

Maths Skills and Progression

	Number	Statistics	Measurement	Geometry
Year 5	<p>Children can:</p> <ul style="list-style-type: none"> Order numbers to 10,000 Read to nearest 10, 100 and 1,000 Numbers to 100,000 Compare and order numbers to 100,000 Round numbers within 100,000 Numbers to a million Counting in 10s, 100s, 1,000s, 10,000s and 100,000s Compare and order numbers to one million Round numbers to one million Negative numbers Roman Numerals to 1,000 Add whole numbers with more than 4 digits (column method) Subtract whole numbers with more than 4 digits (column method) Round to estimate and approximate Inverse operations (addition and subtraction) Multi-step addition and subtraction problems Multiples Factors Common Factors Prime numbers Square numbers Cube numbers Multiply by 10, 100 and 1,000 	<p>Children can:</p> <ul style="list-style-type: none"> Read and interpret line graphs Draw line graphs Use line graphs to solve problems Read and interpret tables Two-way tables Timetables 	<p>Children can:</p> <ul style="list-style-type: none"> Measure perimeter Calculate perimeter Area of rectangles Area of compound shapes Area of irregular shapes Kilograms and kilometres Millimetres and millilitres Metric units Imperial units Timetables What is volume? Compare volume Estimate volume Estimate capacity 	<p>Children can:</p> <ul style="list-style-type: none"> Measuring angles in degrees Measuring with a protractor Drawing lines and angles accurately Calculating angles on a straight line Calculating angles around a point Calculating lengths and angles in shapes Regular and irregular polygons Reasoning about 3-D shapes Position in the first quadrant Translation Translation with coordinates Reflection Reflection with coordinates Converting units of time

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Divide by 10, 100 and 1,000
Multiples of 10, 100 and 1,000
Multiply 4-digits by 1-digit
Multiply 2-digits (area model)
Multiply 2-digits by 2-digits
Multiply 3-digits by 2-digits
Multiply 4-digits by 2-digits
Divide 4-digits by 1-digit
Divide with remainders
Equivalent fractions
Improper fractions to mixed numbers
Mixed numbers to improper fractions
Number sequences
Compare and order fractions less than 1
Compare and order fractions greater than 1
Add and subtract fractions
Add fractions within 1
Add 3 or more fractions
Add mixed numbers
Subtract fractions
Subtract mixed numbers
Subtraction – breaking the whole
Subtract 2 mixed numbers
Multiply unit fractions by an integer
Multiply non-unit fractions by an integer
Multiply mixed numbers by integers
Fraction of an amount
Using fractions as operators
Fraction problem solving
Decimals to 2 d.p.
Decimals as fractions
Understand thousandths

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<p>Thousandths to decimals Rounding decimals Order and compare decimals Understand percentages Percentages as fractions and decimals Equivalent F.D.P Adding decimals within 1 Subtracting decimals within 1 Complements to 1 Adding decimals – crossing the whole Adding decimals with the same number of decimal places Subtracting decimals with the same number of decimal places Adding and subtracting decimals with the same number of decimal places problem solving Adding decimals with a different number of decimal places Subtracting decimals with a different number of decimal places Adding and subtracting decimals with a different number of decimal places problem solving Adding and subtracting wholes and decimals Decimal sequences Multiplying decimals by 10, 100 and 1,000 Dividing decimals by 10, 100 and 1,000</p>			
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Maths Skills and Progression

