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# Assessing Mathematics 2018/19 Frameworks

# Assessment materials

## Introduction

The resources provided are:

1. Defining Basic, Advancing and Deep.
2. Defining Basic 1, Basic 2, Advancing 1, Advancing 2, Deep 1 and Deep 2.
3. Assessment grids.

The Assessment grids are designed to provide a rough guide rather than a checklist. It is important that they are viewed alongside the definitions of Basic, Advancing and Deep. It is also important that the statements are interpreted in light of what has been taught. For example, if not all numbers within a statement are used by pupils, this is not a problem if a pupil is working at the Basic level of understanding. Using the definitions of Basic 1 through to Deep will help users of these materials to make professional judgements about pupils' level of understanding.

## Understanding the nature of the grids

Not every item from the National Curriculum appears in the Assessment grids. That is because we have categorised the Programme of Study as follows:

- Coverage – main areas of the subject (such as Fractions).
- Processes – ongoing procedures (such as partitioning numbers).
- Outcomes – key features of a mathematician (such as calculating fluently).

Only outcomes appear on the Assessment grids.

We recommend that coverage is monitored; processes are used by teachers to plan and outcomes are formally recorded. This drastically cuts down teacher workload.

## Defining B.A.D.

| Depth of Learning | Cognitive challenge | Nature of progress | Typically, pupils will | Predominant teaching style |
|---|---|---|---|---|
| Basic<br><br>(Fundamental Foundations) | Low level cognitive demand. Involves following instructions. | Acquiring | name, describe, follow instructions or methods, complete tasks, recall information, ask basic questions, use, match, report, measure, list, illustrate, label, recognise, tell, repeat, arrange, define, memorise. | Modelling<br>Explaining |
| Advancing<br><br>(Application of fundamental foundations) | Higher level of cognitive demand. Involves mental processing beyond recall. Requires some degree of decision making. | Practising | apply skills to solve problems, explain methods, classify, infer, categorise, identify patterns, organise, modify, predict, interpret, summarise, make observations, estimate, compare. | Reminding<br>Guiding |
| Deep<br><br>(Inventive use of fundamental foundations) | Cognitive demands are complex and abstract. Involves problems with multi-steps or more than one possible answer. Requires justification of answers. | Deepening Understanding | solve non-routine problems, appraise, explain concepts, hypothesise, investigate, cite evidence, design, create, prove. | Coaching<br>Mentoring |

# Defining B1 - D2

| Depth of Learning | Cognitive challenge | Nature of progress |
| --- | --- | --- |
| Basic (Fundamental Foundations) | 1 | Some evidence of some of the indicators |
| | 2 | Widespread evidence of some of the indicators |
| Advancing (Application of fundamental foundations) | 3 | Some evidence of most of the indicators |
| | 4 | Widespread evidence of most of the indicators |
| Deep (Inventive use of fundamental foundations) | 5 | Some evidence of all of the indicators |
| | 6 | Widespread evidence of all of the indicators |

## B.A.D. Assessment criteria cross referenced with the 2018/19 Interim Assessment Frameworks:

### **Mathematics** Key Stage 1 Working towards and working at the expected Standard

| | Pupil Can Statement - working towards the expected standard | Page (s) | | Pupil Can Statement - working at the expected standard | Page(s) |
|---|---|---|---|---|---|
| 1. | The pupil can partition a two-digit number into tens and ones to demonstrate an understanding of place value, though they may use structured resources to support them. | 8 | 1 | The pupil can partition two-digit numbers into different combinations of tens and ones, explaining their thinking verbally, in pictures or using apparatus. | 8 |
| 2. | The pupil can count in two's, five's and ten's from 0 and use this to solve problems. | 7 | 2 | The pupil can add and subtract any 2 two-digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus (e.g 48 + 35; 72-17) | 9 |
| 3. | The pupil can read and write numbers correctly in numerals up to 100. | 7 | 3 | The pupil can recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other | 8 |
| 4. | The pupil can recall at least four or six number bonds for 10 and reason associated facts (e.g 6+ 4= 10, therefore 4 + 6 = 10 and 10 - 6 =4) | 8 | | associated additive relationships (e.g. If 7 +3 =10, then 17 +3 = 20; if 7 -3 =4, then 17 -3 = 14; leading to if 14 + 3 = 17, then 3 + 14 = 17, 17 - 14 = 3 and 17 - 3 = 14) | |
| 5. | The pupil can add and subtract a two-digit number and ones, and a two-digit number and tens, where no regrouping is required, explaining their method verbally, in pictures or using apparatus (e.g. 23 + 5; 46+ 20; 88 -3 0) | 9 | 4 | The pupil can recall multiplication and division facts for the 2, 5 and 10 and use them to solve simple problems, demonstrating an understanding of commutativity as necessary. | 10 |
| 6. | The pupil knows the value of different coins | 14 | 5 | The pupil can identify $^{1}/3$ , $^{1}/4$ , $^{1}/2$ , $^{2}/4$ , $^{3}/4$ of a number or shape, and knows that all parts must be equal parts of the whole. | 10 |
| 7. | The pupil can name some common 2-D and 3-D shapes from a group of shapes or from pictures of the shapes and describe some of their properties (e.g. triangles, rectangles, squares, circles, cuboids, cubes, pyramids and spheres). | 11 | 6 | The pupil can use different coins to make the same amount. | 14 |
| | | | 7 | The pupil can read scales in divisions of one's, twos, fives and tens | 14 |
| | | | 8 | The pupil can read the time on the clock to the nearest 15 minutes. | 13 |
| | | | 9 | The pupil can describe properties of 2-D and 3-D shapes, including number of sides, vertices, edges, faces and lines of symmetry. | |
| | | | | | |

## Key Stage 1 Working at greater depth within the expected Standard

| | Pupil Can Statement | Page(s) |
|---|---|---|
| 10 | Pupil can read scales where not all numbers on the scale are given and estimate points in between. | 14 |
| 11 | The pupil can recall and use multiplication and division facts for 2,5 and 10 and make deductions outside known multiplication facts. | 10 |
| 12 | The pupil can use reasoning about numbers and relationships to solve more complex problems and explain their thinking (e.g 29 +17 = 15 + 4 + □; together Jack and Sam have £14. Jack has £2 more than Sam. How much money does Sam have? etc.) | 8,15 |
| 13 | The pupil can solve unfamiliar word problems that involve more than one step (e.g. 'which has the most biscuits, 4 packets of biscuits with 5 in each packet or 3 packets of biscuits with 10 in each packet. | 9, 10 |
| 14 | The pupil can read the time on the clock to the nearest 5 minutes. | 13 |
| 15 | The pupil can describe similarities and differences of 2-D and 3-D shapes, using their properties (e.g. that two different 2-D shapes both have only one line of symmetry; that a cube and a cuboid have the same number of egdes, faces and vertices, but different dimensions) | 11 |
| | | |

# Assessment criteria for mathematics

## Milestone 1

Note: Independently or 'without support' means – Choosing to by oneself not when asked.

| **Threshold Concept** | | Key Milestone Indicator(s) | Basic<br>Some of the following features will be seen within numbers. Some larger numbers in the descriptor may not yet be used. | Advancing<br>Most of the following features will be seen. | Deep<br>All of the following features will be seen. |
|---|---|---|---|---|---|
| To know and use numbers | Counting | Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. | With help or structure, there is counting forwards to and across 100, beginning with 0 or 1. | There is counting to and across 100, forwards and backwards from any given number. | Independently, there is counting to and across 100, forwards and backwards, from any given number. |
| | | Count, read and write numbers to 100 in numerals. | With support:<br>- Up to 10 objects can be counted<br>- Numbers to 10 can be read and written. | Generally, numbers between 0 and 100 are counted, written and ordered correctly. | Numbers between 0 and 100 are ordered correctly. |
| | | Given a number, identify one more and one less. | The number that comes next or before, with numbers 0–10, is identified, with reminders where necessary. | One more and one less than a given number are identified. | One more and one less than a given number are identified without support, even when using negative integers. |
| | | Count in steps of 2, 3, 5 and 10 from 0 or 1 and in tens from any number, forwards and backwards. [W5] | The pupil counts forwards from 0, in steps of 2, 5 and 10 and uses counting strategies to solve problems. [W5] | There is counting in steps of 2, 3, 5 and 10 from 0 or 1 and in tens from any number, forwards or backwards. | There is independent counting in steps of 2, 3, 5 and 10 from 0 or 1 and in tens from any number, forwards and backwards. |
| | Representing | Identify, represent and estimate numbers using different representations, including the number line. | Work is represented with objects or pictures with the support of a teacher and the use of the number line. | Generally, numbers are identified, represented and estimated using different representations. | Independently, numbers are identified, represented and estimated using different representations. |
| | | Read and write numbers initially from 1 to 20 and then to at least 100 in numerals and in words. [W3] | Numerals from 1 to 100 are counted correctly. [W3] | Numbers from 1 to 100 are generally read and written correctly in numerals and words. | Numbers from 1 to 100 are read and written correctly in numerals and words without support. |
| | Comparing | Use the language of equal to, more than, less than (fewer), most and least. | The language how many altogether, how many hidden, how many left, more than and less than is understood. | The language of equal to, more than, less than, most and least is generally used correctly. | The language of equal to, more than, less than, fewer, most and least is used correctly and independently. |
| | | Compare and order numbers from 0 up to 100; use <, > and = signs. | Numbers 1–10 can be placed in ascending order.<br><br>With support, the first, second, etc. in a line can be pointed at. | Generally, numbers between 0 and 100 are ordered correctly.<br><br>The signs <, > and = are used to compare numbers from 0 up to 100. | Numbers between 0 and 100 are ordered correctly.<br><br>The signs <, > and = are used to compare numbers from 0 up to 100 independently. |

