

| | | | | Using and applying mathematics | | | |
|-----------------------|---|--|--|--------------------------------|--------------------------|---------|--------------------------|
| Problem solving | | Communicating | | Reasoning | | | |
| L3 | <ul style="list-style-type: none"> select the mathematics they use in a wider range of classroom activities, e.g. <ul style="list-style-type: none"> use classroom discussions to break into a problem, recognising similarities to previous work put the problem into their own words use mathematical content from levels 2 and 3 choose their own equipment appropriate to the task, including calculators try different approaches and find ways of overcoming difficulties that arise when they are solving problems, e.g. <ul style="list-style-type: none"> check their work and make appropriate corrections, e.g. decide that two numbers less than 100 cannot give a total more than 200 and correct the addition begin to look for patterns in results as they work and use them to find other possible outcomes | <ul style="list-style-type: none"> begin to organise their work and check results, e.g. <ul style="list-style-type: none"> begin to develop own ways of recording develop an organised approach as they get into recording their work on a problem discuss their mathematical work and begin to explain their thinking, e.g. <ul style="list-style-type: none"> use appropriate mathematical vocabulary talk about their findings by referring to their written work use and interpret mathematical symbols and diagrams | <ul style="list-style-type: none"> understand a general statement by finding particular examples that match it, e.g. <ul style="list-style-type: none"> make a generalisation with the assistance of probing questions and prompts review their work and reasoning, e.g. <ul style="list-style-type: none"> respond to 'What if?' questions when they have solved a problem, pose a similar problem for a partner | Level 3 | <input type="checkbox"/> | Level 3 | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> select the mathematics they use in some classroom activities, e.g. with support <ul style="list-style-type: none"> find a starting point, identifying key facts/relevant information use apparatus, diagrams, role play, etc. to represent and clarify a problem move between different representations of a problem e.g. a situation described in words, a diagram etc. adopt a suggested model or systematic approach make connections and apply their knowledge to similar situations | <ul style="list-style-type: none"> discuss their work using mathematical language, e.g. with support <ul style="list-style-type: none"> describe the strategies and methods they use in their work listen to others' explanations, try to make sense of them, compare.... evaluate... begin to represent their work using symbols and simple diagrams, e.g. with support <ul style="list-style-type: none"> use pictures, diagrams and symbols to communicate their thinking, or demonstrate a solution or process begin to appreciate the need to record and develop their own methods of recording | <ul style="list-style-type: none"> explain why an answer is correct, e.g. with support <ul style="list-style-type: none"> test a statement such as 'The number 12 ends with a 2 so 12 sweets can't be shared equally by 3 children' predict what comes next in a simple number, shape or spatial pattern or sequence and give reasons for their opinions | Level 2 | <input type="checkbox"/> | Level 2 | <input type="checkbox"/> |
| Insufficient evidence | | Insufficient evidence | | Insufficient evidence | | | |

Ma1 overall level Read the complete level descriptions overleaf to confirm the level. Then consider whether the level is low, secure or high.

| Level 2 | | |
|---------|--------|------|
| low | secure | high |
| | | |

| Level 3 | | |
|---------|--------|------|
| low | secure | high |
| | | |

Ma1 Using and applying mathematics, level 3

Pupils try different approaches and find ways of overcoming difficulties that arise when they are solving problems. They are beginning to organise their work and check results. Pupils discuss their mathematical work and are beginning to explain their thinking. They use and interpret mathematical symbols and diagrams. Pupils show that they understand a general statement by finding particular examples that match it.

