Cambridge Primary
Mathematics Curriculum Framework
(with codes)
Welcome to the Cambridge Primary Mathematics curriculum framework.

This framework provides a comprehensive set of progressive learning objectives for mathematics. The objectives detail what the learner should know or what they should be able to do in each year of primary education. The learning objectives provide a structure for teaching and learning and a reference against which learners’ ability and understanding can be checked.

The Cambridge Primary Mathematics curriculum is presented in five content areas: Number, Geometry, Measure, Handling data and Problem solving. The first four content areas are all underpinned by Problem solving, which describes using techniques and skills and the application of understanding and strategies in solving problems. Mental strategies are also a key part of the Number content. This curriculum focuses on principles, patterns, systems, functions and relationships so that learners can apply their mathematical knowledge and develop a holistic understanding of the subject. The Cambridge Primary Mathematics curriculum framework provides a solid foundation upon which the later stages of education can be built.

The Cambridge Curriculum is founded on the values of the University of Cambridge and best practice in schools. The curriculum is dedicated to developing learners who are confident, responsible, innovative and engaged. Each curriculum framework for English, mathematics and science is designed to engage learners in an active and creative learning journey.
Stage 1

Number

Numbers and the number system

- **1Nn1** Recite numbers in order (forwards from 1 to 100, backwards from 20 to 0).
- **1Nn2** Read and write numerals from 0 to 20.
- **1Nn3** Count objects up to 20, recognising conservation of number.
- **1Nn4** Count on in tens from zero or a single-digit number to 100 or just over.
- **1Nn5** Count on in twos, beginning to recognise odd/even numbers to 20 as ‘every other number’.
- **1Nn6** Begin partitioning two-digit numbers into tens and ones and reverse.
- **1Nn7** Within the range 0 to 30, say the number that is 1 or 10 more or less than any given number.
- **1Nn8** Use more or less to compare two numbers, and give a number which lies between them.
- **1Nn9** Order numbers to at least 20 positioning on a number track; use ordinal numbers.
- **1Nn10** Use the = sign to represent equality.
- **1Nn11** Give a sensible estimate of some objects that can be checked by counting, e.g. to 30.
- **1Nn12** Find halves of small numbers and shapes by folding, and recognise which shapes are halved.

Calculation

Mental strategies

- **1Nc1** Know all number pairs to 10 and record the related addition/subtraction facts.
- **1Nc2** Begin to know number pairs to 6, 7, 8, 9 and 10.
- **1Nc3** Add more than two small numbers, spotting pairs to 10, e.g. 4 + 3 + 6 = 10 + 3.
- **1Nc4** Begin using pairs to 10 to bridge 10 when adding/subtracting, e.g. 8 + 3, add 2, then 1.
- **1Nc5** Know doubles to at least double 5.
- **1Nc6** Find near doubles using doubles already known, e.g. 5 + 6.
- **1Nc7** Begin to recognise multiples of 2 and 10.
Stage 1

**Number (continued)**

**Calculation (continued)**

**Addition and subtraction**

- **1Nc8** Understand addition as counting on and combining two sets; record related addition sentences.
- **1Nc9** Understand subtraction as counting back and ‘take away’; record related subtraction sentences.
- **1Nc10** Understand difference as ‘how many more to make?’
- **1Nc11** Add/subtract a single-digit number by counting on/back.
- **1Nc12** Find two more or less than a number to 20, recording the jumps on a number line.
- **1Nc13** Relate counting on and back in tens to finding 10 more/less than a number (< 100).
- **1Nc14** Begin to use the +, – and = signs to record calculations in number sentences.
- **1Nc15** Understand that changing the order of addition does not change the total.
- **1Nc16** Add a pair of numbers by putting the larger number first and counting on.
- **1Nc17** Recognise the use of a sign such as $\square$ to represent an unknown, e.g. $6 + \square = 10$.
- **1Nc18** Begin to add single- and two-digit numbers.

**Multiplication and division**

- **1Nc19** Double any single-digit number.
- **1Nc20** Find halves of even numbers of objects up to 10.
- **1Nc21** Try to share numbers to 10 to find which are even and which are odd.
- **1Nc22** Share objects into two equal groups in a context.

**Geometry**

**Shapes and geometric reasoning**

- **1Gs1** Name and sort common 2D shapes (e.g. circles, squares, rectangles and triangles) using features such as number of sides, curved or straight. Use them to make patterns and models.
- **1Gs2** Name and sort common 3D shapes (e.g. cube, cuboid, cylinder, cone and sphere) using features such as number of faces, flat or curved faces. Use them to make patterns and models.
- **1Gs3** Recognise basic line symmetry.

**Position and movement**

- **1Gp1** Use everyday language of direction and distance to describe movement of objects.
**Measure**

**Money**
- **1Mm1** Recognise all coins and work out how to pay an exact sum using smaller coins.

**Length, mass and capacity**
- **1MI1** Compare lengths and weights by direct comparison, then by using uniform non-standard units.
- **1MI2** Estimate and compare capacities by direct comparison, then by using uniform non-standard units.
- **1MI3** Use comparative language, e.g. longer, shorter, heavier, lighter.

**Time**
- **1Mt1** Begin to understand and use some units of time, e.g. minutes, hours, days, weeks, months and years.
- **1Mt2** Read the time to the hour (o’clock) and know key times of day to the nearest hour.
- **1Mt3** Order the days of the week and other familiar events.

**Handling data**

**Organising, categorising and representing data**
- **1Dh1** Answer a question by sorting and organising data or objects in a variety of ways, e.g.
  - using block graphs and pictograms with practical resources; discussing the results
  - in lists and tables with practical resources; discussing the results
  - in Venn or Carroll diagrams giving different criteria for grouping the same objects
## Problem solving

**Using techniques and skills in solving mathematical problems**

- **1Pt1** Choose appropriate strategies to carry out calculations, explaining working out.
- **1Pt2** Explore number problems and puzzles.
- **1Pt3** Find many combinations, e.g. combinations of three pieces of different coloured clothing.
- **1Pt4** Decide to add or subtract to solve a simple word problem (oral), and represent it with objects.
- **1Pt5** Check the answer to an addition by adding the numbers in a different order.
- **1Pt6** Check the answer to a subtraction by adding the answer to the smaller number in the question.
- **1Pt7** Describe and continue patterns such as count on and back in tens, e.g. 90, 80, 70.
- **1Pt8** Identify simple relationships between numbers and shapes, e.g. this number is ten bigger than that number.
- **1Pt9** Make a sensible estimate of a calculation, and consider whether an answer is reasonable.
Stage 2