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|---|---|---|---|---|---|
| | Place value | Recognise the place value of each digit in a two-digit number (tens, ones). [W1], [1] | The place value of each digit in a two-digit number is recognised. Apparatus may be required. [W1] | The place value of each digit in a two-digit number is recognised.<br><br>Two-digit numbers are partitioned. [1] | The place value of each digit in a two-digit number is recognised without support. |
| | | Use place value and number facts to solve problems. | Mathematical activities involving sorting, counting and measuring are accessed with support.<br><br>With the support of a teacher, place value and number facts are used to solve problems. | Place value and number facts are used to solve problems.<br><br>Generally, the starting point in a problem is found. | Place value and number facts are used to solve problems.<br><br>The starting point in a problem is found independently. |
| | | | | | |
| To add and subtract | Checking | Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. [12] | The terminology 'addition' and 'subtraction' is used when provided by the teacher.<br><br>Addition is understood as finding the total of two or more sets of objects.<br><br>Subtraction is understood as 'taking away' objects and seeing how many are left.<br><br>With support, simple estimation problems can be solved. | The inverse relationship between addition and subtraction is used in calculations to check for correct answers. [5]<br><br>The subtraction facts linked to addition facts are beginning to be recognised.<br><br>Estimation is used to check that a calculation is reasonable. | Missing number problems are solved independently by using estimation and the inverse relationship between addition and subtraction. [12] |
| | Using number facts | Represent and use number bonds and related subtraction facts to 20. [W4] [3] | When guidance is provided, number bonds and subtraction facts to 20 are represented and used. [W4] | With some reminders addition and subtraction facts to 20 are fluently used and number bonds within 20 are represented and used.[3] | Addition and subtraction facts to 20 are fluently used and recalled. |
| | | Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. | Number bonds and addition and subtraction facts to 20 are used and recalled, with reminders or prompts when needed. | Addition and subtraction facts to 20 are recalled fluently and used to derive related facts to 100. | Addition and subtraction facts to 100 are recalled fluently and independently. |

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|---|---|---|---|---|---|
| | Complexity | Solve one-step problems with addition and subtraction, using:<br><br>• Concrete objects and pictorial representations including those involving numbers, quantities and measures<br><br>• The addition (+), subtraction (–) and equals (=) signs. [13] | The symbols + and = are used to record additions.<br><br>The symbols – and = are used to record subtractions.<br><br>Addition and subtraction problems, involving up to 10 objects, are solved with prompts.<br><br>Using concrete objects and pictorial representations (including those involving numbers, quantities and measures) one-step addition and subtraction problems are solved.<br><br>With the support of a teacher, more complicated one-step problems with addition and subtraction can be answered. | Generally, one-step problems with addition and subtraction (including those involving numbers, quantities and measures) are solved.<br><br>The addition (+), subtraction (-) and equals (=) signs are understood and generally used correctly. | Underpinned by reasoning, one-step problems with addition and subtraction are solved independently. [13]<br><br>Underpinned by reasoning, two-step problems involving addition and subtraction are tackled and solved independently. [13]<br><br>The addition (+), subtraction (-) and equals (=) signs are used correctly and independently. |
| | Methods | Add and subtract numbers using concrete objects and pictorial representations and mentally, including: [W2], [2],<br><br>• One-digit and two-digit numbers to 20, including zero<br>• A two-digit number and ones [W2]<br>• A two-digit number and tens [W2]<br>• Two two-digit numbers [2]<br>• Adding three one-digit numbers. | Work is recorded with objects, pictures or diagrams.<br><br>Where no re-grouping is required, a two-digit number and ones is added or subtracted. [W2]<br><br>Where no re-grouping is required, a two-digit number and tens is added or subtracted. [W2] | Generally, two-digit and one-digit numbers can be added and subtracted independently.<br><br>A two-digit number and tens, two two-digit numbers and three one-digit numbers are added and subtracted (using concrete objects, pictorial representations and mentally) when reminders are provided. [2]<br><br>Where no re-grouping is required, two two-digit numbers are mentally subtracted. | Underpinned by reasoning, the following are added and subtracted independently:<br><br>• One-digit and two-digit numbers to 20, including zero<br>• A two-digit number and ones<br>• A two-digit number and tens<br>• Two two-digit numbers<br>• Three one-digit numbers are added mentally.<br>When re-grouping is required, two two-digit numbers are mentally subtracted. |
| | | Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. | With support there is an awareness that the addition of numbers can be done in any order and that the subtraction of one number from another cannot. | Generally, there is an understanding that two numbers can be added in any order but subtraction of one number from another cannot. | An understanding that two numbers can be added in any order but subtraction of one number from another cannot is secured. |
| | | | | | |

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|---|---|---|---|---|---|
| To multiply and divide | Methods | Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs. | There is an awareness of the multiplication and division operations.<br><br>There is an awareness of the signs x, ÷, = and what they represent. | Generally, calculations involving multiplication and division are completed accurately.<br><br>Generally, the signs x, ÷, = are used correctly. | Underpinned by reasoning, mathematical statements for multiplication and division are calculated and the signs x, ÷, = are used correctly.<br><br>Addition statements are re-written as simplified multiplication statements. |
| | | Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. | There is an awareness that multiplication of two numbers may be done in any order and division of one number by another cannot. | Generally, an understanding that multiplication of two numbers can be done in any order and division of one number by another cannot is shown. | There is a secure understanding that multiplication of two numbers can be done in any order and division of one number by another cannot. |
| | | Solve problems involving multiplication and division using mental methods. [4] | Simple multiplication and division problems, deriving from the 2, 5 and 10 multiplication tables, are solved mentally, with support if necessary. | Mental methods, deriving from the 2, 5 and 10 multiplication tables are developing in order to solve multiplication and division problems. [4] | Mental calculations can be recorded as number sentences and problems involving multiplication and division, using mental methods, can be solved correctly and independently. |
| | Checking | Use known multiplication facts to check the accuracy of calculations. | With the support of a teacher, multiplication facts are used to check the accuracy of calculations. | Generally, multiplication facts are applied to check the accuracy of calculations. | Multiplication facts are applied independently to check the accuracy of calculations. |
| | Complexity | Solve one-step (two-step at greater depth) problems involving multiplication and division. [13] | With the support of a teacher, concrete objects, pictorial representations and arrays and one-step problems involving multiplication and division are solved. | Generally, with the use of arrays if necessary, one-step problems involving multiplication and division are solved. | One-step problems, involving multiplication and division, are solved independently and accurately.<br><br>Two-step problems, involving multiplication and division, are solved accurately. [13] |
| | Using multiplication and division facts | Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables. | When help or structure is provided, multiplication and division facts for the 2, 5 and 10 multiplication tables are used.<br>The pupil can recall doubles and halves to 20. | Multiplication and division facts for the 2, 5 and 10 multiplication tables are recalled and used independently, with support if necessary. | The recall and use of multiplication and division facts for the 2, 5 and 10 multiplication tables are fluently applied. |
| | | Recognise odd and even numbers. | With the support of a teacher, pictorial representations, concrete objects and odd and even numbers are recognised. | Generally, odd and even numbers are recognised. | Odd and even numbers are recognised without support. |
| | | Use multiplication and division facts to solve problems. [11] | With the support of a teacher, pictorial representations, concrete objects and multiplication and division facts are used to solve problems. | Generally, problems are solved independently using multiplication and division facts. | Problems are solved independently using known and derived multiplication and division facts. [11]<br><br>Given known facts, remainders can be determined. |