Ma1 Using and applying mathematics, level 2

Pupils select the mathematics they use in some classroom activities. They discuss their work using mathematical language and are beginning to represent it using symbols and simple diagrams. They explain why an answer is correct.

| | Counting and understanding numbers | | Calculating | | | |
|-----------|--|--|---|--|---|---|
| | Numbers and the number system | Fractions and decimals | Operations, relationships between them | Mental methods | Solving numerical problems | Written methods |
| L3 | <ul style="list-style-type: none"> understand place value in numbers to 1000, e.g. <i>represent/compare numbers using number lines, 100-squares, base 10 materials, etc.</i> recognise that some numbers can be represented as different arrays use understanding of place value to multiply/divide whole numbers by 10 (whole number answers) use place value to make approximations recognise negative numbers in contexts such as temperature recognise a wider range of sequences, e.g. <i>recognise sequences of multiples of 2, 5 and 10</i> <p style="text-align: right;">Level 3</p> | <ul style="list-style-type: none"> use simple fractions that are several parts of a whole and recognise when two simple fractions are equivalent, e.g. <i>understand and use unit fractions such as $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{10}$ and find those fractions of shapes and sets of objects</i> recognise and record fractions that are several parts of the whole such as $\frac{3}{4}$, $\frac{2}{5}$ recognise some fractions that are equivalent to $\frac{1}{2}$ begin to use decimal notation in contexts such as money, e.g. <i>order decimals with one dp, or two dp in context of money know that £3.06 equals 306p</i> <p style="text-align: right;">Level 3</p> | <ul style="list-style-type: none"> derive associated division facts from known multiplication facts, e.g. <i>given a number sentence, use understanding of operations to create related sentences, e.g. given $14 \times 5 = 70$, create $5 \times 14 = 70$, $70 \div 5 = 14$, $70 \div 14 = 5$</i> use inverses to find missing whole numbers in problems such as 'I think of a number, double it and add 5. The answer is 35. What was my number?' begin to understand the role of \neq the \neqsign, e.g. <i>solve 'balancing' problems such as $7 \times 10 = 82 - \square$</i> <p style="text-align: right;">Level 3</p> | <ul style="list-style-type: none"> add and subtract two-digit numbers mentally, e.g. <i>calculate $36 + 19$, $63 - 26$, and complements to 100 such as $100 - 24$</i> use mental recall of the 2, 3, 4, 5 and 10 multiplication tables, e.g. <i>multiply a two-digit number by 2, 3, 4 or 5</i> understand finding a quarter of a number of objects as halving the number and halving again begin to know multiplication facts for $\times 6$, $\times 8$, $\times 9$ and $\times 7$ tables <p style="text-align: right;">Level 3</p> | <ul style="list-style-type: none"> use mental recall of addition and subtraction facts to 20 in solving problems involving larger numbers, e.g. <i>choose to calculate mentally, on paper or with apparatus solve one-step whole number problems appropriately solve two-step problems that involve addition and subtraction</i> solve whole number problems including those involving multiplication or division that may give rise to remainders, e.g. <i>identify appropriate operations to use round up or down after simple division, depending on context</i> <p style="text-align: right;">Level 3</p> | <ul style="list-style-type: none"> add and subtract three-digit numbers using written method, e.g. <i>use written methods that involve bridging 10 or 100</i> add and subtract decimals in the context of money, where bridging is not required multiply and divide two-digit numbers by 2, 3, 4 or 5 as well as 10 with whole number answers and remainders, e.g. <i>calculate $49 \div 3$</i> <p style="text-align: right;">Level 3</p> |
| L2 | <ul style="list-style-type: none"> count sets of objects reliably, e.g. <i>group objects in tens, twos or fives to count them</i> begin to understand the place value of each digit; use this to order numbers up to 100, e.g. <i>know the relative size of numbers to 100 use 0 as a placeholder demonstrate knowledge using a range of models/images</i> recognise sequences of numbers, including odd and even numbers, e.g. <i>continue a sequence increasing/decreasing in regular steps recognise numbers from counting in tens or twos</i> <p style="text-align: right;">Level 2</p> | <ul style="list-style-type: none"> begin to use halves and quarters, e.g. <i>use the concept of a fraction of a number in practical contexts such as sharing sweets between two to get $\frac{1}{2}$ each, among four to get $\frac{1}{4}$ each</i> work out halves of numbers up to 20 and begin to recall them relate the concept of half of a small quantity to the concept of half of a shape, e.g. <i>shade one half or one quarter of a given shape including those divided into equal regions</i> <p style="text-align: right;">Level 2</p> | <ul style="list-style-type: none"> use the knowledge that subtraction is the inverse of addition, e.g. <i>given 14, 6 and 8, make related number sentences $6 + 8 = 14$, $14 - 8 = 6$, $8 + 6 = 14$, $14 - 6 = 8$</i> understand halving as a way of undoing doubling and vice versa <p style="text-align: right;">Level 2</p> | <ul style="list-style-type: none"> use mental recall of addition and subtraction facts to 10, e.g. <i>use addition/subtraction facts to 10 and place value to add or subtract multiples of 10, e.g. know $3 + 7 = 10$ and use place value to derive $30 + 70 = 100$</i> use mental calculation strategies to solve number problems including those involving money and measures, e.g. <i>recall doubles to $10 + 10$ and other significant doubles, e.g. double 50p is 100p or £1 use knowledge of doubles to $10 + 10$ to derive corresponding halves</i> <p style="text-align: right;">Level 2</p> | <ul style="list-style-type: none"> choose the appropriate operation when solving addition and subtraction problems, e.g. <i>use repeated addition to solve multiplication problems begin to use repeated subtraction or sharing equally to solve division problems</i> solve number problems involving money and measures, e.g. <i>add/subtract two-digit and one-digit numbers, bridging tens where necessary in contexts using units such as pence, pounds, centimetres</i> <p style="text-align: right;">Level 2</p> | <ul style="list-style-type: none"> record their work in writing, e.g. <i>record their mental calculations as number sentences</i> <p style="text-align: right;">Level 2</p> |
| | Insufficient evidence | Insufficient evidence | Insufficient evidence | Insufficient evidence | Insufficient evidence | Insufficient evidence |

