Maths		Number	Algebra	Geometry	Data	Additional indicators
Old Grade	**New Grade**					
	9+					
	9					
A* Maths	**9-** **8+** **8** **8-**	**Can independently…** … solve direct and inverse variation problems involving three variables … manipulate expressions containing surds and rationalise denominators … solve problems using surds … calculate the limits of compound measures	**Can independently…** …Solve a pair of simultaneous equations where one is linear and the other is non-linear …Rearrange more complicated formulae where the subject may appear twice or as a power …Simplify algebraic fractions by factorisation and cancellation …Solve a quadratic equation obtained from manipulating algebraic fractions where the variable appears in the denominator …Solve equations using the intersection of two graphs & …Transform the graph of a given function …Identify the equation of a function from its graph, formed by a transformation on a known function …Use trig graphs to solve sine/cosine problems …Prove algebraic & geometric results with rigorous and logical mathematical arguments …Solve real life problems that lead to constructing & solving a quadratic equation …Solve a quad equation using completing the square	**Can independently…** …Solve 3-D problems using Pythagoras' theorem and trigonometric ratios …Solve related problems involving, for example, capacity, using area and volume scale factors …Use circle theorems to prove geometrical results …Solve more complex geometrical problems using vectors …Solve simple equations where the trigonometric ratio is the subject …Find two angles between 0° and 360° for any given value of a trigonometric ratio (+ or -) …Use the sine & cosine rules to solve more complex problems involving non right-angled triangles	**Can independently…** …Find the median, quartiles and interquartile range from a histogram …Work out the probabilities of combined events when the probability of each event changes depending on the outcome of the previous event	
A Maths	**7+** **7** **7-** **6+**	**Can independently…** … find formulae describing direct or inverse variation and use them to solve problems … solve complex problems involving percentage increases and decreases … simplify surds … convert recurring decimals to fractions … find measures of accuracy for numbers given to decimal places or significant figure accuracies	**Can independently…** …Rearrange a formula where the subject appears x 2 …Combine algebraic fractions using the four rules of addition, subtraction, multiplication & division …Interpret & draw more complex real-life graphs …Find the equation of linear graphs parallel & perpendicular to other linear graphs, that pass through specific points …Draw a variety of graphs such as exponential graphs and reciprocal graphs using a table of values …Show that an algebraic statement is true, using both sides of the statement to justify an answer …Solve a quadratic equation of the form $ax^2 + bx + c = 0$ by the quadratic formula …Factorise a quad expression of the form $ax^2 + bx + c$ …Solve a quad equation of the form $ax^2 + bx + c = 0$ by factorisation …Set up/ solve two simultaneous equations from a practical problem	**Can independently…** …Solve more complex 2-D problems using Pythagoras' theorem & trigonometry …Solve problems using area and volume scale factors …Solve real problems using similar triangles …Find angles in circles using the alternate segment theorem …Prove that two triangles are congruent …Solve problems using addition & subtraction of vectors …Find the area of a triangle using the formula Area = ½ ab sin C …Use the sine/ cosine rules to calculate missing angles/ sides in non right-angle triangles	**Can independently…** …Calculate the numbers to be surveyed for a stratified sample …Use and / or combinations or a tree diagram to work out probabilities of specific outcomes of combined events …Draw histograms from frequency tables with unequal class intervals	
B Maths	**6** **6-**	**Can independently…** … solve problems involving density … work out the square roots of some decimal numbers … Estimate answers involving the square roots of decimals … Find limits of accuracy for numbers given to whole number accuracy … write and calculate with	**Can independently…** …Solve two simultaneous linear equations …Rearrange more complicated formulae …Represent a region that satisfies a linear inequality graphically …Solve more complex linear inequalities …Represent a region that satisfies linear inequalities graphically …Solve linear equations involving algebraic fractions where the subject appears as the numerator …Solve quadratic equations from their graphs	**Can independently…** …Solve problems in 3-D using Pythagoras' theorem …Calculate the surface area and volume of pyramids, cylinders, cones & spheres …Calculate the length of an arc & the area of a sector …Set up equations to find missing sides in similar triangles …Find angles in circles …Know the conditions to show that two	**Can independently…** …Draw a cumulative frequency diagram …Find the median and quartiles from a cumulative frequency diagram …Draw & interpret box plots …Draw and use a tree diagram to work out the probability of combined events …Use a moving average to predict future values	