Number

Numbers and the number system

- 2Nn1 Count, read and write numbers to at least 100 and back again.
- 2Nn2 Count up to 100 objects, e.g. beads on a bead bar.
- 2Nn3 Count on in ones and tens from single- and two-digit numbers and back again.
- 2Nn4 Count in twos, fives and tens, and use grouping in twos, fives or tens to count larger groups of objects.
- 2Nn5 Begin to count on in small constant steps such as threes and fours.
- 2Nn6 Know what each digit represents in two-digit numbers; partition into tens and ones.
- 2Nn7 Find 1 or 10 more/less than any two-digit number.
- 2Nn8 Round two-digit numbers to the nearest multiple of 10.
- 2Nn9 Say a number between any given neighbouring pairs of multiples of 10, e.g. 40 and 50.
- 2Nn10 Place a two-digit number on a number line marked off in multiples of ten.
- 2Nn11 Recognise and use ordinal numbers up to at least the 10th number and beyond.
- 2Nn12 Order numbers to 100; compare two numbers using the > and < signs.
- 2Nn13 Give a sensible estimate of up to 100 objects, e.g. choosing from 10, 20, 50 or 100.
- 2Nn14 Understand even and odd numbers and recognise these up to at least 20.
- 2Nn15 Sort numbers, e.g. odd/even, multiples of 2, 5 and 10.
- 2Nn16 Recognise that we write one half \(\frac{1}{2}\), one quarter \(\frac{1}{4}\) and three quarters \(\frac{3}{4}\).
- 2Nn17 Recognise that \(\frac{1}{4}\) or \(\frac{1}{2}\) make a whole and \(\frac{1}{2}\) and \(\frac{1}{4}\) are equivalent.
- 2Nn18 Recognise which shapes are divided in halves or quarters and which are not.
- 2Nn19 Find halves and quarters of shapes and small numbers of objects.

Calculation

Mental strategies

- 2Nc1 Find and learn by heart all number pairs to 10 and pairs with a total of 20.
- 2Nc2 Partition all numbers to 20 into pairs and record the related addition and subtraction facts.
- 2Nc3 Find all pairs of multiples of 10 with a total of 100 and record the related addition and subtraction facts.
- 2Nc4 Learn and recognise multiples of 2, 5 and 10 and derive the related division facts.
- 2Nc5 Find and learn doubles for all numbers up to 10 and also 15, 20, 25 and 50.
Stage 2

Number (continued)

Calculation (continued)

Addition and subtraction

- **2Nc6** Relate counting on/back in tens to finding 10 more/less than any two-digit number and then to adding and subtracting other multiples of 10, e.g. 75 – 30.
- **2Nc7** Use the = sign to represent equality, e.g. 16 + 4 = 17 + 3.
- **2Nc8** Add four or five small numbers together.
- **2Nc9** Recognise the use of a symbol such as □ or Δ to represent an unknown, e.g. Δ + □ = 10.
- **2Nc10** Solve number sentences such as 27 + □ = 30.
- **2Nc11** Add and subtract a single digit to and from a two-digit number.
- **2Nc12** Add pairs of two-digit numbers.
- **2Nc13** Find a small difference between pairs of two-digit numbers.
- **2Nc14** Understand that addition can be done in any order, but subtraction cannot.
- **2Nc15** Understand subtraction as both difference and take away.

Multiplication and division

- **2Nc16** Understand multiplication as repeated addition and use the × sign.
- **2Nc17** Understand multiplication as describing an array.

- **2Nc18** Understand division as grouping and use the ÷ sign.
- **2Nc19** Use counting in twos, fives or tens to solve practical problems involving repeated addition.
- **2Nc20** Find doubles of multiples of 5 up to double 50 and corresponding halves.
- **2Nc21** Double two-digit numbers.
- **2Nc22** Work out multiplication and division facts for the 3x and 4x tables.
- **2Nc23** Understand that division can leave some left over.

Geometry

Shapes and geometric reasoning

- **2Gs1** Sort, name, describe, visualise and draw 2D shapes (e.g. squares, rectangles, circles, regular and irregular pentagons and hexagons) referring to their properties; recognise common 2D shapes in different positions and orientations.
- **2Gs2** Sort, name, describe and make 3D shapes (e.g. cubes, cuboids, cones, cylinders, spheres and pyramids) referring to their properties; recognise 2D drawings of 3D shapes.
- **2Gs3** Identify reflective symmetry in patterns and 2D shapes; draw lines of symmetry.
- **2Gs4** Find examples of 2D and 3D shape and symmetry in the environment.
Geometry (continued)

Position and movement
- 2Gp1 Follow and give instructions involving position, direction and movement.
- 2Gp2 Recognise whole, half and quarter turns, both clockwise and anti-clockwise.
- 2Gp3 Recognise that a right angle is a quarter turn.

Measure

Money
- 2Mm1 Recognise all coins and notes.
- 2Mm2 Use money notation.
- 2Mm3 Find totals and the coins and notes required to pay a given amount; work out change.

Length, mass and capacity
- 2Ml1 Estimate, measure and compare lengths, weights and capacities, choosing and using suitable uniform non-standard and standard units and appropriate measuring instruments.
- 2Ml2 Compare lengths, weights and capacities using the standard units: centimetre, metre, 100 g, kilogram, and litre.

Time
- 2Mt1 Know the units of time (seconds, minutes, hours, days, weeks, months and years).
- 2Mt2 Know the relationships between consecutive units of time.
- 2Mt3 Read the time to the half hour on digital and analogue clocks.
- 2Mt4 Measure activities using seconds and minutes.
- 2Mt5 Know and order the days of the week and the months of the year.

Handling data

Organising, categorising and representing data
- 2Dh1 Answer a question by collecting and recording data in lists and tables, and representing it as block graphs and pictograms to show results.
- 2Dh2 Use Carroll and Venn diagrams to sort numbers or objects using one criterion; begin to sort numbers and objects using two criteria; explain choices using appropriate language, including ‘not’.
Problem solving

Using techniques and skills in solving mathematical problems

- **2Pt1** Choose appropriate mental strategies to carry out calculations and explain how they worked out the answer.
- **2Pt2** Explain methods and reasoning orally.
- **2Pt3** Explore number problems and puzzles.
- **2Pt4** Make sense of simple word problems (single and easy two-step), decide what operations (addition or subtraction, simple multiplication or division) are needed to solve them and, with help, represent them, with objects or drawings or on a number line.
- **2Pt5** Make up a number story to go with a calculation, including in the context of money.
- **2Pt6** Check the answer to an addition by adding the numbers in a different order or by using a different strategy, e.g. 35 + 19 by adding 20 to 35 and subtracting 1, and by adding 30 + 10 and 5 + 9.
- **2Pt7** Check a subtraction by adding the answer to the smaller number in the original subtraction.
- **2Pt8** Describe and continue patterns which count on in twos, threes, fours or fives to 30 or more.
- **2Pt9** Identify simple relationships between numbers and shapes, e.g. this number is double ...; these shapes all have ... sides.
- **2Pt10** Make a sensible estimate for the answer to a calculation.
- **2Pt11** Consider whether an answer is reasonable.
Stage 3

N Number

Nn Numbers and the number system

- **3Nn1** Recite numbers 100 to 200 and beyond.
- **3Nn2** Read and write numbers to at least 1000.
- **3Nn3** Count on and back in ones, tens and hundreds from two- and three-digit numbers.
- **3Nn4** Count on and back in steps of 2, 3, 4 and 5 to at least 50.
- **3Nn5** Understand what each digit represents in three-digit numbers and partition into hundreds, tens and units.
- **3Nn6** Find 1, 10, 100 more/less than two- and three-digit numbers.
- **3Nn7** Multiply two-digit numbers by 10 and understand the effect.
- **3Nn8** Round two-digit numbers to the nearest 10 and round three-digit numbers to the nearest 100.
- **3Nn9** Place a three-digit number on a number line marked off in multiples of 100.
- **3Nn10** Place a three-digit number on a number line marked off in multiples of 10.
- **3Nn11** Compare three-digit numbers, use < and > signs, and find a number in between.
- **3Nn12** Order two- and three-digit numbers.

