

Numeracy Key Objectives Taught in Year Two

- Count, read, write and order whole numbers to at least 100; know what each digit represents (including 0 as a place holder).
- Describe and extend simple number sequences (including odd/even numbers, counting on or back in ones or tens from any two-digit number, and so on).
- Understand that subtraction is the inverse of addition; state the subtraction corresponding to a given addition and vice versa.
- Know by heart all addition and subtraction facts for each number to at least 10.
- Use knowledge that addition can be done in any order to do mental calculations more efficiently.
- Understand the operation of multiplication as repeated addition or as describing an array.
- Know and use halving as the inverse of doubling.
- Know by heart facts for the 2 and 10 multiplication tables.
- Estimate, measure and compare lengths, masses and capacities, using standard units; suggest suitable units and equipment for such measurements.
- Read a simple scale to the nearest labelled division, including using a ruler to draw and measure lines to the nearest centimetre.
- Use the mathematical names for common 2-D and 3-D shapes; sort shapes and describe some of their features.
- Use mathematical vocabulary to describe position, direction and movement.
- Choose and use appropriate operations and efficient calculation strategies to solve problems, explaining how the problem was solved.

Numeracy Objectives for Numbers and the Number System

Counting, Properties of Numbers and Number Sequences

- Say the number names in order to at least 100, from and back to zero.
- Count reliably up to 100 objects by grouping them: for example, in tens, then in fives or twos.
- Describe and extend simple number sequences:
count on or back in ones or tens, starting from any two-digit number;
count in hundreds from and back to zero;
count on in twos from and back to zero or any small number, and recognise odd and even numbers to at least 30;
count on in steps of 3, 4 or 5 to at least 30, from and back to zero, then from and back to any given small number.
- Begin to recognise two-digit multiples of 2, 5 or 10.

Place Value and Ordering

- Read and write whole numbers to at least 100 in figures and words.
- Know what each digit in a two-digit number represents, including 0 as a place holder, and partition two-digit numbers into a multiple of ten and ones (TU).
- Use and begin to read the vocabulary of comparing and ordering numbers, including ordinal numbers to 100.
Use the = sign to represent equality.
Compare two given two-digit numbers, say which is more or less, and give a number which lies between them.
- Say the number that is 1 or 10 more or less than any given two-digit number.
- Order whole numbers to at least 100, and position them on a number line and 100 square.

Estimating and Rounding

- Use and begin to read the vocabulary of estimation and approximation; give a sensible estimate of at least 50 objects.
- Round numbers less than 100 to the nearest 10.

Fractions

- Begin to recognise and find one half and one quarter of shapes and small numbers of objects. Begin to recognise that two halves or four quarters make one whole and that two quarters and one half are equivalent.

Numeracy Objectives for Calculations

Understanding Addition and Subtraction

- Extend understanding of the operations of addition and subtraction. Use and begin to read the related vocabulary. Use the +, - and = signs to record mental additions and subtractions in a number sentence, and recognise the use of a symbol such as n or s to stand for an unknown number. Recognise that addition can be done in any order, but not subtraction: for example, $3 + 21 = 21 + 3$, but $21 - 3 \neq 21$.
- Understand that more than two numbers can be added. Begin to add three single-digit numbers mentally (totals up to about 20) or three two-digit numbers with the help of apparatus (totals up to 100).
- Understand that subtraction is the inverse of addition (subtraction reverses addition).

Rapid Recall of Addition and Subtraction Facts

- Know by heart:
 - all addition and subtraction facts for each number to at least 10;
 - all pairs of numbers with a total of 20 (e.g. $13 + 7$, $6 + 14$);
 - all pairs of multiples of 10 with a total of 100 (e.g. $30 + 70$).

Mental Calculation Strategies (+ and -)

- Use knowledge that addition can be done in any order to do mental calculations more efficiently. For example:
put the larger number first and count on in tens or ones;
add three small numbers by putting the largest number first
and/or find a pair totaling 10;
partition into '5 and a bit' when adding 6, 7, 8 or 9, then recombine (e.g. $16 + 8 = 15 + 1 + 5 + 3 = 20 + 4 = 24$);
partition additions into tens and units, then recombine.
- Find a small difference by counting up from the smaller to the larger number (e.g. $42 - 39$).
- Identify near doubles, using doubles already known (e.g. $8 + 9$, $40 + 41$).
- Add/subtract 9 or 11: add/subtract 10 and adjust by 1.
Begin to add/subtract 19 or 21: add/subtract 20 and adjust by 1.
- Use patterns of similar calculations.
- State the subtraction corresponding to a given addition, and vice versa.
- Use known number facts and place value to add/subtract mentally.
- Bridge through 10 or 20, then adjust.