C Maths	**5-** **4+** **4** **4-**	**Can independently…** … write a number as a product of its prime factors …Work out the LCM and HCF of pairs of numbers …Estimate the values of calculations involving positive numbers < 1 …Use a calculator efficiently and give answers to an appropriate degree of accuracy …Multiply & divide numbers written in index form …Solve problems using ratio in appropriate situations …Work out compound interest problems … calculate with mixed numbers	**Can independently…** …Expand and simplify expressions …Rearrange simple formulae …Solve equations using trial and improvement …Solve linear inequalities / represent the solution on a number line … draw quadratic graphs using a table of values …Draw straight line graphs from equation using the gradient-intercept method … give the nth term of a sequence of powers of 2 or 10 … give the *n*th term of a linear sequence …Expand a pair of linear brackets to get a quadratic expression	**Can independently…** …Solve problems in 2-D using Pythagoras' theorem …Use Pythagoras' theorem in right angled triangles …Calculate the volume of prisms and cylinders …Work out the formula for the perimeter, area or volume of more complex shapes …Work out whether an expression or formula is dimensionally consistent & whether it represents a length, an area or volume …Work out unknown sides of shapes using scale factors/ ratios … find interior and exterior angles in polygons …Enlarge a 2D shape about any point and a fractional scale fac …Draw and describe the locus of a point from a given rule … construct line and angle bisectors …Solve problems using loci …Translate a 2-D shape by a vector …Rotate a 2-D shape about any point …Reflect a 2-D shape in the line y = x or y = -x	**Can independently…** …Draw a frequency polygon for continuous data …Find an estimate of the mean from a grouped frequency table of continuous data …Calculate the relative frequency from experimental evidence and compare this with theoretical probability …Design questionnaires and surveys … interpret a line of best fit …Recognise the different types of correlation	
D Maths	**3+** **3** **3-**	**Can independently…** …Recognise and work out factors, multiples & primes …Estimate the values of calculations involving positive numbers > 1 …Round numbers to a given number of significant figures …Write and calculate with numbers written in index form …Calculate distance from speed & time …Compare prices to find the 'best buy' …Calculate average speeds from data …Calculate time from distance and speed …Calculate percentage increases and decreases …Multiply & divide with negatives …Add, subtract, multiplydivide fractions	**Can independently…** …Expand a linear bracket …Solve linear equations where the variable appears on both sides of the equals sign …Solve simple linear equations which include the variable in a bracket …Solve linear equations where the variable occurs in the numerator of a fraction …Substitute numbers into expressions …Draw straight line graphs from equations by plotting points …Substitute numbers into an *n*th term rule …Factorise simple linear expressions	**Can independently…** … Calculate the area and circumference of a circle …Calculate the area of a trapezium …Work out the formula for the perimeter, area or volume of simple shapes …Find angles in triangles and quadrilaterals …Enlarge a 2-D shape by a whole number scale factor …Reflect 2-D shape in a line x=a or y=b …Rotate a 2-D shape about the origin	**Can independently…** …Draw a frequency polygon for discrete data …Find the mean from a frequency table of data …Calculate the probability on an event happening when you know the probability that the event doesn't happen and that the total probability of all possible outcomes is 1 … Predict the expected number of successes from a given number of trials if you know the probability of one … Draw a line of best fit on a scatter diagram …Draw a stem & leaf diagram	
E		**Can independently…** …Recognise two digit prime	**Can independently…** …Simplify algebraic expressions by collecting like	**Can independently…** …Solve problems using conversion	**Can independently…** …Read information from a stem & leaf	

