

Year 6

Numbers and the number system	Paper numbers
Place value, ordering and rounding Multiply and divide decimals mentally by 10 or 100, and integers by 1000, and explain effect	2,4,6,7,9,11,13,16,19,21,24
Use the vocabulary of estimation and approximation. Consolidate rounding an integer to the nearest 10, 100 or 1000	3,6,7,20,21,23,24
Find the difference between a positive and negative integer, or two negative integers, in a context such as temperature or the number line, and order a set of positive and negative integers.	9
Properties of numbers and number sequences Recognise and extend number sequences, such as the sequence of square numbers, or the sequence of triangular numbers 1, 3, 6, 10, 15...	7,9,12,15,22
Make general statements about odd or even numbers, including the outcome of products.	21
Recognise multiples up to 10 x 10. Know and apply simple tests of divisibility. Find simple common multiples.	
Recognise squares of numbers to at least 12 x 12.	3,7,8,13,20,23
Recognise prime numbers to at least 20. Factorise numbers to 100 into prime factors.	2,5,8,15,16,24
Fractions, decimals, percentages, ratio and proportion Change a fraction such as $\frac{33}{8}$ to the equivalent mixed number $4\frac{1}{8}$, and vice versa. Recognise relationships between fractions: for example, that $\frac{1}{10}$ is ten times $\frac{1}{100}$, and $\frac{1}{16}$ is half of $\frac{1}{8}$. Reduce a fraction in the numerator and denominator.	2,7,13,22 16
Order fractions such as $\frac{2}{3}$, $\frac{3}{4}$ and $\frac{5}{6}$ by converting them to fractions with a common denominator, and position them on a number line.	11,21
Use a fraction as an 'operator' to find fractions, including tenths and hundredths, of numbers or quantities.	13,15,20,21,22,23
Solve simple problems involving ratio and proportion	1,2,3,5,6,8,10,13,14,21,23
Use decimal notation for tenths and hundredths in calculations, and tenths, hundredths and thousandths when recording measurements. Know what each digit represents in a number with up to three decimal places. Give a decimal fraction lying between two others. Order a mixed set of numbers or measurements with up to three decimal places.	4,7,13,17 19,22,24 1,17,18
Round a number with two decimal places to the nearest tenth or to the nearest whole number.	17
Recognise the equivalence between the decimal and fraction forms of one half, one quarter, three quarters, one eighth... and tenths, hundredths and thousandths. Begin to convert a fraction to a decimal using division.	2,10,18,24 23

Understand percentage as the number of parts in every 100. Express simple fractions such as one half, one quarter, three quarters, one third, two thirds..., and tenths and hundredths, as percentages. Find the simple percentages of small whole-number quantities.	3,4,5,6,7,8,10,12,16,17, 18,19,24 13,16,19,20,21,22
Calculations	Paper numbers
Mental calculation strategies (+ and -) Consolidate all strategies from previous year, including; find a difference by counting up; add or subtract the nearest multiple of 10, 100 or 1000, then adjust; use the relationship between addition and subtraction; add several numbers.	1,5,6,15 17
Use known number facts and place value to consolidate mental addition/subtraction.	2,3,4,7,11,13,21,22,24
Pencil and paper procedures (+ and -) Use informal pencil and paper methods to support, record or explain additions and subtractions. Extend written methods to column addition and subtraction of numbers involving decimals.	2,9,13,14
Understanding multiplication and division Understand and use the relationship between the four operations, and the principles (not the names) of the arithmetic laws. Use brackets.	10
Express a quotient as a fraction or as a decimal rounded to one decimal place. Divide £.p by a two-digit number to give £.p. Round up or down after division, depending on the context.	9,11,22
Rapid recall of multiplication and division facts Consolidate knowing by heart: multiplication facts up to 10 x 10.	2,3,14,20,23
Derive quickly: division facts corresponding to tables up to 10 x 10; squares of multiples of 10 to 100; doubles of two-digit numbers; doubles of multiples of 10 to 1000; doubles of multiples of 100 to 10000; and the corresponding halves.	13,19
Mental calculation strategies (x and ÷) Use related facts and doubling or halving. For example: double or halve the most significant digit first; to multiply by 25, multiply by 100 then divide by 4; double one number and halve the other; find the x24 table by doubling the x6 table twice.	14,17
Use factors.	
Use closely related facts: for example, multiply by 49 or 51 by multiplying by 50 and adjusting. Develop the x17 table by adding facts from the x10 and x7 tables.	16
Partition.	20
Use the relationship between multiplication and division.	4,9,10
Use known number facts and place value to consolidate mental multiplication and division.	2,4,24

