

## Changes to the Maths Curriculum: Year 5

### At a glance

How does the new curriculum compare to the primary framework for Mathematics (2006)?

What's gone?	What's been added?
<ul style="list-style-type: none"> <li>Detail of problem-solving process and data handling cycle no longer required</li> <li>Calculator skills moved to KS3</li> <li>Probability moves to KS3</li> </ul> <p>Several elements are now expected to be covered in lower KS2, e.g. decimals/fractions knowledge, points in the first quadrant; parallel/perpendicular lines</p>	<ul style="list-style-type: none"> <li>Understand &amp; use decimals to 3dp</li> <li>Solve problems using up to 3dp, and fractions</li> <li>Write %ages as fractions; fractions as decimals</li> <li>Use vocabulary of primes, prime factors, composite numbers, etc.</li> <li>Know prime numbers to 20</li> <li>Understand square and cube numbers</li> <li>Use standard multiplication &amp; division methods for up to 4 digits</li> <li>add and subtract fractions with the same denominator</li> <li>multiply proper fractions and mixed numbers by whole numbers</li> <li>deduce facts based on shape knowledge</li> <li>distinguish regular and irregular polygons</li> <li>calculate the mean average</li> </ul>

### In detail

A direct reference to the former objectives of the primary framework. Where an objective was covered in more than one block, it is only recorded once.

Red indicates no longer required in Y5; purple content has moved to lower KS24; green content is new to Year 5

Use and apply mathematics	
Solve one and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate methods, including calculator use	<p><i>"solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why"; and</i></p> <p><i>"solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign"; and</i></p> <p><i>"solve problems involving number up to three decimal places"; and</i></p> <p><i>"solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{4}{5}</math> and those with a denominator of a multiple of 10 or 25"</i></p>
Represent a problem by identifying and recording the calculations needed to solve it; find possible solutions and confirm them in the context of the problem	Not explicitly mentioned in Programme of Study
Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry	Not explicitly mentioned in Programme of Study
Explore patterns, properties and relationships and propose a general statement involving numbers or shapes; identify examples for which the statement is true or false	Not explicitly mentioned in Programme of Study
Explain reasoning using diagrams, graphs and text	Not explicitly mentioned in Programme of Study

<b>Counting &amp; Number Relationships</b>	
Count from any given number in whole number steps and decimal number steps, extending beyond zero when counting backwards; relate the numbers to their position on a number line	<i>"count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000"</i>
Explain what each digit represents in whole numbers and numbers with up to two decimal places, and partition these numbers	<i>Decimals to 2dp covered in Year 4; Year 5 adds "recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents"; and "read, write, order and compare numbers with up to three decimal places"</i>
Use sequences to scale numbers up or down; solve problems involving proportions of quantities and measurements, e.g. decrease quantities in a recipe designed to feed six people	<i>"scaling by simple fractions and problems involving simple rates"</i>
Express a smaller whole number as a fraction of a larger one; find equivalent fractions, including equivalent improper fractions and mixed numbers;  relate fractions to their decimal representations	<i>Expected in lower KS2 "recognise mixed numbers and improper fractions and convert from one form to the other"; and "identify, name and write equivalent fractions of a given fraction" Becomes "read and write decimal numbers as fractions (e.g. <math>0.71 = 71/100</math>)"</i>
Understand percentage as the number of parts in every 100 and express tenths and hundredths as percentages	<i>"recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator hundred, and as a decimal fraction"</i>
	<i>Adds: "compare and order fractions whose denominators are all multiples of the same number"; and "know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers"; and "establish whether a number up to 100 is prime and recall prime numbers up to 19"</i>

<b>Number Facts</b>	
Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences, doubles and halves of decimals, e.g. $6.5 \pm 2.7$ , halve 5.6, double 0.34	<i>Moves to lower KS2</i>
Recall quickly multiplication facts up to $10 \times 10$ , use to multiply pairs of multiples of 10 and 100 and derive quickly corresponding division facts	<i>Table knowledge expected by Y4 to <math>12 \times 12</math> "multiply and divide numbers mentally drawing upon known facts"</i>
Identify pairs of factors of two-digit whole numbers and find common multiples, e.g. for 6 and 9	<i>"identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers."</i>
Use knowledge of number facts, place value and rounding to estimate and to check calculations	<i>"use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy"; and "round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000"; and "round decimals with two decimal places to the nearest whole number and to one decimal place"</i>
	<i>Adds: "recognise and use square numbers and cube numbers, and the notation for squared (<math>^2</math>) and cubed (<math>^3</math>)"</i>

