

## Year 7 Mathematics Progress Criteria 2015

	Emerging	Expected	Exceeding	Excellence
<b>Add and Subtract</b>	Place value and numbers as words Written methods for + / - Word & money problems with + / - Find perimeter of simple shapes by counting squares Writing simple expressions with pictures then algebra (a apples + 2 same as a + 2) Know that 2a means 2 x a Collecting like terms (all the same letter)	Add/Subtract including decimals Negative numbers + / - Perimeter of rectangles using calculation Perimeter of compound shapes (rectangles) Collecting like terms (different letters and numbers)	Perimeter of any shape - link to all skills including decimals Collecting like terms (with indices)	Construct algebraic expressions for perimeter problems.
<b>Multiply and Divide</b>	Multiplication tables up to 12 Short x and ÷ Find area of rectangles by counting squares Know that 2a means 2 x a x and ÷ whole numbers by 10 and 100	Word problems with x and ÷ Long x and short ÷ with no remainder x and ÷ any numbers (including decimals) by 10 and 100, 1000 Negative numbers x and ÷ BODMAS Word problems and money problems combining four ops Area of rectangles by calculation Area of compound shapes (rectangles) Area of a triangle Area of a parallelogram Construct expressions for area of rectangles.	short ÷ with remainder Area of compound shapes formed containing L6 shapes Construct expressions for area problems involving shapes other than rectangles. Including involving brackets and fractions. BODMAS with negative and decimals x and ÷ decimals	Construct expressions for area problems involving compound shapes. Including involving brackets and fractions. Multiply & Divide by numbers between 0 & 1
<b>Applications of Algebra</b>	Collecting like terms (all the same letter) Substitution (whole numbers ) Find missing numbers represented by a symbol e.g. * + 4 = 7 Solve simple one step equations e.g. 2x=12 (whole numbers)	Collecting like terms (different letters and numbers) Substitution (negative numbers) Expanding single brackets Solve simple two step linear equations e.g. 4x-3=13, with whole number answers Solve simple two step linear equations involving brackets e.g. 4(x+2)=20 with whole number answers Solve more complex linear equations e.g. with variables on both sides Construct and solve equations to solve area and perimeter problems. Linear Factorising (Letters or numbers)	Collecting like terms (with indices) Substitution (indices and fractions) Expand and simplify brackets 5(x + 3) - 3(x + 1) Solve more complex linear equations eg with variables on both sides, negative x coefficient, fractional or negative solutions Construct and solve equations eg for solving area and perimeter problems. Linear Factorising (Letters and numbers)	Substitution (negative fractions and powers combined) Expanding double brackets Factorise a quadratic expression including the difference of two squares
<b>Geometry</b>	Classify angles as acute, obtuse and reflex Know that a right angle is 90, a straight	Classify 2D shapes in various ways (e.g. identifying the angle properties of	Properties of diagonals in Quadrilaterals	Able to give written proof using angle properties and other 2D shape

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	<p>line is 180 and a full turn is 360 Classify triangles in basic way (spot scalene, isosceles, equilateral triangles because of the length properties not angle properties). Spot right angled triangle. Draw and measure angles accurately using a protractor Angles on a straight line, angles in a triangle, angles in a quadrilateral Angles at a point</p>	<p>isosceles, equilateral triangles, acute-angled triangles and obtuse-angled triangles etc.) Problem solving using angles on a straight line, angles in a triangle, angles round a point, angles in a quadrilateral Angles in parallel lines - use on simple questions only Properties of Quadrilaterals excluding diagonals</p>	<p>Solving problems involving angles in parallel lines Solving angle problems - giving a numerical proof Construct and solve equations to solve angle problems. Draw/Construct Bearings and simple calculations</p>	<p>properties, giving written reasons throughout. Problem solving using Bearings</p>
<b>Fractions</b>	<p>Begin to use and understand halves and quarters Simple Fractions of shaded regions Equivalent fractions Simplifying fractions Simple equivalent fractions, decimals and percentages e.g. <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{10}</math> Simple fractions of amount e.g. <math>\frac{1}{2}</math> of, <math>\frac{1}{4}</math> of etc.</p>	<p>Shaded Fractions of more complicated shapes, with mixed sized regions Fractions of amount eg <math>\frac{2}{5}</math> of 20 Convert Improper fractions and mixed numbers Convert between any fraction &amp; decimal Order fractions, decimals Multiply &amp; Divide fractions Multiply and divide an integer by a fraction Simple area questions involving multiplying &amp; dividing simple fractions</p>	<p>Problem solving with fractions of amount eg <math>\frac{2}{5}</math> of 20 = <math>\frac{1}{4}</math> of n? Multiply &amp; Divide fractions -mixed numbers Solve Compound Area problems involving multiplying &amp; dividing fractions excluding mixed numbers (all lengths will need to be supplied) Solve problems involving Multiply and divide an integer by a fraction</p>	<p>Solve Compound Area problems involving multiplying &amp; dividing fractions involving mixed numbers (all lengths will need to be supplied)</p>
<b>Data Diagrams</b>	<p>Construct and interpret bar charts Construct and interpret pictograms Interpret simple tables and lists Collect information/ data to produce own bar chart/ pictogram Construct and Interpret Line graphs Interpret percentage pie charts and other simple pie charts Draw section and percentage pie charts Construct all above using Excel</p>	<p>Construct pie charts using a protractor Construct and interpret dual bar charts Construct and interpret frequency diagrams and polygons Construct and interpret pie charts Plot scatter diagram Understand correlation Draw Lines of best fit Frequency Polygons Construct all above diagrams in Excel</p>	<p>Compare dual bar charts Compare frequency diagrams &amp; frequency polygons Use Lines of best fit Plot Cumulative Frequency Estimate the median, quartiles and inter quartile range for large data sets using cumulative frequency curve Use Excel to construct dual bar charts and plot cumulative frequency curve</p>	<p>Answer problems requiring interpretation of cumulative frequency curve, &amp; understand meaning of median, quartiles and IQR</p>