Ma2 overall level Read the complete level descriptions overleaf to confirm the level. Then consider whether the level is low, secure or high.

| Level 2 | | |
|---------|--------|------|
| low | secure | high |
| | | |

| Level 3 | | |
|---------|--------|------|
| low | secure | high |
| | | |

Ma2 Number, level 3

Pupils show understanding of place value in numbers up to 1000 and use this to make approximations. They begin to use decimal notation and to recognise negative numbers, in contexts such as money and temperature. Pupils use mental recall of addition and subtraction facts to 20 in solving problems involving larger numbers. They add and subtract numbers with two digits mentally and numbers with three digits using written methods. They use mental recall of the 2, 3, 4, 5 and 10 multiplication tables and derive the associated division facts. They solve whole number problems involving multiplication or division, including those that give rise to remainders. They use simple fractions that are several parts of a whole and recognise when two simple fractions are equivalent.

Ma2 Number, level 2

Pupils count sets of objects reliably, and use mental recall of addition and subtraction facts to 10. They begin to understand the place value of each digit in a number and use this to order numbers up to 100. They choose the appropriate operation when solving addition and subtraction problems. They use the knowledge that subtraction is the inverse of addition. They use mental calculation strategies to solve number problems involving money and measures. They recognise sequences of numbers, including odd and even numbers.