<p>Pencil and paper procedures (x and ÷) Approximate first. Use informal pencil and paper methods to support, record or explain multiplications and divisions. Extend written methods to: multiplication of ThHTU x U (short multiplication); short multiplication of numbers involving decimals; long multiplication of a three digit by a two digit integer; short division of TU or HTU by U (mixed-number answer); division of HTU by TU (long division, whole-number answer); short division of numbers involving decimals.</p>	2,33 7,14,20,24 2,13,14,20,23
<p>Using a calculator Develop calculator skills and use a calculator effectively.</p>	11,22
<p>Checking results of calculations Check with the inverse operation when using a calculator.</p>	16,18
Check the sum of several numbers by adding in reverse order.	3
Check with an equivalent calculation.	
Estimate by approximating (round to nearest 10, 100 or 1000), then check result.	11
Use knowledge of sums, differences, products of odd/even numbers.	22
Use tests of divisibility.	7
Solving problems	Paper numbers
<p>Making decisions Choose and use appropriate number operations to solve problems, and appropriate ways of calculating: mental, mental with jottings, written methods, calculator.</p>	1,3,6,7,9,11,16,17,18, 19,23
<p>Reasoning and generalising about numbers or shapes Explain methods and reasoning, orally and in writing.</p>	
Solve mathematical problems or puzzles, recognise and explain patterns and relationships, generalise and predict. Suggest extensions asking 'What if...?'	5,9,15
Make and investigate a general statement about familiar numbers or shapes by finding examples that satisfy it. Develop from explaining a generalised relationship in words to expressing it in a formula using letters as symbols.	4,8,12,14,23
<p>Problems involving 'real life', money or measures Identify and use appropriate operations (including combinations of operations) to solve word problems involving numbers and quantities based on 'real life', money or measures (including time), using one or more steps, including converting pounds to foreign currency, or vice versa, and calculating percentages such as VAT. Explain methods and reasoning.</p>	1,4,7,10,11,14,20,21, 22,24
Handling Data	Paper numbers
<p>Handling data Use the language associated with probability to discuss events, including those with equally likely outcomes.</p>	2,4,6
Solve a problem by representing, extracting and interpreting data in tables, graphs, charts and diagrams, including those generated by a computer, for example: line graphs; frequency tables and bar charts with grouped discrete data.	1,3,5,7,8,10,11,12,14,1 5,16,18,21,22,24

Find the mode and range of a set of data. Begin to find the median and mean of a set of data.	1,2,4,5,7,10,11,12,15,18,19,22
Measures, shape and space	Paper numbers
Measures Use, read and write standard metric units (km, m, cm, mm, kg, g, l, ml, cl), including their abbreviations, and relationships between them. Convert smaller to larger units and vice versa. Know imperial units (mile, pint, gallon, lb, oz). Know rough equivalents of lb and kg, oz and g, miles and km, litres and pints or gallons.	5,8,10,20,21 2,7,17
Suggest suitable units and measuring equipment to estimate or measure length, mass or capacity. Record estimates and readings from scales to a suitable degree of accuracy.	15
Calculate the perimeter and area of simple compound shapes that can be split into rectangles.	1,3,5,7,16,24
Appreciate different times around the world.	2,18
Shape and space Describe and visualise properties of solid shapes such as parallel or perpendicular faces or edges. Classify quadrilaterals, using criteria such as parallel sides, equal angles, equal sides...	8,10,19 9,17
Make shapes with increasing accuracy. Visualise 3-D shapes from 2-D drawings and identify different nets for a closed cube.	17
Recognise where a shape will be after reflection: in a mirror line touching the shape at a point (sides of shape not necessarily parallel or perpendicular to the mirror line); in two mirror lines at right angles (sides of shape all parallel or perpendicular to the mirror line). Recognise where a shape will be after two translations.	7,13 20
Read and plot co-ordinates in all four quadrants.	1,10,11,15,20
Recognise and estimate angles. Use a protractor to measure and draw acute and obtuse angles to the nearest degree. Check that the sum of the angles of a triangle is 180°: for example, by measuring or paper folding. Calculate angles in a triangle or around a point. Recognise where a shape will be after a rotation through 90° about one of its vertices.	1,7,9,14 20 6