- **3Nn13** Give a sensible estimate of a number as a range (e.g. 30 to 50) by grouping in tens.
- **3Nn14** Find half of odd and even numbers to 40, using notation such as $\frac{1}{2}$.
- **3Nn15** Understand and use fraction notation recognising that fractions are several parts of one whole, e.g. $\frac{3}{4}$ is three quarters and $\frac{2}{3}$ is two thirds.
- **3Nn16** Recognise equivalence between $\frac{1}{2}$, $\frac{2}{4}$, $\frac{4}{8}$ and $\frac{5}{10}$ using diagrams.
- **3Nn17** Recognise simple mixed fractions, e.g. $1\frac{1}{2}$ and $2\frac{1}{4}$.
- **3Nn18** Order simple or mixed fractions on a number line, e.g. using the knowledge that $\frac{1}{2}$ comes half way between $\frac{1}{4}$ and $\frac{3}{4}$, and that $1\frac{1}{2}$ comes half way between 1 and 2.
- **3Nn19** Begin to relate finding fractions to division.
- **3Nn20** Find halves, thirds, quarters and tenths of shapes and numbers (whole number answers).
N Number (continued)

Nc Calculation

Mental strategies

- 3Nc1 Know addition and subtraction facts for all numbers to 20.
- 3Nc2 Know the following addition and subtraction facts:
  - multiples of 100 with a total of 1000
  - multiples of 5 with a total of 100
- 3Nc3 Know multiplication/division facts for 2×, 3×, 5×, and 10× tables.
- 3Nc4 Begin to know 4× table.
- 3Nc5 Recognise two- and three-digit multiples of 2, 5 and 10.
- 3Nc6 Work out quickly the doubles of numbers 1 to 20 and derive the related halves.
- 3Nc7 Work out quickly the doubles of multiples of 5 (< 100) and derive the related halves.
- 3Nc8 Work out quickly the doubles of multiples of 50 to 500.

Addition and subtraction

- 3Nc9 Add and subtract 10 and multiples of 10 to and from two- and three-digit numbers.
- 3Nc10 Add 100 and multiples of 100 to three-digit numbers.
- 3Nc11 Use the = sign to represent equality, e.g. 75 + 25 = 95 + 5.
- 3Nc12 Add several small numbers.

- 3Nc13 Find complements to 100, solving number equations such as 78 + □ = 100.
- 3Nc14 Add and subtract pairs of two-digit numbers.
- 3Nc15 Add three-digit and two-digit numbers using notes to support.
- 3Nc16 Re-order an addition to help with the calculation, e.g. 41 + 54, by adding 40 to 54, then 1.
- 3Nc17 Add/subtract single-digit numbers to/from three-digit numbers.
- 3Nc18 Find 20, 30, … 90, 100, 200, 300 more/less than three-digit numbers.

Multiplication and division

- 3Nc19 Understand the relationship between halving and doubling.
- 3Nc20 Understand the effect of multiplying two-digit numbers by 10.
- 3Nc21 Multiply single-digit numbers and divide two-digit numbers by 2, 3, 4, 5, 6, 9 and 10.
- 3Nc22 Multiply teens numbers by 3 and 5.
- 3Nc23 Begin to divide two-digit numbers just beyond 10× tables, e.g. 60 ÷ 5, 33 ÷ 3.
- 3Nc24 Understand that division can leave a remainder (initially as ‘some left over’).
- 3Nc25 Understand and apply the idea that multiplication is commutative.
- 3Nc26 Understand the relationship between multiplication and division and write connected facts.
Stage 3

G  Geometry
Gs Shapes and geometric reasoning
• 3Gs1 Identify, describe and draw regular and irregular 2D shapes including pentagons, hexagons, octagons and semi-circles.
• 3Gs2 Classify 2D shapes according to the number of sides, vertices and right angles.
• 3Gs3 Identify, describe and make 3D shapes including pyramids and prisms; investigate which nets will make a cube.
• 3Gs4 Classify 3D shapes according to the number and shape of faces, number of vertices and edges.
• 3Gs5 Draw and complete 2D shapes with reflective symmetry and draw reflections of shapes (mirror line along one side).
• 3Gs6 Relate 2D shapes and 3D solids to drawings of them.
• 3Gs7 Identify 2D and 3D shapes, lines of symmetry and right angles in the environment.
• 3Gs8 Identify right angles in 2D shapes.
Gp Position and movement
• 3Gp1 Use the language of position, direction and movement, including clockwise and anti-clockwise.
• 3Gp2 Find and describe the position of a square on a grid of squares where the rows and columns are labelled.
• 3Gp3 Use a set square to draw right angles.
• 3Gp4 Compare angles with a right angle and recognise that a straight line is equivalent to two right angles.

G  Measure
Gm Money
3Gm1 • 3Mm1 Consolidate using money notation.
3Gm2 • 3Mm2 Use addition and subtraction facts with a total of 100 to find change.
Gl Length, mass and capacity
3Gl1 • 3Ml1 Choose and use appropriate units and equipment to estimate, measure and record measurements.
3Gl2 • 3Ml2 Know the relationship between kilometres and metres, metres and centimetres, kilograms and grams, litres and millilitres.
3Gl3 • 3Ml3 Read to the nearest division or half division, use scales that are numbered or partially numbered.
3Gl4 • 3Ml4 Use a ruler to draw and measure lines to the nearest centimetre.
3Gl5 • 3Ml5 Solve word problems involving measures.
G  Measure (continued)

Gt  Time

3Gt1  • 3Mt1 Suggest and use suitable units to measure time and know the relationships between them (second, minute, hour, day, week, month, year).

3Gt2  • 3Mt2 Read the time on analogue and digital clocks, to the nearest 5 minutes on an analogue clock and to the nearest minute on a digital clock.

3Gt3  • 3Mt3 Begin to calculate simple time intervals in hours and minutes.

3Gt4  • 3Mt4 Read a calendar and calculate time intervals in weeks or days.

D  Handling data

Dh  Organising, categorising and representing data

• 3Dh1 Answer a real-life question by collecting, organising and interpreting data, e.g. investigating the population of mini-beasts in different environments.

• 3Dh2 Use tally charts, frequency tables, pictograms (symbol representing one or two units) and bar charts (intervals labelled in ones or twos).