| | Understanding shapes | | Measuring |
|-----------|--|---|---|
| | Properties of shape | Properties of position and movement | Measures |
| L3 | <ul style="list-style-type: none"> classify 3-D and 2-D shapes in various ways using mathematical properties such as reflective symmetry for 2-D shapes, e.g. sort objects and shapes using more than one criterion, e.g. pentagon, not pentagon and all edges the same length/not the same length sort the shapes which have all edges the same length and all angles the same size from a set of mixed shapes and begin to understand the terms 'regular' and 'irregular' recognise right angles in shapes in different orientations recognise angles which are bigger/smaller than 90° and begin to know the terms 'obtuse' and 'acute' recognise right-angled and equilateral triangles demonstrate that a shape has reflection symmetry by folding and recognise when a shape does not have a line of symmetry recognise common 3-D shapes, e.g. triangular prism, square-based pyramid relate 3-D shapes to drawings and photographs of them, including from different viewpoints begin to recognise nets of familiar 3-D shapes, e.g. cube, cuboid, triangular prism, square-based pyramid | <ul style="list-style-type: none"> recognise shapes in different orientations reflect shapes, presented on a grid, in a vertical or horizontal mirror line, e.g. reflect a shape even if the shape is at 45° to the mirror line, touching the line or not begin to reflect simple shapes in a mirror line presented at 45° describe position and movement, e.g. use terms such as left/right, clockwise/anticlockwise, quarter turn/90° to give directions along a route | <ul style="list-style-type: none"> use non-standard units and standard metric units of length, capacity and mass in a range of contexts, e.g. measure a length to the nearest 1/2 cm read simple scales, e.g. increments of 2, 5 or 10 use standard units of time, e.g. read a 12-hour clock and generally calculate time durations that do not go over the hour use a wider range of measures, e.g. begin to understand area as a measure of surface and perimeter as a measure of length begin to find areas of shapes by counting squares and explain answers as a number of squares even if not using standard units such as cm² or m² recognise angles as a measure of turn and know that one whole turn is 360 degrees |
| | Level 3 | Level 3 | Level 3 |
| L2 | <ul style="list-style-type: none"> use mathematical names for common 3-D and 2-D shapes, e.g. identify 2-D and 3-D shapes from pictures of them in different orientations, e.g. square, triangle, hexagon, pentagon, octagon, cube, cylinder, sphere, cuboid, pyramid describe their properties, including numbers of sides and corners, e.g. make and talk about shapes referring to properties and features such as edge, face, corner sort 2-D and 3-D shapes according to a single criterion, e.g. shapes that are pentagons or shapes with a right angle visualise frequently used 2-D and 3-D shapes begin to understand the difference between shapes with two dimensions and those with three recognise properties that are the same even when a shape is enlarged, e.g. comparing different size squares, circles, similar triangles, cubes or spheres | <ul style="list-style-type: none"> describe the position of objects, e.g. use ordinal numbers (first, second, third...) to describe the position of objects in a row or when giving directions recognise and explain that a shape stays the same even when it is held up in different orientations distinguish between straight and turning movements distinguish between left and right and between clockwise and anticlockwise and use these when giving directions instruct a programmable robot, combining straight-line movements and turns, to move along a defined path or reach a target destination recognise right angles in turns | <ul style="list-style-type: none"> understand angle as a measurement of turn make whole turns, half-turns and quarter-turns begin to use everyday non-standard and standard units to measure length and mass begin to understand that numbers can be used not only to count discrete objects but also to describe continuous measures, e.g. length know which measuring tools to use to find, e.g., how much an object weighs, how tall a child is, how long it takes to run around the edge of the playground, how much water it takes to fill the water tray read scales to the nearest labelled division begin to use a wider range of measures make and use a 'right angle checker' use a time line to order daily events and ordinal numbers (first, second, third...) to describe the order of some regular events |
| | Level 2 | Level 2 | Level 2 |
| | Insufficient evidence | Insufficient evidence | Insufficient evidence |

Ma3 overall level Read the complete level descriptions overleaf to confirm the level. Then consider whether the level is low, secure or high.

| Level 2 | | |
|---------|--------|------|
| low | secure | high |
| | | |

| Level 3 | | |
|---------|--------|------|
| low | secure | high |
| | | |

Ma3 Shape, space and measures, level 3

Pupils classify 3-D and 2-D shapes in various ways using mathematical properties such as reflective symmetry for 2-D shapes. They use non-standard units, standard metric units of length, capacity and mass, and standard units of time, in a range of contexts.