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|---|---|---|---|---|---|
| | | | | | |
| To use fractions | Solving problems | Write simple fractions. | With support, an understanding of a $^1/2$ and $^1/4$ of a given quantity is shown. | Generally, simple fractions are written, e.g. $^1/2$ of 6 = 3. | The fractions $^1/2$ and $^1/4$ are used independently. |
| | Recognising fractions | Recognise, find and name a half as one of two equal parts of an object, shape or quantity. | With the support of a teacher, a half and a quarter are named and found by strategies such as: folding shapes in two or four, halving an even number of objects or being able to say when a container is half full. | $^1/2$ of an object, shape or quantity is recognised. | $^1/2$, $^1/3$, $^1/4$, $^2/4$ and $^3/4$ of an object, shape or quantity are recognised and named independently. |
| | | Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. | There is an emerging understanding that a quarter is one of four equal parts of an object, shape or quantity. | Generally, a group of objects can be split into halves and quarters independently. | A group of objects can be split into halves and quarters independently. |
| | | Recognise, find, name and write fractions $^1/3$, $^1/4$, $^2/4$ and $^3/4$ of a length, shape, set of objects or quantity. [5], | With the support of a teacher and pictorial representations or concrete objects, $^1/4$, $^2/4$, $^1/2$, $^1/3$ and $^3/4$ of a length, shape, set of objects or quantity are recognised, found and named. | $^1/2$, $^1/3$, $^1/4$, $^2/4$ and $^3/4$ of a length, shape, set of objects or quantity are generally recognised, named and written. [5] | $^1/2$, $^1/3$, $^1/4$, $^2/4$ and $^3/4$ of amounts are found and compared. |
| | Equivalence | Recognise the equivalence of $^2/4$ and $^1/2$. | When concrete objects, pictorial representations and the support of a teacher are provided, the equivalence of $^2/4$ and $^1/2$ is recognised. | Generally, the equivalence of $^2/4$ and $^1/2$ is recognised as a decimal or percentage. | The equivalence of $^2/4$, $^1/2$ and other fractions, such as $^1/3$, $^2/3$, $^1/5$, etc., is recognised without prompts. |
| | | | | | |
| To understand the properties of shapes | | Recognise and name common 2-D and 3-D shapes. [W7] | Common 2-D and 3-D shapes are recognised and grouped. [W7] | Common 2-D and 3-D shapes are recognised from pictures of them. | Properties of 2-D and 3-D shapes are identified and described and the 2-D shape on the surface of a 3-D shape is identified. |
| | | Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. [9], [15] | Simple properties of 2-D shapes are described, such as side or corner. Through supported activity such as folding, there is an awareness of symmetry. | Generally, 2-D shapes are described accurately, including their lines of symmetry. [9] | 2-D shapes are sorted and compared and similarities and differences between shapes noted. [15] |
| | | Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. [9], [15] | Simple properties of 3-D shapes are described, such as the number of faces. | Generally, 3-D shapes are described accurately, including the number of edges, vertices and faces. [9] | 3-D shapes are sorted and compared and similarities and differences between shapes noted. [15] |

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|---|---|---|---|---|---|
| | | Identify 2-D shapes on the surface of 3-D shapes. | With support, 2-D faces on the surface of 3-D shapes are recognised. | Generally, 2-D faces on the surface of 3-D shapes are recognised and used to describe 3-D shapes. | 2-D faces on the surface of 3-D shapes are recognised independently and form part of independently created criteria for sorting. |
| | | Compare and sort common 2-D and 3-D shapes and everyday objects. | Simple 2-D shapes on the surface of 3-D shapes are identified. | 2-D and 3-D shapes and everyday objects are sorted using one criterion. | 2-D and 3-D shapes are sorted using more than one criterion. |
| | | | | | |
| To describe position, direction and movement | | Describe position, direction and movement, including whole, half, quarter and three-quarter turns. | Position and direction can be described with the support of a teacher. There is an awareness of the terms whole, half, quarter and three-quarter turns. | Generally, position, direction and movement can be described using the terms whole, half, quarter and three-quarter turns. | Independently, position, direction and movement can be described. |
| | | Order and arrange combinations of mathematical objects in patterns and sequences. | A simple pattern of objects, shapes or numbers is copied and continued with support, reminders or prompts. | Generally, combinations of mathematical objects in patterns and sequences are ordered correctly.<br><br>Sequences in regular steps are continued.<br><br>The positions of objects in a row (first, second, third, etc.) can be described. | Combinations of mathematical objects in patterns and sequences are ordered and arranged correctly and independently.<br><br>Predictions are made for what comes next in a pattern and reasons are given for this prediction without support. |
| | | Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise). | Generally, language such as behind, under, on top of, next to etc. is used and responded to.<br><br>Generally, directional language such as forwards, backwards, turn, etc., is used and responded to. | Generally, the language half turns, quarter turns and whole turns is used to describe position, direction and movement.<br><br>Left and right are used correctly when directions are given. | Right angles in turns are recognised without support.<br><br>The language half turns, quarter turns and whole turns is used to describe position, direction and movement independently.<br><br>A good range of mathematical vocabulary to describe position, direction and movement is used.<br><br>Left, right, clockwise and anticlockwise are used correctly when directions are given. |
| To use measures | | Compare, describe and solve practical problems for: lengths and heights, mass/weight, capacity and volume and time. | With the support of a teacher, practical problems for a range of measures are described and solved. | Generally, practical problems for a range of measures, including lengths and heights, mass/weight, capacity, volume and time, are compared, described and solved. | Practical problems for a range of measures including lengths and heights, mass/ weight, capacity, volume and time, are compared, described and solved without help. |

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|---|---|---|---|---|---|
| | | Measure and begin to record: lengths and heights, mass/weight, capacity and volume, time (hours, minutes, seconds). | With help, a range of measures are measured in a variety of ways:<br>• Lengths are compared and put into an order.<br>• Objects that are shorter/longer than 1m, heavier/lighter than 500g, hold more/less that 1 litre can be found. | Generally, a range of measures are measured and recorded.<br>Tools needed for measuring are chosen when prompted. | A range of measures are measured and recorded independently.<br>Tools needed for measuring are chosen independently. |
| | | Sequence events in chronological order using language. | With prompts or support, events can be sequenced in chronological order, using language such as first, second, last, etc. | Events can be sequenced in chronological order, using language such as: first, second, last. | Events can be sequenced in chronological order, using language such as first, second, last, and questions about the timings of these events can be answered and asked independently. |
| | | Recognise and use language relating to dates, including days of the week, weeks, months and years. | Language for the days of the week is used and language for months and years is emerging. | Language relating to dates, including days of the week, weeks, months and years, is generally used correctly. | Language relating to dates, including days of the week, weeks, months, years and decades is used independently. |
| | | Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. [8], [14] | With support, the time is read to the hour and there is an emerging understanding of the half hour.<br>With the support of a teacher, the hands on a clock face are drawn to represent the time to the hour. | The number of minutes in an hour and the number of hours in a day is known and generally used to solve problems.<br>Generally, time to the hour, half past the hour and quarter past/to the hour is told and the hands on a clock face to show these times are drawn. [8]<br>Intervals of time can be compared and sequenced independently.<br>Time to five minutes is beginning to be recognised. | The number of minutes in an hour and the number of hours in a day is known and used to solve problems independently.<br>Time to the hour, half past the hour, quarter to and quarter past the hour and to five minutes is told and the hands on a clock face to show these times are drawn independently. [14]<br>Intervals of time can be compared and sequenced independently. |

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|---|---|---|---|---|---|
| | | Use standard units to estimate and measure length/height (m/cm), mass (kg/g), temperature (°C) and capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. [7], [10] | With the support of a teacher and practical measuring apparatus, such as rulers, scales, thermometers and measuring vessels, the following can be measured as accurately as possible:<br>• length/height in cm/m<br>• mass in kg/g<br>• temperature in °C<br>• capacity in ml/l. | Generally, by using measuring apparatus, such as rulers, scales, thermometers and measuring vessels, the following can be measured to the nearest appropriate unit: [7]<br>• length/height in cm/m<br>• mass in kg/g<br>• temperature in °C<br>• capacity in ml/l.<br>(When all numbers on the scale are given.) | By using measuring apparatus, such as rulers, scales, thermometers and measuring vessels, the following can be measured to the nearest appropriate unit: [10]<br>• length/height in mm/cm/m<br>• mass in kg/g<br>• temperature in °C<br>• capacity in ml/l.<br>(When not all numbers on the scale are given.)<br>A wider range of measures, such as a right angle checker and a timeline, are used without support. |
| | | Compare and order lengths, mass, volume/capacity and record the results using >, < and =. | With the support of a teacher, the signs <, > and = are understood and used to order lengths, mass and volume/ capacity. | Generally, the signs <, > and = are used to compare and order lengths, mass and volume/capacity. | The signs <, > and = are used to compare and order lengths, mass and volume/ capacity independently. |
| | | Recognise and know the value of different denominations of coins and notes. [W6] [6] | With concrete objects and pictorial representations, the value of different denominations of coins and notes is generally recognised. | The value of different denominations of coins and notes is recognised. [6] | The value of different denominations of coins and notes is recognised and used to solve problems without support. |
| | | Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. | The symbols £ (pounds) and p (pence) are recognised and, with the support of a teacher, used. | Generally, the symbols £ (pounds) and p (pence) are recognised and used and combined to make particular values. It is understood that there are 100p in £1. | The symbols £ (pounds) and p (pence) are recognised, used and combined to make particular values. It is securely understood that there are 100p in £1 and this knowledge can be used to convert pence into pounds and pence. |
| | | Find different combinations of coins that equal the same amount of money. [8] | With the support of a teacher, different combinations of coins that equal the same amount of money are found. | Generally, combinations of coins that equal the same amounts of money are found. [8] | Combinations of coins that equal the same amount of money are applied in a wide range of contexts. |
| | | Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. | With the support of a teacher and concrete objects, simple addition and subtraction problems involving money of the same unit are solved. With the support of a teacher and concrete objects, change can also be given. | Simple addition and subtraction problems involving money of the same unit and giving change are solved independently – concrete objects may be needed for this. | More complicated addition and subtraction problems involving pounds and pence and giving change, are solved independently. |
| | | | | | |