• 3Dh3 Use Venn or Carroll diagrams to sort data and objects using two criteria.

Problem solving

Using techniques and skills in solving mathematical problems

• 3Pt1 Choose appropriate mental strategies to carry out calculations.

• 3Pt2 Begin to understand everyday systems of measurement in length, weight, capacity and time and use these to make measurements as appropriate.

• 3Pt3 Make sense of and solve word problems, single (all four operations) and two-step (addition and subtraction), and begin to represent them, e.g. with drawings or on a number line.

• 3Pt4 Check the results of adding two numbers using subtraction, and several numbers by adding in a different order.

• 3Pt5 Check subtraction by adding the answer to the smaller number in the original calculation.

• 3Pt6 Check multiplication by reversing the order, e.g. checking that $6 \times 4 = 24$ by doing $4 \times 6$.

• 3Pt7 Check a division using multiplication, e.g. check $12 \div 4 = 3$ by doing $4 \times 3$.

• 3Pt8 Recognise the relationships between different 2D shapes.

• 3Pt9 Identify the differences and similarities between different 3D shapes.

• 3Pt10 Estimate and approximate when calculating, and check working.

• 3Pt11 Make a sensible estimate for the answer to a calculation, e.g. using rounding.

• 3Pt12 Consider whether an answer is reasonable.
Problem solving (continued)

Using understanding and strategies in solving problems

- **3Ps1** Make up a number story to go with a calculation, including in the context of money.
- **3Ps2** Explain a choice of calculation strategy and show how the answer was worked out.
- **3Ps3** Explore and solve number problems and puzzles, e.g. logic problems.
- **3Ps4** Use ordered lists and tables to help to solve problems systematically.
- **3Ps5** Describe and continue patterns which count on or back in steps of 2, 3, 4, 5, 10, or 100.
- **3Ps6** Identify simple relationships between numbers, e.g. each number is three more than the number before it.
- **3Ps7** Identify simple relationships between shapes, e.g. these shapes all have the same number of lines of symmetry.
- **3Ps8** Investigate a simple general statement by finding examples which do or do not satisfy it, e.g. when adding 10 to a number, the first digit remains the same.
- **3Ps9** Explain methods and reasoning orally, including initial thoughts about possible answers to a problem.
N Number

Nn Numbers and the number system

• 4Nn1 Read and write numbers up to 10,000.
• 4Nn2 Count on and back in ones, tens, hundreds and thousands from four-digit numbers.
• 4Nn3 Understand what each digit represents in a three- or four-digit number and partition into thousands, hundreds, tens and units.
• 4Nn4 Use decimal notation and place value for tenths and hundredths in context, e.g. order amounts of money; convert a sum of money such as $13.25 to cents, or a length such as 125 cm to metres; round a sum of money to the nearest pound.
• 4Nn5 Understand decimal notation for tenths and hundredths in context, e.g. length.
• 4Nn6 Find multiples of 10, 100, 1000 more/less than numbers of up to four digits, e.g. 3407 + 20 = 3427.
• 4Nn7 Multiply and divide three-digit numbers by 10 (whole number answers) and understand the effect; begin to multiply numbers by 100 and perform related divisions.
• 4Nn8 Recognise multiples of 5, 10 and 100 up to 1000.
• 4Nn9 Round three- and four-digit numbers to the nearest 10 or 100.
• 4Nn10 Position accurately numbers up to 1000 on an empty number line or line marked off in multiples of 10 or 100.
• 4Nn11 Estimate where three- and four-digit numbers lie on empty 0–1000 or 0–10,000 lines.

• 4Nn12 Compare pairs of three-digit or four-digit numbers, using the > and < signs, and find a number in between each pair.
• 4Nn13 Use negative numbers in context, e.g. temperature.
• 4Nn14 Recognise and extend number sequences formed by counting in steps of constant size, extending beyond zero when counting back.
• 4Nn15 Recognise odd and even numbers.
• 4Nn16 Make general statements about the sums and differences of odd and even numbers.
• 4Nn17 Order and compare two or more fractions with the same denominator (halves, quarters, thirds, fifths, eighths or tenths).
• 4Nn18 Recognise the equivalence between: \( \frac{1}{2}, \frac{3}{6}; \frac{1}{4} \) and \( \frac{2}{8}; \frac{1}{5} \) and \( \frac{2}{10} \).
• 4Nn19 Use equivalence to help order fractions, e.g. \( \frac{7}{10} \) and \( \frac{3}{4} \).
• 4Nn20 Understand the equivalence between one-place decimals and fractions in tenths.
• 4Nn21 Understand that \( \frac{1}{2} \) is equivalent to 0.5 and also to \( \frac{5}{10} \).
• 4Nn22 Recognise the equivalence between the decimal fraction and vulgar fraction forms of halves, quarters, tenths and hundredths.
• 4Nn23 Recognise mixed numbers, e.g. \( 5 \frac{3}{4} \), and order these on a number line.
• 4Nn24 Relate finding fractions to division.
• 4Nn25 Find halves, quarters, thirds, fifths, eighths and tenths of shapes and numbers.
Stage 4

N Number (continued)

Nc Calculation

Mental strategies

- **4Nc1** Derive quickly pairs of two-digit numbers with a total of 100, e.g. 72 + □ = 100.
- **4Nc2** Derive quickly pairs of multiples of 50 with a total of 1000, e.g. 850 + □ = 1000.
- **4Nc3** Identify simple fractions with a total of 1, e.g. $\frac{1}{4} + \frac{3}{4} = 1$.
- **4Nc4** Know multiplication for 2×, 3×, 4×, 5×, 6×, 9× and 10× tables and derive division facts.
- **4Nc5** Recognise and begin to know multiples of 2, 3, 4, 5 and 10, up to the tenth multiple.
- **4Nc6** Add three or four small numbers, finding pairs that equal 10 or 20.
- **4Nc7** Add three two-digit multiples of 10, e.g. 40 + 70 + 50.
- **4Nc8** Add and subtract near multiples of 10 or 100 to or from three-digit numbers, e.g. 367 – 198 or 278 + 49.
- **4Nc9** Add any pair of two-digit numbers, choosing an appropriate strategy.
- **4Nc10** Subtract any pair of two-digit numbers, choosing an appropriate strategy.
- **4Nc11** Find a difference between near multiples of 100, e.g. 304 – 296.
- **4Nc12** Subtract a small number crossing 100, e.g. 304 – 8.
- **4Nc13** Multiply any pair of single-digit numbers together.

- **4Nc14** Use knowledge of commutativity to find the easier way to multiply.
- **4Nc15** Understand the effect of multiplying and dividing three-digit numbers by 10.
- **4Nc16** Derive quickly doubles of all whole numbers to 50, doubles of multiples of 10 to 500, doubles of multiples of 100 to 5000, and corresponding halves.

Addition and subtraction

- **4Nc17** Add pairs of three-digit numbers.
- **4Nc18** Subtract a two-digit number from a three-digit number.
- **4Nc19** Subtract pairs of three-digit numbers.