	Number	Algebra	Measurement	Statistics	Geometry
Year 6	<p>Children can:</p> <p>Read, write, order and compare numbers up to 1,000,000</p> <p>Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit.</p> <p>Compare, write and order any numbers</p> <p>Round numbers to 10, 100 and 1,000</p> <p>Round any whole number to a required degree of accuracy.</p> <p>Use negative numbers in context, and calculate intervals across zero.</p> <p>Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.</p> <p>Multiply multi-digit number up to 4 digits by a 2 digit number using the formal written method of long multiplication.</p> <p>Divide numbers up to 4 digits by a 2 digit whole number using the formal written method of long division</p> <p>Dividing using factors</p>	<p>Children can:</p> <p>Understand formulae</p> <p>Find a one-step rule</p> <p>Find a two-step rule</p> <p>Substitution</p> <p>One-step equations</p> <p>Two-step equations</p> <p>Pair of values 1</p> <p>Pair of values 2</p>	<p>Children can:</p> <p>Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.</p> <p>Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3dp.</p> <p>Convert between miles and kilometres.</p> <p>Imperial units</p> <p>Recognise that shapes with the same areas can have different perimeters and vice versa.</p> <p>Finding the area and perimeter of a shape</p> <p>Calculate the area triangles</p> <p>Calculate the area of a parallelogram</p> <p>Finding the volume by counting cubes</p> <p><i>Finding the volume of a cuboid</i></p>	<p>Children can:</p> <p>Read and interpret line graphs</p> <p>Understand and use correct vocabulary for circles</p> <p>Read and interpret pie charts</p> <p>Finding the mean</p>	<p>Children can:</p> <p>Identify the first quadrant</p> <p>Four quadrants</p> <p>Translations</p> <p>Reflections</p> <p>Measuring with a protractor</p> <p>Draw lines and angles accurately</p> <p>Introduction to angles</p> <p>Angles on a straight line</p> <p>Angles around a point</p> <p>Calculating angles</p> <p>Vertically opposite angles</p> <p>Angles in a triangle</p> <p>Angles in a triangle – special cases</p> <p>Angles in a triangle – missing angles</p> <p>Angles in special quadrilaterals</p> <p>Angles in polygons</p> <p>Drawing shapes accurately</p> <p>Drawing nets of 3D shapes</p>

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Divide numbers up to 4 digits by a 2 digit number using the formal written method of short division, interpreting remainders according to context.

Perform mental calculations, including with mixed operations and large numbers.

Identify common factors

Identify common multiples

Identify prime numbers

Use knowledge of the order of operations to carry out calculations involving the four operations.

Square and cube numbers

Use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy.

Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.

Compare and order fractions, including fractions >1

Generate and describe linear number sequences (with fractions)

Add fractions with different denominations and mixed

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numbers, using the concept of equivalent fractions.
Subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions.
Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example $1/4 \times 1/2 = 1/8$]
Multiply proper fractions by integers
Divide proper fractions by whole numbers [for example $1/3 \div 2 = 1/6$]
Using the four rules with fractions
Finding the fraction of an amount
Finding the whole when given the fraction of an amount
Identify the value of each digit in numbers given to three decimal places and multiply numbers by 10, 100 and 1,000 giving answers up to 3 decimal places (dp).
Multiply and divide by 10, 100 and 1,000
Multiply one-digit numbers with up to 2dp by whole numbers.

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<p>Use written division methods in cases where the answer has up to two decimal places.</p> <p>Division to solve problems</p> <p>Decimals as fractions</p> <p>Fractions as decimals</p> <p>Understanding percentages</p> <p>Fractions to percentages</p> <p>Find and use equivalent fractions, decimals and percentages</p> <p>Order fractions, decimals and percentages</p> <p>Finding the percentage of an amount</p> <p>Using percentages to find missing values</p> <p>Using ratio language</p> <p>Ratio and fractions</p> <p>Calculating ratio</p> <p>Using scale factors</p> <p>Calculating scale factors</p> <p>Solve ratio and proportion problems</p>				
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Maths Skills and Progression

	Number	Algebra	Geometry	Statistics	Probability
Year 7	<p>Children can:</p> <ul style="list-style-type: none"> Identify place value using numbers up to the value of one billion Intervals on a number line Rounding integers to the nearest power of 10 Compare numbers using =, ≠, < and > Find the range and mean from a set of values Understand place value for decimals Place decimals on a number line Compare and order numbers up to one billion Round numbers to one significant figure Represent tenths and hundredths as a diagram and on a number line Convert between fractions and decimals Convert between simple fractions, decimals and percentages Use and interpret pie charts Represent fractions as a diagram and on a number line 	<p>Children can:</p> <ul style="list-style-type: none"> Describe and continue sequences Represent sequences in tabular and graphical forms Recognise the difference between linear and non-linear sequences Continue linear sequences Continue non-linear sequences Explain the term to term rule Find the input when given the output Using single function machines Using two-step function machines Finding functions from expressions Substitute values into two-step expressions Generate sequences from a rule Using and understanding fact families numerically and algebraically Solve one-step linear equations using addition and subtraction 	<p>Children can:</p> <ul style="list-style-type: none"> Draw and measure line segments including geometric figures Classify angles Draw and measure angles between 180° and 360° Identify perpendicular and parallel lines Recognise types of triangle and quadrilateral Identify polygons up to a decagon Construct triangles using SSS, SAS and ASA Interpret simple pie charts using proportion Interpret pie charts using a protractor Understand and use the sum of angles to a point Understand and use the sum of angles on a straight line Understand and use the equality of vertically opposite angles Know and apply the sum of angles in a triangle Know and apply the sum of angles in a quadrilateral 	<p>Children can:</p> <ul style="list-style-type: none"> Use tables and timetables Understand and use frequency trees Understand and use bar charts and line charts 	<p>Children can:</p> <ul style="list-style-type: none"> Identify and represent sets Interpret and create Venn diagrams Understand and use the intersection and the union of sets Know and use the vocabulary of probability Generate sample spaces for single events Know that the sum of probabilities for all possible outcomes is 1