Maths	2+ 2 2-	numbers …Evaluate calculations involving decimal numbers …Calculate simple powers of whole numbers …Change fractions to decimals …Change decimals to fractions …Simplify a ratio …Find any percentages of a quantity …Solve problems involving simple negative numbers …Multiply a fraction by a fraction …Add and subtract mixed numbers	terms …Solve equations such as 3x + 2 = 7 or x/3 − 7 = 1 …Draw a linear graph given a table of values to compete …Find any term in a number sequence and recognise patterns in number calculations …Read off distances & times from a travel graph	factors for units …Find the surface area of a cuboid …Find the area of a triangle using the formula A = ½ bh …Know the formula V = lbh to find the volume of a cuboid …Know that the sum of angles in a triangle is 180° and the sum of the angles in a quadrilateral is 360° … use bearings …find the exterior angle of a triangle/ quadrilateral …Know how to tessellate a 2-D shape …Reflect a 2-D shape in the x-axis or the y-axis …Draw a simple shape (such as a cuboid) on an isometric grid …Draw lines of symmetry on more complex 2-D shapes …Find the order of rotational symmetry for more complex 2D shapes …Use the approximate conversion factors to change from imperial units to metric units	diagram …Draw a pie chart …List all the outcomes of two independent events (such as tossing a coin & throwing a dice) and calculate probabilities from lists or tables …Find the mean and range from a stem & leaf diagram	
F Maths	1+	**Can independently…** …Answer problems involving multiplication or division by a single-digit number …Multiply a 3 digit number by a 2 digit number without using a calculator …Write down the square of any number up to 15 x 15 = 225 …Write down the cubes of 1, 2, 3, 4, 5 and 10 …Know how to find the square root of any number using a calculator …Solve real problems involving multiplication and division …Round decimal numbers to a specific number of places …Divide a 3 or 4 digit number by a 2 digit number …Find simple percentages of a quantity …Add and subtract positive & negative numbers to positive & negative numbers …Solve fraction problems expressed in words …Compare two fractions of quantities Can independently	**Can independently…** …Substitute numbers into expressions …Use letters to write a simple algebraic expression …Solve equations such as 4x = 12 and x − 8 = 3 …Plot points in all four quadrants …Give the next term in a sequence and describe how the pattern is building up …Read off values from a conversion graph	**Can independently…** …Convert from one metric unit , and from one imperial unit, to another …Can read a variety of scales with different division …Find the area of a rectangle using the formula A = lw …Find the surface area of 3-D shapes by counting squares on faces … draw and measure angles …Know that the sum of the angles on a line is 180° and the sum of the angles at a point is 360° … draw shapes made up of circles …Find the order of rotational symmetry for basic 2-D shapes … measure a line and draw the net of simple 3-D shapes	**Can independently…** …Compare data in bar charts …Interpret a simple pie chart …Work out the total frequency from a frequency table …Calculate the probability of outcomes of events …Understand that the probability scale runs from 0 to 1 …Find the range for a set of data …Find the mean of a small set of data	

		…Change mixed numbers into top heavy fractions …Add more difficult fractions				
G **Maths**	**1** **1-**	**Can independently…** …Multiply numbers by a single digit number …Know the times tables up to 10 x 10 …Add & subtract numbers with up to 4 digits …Use BODMAS to find the correct order of operations …Recognise multiples of the first ten whole numbers …Find factors of numbers less than 100 …Recognise the square numbers up to 100 …Identify the value of digits in different places …Round to the nearest 10 and 100 …State and shade the fraction of a shape shaded …Find and recognise equivalent fractions, decimals & percentages …Use negative numbers in context and with inequalities …Put simple fractions in order of size …Cancel a fraction (when possible) …Find a fraction of an integer …Change top heavy fractions into mixed numbers …Add & subtract simple fractions …Add columns & rows in grids	**Can independently…** …Use a formula expressed in words	**Can independently…** …Recognise congruent shapes …Find the area of a 2-D shape by counting squares … Find the perimeter of a 2-D shape …Find the volume of 3-D shapes by counting cubes …Draw circles given the radius …Know the words 'radius', 'diameter', 'circumference', 'chord', 'tangent' …Draw lines of symmetry on basic 2-D shapes …Recognise the net of a simple shape, such as a cuboid …Name basic 3-D shapes	**Can independently…** …Read information from bar charts, dual bar charts and pictograms …Understand basic terms used to describe probability such as 'certain', 'impossible', 'likely' etc …Find the mode and median of a list of data	