Multiplication and division

- **4Nc20** Double any two-digit number.
- **4Nc21** Multiply multiples of 10 to 90 by a single-digit number.
- **4Nc22** Multiply a two-digit number by a single-digit number.
- **4Nc23** Divide two-digit numbers by single digit-numbers (answers no greater than 20).
- **4Nc24** Decide whether to round up or down after division to give an answer to a problem.
- **4Nc25** Understand that multiplication and division are the inverse function of each other.
- **4Nc26** Begin to understand simple ideas of ratio and proportion, e.g. a picture is one fifth the size of the real dog. It is 25 cm long in the picture, so it is 5 × 25 cm long in real life.
G  Geometry

Gs  Shapes and geometric reasoning

- **4Gs1** Identify, describe, visualise, draw and make a wider range of 2D and 3D shapes including a range of quadrilaterals, the heptagon and tetrahedron; use pinboards to create a range of polygons. Use spotty paper to record results.

- **4Gs2** Classify polygons (including a range of quadrilaterals) using criteria such as the number of right angles, whether or not they are regular and their symmetrical properties.

- **4Gs3** Identify and sketch lines of symmetry in 2D shapes and patterns.

- **4Gs4** Visualise 3D objects from 2D nets and drawings and make nets of common solids.

- **4Gs5** Find examples of shapes and symmetry in the environment and in art.

Gp  Position and movement

- **4Gp1** Describe and identify the position of a square on a grid of squares where rows and columns are numbered and/or lettered.

- **4Gp2** Know that angles are measured in degrees and that one whole turn is 360° or four right angles; compare and order angles less than 180°.

- **4Gp3** Devise the directions to give to follow a given path.

G  Measure

Gl  Length, mass and capacity

- **4Gl1** Choose and use standard metric units and their abbreviations (km, m, cm, mm, kg, g, l and ml) when estimating, measuring and recording length, weight and capacity.

- **4Gl2** Know and use the relationships between familiar units of length, mass and capacity; know the meaning of ‘kilo’, ‘centi’ and ‘milli’.

- **4Gl3** Where appropriate, use decimal notation to record measurements, e.g. 1.3 m, 0.6 kg, 1.2 l.

- **4Gl4** Interpret intervals/divisions on partially numbered scales and record readings accurately.

Gt  Time

- **4Gt1** Read and tell the time to nearest minute on 12-hour digital and analogue clocks.

- **4Gt2** Use am, pm and 12-hour digital clock notation.

- **4Gt3** Read simple timetables and use a calendar.

- **4Gt4** Choose units of time to measure time intervals.

Ga  Area and perimeter

- **4Ga1** Draw rectangles, and measure and calculate their perimeters.

- **4Ga2** Understand that area is measured in square units, e.g. cm².

- **4Ga3** Find the area of rectilinear shapes drawn on a square grid by counting squares.
Stage 4

D Handling data

Dh Organising, categorising and representing data

- **4Dh1** Answer a question by identifying what data to collect, organising, presenting and interpreting data in tables, diagrams, tally charts, frequency tables, pictograms (symbol representing 2, 5, 10 or 20 units) and bar charts (intervals labelled in twos, fives, tens or twenties).
- **4Dh2** Compare the impact of representations where scales have different intervals.
- **4Dh3** Use Venn diagrams or Carroll diagrams to sort data and objects using two or three criteria.

Problem solving

Using techniques and skills in solving mathematical problems

- **4Pt1** Choose appropriate mental or written strategies to carry out calculations involving addition or subtraction.
- **4Pt2** Understand everyday systems of measurement in length, weight, capacity and time and use these to solve simple problems as appropriate.
- **4Pt3** Check the results of adding numbers by adding them in a different order or by subtracting one number from the total.
- **4Pt4** Check subtraction by adding the answer to the smaller number in the original calculation.
- **4Pt5** Check multiplication using a different technique, e.g. check 6 × 8 = 48 by doing 6 × 4 and doubling.
- **4Pt6** Check the result of a division using multiplication, e.g. multiply 4 by 12 to check 48 ÷ 4.
- **4Pt7** Recognise the relationships between 2D shapes and identify the differences and similarities between 3D shapes.
- **4Pt8** Estimate and approximate when calculating, and check working.

Using understanding and strategies in solving problems

- **4Ps1** Make up a number story for a calculation, including in the context of measures.
- **4Ps2** Explain reasons for a choice of strategy when multiplying or dividing.
- **4Ps3** Choose strategies to find answers to addition or subtraction problems; explain and show working.
- **4Ps4** Explore and solve number problems and puzzles, e.g. logic problems.
- **4Ps5** Use ordered lists and tables to help to solve problems systematically.
- **4Ps6** Describe and continue number sequences, e.g. 7, 4, 1, –2 ... identifying the relationship between each number.
- **4Ps7** Identify simple relationships between shapes, e.g. these polygons are all regular because ...
- **4Ps8** Investigate a simple general statement by finding examples which do or do not satisfy it.
- **4Ps9** Explain methods and reasoning orally and in writing; make hypotheses and test them out.
Stage 5

It is important that learners become confident users of calculators. They need to recognise that the calculator is a tool of which they are in control and to understand how it can help them to develop their mathematics. Learners can be taught how to use a calculator effectively and to recognise how and when it is appropriate to do so; by first deciding if mental and pencil-and-paper methods are quicker or more reliable. Note that to use a calculator effectively requires a secure knowledge of number, which has to be the prime aim.

N  Number

Nn Numbers and the number system

- 5Nn1 Count on and back in steps of constant size, extending beyond zero.
- 5Nn2 Know what each digit represents in five- and six-digit numbers.
- 5Nn3 Partition any number up to one million into thousands, hundreds, tens and units.
- 5Nn4 Use decimal notation for tenths and hundredths and understand what each digit represents.
- 5Nn5 Multiply and divide any number from 1 to 10,000 by 10 or 100 and understand the effect.
- 5Nn6 Round four-digit numbers to the nearest 10, 100 or 1000.
- 5Nn7 Round a number with one or two decimal places to the nearest whole number.
- 5Nn8 Order and compare numbers up to a million using the > and < signs.
- 5Nn9 Order and compare negative and positive numbers on a number line and temperature scale.
- 5Nn10 Calculate a rise or fall in temperature.
- 5Nn11 Order numbers with one or two decimal places and compare using the > and < signs.
- 5Nn12 Recognise and extend number sequences.
- 5Nn13 Recognise odd and even numbers and multiples of 5, 10, 25, 50 and 100 up to 1000.
- 5Nn14 Make general statements about sums, differences and multiples of odd and even numbers.
- 5Nn15 Recognise equivalence between: \(\frac{1}{2}, \frac{1}{4}, \frac{1}{8}\); \(\frac{1}{3}\) and \(\frac{1}{9}\) and \(\frac{1}{6}\).
- 5Nn16 Recognise equivalence between the decimal and fraction forms of halves, tenths and hundredths and use this to help order fractions, e.g. 0.6 is more than \(\frac{50}{100}\) and less than \(\frac{10}{10}\).
- 5Nn17 Change an improper fraction to a mixed number, e.g. \(\frac{5}{4}\) to \(1 \frac{1}{4}\); order mixed numbers and place between whole numbers on a number line.
- 5Nn18 Relate finding fractions to division and use to find simple fractions of quantities.
- 5Nn19 Understand percentage as the number of parts in every 100 and find simple percentages of quantities.
- 5Nn20 Express halves, tenths and hundredths as percentages.
Stage 5

N Number (continued)

Nn Numbers and the number system (continued)

- 5Nn21 Use fractions to describe and estimate a simple proportion, e.g. \( \frac{1}{5} \) of the beads are yellow.
- 5Nn22 Use ratio to solve problems, e.g. to adapt a recipe for 6 people to one for 3 or 12 people.