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<p>Identify equivalent fractions Understand fractions as division Convert fluently between all fractions, decimals and percentages Explore fractions, decimals and percentages above one Formal methods of addition and subtraction Mental strategies using addition and subtraction Multiply and divide by 10, 100 and 1000 Use formal written methods for multiplication and division of integers and decimals. Understand the order of operations. Use the concepts and vocabulary of prime numbers, factors (or divisors), common factors and highest common factor (HCF). Convert metric units Multiply and divide by powers of 10 Calculate and solve problems involving area of rectangles, triangles and parallelograms. Calculate the mean of a set of discrete data.</p>	<p>Solve one-step linear equations using multiplication and division Understand the difference between like and unlike terms Understand the meaning of equivalence Simplify algebraic expressions by collecting like terms</p>	<p>Solve angle problems using the properties of triangles and quadrilaterals Solve complex angle problems Find and use the angle sum of any polygon Understand and use parallel line angle rules</p>		
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Maths Skills and Progression

<p>Finding the fraction of an amount</p> <p>Finding the percentage of an amount</p> <p>Finding the percentage of an amount using a calculator</p> <p>Calculations across zero</p> <p>Add and subtract using directed number</p> <p>Multiply and divide using directed number</p> <p>Using a calculator with directed number</p> <p>Using algebraic equations with directed number</p> <p>An introduction to two-step equations</p> <p>Calculating and forming two-step equations</p> <p>Order of operations with directed number</p> <p>Roots of positive numbers</p> <p>Convert between mixed numbers and fractions</p> <p>Add and subtract fractions with the same denominators</p> <p>Understand and use equivalent fractions</p> <p>Add and subtract fractions that share a common multiple</p> <p>Add and subtract fractions with different denominators</p>				
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Maths Skills and Progression

<p>Add and subtract mixed numbers and improper fractions</p> <p>Use fractions in algebraic contexts</p> <p>Use equivalence to add and subtract decimals and fractions</p> <p>Add and subtract algebraic fractions</p> <p>Know and use mental addition and subtraction strategies for integers</p> <p>Known and use mental multiplication and division strategies for integers</p> <p>Know and use mental arithmetic strategies for decimals</p> <p>Know and use mental arithmetic strategies for fractions</p> <p>Use estimation as a method for checking mental calculations</p> <p>Know when to use a mental strategy, formal written method or a calculator</p> <p>Find and use multiples</p> <p>Recognise prime, square and triangular numbers</p>				
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Maths Skills and Progression

<p>Find common factors, common multiples, HCF and LCM Write a number as a product of its prime factors Use a Venn diagram to calculate the HCF and LCM Make and test conjectures</p>				
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Maths Skills and Progression