Calculations	
Multiply mentally $TU \times U$ ; use mental methods in special cases, e.g. to subtract 1995 from 6007, to multiply 18 by 25	<i>"multiply and divide numbers mentally drawing upon known facts"</i>
Use the standard written methods for addition and subtraction of whole numbers and decimals with one or two places	Moves to Year 4
Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000	<i>"multiply and divide whole numbers and those involving decimals by 10, 100 and 1000"</i>
Use the standard written methods for multiplication and division calculations of $HTU \times U$ , $U.t \times U$ , $TU \times TU$ and $HTU \div U$	<i>"multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers"; and</i> <i>"divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context"</i>
Find fractions using division, e.g. $1/100$ of 5 kg, and percentages of numbers and quantities, e.g. 10%, 5% and 15% of £80	Moves to lower KS2; Year 5 adds: <i>"add and subtract fractions with the same denominator and multiples of the same number"; and</i> <i>"multiply proper fractions and mixed numbers by whole numbers"</i>
Use a calculator to solve problems, including those involving decimals or fractions, e.g. to find $3/4$ of 150 g; interpret the display correctly in the context of measurement	Calculator skills are all moved to KS3 Programme of Study
	Adds: <i>"solve problems involving multiplication and division where larger numbers are used by decomposing them into their factors"</i>

Position & Transformation	
Identify, visualise and describe properties of rectangles, triangles, regular polygons and 3-D solids; use knowledge of properties to draw 2-D shapes and identify and draw nets of 3-D shapes	<i>"identify 3-D shapes, including cubes and other cuboids, from 2-D representations"</i>
Read and plot co-ordinates in the first quadrant and recognise parallel and perpendicular lines in grids and shapes; use a set-square and ruler to draw perpendicular and parallel lines	Plotting points moves to Year 4 Parallel & Perpendicular lines moves to Year 3
Complete patterns with up to two lines of symmetry and draw the position of a shape after a reflection or translation	Translation moved to Year 4; Symmetry introduced in Y4; <i>"identify, describe and represent the position of a shape following a reflection or translation"</i>
Estimate, draw and measure acute and obtuse angles using an angle measurer or protractor to a suitable degree of accuracy; calculate angles in a straight line	<i>"know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles";</i> <i>"draw given angles, and measure them in degrees (<math>^{\circ}</math>)" &amp;</i> <i>"identify angles at a point on a straight line and <math>\frac{1}{2}</math> a turn (total <math>180^{\circ}</math>)"</i>

<b>Measure</b>	
Read, use and record standard metric units to estimate and measure length, mass and capacity; convert larger to smaller units using decimals to one place, e.g. change 2.6 kg to 2600 g	<i>"convert between different units of metric measure"</i> ; and <i>"estimate volume and capacity "</i>
Estimate measurements of length, mass and capacity to a required degree of accuracy, e.g. the nearest centimetre; interpret a reading that lies between two unnumbered divisions on a scale	<i>"estimate volume and capacity "</i> <b>Not explicitly mentioned in Programme of Study</b>
Draw and measure lines to the nearest millimetre; measure and calculate the perimeter of regular and irregular polygons; use the formula for the area of a rectangle to calculate its area	<i>"measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres"</i> ; and <i>" calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes"</i> <i>Adds: "use the properties of rectangles to deduce related facts and find missing lengths and angles"; and "distinguish between regular and irregular polygons based on reasoning about equal sides and angles"</i>
Read timetables and time using 24-hour clock notation; use a calendar to calculate time intervals	<b>24-hour clock used in lower KS2</b> <i>"complete, read and interpret information in tables, including timetables"</i> <i>"solve problems involving converting between units of time"</i>

<b>Data handling</b>	
Describe the occurrence of familiar events using the language of chance or likelihood	<b>Probability moves to KS3 Programme of Study</b>
Determine the data needed to answer a set of related questions; select and organise relevant data using frequency tables; construct pictograms and bar graphs, and line graphs that represent the frequencies of events and changes over time; use ICT to present and highlight features that lead to further questions	Narrows to <i>"solve comparison, sum and difference problems using information presented in a line graph"</i> <b>(i.e. removes need for ICT, data process, selecting/organising data, etc.)</b>
Find and interpret the mode of a set of data	<b>Not explicitly mentioned in Programme of Study</b>