Nc Calculation

Mental strategies

- 5Nc1 Know by heart pairs of one-place decimals with a total of 1, e.g. 0.8 + 0.2.
- 5Nc2 Derive quickly pairs of decimals with a total of 10, and with a total of 1.
- 5Nc3 Know multiplication and division facts for the 2× to 10× tables.
- 5Nc4 Know and apply tests of divisibility by 2, 5, 10 and 100.
- 5Nc5 Recognise multiples of 6, 7, 8 and 9 up to the 10th multiple.
- 5Nc6 Know squares of all numbers to 10 × 10.
- 5Nc7 Find factors of two-digit numbers.
- 5Nc8 Count on or back in thousands, hundreds, tens and ones to add or subtract.
- 5Nc9 Add or subtract near multiples of 10 or 100, e.g. 4387 – 299.
- 5Nc10 Use appropriate strategies to add or subtract pairs of two- and three-digit numbers and numbers with one decimal place, using jottings where necessary.
- 5Nc11 Calculate differences between near multiples of 1000, e.g. 5026 – 4998, or near multiples of 1, e.g. 3.2 – 2.6.
- 5Nc12 Multiply multiples of 10 to 90, and multiples of 100 to 900, by a single-digit number.
- 5Nc13 Multiply by 19 or 21 by multiplying by 20 and adjusting.
- 5Nc14 Multiply by 25 by multiplying by 100 and dividing by 4.
- 5Nc15 Use factors to multiply, e.g. multiply by 3, then double to multiply by 6.
- 5Nc16 Double any number up to 100 and halve even numbers to 200 and use this to double and halve numbers with one or two decimal places, e.g. double 3.4 and half of 8.6.
- 5Nc17 Double multiples of 10 to 1000 and multiples of 100 to 10 000, e.g. double 360 or double 3600, and derive the corresponding halves.

Addition and subtraction

- 5Nc18 Find the total of more than three two- or three-digit numbers using a written method.
- 5Nc19 Add or subtract any pair of three- and/or four-digit numbers, with the same number of decimal places, including amounts of money.
N  Number (continued)

Nc  Calculation (continued)

Multiplication and division

- 5Nc20 Multiply or divide three-digit numbers by single-digit numbers.
- 5Nc21 Multiply two-digit numbers by two-digit numbers.
- 5Nc22 Multiply two-digit numbers with one decimal place by single-digit numbers, e.g. 3.6 × 7.
- 5Nc23 Divide three-digit numbers by single-digit numbers, including those with a remainder (answers no greater than 30).
- 5Nc24 Start expressing remainders as a fraction of the divisor when dividing two-digit numbers by single-digit numbers.
- 5Nc25 Decide whether to group (using multiplication facts and multiples of the divisor) or to share (halving and quartering) to solve divisions.
- 5Nc26 Decide whether to round an answer up or down after division, depending on the context.
- 5Nc27 Begin to use brackets to order operations and understand the relationship between the four operations and how the laws of arithmetic apply to multiplication.

G  Geometry

Gs  Shapes and geometric reasoning

- 5Gs1 Identify and describe properties of triangles and classify as isosceles, equilateral or scalene.
- 5Gs2 Recognise reflective and rotational symmetry in regular polygons.
- 5Gs3 Create patterns with two lines of symmetry, e.g. on a pegboard or squared paper.
- 5Gs4 Visualise 3D shapes from 2D drawings and nets, e.g. different nets of an open or closed cube.
- 5Gs5 Recognise perpendicular and parallel lines in 2D shapes, drawings and the environment.
- 5Gs6 Understand and use angle measure in degrees; measure angles to the nearest 5°; identify, describe and estimate the size of angles and classify them as acute, right or obtuse.
- 5Gs7 Calculate angles in a straight line.

Gp  Position and movement

- 5Gp1 Read and plot co-ordinates in the first quadrant.
- 5Gp2 Predict where a polygon will be after reflection where the mirror line is parallel to one of the sides, including where the line is oblique.
- 5Gp3 Understand translation as movement along a straight line, identify where polygons will be after a translation and give instructions for translating shapes.
Stage 5

G  Measure

G1  Length, mass and capacity

5GI1  • 5MI1 Read, choose, use and record standard units to estimate and measure length, mass and capacity to a suitable degree of accuracy.

5GI2  • 5MI2 Convert larger to smaller metric units (decimals to one place), e.g. change 2.6 kg to 2600 g.

5GI3  • 5MI3 Order measurements in mixed units.

5GI4  • 5MI4 Round measurements to the nearest whole unit.

5GI5  • 5MI5 Interpret a reading that lies between two unnumbered divisions on a scale.

5GI6  • 5MI6 Compare readings on different scales.

5GI7  • 5MI7 Draw and measure lines to the nearest centimetre and millimetre.

Gt  Time

5Gt1  • 5Mt1 Recognise and use the units for time (seconds, minutes, hours, days, months and years).

5Gt2  • 5Mt2 Tell and compare the time using digital and analogue clocks using the 24-hour clock.

5Gt3  • 5Mt3 Read timetables using the 24-hour clock.

5Gt4  • 5Mt4 Calculate time intervals in seconds, minutes and hours using digital or analogue formats.

5Gt5  • 5Mt5 Use a calendar to calculate time intervals in days and weeks (using knowledge of days in calendar months).

5Gt6  • 5Mt6 Calculate time intervals in months or years.

Ga  Area and perimeter

5Ga1  • 5Ma1 Measure and calculate the perimeter of regular and irregular polygons.

5Ga2  • 5Ma2 Understand area measured in square centimetres (cm²).

5Ga3  • 5Ma3 Use the formula for the area of a rectangle to calculate the rectangle’s area.
Stage 5

D Handling data

Dh Organising, categorising and representing data

- **5Dh1** Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions from their own and others’ data and identify further questions to ask.

- **5Dh2** Draw and interpret frequency tables, pictograms and bar line charts, with the vertical axis labelled for example in twos, fives, tens, twenties or hundreds. Consider the effect of changing the scale on the vertical axis.

- **5Dh3** Construct simple line graphs, e.g. to show changes in temperature over time.

