula 	<ul style="list-style-type: none"> convert between fractions, decimals, and percentages write one number as a percentage of the other calculate percentage increase and decrease create a scale drawing 	<ul style="list-style-type: none"> translate any shape find the missing angle in any triangle using angle facts reflect a shape in a line and rotate a shape around a point state the different properties of quadrilaterals construct a triangle reflect a shape in a line and rotate a shape around a point. convert between different measures such as cm and m 	<ul style="list-style-type: none"> draw a pie chart from a set of data find the mean from a list of data calculate the probability of an equally likely event, knowing that probability outcomes sum to 1. construct and complete a two-way table 	<ul style="list-style-type: none"> present and interpret solutions in the context of the problem develop correct use of notation, symbols and diagrams make a general statements based on evidence produced present information and results in a clear and organised way
1	<ul style="list-style-type: none"> identify equivalent fractions find a fraction of an amount perform multiplication and division with integers 	<ul style="list-style-type: none"> substitute a positive number into an expression or formula draw a straight line graph of the form $y=k$ and $x=k$ form and solve a linear two- step equation 	<ul style="list-style-type: none"> find a percentage of an amount use a scale on a map 	<ul style="list-style-type: none"> identify parallel and perpendicular lines label key features of a circle find missing angles on straight lines, at points and vertically opposite 	<ul style="list-style-type: none"> find the median from a list of data. place events on a probability scale 	<ul style="list-style-type: none"> find a pattern or solution use a range of strategies when solving problems
Working Towards 1	<ul style="list-style-type: none"> round a number to the nearest 10, 100 or 1000 multiply and divide by 10, 100, or 1000 add and subtract decimals simplify a fraction 	<ul style="list-style-type: none"> collect like terms generate a sequence given the rule solve a linear one-step equation plot and read co-ordinates in all four quadrants 	<ul style="list-style-type: none"> find equivalent ratios simplify a ratio 	<ul style="list-style-type: none"> draw the lines of symmetry in a 2D shape measure an angle find the area and perimeter of a rectangle 	<ul style="list-style-type: none"> calculate the range from a list of data. draw and interpret a pictogram use the language of probability. 	<ul style="list-style-type: none"> organise my work and check results
Foundations	<ul style="list-style-type: none"> add and subtract integers read values off a scale state the place value of a number 	<ul style="list-style-type: none"> recognise the rule of a sequence plot co-ordinates in the first quadrant 	<ul style="list-style-type: none"> write a ratio from words or pictures 	<ul style="list-style-type: none"> count the number of faces, vertices and edges in 3D shapes state the different types of angle identify congruent shapes 	<ul style="list-style-type: none"> find the mode from a list of data draw and interpret a bar chart 	<ul style="list-style-type: none"> explain why an answer is correct predict what comes next in a simple number, shape or spatial pattern or sequence