Understanding Multiplication and Division

- Understand the operation of multiplication as repeated addition or as describing an array, and begin to understand division as grouping (repeated subtraction) or sharing.
Use and begin to read the related vocabulary.
Use the \times , \div and $=$ signs to record mental calculations in a number sentence, and recognise the use of a symbol such as n or s to stand for an unknown number.
- Know and use halving as the inverse of doubling.

Rapid Recall of Multiplication and Division Facts

- Know by heart: multiplication facts for the 2 and 10 times-tables;
doubles of all number to 10 and the corresponding halves.
Begin to know:
multiplication facts for the 5 times-table.
- Derive quickly:
division facts corresponding to the 2 and 10 times-tables;
doubles of all numbers to at least 15 (e.g. $11 + 11$ or 11×2);
doubles of multiples of 5 to 50 (e.g. 20×2 or 35×2);
halves of multiples of 10 to 100 (e.g. half of 70).

Mental Calculation Strategies (\times and \div)

- Use known number facts and place value to carry out mentally simple multiplications and divisions.

Checking Results of Calculations

- Repeat addition in a different order.
- Check with an equivalent calculation.

Numeracy Objectives for Solving Problems

Making Decisions

- Choose and use appropriate operations and efficient calculation strategies (e.g. mental, mental with jottings) to solve problems.

Reasoning about Numbers or Shapes

- Solve mathematical problems or puzzles, recognise simple patterns and relationships, generalise and predict. Suggest extensions by asking 'What if?' or 'What could I try next?'
- Investigate a general statement about familiar numbers or shapes by finding examples that satisfy it.
- Explain how a problem was solved orally and, where appropriate, in writing.

Problems Involving 'Real Life', Money or Measures

- Use mental addition and subtraction, simple multiplication and division, to solve simple word problems involving numbers in 'real life', money or measures, using one or two steps. Explain how the problem was solved.
- Recognise all coins and begin to use £.p notation for money (for example, know that £4.65 indicates £4 and 65p).
Find totals, give change, and work out which coins to pay.

Organising and Using Data

- Solve a given problem by sorting, classifying and organising information in simple ways, such as:
 - in a list or simple table;
 - in a pictogram;
 - in a block graph.Discuss and explain results.

Numeracy Objectives for Measures, Shape and Space

Measures

- Use and begin to read the vocabulary related to length, mass and capacity.
- Estimate, measure and compare lengths, masses and capacities, using standard units (m, cm, kg, litre);
suggest suitable units and equipment for such measurements.
- Read a simple scale to the nearest labelled division, including using a ruler to draw and measure lines to the nearest centimetre, recording estimates and measurements as '3 and a bit metres long' or 'about 8 centimetres' or 'nearly 3 kilograms heavy'.
- Use and begin to read the vocabulary related to time.
Use units of time and know the relationships between them (second, minute, hour, day, week).
Suggest suitable units to estimate or measure time.
Order the months of the year.
Read the time to the hour, half hour or quarter hour on an analogue clock and a 12-hour digital clock, and understand the notation 7:30.

Shape and Space

- Use the mathematical names for common 3-D and 2-D shapes, including the pyramid, cylinder, pentagon, hexagon, octagon
Sort shapes and describe some of their features, such as the number of sides and corners, symmetry (2-D shapes), or the shapes of faces and number of faces, edges and corners (3-D shapes).
- Make and describe shapes, pictures and patterns using, for example, solid shapes, templates, pin board and elastic bands, squared paper, a programmable robot...
Relate solid shapes to pictures of them.
- Begin to recognise line symmetry.
- Use mathematical vocabulary to describe position, direction and movement: for example, describe, place, tick, draw or visualise objects in given positions.
- Recognise whole, half and quarter turns, to the left or right, clockwise or anti-clockwise.
Know that a right angle is a measure of a quarter turn, and recognise right angles in squares and rectangles.
Give instructions for moving along a route in straight lines and round right-angled corners: for example, to pass through a simple maze.