| Threshold Concept | | Key Milestone Indicator(s) | Basic<br>Some of the following features will be seen within numbers. Some larger numbers in the descriptor may not yet be used. | Advancing<br>Most of the following features will be seen. | Deep<br>All of the following features will be seen. |
|---|---|---|---|---|---|
| To use statistics | | Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. | Simple pictograms, tally charts, block diagrams and tables are constructed with support. | Simple pictograms, tally charts, block diagrams and simple tables are constructed. | Pictograms, tally charts, block diagrams and simple tables are constructed and interpreted independently. |
| | | Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. | Sorting takes place, using one or two simple criteria, such as boy/girl.<br><br>Objects can be sorted into a given large-scale Venn or Carroll diagram with support.<br><br>Objects and pictures are used to create simple block diagrams and pictograms with support. | Generally, questions about totalling and comparing categorical data are answered correctly.<br><br>Data can be collected and sorted to test a simple question.<br><br>Vocabulary such as sort, group, set, table, most common and least popular is understood. | Questions about totalling and comparing categorical data are asked and answered accurately and without support.<br><br>Questions about any information gathered can be asked for other children to answer.<br><br>Venn and Carroll diagrams are used to sort and record information independently. |
| | | Ask and answer questions about totalling and comparing categorical data. | With the support of a teacher, addition and subtraction problems involving missing numbers are solved. | Addition and subtraction problems, involving missing numbers, are solved. | More complex addition and subtraction problems, involving missing numbers, are solved independently and accurately. |
| | | | | | |
| To use algebra | | Solve addition and subtraction problems involving missing numbers. [12] | With the support of a teacher, addition and subtraction problems involving missing numbers are solved. | Addition and subtraction problems, involving missing numbers, are solved. | More complex addition and subtraction problems, involving missing numbers, are solved independently and accurately. [12] |

# Assessment criteria for mathematics

## Milestone 2

Note: Independently or 'without support' means – Choosing to by oneself not when asked.

| **Threshold Concept** | | Key Milestone Indicator(s) | Basic<br>Some of the following features will be seen within numbers, some larger numbers may not yet be used. | Advancing<br>Most of the following features will be seen. | Deep<br>All of the following features will be seen. |
|---|---|---|---|---|---|
| To know and use numbers | Counting | Count in multiples of 2 to 9, 25, 50, 100 and 1000. | With concrete objects, there is counting in multiples of 2 to 9, 25, 50, 100 and 1000. | There is counting in multiples of 2, to 9, 25, 50, 100 and 1000. | There is independent and fluent counting in multiples of 2 to 9, 25, 50, 100 and 1000 in a wide range of situations. |
| | | Find 1000 more or less than a given number. | With support from a teacher there is some evidence of finding 1000 more or less than some numbers. | Generally, 1000 more or less than a given number is found. | 1000 more or less than a given number, including negative numbers, can be found. |
| | | Count backwards through zero to include negative numbers. | There is a process of counting backwards to zero but prompts may be needed. | There is counting backwards to zero and through zero and negative numbers are recognised. | There is fluent counting backwards through zero to negative numbers in a wide range of situations. |
| | Representing | Identify, represent and estimate numbers using different representations. | With support, numbers are represented as a collection of ones, groups of ten and groups of 100.<br><br>With support estimation is attempted. | Generally, numbers are represented both pictorially and in writing in groups of ones, tens and hundreds.<br><br>Estimation is generally accurate. | Numbers are independently represented in a variety of written and pictorial forms.<br><br>Estimation is accurate and justified. |
| | | Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. | With support, Roman numerals on a clock can be read. | Roman numerals to 100 (I to C) are read. | Independently, Roman numerals are read up to 100 (C) and years written in Roman form are deciphered. |
| | Comparing | Order and compare numbers beyond 1000. | With the support of a teacher, place value in numbers up to 1000 is understood and these numbers can be ordered. | The place value in numbers beyond 1000 is understood and these numbers can be ordered and compared. | Numbers beyond 1000 can be ordered and compared independently and the place value in numbers beyond 1000 is understood. |

| Threshold Cocnept | | Key Milestone Indicator(s) | Basic<br>Some of the following features will be seen within numbers, some larger numbers may not yet be used. | Advancing<br>Most of the following features will be seen. | Deep<br>All of the following features will be seen. |
|---|---|---|---|---|---|
| | Place value | Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones). | The place value of each digit in a two-digit whole number is recognised.<br><br>With reminders, the place value of each digit in a three-digit number is recognised. | Generally the place value of each digit in a four-digit whole number is recognised. | Place value can be used to make approximations.<br><br>The place value of each digit in a four-digit whole number is recognised.<br><br>Some decimal numbers are recognised, e.g. in the number 132.73, the value of the number 7 is understood as 7/10ths. |
| | | Round any number to the nearest 10, 100 or 1000. | When models or frameworks are provided, any number is rounded to the nearest 10 or 100. | Generally, any number is rounded accurately to the nearest 10, 100 or 1000. | Independently, any number is rounded to the nearest 10, 100 and 1000. |
| | Solving problems | Solve number and practical problems with increasingly large positive numbers. | With concrete objects, apparatus and guidance, number problems can be solved.<br><br>Equipment is beginning to be chosen to help solve problems. | Number and practical problems with large positive numbers are solved.<br><br>Patterns in results are looked for when problem solving.<br><br>Generally, there is a secure awareness of which operation to use when solving problems. | Systematically and in an organised manner, number and practical problems (with increasingly large positive numbers) can be solved independently.<br><br>Discussion is used to break down a problem.<br><br>The operation needed in order to solve problems is identified independently. |
| | | | | | |
| To add and subtract | Checking | Estimate and use inverse operations to check answers to a calculation. | When help or structure is provided, the inverse operations are used to check answers to a calculation. | Generally, during problem solving, work is checked and corrections are made.<br><br>Generally, inverse relationships are used to find missing numbers in a number sentence and to check answers to a calculation. | Work is checked and corrections are made independently during problem solving.<br><br>Without support, inverse relationships are used to find missing numbers in a number sentence and to check answers to a calculation. |
| | Using number facts | Solve two-step addition and subtraction problems in contexts, deciding which operations and methods to use and why. | There is an awareness of how to solve two-step problems using number facts and place value.<br><br>With the support of a teacher, simple missing number problems can be solved using number facts and place value. | Generally, two-step number problems, including missing number problems, are tackled and solved using number facts, place value and addition and subtraction. | Independently, two-step number problems, including missing number problems and balancing equations, are solved using more complex addition and subtraction. |