- **5Dh4** Understand where intermediate points have and do not have meaning, e.g. comparing a line graph of temperature against time with a graph of class attendance for each day of the week.

- **5Dh5** Find and interpret the mode of a set of data.

Db Probability

- **5Db1** Describe the occurrence of familiar events using the language of chance or likelihood.

Problem solving

Using techniques and skills in solving mathematical problems

- **5Pt1** Understand everyday systems of measurement in length, weight, capacity, temperature and time and use these to perform simple calculations.

- **5Pt2** Solve single and multi-step word problems (all four operations); represent them, e.g. with diagrams or a number line.

- **5Pt3** Check with a different order when adding several numbers or by using the inverse when adding or subtracting a pair of numbers.

- **5Pt4** Use multiplication to check the result of a division, e.g. multiply 3.7 x 8 to check 29.6 ÷ 8.

- **5Pt5** Recognise the relationships between different 2D and 3D shapes, e.g. a face of a cube is a square.

- **5Pt6** Estimate and approximate when calculating, e.g. using rounding, and check working.

- **5Pt7** Consider whether an answer is reasonable in the context of a problem.
Problem solving (continued)

Using understanding and strategies in solving problems

- **5Ps1** Understand everyday systems of measurement in length, weight, capacity, temperature and time and use these to perform simple calculations.
- **5Ps2** Choose an appropriate strategy for a calculation and explain how they worked out the answer.
- **5Ps3** Explore and solve number problems and puzzles, e.g. logic problems.
- **5Ps4** Deduce new information from existing information to solve problems.
- **5Ps5** Use ordered lists and tables to help to solve problems systematically.
- **5Ps6** Describe and continue number sequences, e.g. –30, –27, –24, –21, –18...; identify the relationships between numbers.
- **5Ps7** Identify simple relationships between shapes, e.g. these triangles are all isosceles because ...
- **5Ps8** Investigate a simple general statement by finding examples which do or do not satisfy it, e.g. the sum of three consecutive whole numbers is always a multiple of three.
- **5Ps9** Explain methods and justify reasoning orally and in writing; make hypotheses and test them out.
- **5Ps10** Solve a larger problem by breaking it down into sub-problems or represent it using diagrams.
As in Stage 5, it is important that learners become confident users of calculators. They need to recognise that the calculator is a tool of which they are in control and to understand how it can help them to develop their mathematics. Learners can be taught how to use a calculator effectively and to recognise how and when it is appropriate to do so; by first deciding if mental and pencil-and-paper methods are quicker or more reliable. Note that to use a calculator effectively requires a secure knowledge of number, which has to be the prime aim.

**N Number**

**Nn Numbers and the number system**

- **6Nn1** Count on and back in fractions and decimals, e.g. $\frac{1}{5}$s, 0.1s, and repeated steps of whole numbers (and through zero).
- **6Nn2** Know what each digit represents in whole numbers up to a million.
- **6Nn3** Know what each digit represents in one- and two-place decimal numbers.
- **6Nn4** Multiply and divide any whole number from 1 to 10000 by 10, 100 or 1000 and explain the effect.
- **6Nn5** Multiply and divide decimals by 10 or 100 (answers up to two decimal places for division).
- **6Nn6** Find factors of two-digit numbers.
- **6Nn7** Find some common multiples, e.g. for 4 and 5.
- **6Nn8** Round whole numbers to the nearest 10, 100 or 1000.
- **6Nn9** Round a number with two decimal places to the nearest tenth or to the nearest whole number.
- **6Nn10** Make and justify estimates and approximations of large numbers.
- **6Nn11** Order and compare positive numbers to one million, and negative integers to an appropriate level.
- **6Nn12** Use the $>$, $<$ and $=$ signs correctly.
- **6Nn13** Estimate where four-digit numbers lie on an empty 0–10000 line.
- **6Nn14** Order numbers with up to two decimal places (including different numbers of places).
- **6Nn15** Recognise and extend number sequences.
- **6Nn16** Recognise and use decimals with up to three places in the context of measurement.
- **6Nn17** Recognise odd and even numbers and multiples of 5, 10, 25, 50 and 100 up to 1000.
- **6Nn18** Make general statements about sums, differences and multiples of odd and even numbers.
- **6Nn19** Recognise prime numbers up to 20 and find all prime numbers less than 100.
- **6Nn20** Recognise the historical origins of our number system and begin to understand how it developed.
- **6Nn21** Compare fractions with the same denominator and related denominators, e.g. $\frac{1}{4}$ with $\frac{2}{8}$. 

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Stage 6

N  Number (continued)

Nn Numbers and the number system (continued)

• 6Nn22 Recognise equivalence between fractions, e.g. between \( \frac{1}{100} \) s, \( \frac{1}{10} \) s and \( \frac{1}{5} \) s.

• 6Nn23 Recognise and use the equivalence between decimal and fraction forms.

• 6Nn24 Order mixed numbers and place between whole numbers on a number line.

• 6Nn25 Change an improper fraction to a mixed number, e.g. \( \frac{8}{17} \) to \( 2 \frac{8}{17} \).

• 6Nn26 Reduce fractions to their simplest form, where this is \( \frac{1}{2} \), \( \frac{1}{3} \), \( \frac{1}{4} \) or a number of fifths or tenths.

• 6Nn27 Begin to convert a vulgar fraction to a decimal fraction using division.

• 6Nn28 Understand percentage as parts in every 100 and express \( \frac{1}{2} \), \( \frac{1}{4} \), \( \frac{1}{5} \), \( \frac{1}{10} \), \( \frac{1}{100} \) as percentages.

• 6Nn29 Find simple percentages of shapes and whole numbers.

• 6Nn30 Solve simple problems involving ratio and direct proportion.

Nc Calculation

Mental strategies

• 6Nc1 Recall addition and subtraction facts for numbers to 20 and pairs of one-place decimals with a total of 1, e.g. 0.4 + 0.6.

• 6Nc2 Derive quickly pairs of one-place decimals totalling 10, e.g. 7.8 and 2.2, and two-place decimals totalling 1, e.g. 0.78 + 0.22.

• 6Nc3 Know and apply tests of divisibility by 2, 4, 5, 10, 25 and 100.

• 6Nc4 Use place value and number facts to add or subtract two-digit whole numbers and to add or subtract three-digit multiples of 10 and pairs of decimals, e.g. 560 + 270; 2.6 + 2.7; 0.78 + 0.23.

• 6Nc5 Add/subtract near multiples of one when adding numbers with one decimal place, e.g. 5.6 + 2.9; 13.5 – 2.1.

• 6Nc6 Add/subtract a near multiple of 10, 100 or 1000, or a near whole unit of money, and adjust, e.g. 3127 + 4998; 5678 – 1996.

• 6Nc7 Use place value and multiplication facts to multiply/divide mentally, e.g. 0.8 × 7; 4.8 ÷ 6.

• 6Nc8 Multiply pairs of multiples of 10, e.g. 30 × 40, or multiples of 10 and 100, e.g. 600 × 40.

