Key constructs for Year 1

Pupils are developing fluency, reasoning skills and their ability to solve problems through the following mathematical content:

1. Counting to and across 100, forwards and backwards, beginning with zero or one, or from any given number
2. Counting, reading and writing numbers to 100 in numerals and numbers one to 20 in numerals and words; counting in multiples of two, five and ten
3. Given a number within 100, identifying one more and one less
4. Representing and using number bonds and related subtraction facts within 20
5. Solving one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and solving missing-number problems
6. Solving problems that involve grouping and sharing, including halving and doubling
7. Comparing, describing and solving practical problems for length and height, mass or weight, and capacity and volume
8. Comparing, describing and solving practical problems for time and telling the time to the hour and half past the hour; drawing the hands on a clock face to show these times
9. Recognising and naming common 2-D shapes, including rectangles (including squares), circles and triangles
10. Recognising and naming common 3-D shapes, including cuboids (including cubes), pyramids and spheres.

Key Constructs for Year 2

Pupils are developing fluency, reasoning skills and their ability to solve problems through the mathematical content listed below.

1. Compare and order numbers from zero up to 100 using the <, > and = signs
2. Recognise the place value of each digit in a two-digit number
3. Count in steps of two, three and five from zero, and in tens from any number, forward and backward
4. Recall and use addition and subtraction facts to 20 fluently, deriving and using related facts to 100
5. Solve problem with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers quantities and measures including money (and giving change)
6. Recall and use multiplication and division facts for the two, five and ten multiplication tables, including recognising odd and even numbers
7. Solves problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts
8. Recognise, find, name and write fractions , , and of a length, shape, set of objects or quantity
9. Solve simple problems in a practical context involving addition and subtraction of mass, capacity and length
10. Compare and sort common 2-D and 3-D shapes and everyday objects and order and arrange combinations in patterns and sequences
11. Use mathematical vocabulary to describe position, direction and movement including movement in a straight line, and distinguish between rotation as a turn and in terms of right angles for quarter, half and three quarter turns (clockwise and anti-clockwise)
12. Ask and answer questions about totalling and comparing categorical data
13. Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times

Key Constructs for Year 3

Pupils are developing fluency, reasoning skills and their ability to solve problems through the following mathematical content:

1. Counting from zero in multiples of four, eight, 50 and 100
2. Recognising the place value of each digit in a three-digit number (hundreds, tens and ones) and finding 100 more or less than a given number
3. Using place value and number facts to solve number problems and practical problems
4. Adding and subtracting numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds
5. Applying addition and subtraction to numbers with up to three digits using the columnar addition method
6. Solving scaling and correspondence problems for multiplication and division using the multiplication tables that are known, including problems that involve multiplying a two-digit number by a one-digit number
7. Recognising, finding and writing fractions of a discrete set of objects, including unit fractions and non-unit fractions with small denominators
8. Measuring, comparing, adding and subtracting: lengths (m, cm, mm); mass (kg, g); volume or capacity (l, ml)
9. Telling and writing the time from an analogue clock and in 12-hour format, and comparing durations of events
10. Identifying right angles; recognising that two right angles make a half-turn, three right angles make three quarters of a turn and four right angles a complete turn; identifying whether angles are greater than or less than a right angle
11. Interpreting and presenting data using bar charts, pictograms and tables.

Key Constructs for Year 4

Pupils are developing fluency, reasoning skills and their ability to solve problems through the mathematical content listed below.

1. Count in multiples of six, seven, nine, 25 and 1000
2. Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones) and find 1000 more or less than a given number
3. Round any number to the nearest ten, hundred or thousand
4. Solve addition and subtraction two-step problems in contexts, including measures and money, deciding which operations and methods to use and why including columnar addition and subtraction where appropriate
5. Solve multiplication and division problems using recall of the multiplication tables up to 12 × 12 including integer scaling and correspondence problems
6. Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit and record using formal written layout where appropriate
7. Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
8. Recognise equivalent fractions and write decimal equivalents to and any number of tenths or hundredths including in the context of simple measure and money problems
9. Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
10. Read, write and convert time between analogue and digital 12- and 24-hour clocks
11. Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days
12. Identify lines of symmetry in 2-D shapes presented in different orientations
13. Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs
14. Interpreting and presenting data using bar charts, pictograms and tables.

Key Constructs for Year 5

Pupils are developing fluency, reasoning skills and their ability to solve problems through the mathematical content listed below.

1. Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit; including counting forwards and backwards in steps of powers of 10.
2. Use and interpret negative numbers in context, and calculate intervals across zero.
3. Add and subtract whole numbers with more than 4 digits flexibly.
4. 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.
5. Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.
6. Compare and order fractions, including mixed number and improper fractions whose denominators are all multiples of the same number.
7. Solve problems involving numbers up to 3 decimal places including reading, writing, ordering and comparing numbers.
8. Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation, including scaling.
9. Convert between different units of measure (e.g. kilometre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).
10. Calculate and compare the areas of rectangles, including standard units of square cm and square m, and estimate the area of irregular shapes.
11. Know angles are measured in degrees and estimate, compare, draw and measure acute, obtuse and reflex angles.
12. Identify angles at a point and one whole turn (total 360°); angles at a point on a on a straight line and half a turn (total 180°); other multiples of 90°.
13. Identify, describe and represent coordinates in the first quadrant.
14. Complete, read and interpret information in tables, including timetables.

Key Constructs for Year 6

Pupils are developing fluency, reasoning skills and their ability to solve problems through the mathematical content listed below.

1. Round any whole number to a required degree of accuracy.
2. Decide which methods to use when solving multi-step problems involving addition, subtraction, multiplication and division, using estimation to check answers.
3. Divide numbers up to 4 digits by a one- or two-digit whole number using the appropriate formal written methods of short and long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate.
4. Identify common factors, common multiples and prime numbers.
5. Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
6. Multiply simple pairs of proper fractions and divide a proper fraction by a whole number, writing answers in their simplest form.
7. Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
8. Solve problems involving the calculation of percentages (for example, of measures, and such as 15% of 360) and the use of percentages for comparison.
9. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
10. Understand and use algebraic notation to solve simple problems.
11. Use, read and write 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 three decimal places.
12. Choose and use the appropriate formula for finding the area of 2-D shapes, including parallelograms and triangles.
13. Compare and classify geometric shapes based on their properties and sizes and find unknown angles in triangles, quadrilaterals and regular polygons.
14. Draw 2-D shapes using given dimensions and angles.
15. Draw and translate simple shapes on the coordinate plane, in all four quadrants, and reflect them in the axes.