| **Threshold Concept** | | Key Milestone Indicator(s) | Basic<br>Some of the following features will be seen within numbers, some larger numbers may not yet be used. | Advancing<br>Most of the following features will be seen. | Deep<br>All of the following features will be seen. |
|---|---|---|---|---|---|
| | Complexity | Solve two-step addition and subtraction problems in contexts, deciding which operations and methods to use and why. | With the support of a teacher and practical apparatus, two-step addition and subtraction problems are solved. | Two-step problems, involving addition and subtraction, are solved in different contexts.<br><br>The most appropriate operations and methods are chosen and used to solve problems. | Two-step problems in contexts, involving addition and subtraction, are systematically solved.<br><br>The most appropriate methods and operations are chosen and used to solve two-step addition and subtraction problems independently. |
| | Methods | Add and subtract numbers with up to four digits using the formal written methods of columnar addition and subtraction where appropriate. | With the support of a teacher, the correct formal written methods are used to add and subtract numbers up to four-digits. | Generally, the formal written methods of columnar addition and subtraction are used to add and subtract numbers up to four-digits. | Independently, the columnar addition and subtraction methods are used to add and subtract numbers with up to four-digits correctly. |
| | | Add and subtract numbers mentally, including:<br><br>• A three-digit number and ones<br>• A three-digit number and tens<br>• A three-digit number and hundreds | With prompts, three-digit numbers and ones are added and subtracted mentally. | Three-digit numbers and ones and three-digit numbers and tens are added and subtracted mentally. Reminders may be needed to address mistakes.<br><br>Three-digit numbers and hundreds are added and subtracted mentally. | Three-digit numbers and ones, three-digit numbers and tens and three-digit numbers and hundreds are added and subtracted mentally and quickly. |
| | | | | | |
| To multiply and divide | Methods | Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. | Using practical apparatus, two-digit numbers are multiplied by a one-digit number.<br><br>With support calculations are represented using a formal written layout. | Two-digit numbers can be multiplied and divided by a one-digit number, using formal written layout accurately.<br><br>With reminders, three-digit numbers can be multiplied and divided by a one-digit number, using formal written layout. | Independently, two-digit and three-digit numbers are multiplied by a one-digit number using formal written layout correctly. |

| Learning Objective | | Key Milestone Indicator(s) | Basic<br>Some of the following features will be seen within numbers, some larger numbers may not yet be used. | Advancing<br>Most of the following features will be seen. | Deep<br>All of the following features will be seen. |
|---|---|---|---|---|---|
| | | Use place value, and known and derived facts to multiply and divide mentally, including multiplying by 0 and 1, dividing by 1, multiplying together three numbers. | With the support of a teacher and the use of concrete objects, two-digit numbers can be multiplied and divided by 2, 3, 4 and 5.<br><br>When reminders of strategies to support are given, simple multiplication and division facts can be solved mentally, including multiplying and dividing by 1. | Generally, place value and known multiplication and division facts are used to divide and multiply mentally, including multiplying by 0 and 1.<br><br>Two-digit numbers can be multiplied by 2, 3, 4 and 5 mentally.<br><br>Generally, three numbers can be multiplied together.<br><br>Two-digit and three-digit numbers are multiplied by 0 and 1 and two-digit and three digit numbers are divided by 1 mentally with reminders occasionally needed. | The following mental calculations occur independently:<br>• multiplying two-digit and three-digit numbers by 0 and 1<br>• dividing two-digit and three-digit numbers by 1<br>• multiplying three numbers together.<br><br>Place value and known multiplication and division facts are used to divide and multiply mentally, including multiplying by 0 and 1. |
| | | Recognise and use factor pairs in mental calculations. | With the support of a teacher and pictorial representations, factor pairs are recognised. | Generally, factor pairs in mental calculations are used and recognised, e.g. 1 x 48 = 48, 2 x 24 = 48, 3 x 16 = 48. | Factor pairs in mental calculations are used and recognised, e.g. 1 x 48 = 48, 2 x 24 = 48, 3 x 16 = 48. |
| | Checking | Recognise and use the inverse relationship between multiplication and division and use this to check calculations and solve missing number problems. | There is an awareness of the inverse relationship between multiplication and division. With the support of a teacher, this is used to solve problems and at times to check calculations.<br><br>With support, division facts can be found from a known multiplication fact. | The inverse relationship between multiplication and division is recognised.<br><br>The inverse relationship between multiplication and division is used to solve problems and check calculations.<br><br>Division facts can be found from a known multiplication fact. | The inverse relationship between multiplication and division is used to check calculations and to solve problems independently. |
| | Complexity | Solve problems involving multiplying and dividing, including using the distributive law to multiply two-digit numbers by one-digit, integer scaling problems and harder correspondence problems (such as n objects are connected to m objects). | Using pictorial representations, concrete objects and at times the support of a teacher, simple multiplication and division problems are solved. | Generally there is an understanding of the distributive law: multiplying a number by a group of numbers added together is the same as doing each multiplication separately, e.g. 3 x (2 + 4) = (3 x 2) + (3 x 4).<br><br>The distributive law and other multiplication and addition methods are used to solve:<br><br>• Problems involving multiplying two-digit numbers by a one-digit number<br>• Integer scaling problems<br>• Correspondence problems. | The distributive law and other multiplication and addition methods are used to solve:<br><br>• Problems involving multiplying two-digit numbers by a one-digit number without support.<br>• Problems involving multiplying three-digit numbers by a one-digit number without support.<br>• Integer scaling problems without support.<br>• More complex correspondence problems without support. |

| **Threshold Concept** | | Key Milestone Indicator(s) | Basic<br>Some of the following features will be seen within numbers, some larger numbers may not yet be used. | Advancing<br>Most of the following features will be seen. | Deep<br>All of the following features will be seen. |
|---|---|---|---|---|---|
| | Using multiplication and division facts | Recall multiplication and division facts for multiplication tables up to 12 x 12. | Generally, multiplication and division facts for multiplication tables 2, 5 and 10 are recalled.<br><br>With support, multiplication and division facts are recalled for 3 and 4 multiplication tables. | Multiplication and division facts are recalled for 2, 3, 4, 5 and 10 multiplication tables at speed.<br><br>Generally and with a few reminders or corrections, multiplication and division facts for multiplication tables up to 12 x 12 can be recalled. | Multiplication and division facts for multiplication tables up to 12 x 12 are recalled at speed.<br><br>Multiplication and division questions involving multiples of 10, 100, 1000, etc. are answered by using times table facts, e.g. 6 x 6 = 36 so 60 x 6 = 360. |
| | | | | | |
| To use fractions | Solving problems | Add and subtract fractions with the same denominator within one whole. | With concrete objects and pictorial representations, fractions with the same denominator within one whole are added and subtracted, e.g. $^{2}/7 + ^{3}/7 = ^{5}/7$. | Fractions with the same denominator within one whole are added and subtracted. | Fractions with the same denominator within one whole are added and subtracted independently. |
| | | Solve problems involving increasingly harder fractions. | With the support of a teacher, there is problem solving involving $^{1}/2$ and $^{1}/4$ as fractions, decimals and percentages. | Generally, fractions with the same denominator are added and subtracted correctly, e.g. $1\ ^{1}/4 – ^{3}/4 = ^{1}/2$. | Problems involving increasingly harder fractions, such as improper fractions, fractions with different denominations, etc. are solved. |
| | | Add and subtract fractions with the same denominator. | With the support of a teacher, problems such as . + . are solved. | Problems involving fractions with the same denominator are solved. | Independently, fractions with the same denominator are added and subtracted. |
| | | Find the effect of dividing a one or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. | With the support of a teacher and practical apparatus, the effect of dividing a one or two-digit number by 10 is found and the value of the digits in the answer are identified as ones, tenths and hundredths. | The effect of dividing a one- or two-digit number by 10 and 100 is found and the value of the digits in the answer are identified as ones, tenths and hundredths, e.g. 136 ÷ 100 = 1.36 and the value of the number 3 in the answer is 3 tenths. | Independently, the effect of dividing a one- or two-digit number by 10, 100 or 1000 is found and the value of the digits in the answer are identified as ones, tenths, hundredths and thousandths. |
| | | Solve simple measure and money problems involving fractions and decimals to two decimal places. | When models are provided, such as concrete objects and pictorial images, measure and money problems involving fractions and decimals to two decimal places are solved. | Generally, simple measure and money problems involving fractions and decimals to two decimal places are solved. | Measure and money problems involving fractions and decimals to two decimal places are solved independently. |
| | Recognising fractions | Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. | With concrete objects and pictorial images, and the support of a teacher, $^{1}/2$, $^{1}/3$ and $^{1}/4$ of a discrete set of objects are found. | $^{1}/2$, $^{1}/4$, $^{1}/3$ and $^{1}/5$ of a discrete set of objects are generally recognised and used.<br><br>Non-unit fractions are recognised and used (e.g. $^{2}/3$). | Fractions of a discrete set of objects or numbers are recognised independently.<br><br>Non-unit fractions of a discrete set of objects or numbers are identified. |
| | | Round decimals with one decimal place to the nearest whole number. | With support decimals with one place are rounded to the nearest whole number. | Decimals with one place are rounded to the nearest whole number. | Independently decimals with one place are rounded to the nearest whole number. |