	Number	Ratio and Scale	Multiplicative change	Algebra	Statistics	Geometry	Measure
Year 8	<p>Children can:</p> <ul style="list-style-type: none"> Find a product of a pair of fractions Divide a fraction by a unit fraction Understand and use the reciprocal Divide any pair of fractions Multiply and divide improper and mixed fractions Multiply and divide algebraic fractions Calculate fractions, decimals and percentages without a calculator Calculate fractions, decimals and percentages with a calculator Convert between decimals and percentages over 100% Calculate percentage increase and decrease using a multiplier 	<p>Children can:</p> <ul style="list-style-type: none"> Understand and use ratio notation Solve problems involving ratios of the form 1 to n or n to 1 Solve problems involving ratios of the form m to n Divide in a given ratio Express ratios in the form 1 to n Compare ratios and fractions 	<p>Children can:</p> <ul style="list-style-type: none"> Solve problems involving direct proportion Explore conversion graphs Convert between currencies Explore direct proportion graphs Understand scale factors as multiplicative representations Draw and interpret scale diagrams 	<p>Children can:</p> <ul style="list-style-type: none"> Work with coordinates in all four quadrants Identify and draw lines that are parallel to the axis Recognise and use the line $y=x$ Recognise and use lines of the form $y=kx$ Link $y=kx$ to direct proportion problems Recognise and use lines of the form $y=x+a$ Explore graphs with negative gradients Link graphs to linear sequences Plot graphs of the form $y=mx+c$ Algebraic expressions Directed number Multiply a single bracket Factorise into a bracket Simplify with brackets Solve equations with brackets 	<p>Children can:</p> <ul style="list-style-type: none"> Draw and interpret scatter graphs Understand and describe linear correlation Draw and use line of best fit Read and interpret grouped and ungrouped frequency tables Represent grouped discrete data Construct and interpret two-way tables Construct sample spaces for one or more events Find probabilities from Venn diagrams and two-way tables Use the product rule for finding the total number of possible outcomes Set up a statistical enquiry Design and criticise questionnaires 	<p>Children can:</p> <ul style="list-style-type: none"> Understand and use basic angle rules and notation Investigate angles between parallel lines and the transversal Identify and calculate with alternate and corresponding angles Identify and calculate with co-interior, alternate and corresponding angles Solve complex problems with parallel line angles Investigate the properties of special quadrilaterals Identify and calculate with sides and angles in special quadrilaterals Understand and use the sum of exterior angles of any polygon Calculate and use the sum of the interior angles in any polygon 	<p>Children can:</p> <ul style="list-style-type: none"> Understand and use the mean, median and mode Choose the appropriate average Find the mean from an ungrouped frequency table Find the mean from a grouped frequency table Identify outliers Compare distributions using averages and the range

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<p>Express one number as a fraction or a percentage of another without a calculator</p> <p>Express one number as a fraction or a percentage of another using calculator methods</p> <p>Work with percentage change</p> <p>Choose appropriate methods to solve percentage problems</p> <p>Find the original amount given the percentage less than 100%</p> <p>Work with numbers greater than 1 in standard form</p> <p>Investigate negative powers of 10</p> <p>Work with numbers between 0 and 1 in standard form</p> <p>Add and subtract numbers in standard form</p> <p>Multiply and divide numbers in standard form</p>			<p>Form Equations</p> <p>Solve Inequalities</p> <p>Form Inequalities</p> <p>Identify an expression, equation, formula or identity</p> <p>Generate a sequence using words</p> <p>Generate a sequence using simple algebra</p> <p>Generate a sequence using complex algebra</p> <p>Add and subtract indices</p> <p>Multiply and divide indices</p> <p>Addition and subtraction indices laws</p>	<p>Draw and interpret pictograms, bar charts and line charts</p> <p>Draw and interpret multiple bar charts</p> <p>Draw and interpret pie charts</p> <p>Draw and interpret line graphs</p> <p>Choose the most appropriate diagram for a set of data</p> <p>Represent and interpret grouped quantitative data</p> <p>Find and interpret the range</p> <p>Compare distributions using charts</p> <p>Identify misleading graphs</p>	<p>Calculate the area of a rectangle, triangle and parallelogram</p> <p>Calculate the area of a trapezium</p> <p>Calculate the area and perimeter of compound shapes</p> <p>Investigate the area of a circle</p> <p>Calculate the area of a circle without a calculator</p> <p>Calculate the area of a circle with a calculator</p> <p>Recognise line symmetry</p> <p>Reflect a shape in a horizontal and vertical line</p> <p>Reflect a shape in a diagonal line</p>	
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Maths Skills and Progression

<p>Use a calculator to work with numbers in standard form Calculate with money Convert metric units of length, weight and capacity Solve problems involving time and the calendar</p>						
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