Ma3 Shape, space and measures, level 2

Pupils use mathematical names for common 3-D and 2-D shapes and describe their properties, including numbers of sides and corners. They distinguish between straight and turning movements, understand angle as a measurement of turn, and recognise right angles in turns. They begin to use everyday non-standard and standard units to measure length and mass.

| | | Handling data and Using and applying mathematics | |
|----|--|---|-----------------------|
| | | Processing and representing data | Interpreting data |
| L3 | <ul style="list-style-type: none"> gather information, e.g. <ul style="list-style-type: none"> decide what data to collect to answer a question, e.g. what is the most common way to travel to school make appropriate choices for recording data, e.g. a tally chart or frequency table construct bar charts and pictograms, where the symbol represents a group of units, e.g. <ul style="list-style-type: none"> decide how best to represent data, e.g. whether a bar chart, Venn diagram or pictogram would show the information most clearly decide upon an appropriate scale for a graph, e.g. labelled divisions of 2, or, for a pictogram, one symbol to represent 2 or 5 use Venn and Carroll diagrams to record their sorting and classifying of information, e.g. <ul style="list-style-type: none"> represent sorting using one or two criteria typical of level 2 and 3 mathematics, e.g. shapes sorted using properties such as right angles and equal sides | <ul style="list-style-type: none"> extract and interpret information presented in simple tables, lists, bar charts and pictograms, e.g. <ul style="list-style-type: none"> use a key to interpret represented data read scales labelled in twos, fives and tens, including reading between labelled divisions such as a point halfway between 40 and 50 or 8 and 10 compare data, e.g. say how many more... than... and recognise the category that has most/least respond to questions of a more complex nature such as 'How many children took part in this survey altogether?' or 'How would the data differ if we asked the children in Year 6?' in the context of data relating to everyday situations, understand the idea of 'certain' and 'impossible' relating to probability | |
| | Level 3 | | Level 3 |
| L2 | <ul style="list-style-type: none"> sort objects and classify them using more than one criterion, e.g. <ul style="list-style-type: none"> sort a given set of shapes using two criteria such as triangle/not triangle and blue/not blue understand vocabulary relating to handling data, e.g. <ul style="list-style-type: none"> understand vocabulary such as sort, group, set, list, table, most common, most popular collect and sort data to test a simple hypothesis, e.g. <ul style="list-style-type: none"> count a show of hands to test the hypothesis 'Most children in our class are in bed by 7:30pm' record results in simple lists, tables, pictograms and block graphs, e.g. <ul style="list-style-type: none"> present information in lists, tables and simple graphs where one symbol or block represents one unit enter data into a simple computer database | <ul style="list-style-type: none"> communicate their findings, using the simple lists, tables, pictograms and block graphs they have recorded, e.g. <ul style="list-style-type: none"> respond to questions about the data they have presented, e.g. 'How many of our names have five letters?' pose similar questions about their data for others to answer | |
| | Level 2 | | Level 2 |
| | Insufficient evidence | | Insufficient evidence |

Ma4 overall level Read the complete level descriptions overleaf to confirm the level. Then consider whether the level is low, secure or high.

| Level 2 | | |
|---------|--------|------|
| low | secure | high |
| | | |

| Level 3 | | |
|---------|--------|------|
| low | secure | high |
| | | |

Ma4 Handling data, level 3 (included in programme of study for Ma2 Number in Key Stage 1)

Pupils extract and interpret information presented in simple tables and lists. They construct bar charts and pictograms, where the symbol represents a group of units, to communicate information they have gathered, and they interpret information presented to them in these forms.

Ma4 Handling data, level 2 (included in programme of study for Ma2 Number in Key Stage 1)

Pupils sort objects and classify them using more than one criterion. When they have gathered information, pupils record results in simple lists, tables and block graphs, in order to communicate their findings.