| Learning Objective | | Key Milestone Indicator(s) | Basic<br>Some of the following features will be seen within numbers, some larger numbers may not yet be used. | Advancing<br>Most of the following features will be seen. | Deep<br>All of the following features will be seen. |
|---|---|---|---|---|---|
| | | Compare numbers with the same number of decimal places up to two decimal places. | With support, two numbers with two decimal places are ordered correctly. | Generally, any sets of numbers with two decimal places are ordered correctly. | Independently, any sets of numbers with two decimal places are ordered correctly. |
| | | Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and from dividing one-digit numbers or quantities by 10. | Within the context of counting money and metric measures, there is an emerging understanding that tenths arise from dividing a measure into 10 equal parts and from dividing one-digit numbers or quantities by 10. | Generally, the metric measure system is used to count in tenths and to explain that tenths arise from dividing a measure into 10 equal parts.<br><br>With support, one-digit numbers or quantities are divided by 10. | One-digit numbers or quantities are independently divided by 10. |
| | | Count up and down in hundredths; recognise that hundredths arise from dividing an object by 100 and dividing tenths by 10. | With support, counting up and down in tenths and hundredths is correct. | Generally, counting up and down in tenths and hundredths is correct.<br><br>It is generally recognised that tenths or hundredths arise from dividing an object into 10 or 100 equal parts and from dividing one-digit numbers or quantities by 10 or 100. | Counting up and down in tenths and hundredths is correct and takes place independently.<br><br>It is recognised that tenths and hundredths arise from dividing an object into 10, 100 equal parts and from dividing one-digit numbers or quantities by 10 or 100.<br><br>Generally counting up and down in thousandths is accurate. |
| | | Compare and order unit fractions and fractions with the same denominators. | With support from the teacher, along with pictorial representations, unit fractions and fractions with the same denomination are ordered. | Generally, unit fractions and fractions with the same denominators are ordered. | Unit fractions and fractions with the same denominators are compared and ordered.<br><br>Generally, non-unit fractions are ordered correctly. |
| | | Recognise and show, using diagrams, families of common equivalent fractions. | With the support of a teacher and by using diagrams, families of common equivalent fractions are recognised. | Families of common equivalent fractions are recognised and shown, e.g. $^1/2$ is equivalent to $^2/4$, $^3/6$, $^4/8$, etc. | Families of common equivalent fractions are recognised and shown independently, e.g. $^1/2$ is equivalent to $^2/4$, $^3/6$, $^4/8$, etc. |
| | | Recognise the equivalence of $^2/4$ and $^1/2$. | When concrete objects, pictorial representations and the support of a teacher are provided, the equivalence of $^2/4$ and $^1/2$ is recognised. | Generally, the equivalence of $^2/4$ and $^1/2$ is recognised. | The equivalence of $^2/4$ and $^1/2$ is recognised in a wide range of situations. |
| | Equivalence | Recognise and write decimal equivalents of any number of tenths or hundredths. | With the support of a teacher, a decimal equivalent to $^1/10$ is recognised. | Generally, decimal equivalents of any number of tenths are recognised and written.<br><br>Decimal equivalents of any number of tenths or hundredths are recognised and written. | Decimal equivalents of any number of tenths or hundredths are recognised and written independently in a wide range of situations. |

| Threshold Concept | | Key Milestone Indicator(s) | Basic<br>Some of the following features will be seen within numbers, some larger numbers may not yet be used. | Advancing<br>Most of the following features will be seen. | Deep<br>All of the following features will be seen. |
|---|---|---|---|---|---|
| | | Recognise and write decimal equivalents to $^1/4$, $^1/2$, $^3/4$. | There is an emerging understanding of the decimal equivalent to $^1/4$. | Generally, decimal equivalents to $^1/4$, $^1/2$ and 3/4 are recognised and written correctly. | Decimal equivalents to $^1/4$, $^1/2$ and $^3/4$ are recognised and written correctly and independently. |
| | | | | | |
| To understand the properties of shapes | | Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. | With guidance, 2-D shapes can be drawn and 3-D shapes made using modelling materials. Basic properties, e.g. number of sides, lines of symmetry, etc., are described. | Generally, 2-D shapes can be drawn and 3-D shapes made using modelling materials. 3-D shapes in different orientations are recognised. | 2-D shapes can be drawn and 3-D shapes made using modelling materials. 3-D shapes in different orientations are recognised without support. |
| | | Recognise angles as a property of shape or a description of a turn. | With support, turns of 90 degrees are recognised. | Generally, angles, as a property of shape, are recognised and described, including 90 and 180 degrees. | Angles, as a property of shape or description of a turn, are recognised and described, including 90, 180, 270 and 360 degrees. |
| | | Identify right angles; recognise that two right angles make a half turn, three make three quarters of a turn and four make a complete turn; identify whether angles are greater than or less than a right angle. | With support, right angles can be identified and angles which are greater than or less than a right angle are identified. | Generally, right angles, obtuse angles and acute angles are identified, compared and ordered correctly and the correct terminology is used.<br><br>Right-angled or equilateral triangles are recognised. When reminders are given, isosceles and scalene triangles are identified. | Right angles, obtuse angles, acute angles and reflex angles are identified correctly and independently.<br><br>Angles as a measure of a turn are recognised, e.g. there is a secure understanding that 180° (two right angles) is a half turn, 270° (three right angles) is three quarters of a turn and that 360° (four right angles) is a whole turn. Right-angled, isosceles, scalene and equilateral triangles are recognised independently. |
| | | Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. | Horizontal and vertical lines are identified correctly. | Horizontal and vertical lines are identified independently and pairs of perpendicular and parallel lines are generally identified correctly. | Horizontal and vertical lines and pairs of perpendicular and parallel lines are identified correctly and without support |
| | | Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. | When prompts are given, geometric shapes, including triangles and quadrilaterals, are classified.<br><br>With support from a teacher, different types of triangles, such as equilateral, scalene, isosceles and right-angled, are classified.<br><br>With the support of a teacher, the net for a cube is created. | Geometric shapes, including triangles and quadrilaterals, are generally classified.<br><br>Generally there is classification of triangles into equilateral, scalene, isosceles and right-angled triangles, using the properties of shape. | Geometric shapes, including triangles and quadrilaterals are classified and there is classification of triangles into equilateral, scalene, isosceles and right-angled triangles, using the properties of shape. |

| Learning Objective | | Key Milestone Indicator(s) | Basic<br>Some of the following features will be seen within numbers, some larger numbers may not yet be used. | Advancing<br>Most of the following features will be seen. | Deep<br>All of the following features will be seen. |
|---|---|---|---|---|---|
| | | Identify acute and obtuse angles and compare and order angles up to two right angles by size. | With support from a teacher, the terminology acute and obtuse is beginning to be used. | Generally, angles are compared and ordered up to 180 degrees.<br><br>Generally, the language of obtuse and acute angles is used in describing angles. | Angles are independently ordered and compared. |
| | | Identify lines of symmetry in 2-D shapes presented in different orientations. | Lines of symmetry in simple 2-D shapes, such as squares, rectangles and equilateral triangles, are identified with support. | Generally, lines of symmetry in 2-D shapes presented in different orientations are identified. | Lines of symmetry in 2-D shapes presented in different orientations are identified correctly and independently.<br><br>When using a vertical or horizontal line of symmetry, symmetric figures are completed. |
| | | Complete a simple symmetric figure with respect to a specific line of symmetry. | With the support of a teacher and when using a vertical line of symmetry, simple symmetric figures are completed. | When using a vertical or horizontal line of symmetry, simple symmetric figures are completed.<br><br>Nets of 3-D shapes have started to be recognised and some nets for more common 3-D shapes can be created. | Generally, shapes can be reflected at 45° to a mirror line.<br><br>Nets of a variety of 3-D shapes are recognised and constructed. |
| | | | | | |
| To describe position, direction and movement | | Recognise angles as a property of shape and as an amount of rotation. | With the support of a teacher, angles are recognised as a property of shape.<br><br>With support, rotations of 90 or 180, can be related to $^1/4$ and $^1/2$ turns. | Angles are recognised as a property of shape and as an amount of rotation. | Angles are recognised as a property of shape and as an amount of rotation, without support. |
| | | Identify angles that are greater than a right angle. | With support, angles greater than 90 degrees are recognised and described as obtuse. | Angles that are greater than a right angle are identified and called obtuse angles.<br><br>Angles greater than 180 degrees are described as reflex angles. | Angles are sorted in terms of less than, equal to or greater than a right angle.<br><br>The terminology of acute, right angle, obtuse and reflex is used to describe angles. |
| | | Describe positions on a 2-D grid as coordinates in the first quadrant. | The x and y axis are identified on a coordinate grid.<br><br>When help or structure is provided, positions on a 2-D grid, as coordinates in the first quadrant, e.g. (2,2), are described. | Positions on a 2-D grid, as coordinates in the first quadrant, e.g. (2,2), are described and plotted. | Positions on a 2-D grid, as coordinates in the first, second, third or fourth quadrant, e.g. (-2,2) are described. |