• 6Nc9 Double quickly any two-digit number, e.g. 78, 7.8, 0.78 and derive the corresponding halves.

• 6Nc10 Divide two-digit numbers by single-digit numbers, including leaving a remainder.

Addition and subtraction

• 6Nc11 Add two- and three-digit numbers with the same or different numbers of digits/decimal places.

• 6Nc12 Add or subtract numbers with the same and different numbers of decimal places, including amounts of money.

• 6Nc13 Find the difference between a positive and negative integer, and between two negative integers in a context such as temperature or on a number line.
N  Number (continued)

Nc  Calculation (continued)

Multiplication and division

- **6Nc14** Multiply pairs of multiples of 10, e.g. $30 \times 40$, or multiples of 10 and 100, e.g. $600 \times 40$.
- **6Nc15** Multiply near multiples of 10 by multiplying by the multiple of 10 and adjusting.
- **6Nc16** Multiply by halving one number and doubling the other, e.g. calculate $35 \times 16$ with $70 \times 8$.
- **6Nc17** Use number facts to generate new multiplication facts, e.g. the $17 \times$ table from $10 \times + 7 \times$ tables.
- **6Nc18** Multiply two-, three- or four-digit numbers (including sums of money) by a single-digit number and two- or three-digit numbers by two-digit numbers.
- **6Nc19** Divide three-digit numbers by single-digit numbers, including those leaving a remainder and divide three-digit numbers by two-digit numbers (no remainder) including sums of money.
- **6Nc20** Give an answer to division as a mixed number, and a decimal (with divisors of 2, 4, 5, 10 or 100).
- **6Nc21** Relate finding fractions to division and use them as operators to find fractions including several tenths and hundredths of quantities.
- **6Nc22** Know and apply the arithmetic laws as they apply to multiplication (without necessarily using the terms commutative, associative or distributive).

G  Geometry

Gs  Shapes and geometric reasoning

- **6Gs1** Classify different polygons and understand whether a 2D shape is a polygon or not.
- **6Gs2** Visualise and describe the properties of 3D shapes, e.g. faces, edges and vertices.
- **6Gs3** Identify and describe properties of quadrilaterals (including the parallelogram, rhombus and trapezium), and classify using parallel sides, equal sides, equal angles.
- **6Gs4** Recognise and make 2D representations of 3D shapes including nets.
- **6Gs5** Estimate, recognise and draw acute and obtuse angles and use a protractor to measure to the nearest degree.
- **6Gs6** Check that the sum of the angles in a triangle is $180^\circ$, for example, by measuring or paper folding; calculate angles in a triangle or around a point.

Gp  Position and movement

- **6Gp1** Read and plot co-ordinates in all four quadrants.
- **6Gp2** Predict where a polygon will be after one reflection, where the sides of the shape are not parallel or perpendicular to the mirror line, after one translation or after a rotation through $90^\circ$ about one of its vertices.
G Measure

Gl Length, mass and capacity

6Gl1 • 6Mi1 Select and use standard units of measure. Read and write to two or three decimal places.

6Gl2 • 6Mi2 Convert between units of measurement (kg and g, l and ml, km, m, cm and mm), using decimals to three places, e.g. recognising that 1.245 m is 1 m 24.5 cm.

6Gl3 • 6Mi3 Interpret readings on different scales, using a range of measuring instruments.

6Gl4 • 6Mi4 Draw and measure lines to the nearest centimetre and millimetre.

6Gl5 • 6Mi5 Know imperial units still in common use, e.g. the mile, and approximate metric equivalents.

Gt Time

6Gt1 • 6Mt1 Recognise and understand the units for measuring time (seconds, minutes, hours, days, weeks, months, years, decades and centuries); convert one unit of time into another.

6Gt2 • 6Mt2 Tell the time using digital and analogue clocks using the 24-hour clock.

6Gt3 • 6Mt3 Compare times on digital and analogue clocks, e.g. realise quarter to four is later than 3:40.

6Gt4 • 6Mt4 Read and use timetables using the 24-hour clock.

6Gt5 • 6Mt5 Calculate time intervals using digital and analogue times.

6Gt6 • 6Mt6 Use a calendar to calculate time intervals in days, weeks or months.

6Gt7 • 6Mt7 Calculate time intervals in days, months or years.

6Gt8 • 6Mt8 Appreciate how the time is different in different time zones around the world.

Ga Area and perimeter

6Ga1 • 6Ma1 Measure and calculate the perimeter and area of rectilinear shapes.

6Ga2 • 6Ma2 Estimate the area of an irregular shape by counting squares.

6Ga3 • 6Ma3 Calculate perimeter and area of simple compound shapes that can be split into rectangles.

D Handling data

Dh Organising, categorising and representing data

• 6Dh1 Solve a problem by representing, extracting and interpreting data in tables, graphs, charts and diagrams, e.g. line graphs for distance and time; a price ‘ready-reckoner’ for currency conversion; frequency tables and bar charts with grouped discrete data.

• 6Dh2 Find the mode and range of a set of data from relevant situations, e.g. scientific experiments.

• 6Dh3 Begin to find the median and mean of a set of data.

• 6Dh4 Explore how statistics are used in everyday life.
D Handling data (continued)

Db Probability

- **6Db1** Use the language associated with probability to discuss events, to assess likelihood and risk, including those with equally likely outcomes.

Problem solving

Using techniques and skills in solving mathematical problems

- **6Pt1** Choose appropriate and efficient mental or written strategies to carry out a calculation involving addition, subtraction, multiplication or division.
- **6Pt2** Understand everyday systems of measurement in length, weight, capacity, temperature and time and use these to perform simple calculations.
- **6Pt3** Check addition with a different order when adding a long list of numbers; check when subtracting by using the inverse.
- **6Pt4** Recognise 2D and 3D shapes and their relationships, e.g. a cuboid has a rectangular cross-section.
- **6Pt5** Estimate and approximate when calculating, e.g. use rounding, and check working.

Using understanding and strategies in solving problems

- **6Ps1** Explain why they chose a particular method to perform a calculation and show working.
- **6Ps2** Deduce new information from existing information and realise the effect that one piece of information has on another.
- **6Ps3** Use logical reasoning to explore and solve number problems and mathematical puzzles.
- **6Ps4** Use ordered lists or tables to help solve problems systematically.
- **6Ps5** Identify relationships between numbers and make generalised statements using words, then symbols and letters, e.g. the second number is twice the first number plus 5 \((n, 2n + 5)\); all the numbers are multiples of 3 minus 1 \((3n – 1)\); the sum of angles in a triangle is 180°.
- **6Ps6** Make sense of and solve word problems, single and multi-step (all four operations), and represent them, e.g. with diagrams or on a number line; use brackets to show the series of calculations necessary.
- **6Ps7** Solve simple word problems involving ratio and direct proportion.
- **6Ps8** Solve simple word problems involving percentages, e.g. find discounted prices.
- **6Ps9** Make, test and refine hypotheses, explain and justify methods, reasoning, strategies, results or conclusions orally.