| Threshold Concept | | Key Milestone Indicator(s) | Basic<br>Some of the following features will be seen within numbers, some larger numbers may not yet be used. | Advancing<br>Most of the following features will be seen. | Deep<br>All of the following features will be seen. |
|---|---|---|---|---|---|
| | | Describe movements between positions as translations of a given unit to the left/right and up/down. | There is an awareness of the following terminology for position, direction and movement: left/right, clockwise/ anticlockwise, 90° to give directions. | The following directional terminology: left/right, clockwise/anticlockwise, 90°, is understood and used correctly to describe position, direction and movement. | Shapes can be reflected on a vertical and horizontal mirror line independently.<br><br>Movements between positions, as translations of a given unit are described and translations using vectors are plotted. |
| | | Plot specified points and draw sides to complete a given polygon. | With support from the teacher and structured activity provided, specific points are plotted on a coordinate grid to complete a triangle or square. | Specified points are plotted on a coordinate grid and sides are drawn to complete a given polygon, e.g. a hexagon. | Independently, specified points are plotted on a coordinate grid and sides are drawn to complete a given polygon, e.g. a hexagon. |
| To use measures | | Measure, compare, add and subtract: lengths/heights (m/cm/ mm); mass/weight (kg/g); volume/ capacity (l/ml). | With support, measurements are taken and recorded.<br><br>With support and practical apparatus, measurements are added and subtracted. | Generally, measurement scales are understood and measurements are taken and recorded.<br><br>Generally, a series of measurements are added and subtracted. | Independently, a wide range of measures are taken and recorded accurately.<br><br>Addition and subtraction problems involving measures are independently completed. |
| | | Measure the perimeter of simple 2-D shapes. | The terms area and perimeter are beginning to be understood.<br><br>With support, the perimeter of simple 2-D shapes is measured in cm and m. | Generally, the terminology of area and perimeter is secure and used correctly.<br><br>The perimeter of a rectilinear figure (including squares) in centimetres and metres is measured and calculated. | The terminology of area and perimeter is secure and used to calculate accurately. |
| | | Add and subtract amounts of money to give change (£ and p). | With the support of a teacher and with practical apparatus, amounts of money can be added and subtracted to give change within one pound. | Generally, amounts of money can be added and subtracted to give change. | Amounts of money can be added and subtracted to give change confidently and correctly. |
| | | Read, write and convert time between analogue and digital 12- and 24-hour clocks, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. | With the support of a teacher, the time can be understood from an analogue clock, including when using Roman numerals. | Times are read, written and converted between analogue and digital 12- and 24-hour clocks, (e.g. 3 o'clock – 15:00hrs). | Without support, times are read, written and converted between analogue and digital 12- and 24-hour clocks, (e.g. 3 o'clock – 15:00hrs). |
| | | Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use appropriate vocabulary. | With the support of a teacher, a 12-hour clock can be read and time duration within the hour estimated. | Generally, time is estimated to the nearest minute, five minutes, quarter, half and three quarters of an hour.<br><br>Time is compared and recorded, and the correct vocabulary is used: hours, minutes, seconds, etc. | Generally, time is estimated to the nearest minute, five minutes, quarter, half and three quarters of an hour. |
| | | Know the number of seconds in a minute and the number of days in each month, year and leap year.<br><br>Compare durations of events. | With support, the number of seconds in a minute and the number of days in a year is remembered. | The number of seconds in a minute and the number of days in each month, year and leap year are remembered, with prompts when necessary. | The number of seconds in a minute and the number of days in each month, year and leap year are remembered independently. |

| **Threshold Concept** | | Key Milestone Indicator(s) | Basic<br>Some of the following features will be seen within numbers, some larger numbers may not yet be used. | Advancing<br>Most of the following features will be seen. | Deep<br>All of the following features will be seen. |
|---|---|---|---|---|---|
| | | Solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days and 12- and 24-hour clocks. | With concrete objects and the support of a teacher, simple conversions are beginning to be made. | Problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days are solved. | Problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to day are solved independently. |
| | | Convert between different units of measure. (e.g. kilometre to metre, hour to minute). | With support some conversions between different units are completed. | Generally, conversions of £ to pence, km to m and other simple conversions are completed. | Without support, conversions between wide varieties of different units of measure are completed accurately. |
| | | Measure and calculate the area and perimeter of a rectilinear figure (including squares) in centimetres and metres. | By counting squares inside a shape, the area of rectilinear shapes can be found. | Generally the area and perimeter of rectilinear shapes is found by counting squares. | The area and perimeter of rectilinear shapes are measured and calculated independently. |
| | | Estimate, compare and calculate different measures, including money in pounds and pence. | With support, estimation, comparisons and calculations of a range of measures is undertaken. | Generally, accurate estimation, comparisons and calculations of different measures are completed. | Without support, estimation is used to help calculate in the context of measures.<br><br>Ordering and comparing of different measures is undertaken independently and accurately. |
| | | | | | |
| To use statistics | | Interpret and present data using bar charts, pictograms and tables. | Pictograms, tally charts, block diagrams and simple tables are constructed and interpreted with the support of a teacher. | Generally, data can be interpreted and presented using bar charts, pictograms, tables Venn diagrams and Carroll diagrams. | Data can be interpreted and presented using bar charts pictograms, tables, Venn diagrams and Carroll diagrams without support. |
| | | Solve one-step and two-step questions (e.g. 'How many more?' and 'How many fewer?') using information presented in scaled bar charts, pictograms and tables. | There is an understanding of the terminology many more and many fewer.<br><br>Generally, one-step questions are solved using information presented in bar charts, pictograms and tables. | Generally, one-step and two-step questions are solved using information presented in bar charts, pictograms and tables. | Complex one-step and two-step questions are solved independently using information presented in bar charts, pictograms and tables. |
| | | Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. | With support, questions about totalling and comparing categorical data are asked and answered. | The most appropriate choice as to how to present and collect data is made.<br><br>There is an emerging understanding of the difference between discrete and continuous data. | The difference between discrete and continuous data is securely understood. (Discrete data is counted; continuous data is measured.)<br><br>Discrete and continuous data can be presented and interpreted accurately using appropriate graphical methods.<br><br>The most appropriate graphical methods are chosen independently. |

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|---|---|---|---|---|---|
| | | Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. | Generally, questions about information gathered can be asked for other children to answer. | Generally, discrete and continuous data can be presented and interpreted using appropriate graphical methods. | Comparison, sum and difference problems are solved using information presented in bar charts, pictograms, tables and other graphs. |
| | | | | | |
| To use algebra | | Solve addition and subtraction and multiplication and division problems that involve missing numbers. | With the support of a teacher and by using concrete objects and pictorial representations, simple addition, subtraction, multiplication and division problems are solved.<br><br>Problems involving missing numbers are accessed when support is provided. | Addition, subtraction, multiplication and division problems, including missing number problems, are generally solved correctly by applying an understanding to a variety of routine and non-routine problems.<br><br>Patterns in results are looked for when solving problems. | Addition, subtraction, multiplication and division problems, including missing number problems, are solved by applying understanding to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. |

# Assessment criteria for mathematics

## Milestone 3

Note: Independently or 'without support' means – Choosing to by oneself not when asked.

| **Threshold Concept** | | Key Milestone Indicator(s) | Basic<br>Some of the following features will be seen within numbers, some larger numbers may not yet be used. | Advancing<br>Most of the following features will be seen. | Deep<br>All of the following features will be seen. |
|---|---|---|---|---|---|
| To know and use numbers | Counting | Read numbers up to 10 000 000. | With the support of a teacher, numbers up to 1 000 000 can be read. | With reminders, numbers up to 10 000 000 can be read. | Numbers up to 10 000 000 can be read independently in a wide range of contexts. |
| | | Use negative numbers in context and calculate intervals across zero. | With the support of a teacher and with concrete objects if necessary, intervals across zero are calculated. | Generally, negative numbers in contexts are used and intervals across zero are calculated. | Negative numbers in context are used and intervals across zero are calculated independently. |
| | Representing | Write numbers up to 10 000 000. | With the support of a teacher, numbers up to 1 000 000 can be written. | Generally, numbers up to 10 000 000 can be written. | Numbers up to 10 000 000 are independently and accurately written in a wide range of contexts. |
| | | Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. | With reminders, Roman numerals to 100 (I to C) are read and written.<br><br>With the support of a teacher Roman numerals to 1000 (M) are recognised. | Generally, Roman numerals are read up to 1000 (M).<br><br>Years written in Roman form are beginning to be deciphered. | Roman numerals are read beyond 1000 (M) and years written in Roman form are deciphered.<br><br>Explanations of methods are provided. |
| | Comparing | Order and compare numbers up to 10 000 000. | With the support of a teacher, numbers up to 1 000 000 can be ordered using the first three digits.<br><br>Numbers up to 1 000 000 are compared using the first three digits of the number. | Numbers up to 10 000 000 can be ordered using all digits.<br><br>Numbers up to 10 000 000 are generally compared using all digits. | Numbers up to 10 000 000 and beyond can be quickly ordered independently in a wide range of contexts.<br><br>Explanations of methods are provided. |
| | Place value | Round any whole number to a required degree of accuracy. | With support, any whole number can be rounded to the nearest 10, 100, 1000, 10, 000 and 1 000 000. | Generally, any whole number can be rounded to any degree of accuracy. | Any whole number can be rounded to a required degree of accuracy.<br><br>Rounding is used to check, explain and justify answers to calculations. |
| | | Determine the value of each digit in any number. | The value of each digit in six-digit whole numbers is identified with support.<br><br>With the support of a teacher and pictorial representations, the value of each number in larger whole numbers is identified. | Generally, the value of each digit in any whole number up to seven-digit numbers, is identified.<br><br>When reminders are given, the value of each digit in a number with up to three decimal places is identified. | The value of each digit in any whole number is identified independently.<br><br>The value of each digit in any number with up to four decimal places is identified. |

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|---|---|---|---|---|---|
| | Solving problems | Solve number and practical problems. | A wide variety of practical problems and number problems, using all four operations, are solved with the support of a teacher.<br><br>With the support of a teacher or when prompts are given, problems can be described and articulated and equipment to solve the problem can be chosen.<br><br>When prompts or guidance are given, patterns can be identified in results.<br><br>With reminders, answers are checked and corrections are made. | Using all four operations, a wide variety of practical problems and number problems can generally be solved.<br><br>Information that is important for solving problems is identified.<br><br>Questions about a problem can be asked and answered independently.<br><br>Approaches to problem solving are reviewed and improved for next time.<br><br>Generally, answers are checked and corrections are made. | A wide variety of practical problems and number problems, using all four operations, are solved.<br><br>Several-step problems can be broken down into simpler steps.<br><br>Efficient methods, based on previous problems, are used.<br><br>Results are checked to ensure that they are reasonable and, as a result of this, any errors found are corrected.<br><br>Work from start to finish is organised in a systematic way.<br><br>Answers are justified and methods explained. |
| | | | | | |
| To add and subtract | Complexity | Solve multi-step addition and subtraction problems in contexts, deciding which operations and methods to use and why. | With the support of a teacher, multi-step addition and subtraction problems can be broken down into steps and solved. | Generally, multi-step addition and subtraction problems are broken down into steps and solved.<br><br>Mistakes may still occur when independently solving multi-step problems, due to confusing which operation to use when solving a problem. | Independently, a variety of multi-step addition and subtraction problems are answered correctly.<br><br>The context of the problem does not confuse and problems in contexts are answered correctly, e.g. multi-step problems involving measures, missing numbers, etc. |
| | Methods | Add and subtract whole numbers with more than four digits, including using formal written methods (columnar addition and subtraction). | With the support of a teacher, four-digit whole numbers can be added and subtracted using formal written methods. | Whole numbers with four digits or more can be added and subtracted correctly using formal written methods. | Independently, whole numbers with more than four digits are added and subtracted, using formal written methods correctly and in a wide range of contexts. |
| | | Add and subtract numbers mentally with increasingly large numbers. | Mental strategies are developing for mental calculations of simpler addition and subtraction problems. | Mental strategies are developing to increase speed during adding and subtracting mentally for problems involving two whole numbers with three digits, e.g. 323 + 356 = 679. | Mental strategies to answer calculations, involving adding and subtracting more than two whole numbers, with more than three digits, are developing.<br><br>Mental calculations involving increasingly large numbers are solved accurately. |

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|---|---|---|---|---|---|
| | Checking | Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. | When modelling is provided, calculations are rounded to check and to determine a level of accuracy. | Generally, calculations are rounded to check and determine levels of accuracy, in the context of a problem. | Independently calculations are rounded to check and determine levels of accuracy, in the context of a problem. |
| | Using number facts | Add and subtract negative integers. | With the support of a teacher and the use of practical contexts, such as number temperature, negative numbers can be added and subtracted.<br><br>With the support of a teacher, there is counting through 0. | Negative integers are added and subtracted; however, reminders or practical contexts to support understanding may be necessary. | There is an understanding when adding and subtracting negative integers that:<br><br>• Two unlike signs become a negative sign, e.g.: $8 - (+2) = 8 - 2 = 6$<br>$7 + (-2) = 7 - 2 = 5$<br><br>• Two like signs become a positive sign, e.g.: $6 - (-3) = 6 + 3 = 9$ |
| | | | | | |
| To multiply and divide | Complexity | Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. | With support, problems involving the four operations are undertaken.<br><br>There is an understanding of the meaning of the equals sign as 'the same as'. | Generally, problems involving the four operations can be solved independently and accurately.<br><br>There is a secure understanding of the meaning of the equals sign. | Multi-step problems involving the four operations can be solved independently and accurately. |
| | | Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. | With support from a teacher problems involving all four operations can be solved.<br><br>With support scaling by simple fractions is undertaken. | Generally, problems involving all four operations are identified and solved.<br><br>Generally, scaling by simple fractions is understood, although some reminders may be necessary. | Problems involving all four operations are identified and solved independently.<br><br>Scaling by fractions is fluent and accurate.<br><br>All answers are explained and justified. |
| | | Use knowledge of the order of operations to carry out calculations involving the four operations. | With support, written methods for all four operations are used.<br><br>With the support of a teacher, multi-step problems are answered using knowledge of the order of operations to carry out calculations. | Generally, multi-step problems can be answered using knowledge of the order of operations to carry out calculations. | Multi-step problems can be answered using knowledge of the order of operations to carry out calculations independently.<br><br>Explanations as to how the answer would differ if the order of operations is not done correctly are supplied.<br><br>The BIDMAS rule is beginning to be understood. |

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|---|---|---|---|---|---|
| | Methods | Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method for multiplication. | With support, numbers up to 4 digits are multiplied by a two-digit whole number using the formal written method for multiplication. | Generally, numbers up to 4 digits are multiplied by a two-digit whole number using the formal written method for multiplication.<br><br>Mistakes are identified and corrected. | Independently, numbers up to 4 digits are multiplied by a two-digit whole number using the formal written method for multiplication.<br><br>Mistakes are uncommon but are identified and corrected independently. |
| | | Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole numbers, fractions, or by rounding, as appropriate for the context. | With support, long division is undertaken.<br><br>With support remainders are explained in terms of the context. | Generally long division is understood and used correctly.<br><br>Remainders are generally accurately interpreted. | The situation for using long division is understood and chosen where appropriate.<br><br>Long division is accurate and remainders fully understood according to the context. |
| | | Divide numbers up to 4 digits by a two-digit number using the formal written method of short division, where appropriate, interpreting remainders according to the context. | With support, short division is undertaken.<br><br>With support, remainders are explained in terms of the context. | Generally, short division is understood and used correctly.<br><br>Remainders are generally accurately interpreted. | The situation for using short division is understood and chosen where appropriate.<br><br>Short division is accurate and remainders fully understood according to the context. |
| | | Perform mental calculations, including with mixed operations and large numbers. | Mental strategies are developing in order to answer mental calculations, including with mixed operations, e.g. 5 x 3 + 6 = 21 | Strategies to solve mental calculations, including with mixed operations and large numbers are developed and applied. Answers are generally correct.<br><br>Multiplication and division questions involving multiples of 10, 100, 1000, etc. are answered by using times table facts, e.g. 6 x 6 = 36, so 60 x 6 = 360.<br><br>Simple decimals can be multiplied by a one-digit number. | Multiplication and division questions involving multiples of 10, 100, 1000, 10 000, etc. are answered by using times table facts, e.g. 6 x 6 = 36 so, 60 x 6 = 360<br><br>Multiplication and division facts for multiplication tables up to 12 x 12 can be recalled.<br><br>Mental strategies to solve complex calculations are developed and utilised in contexts confidently, e.g. checking answers or estimating.<br><br>Mental calculations, including with mixed operations and large numbers, can be performed quickly and with accuracy.<br><br>Decimals can be multiplied or divided by one-digit numbers mentally and using formal written methods. |

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|---|---|---|---|---|---|
| | Checking | Estimate and use inverse operations and rounding to check answers to a calculation. | With the support of a teacher, estimation and the inverse relationship between multiplication and division is used to check the answers to a calculation. | Generally, the inverse relationship between multiplication and division can be used to check answers.<br><br>Estimations and rounding are used to check answers to a calculation. | The inverse relationship between multiplication and division is used to check answers to a calculation.<br><br>Estimating and rounding is a strategy confidently used to check answers to a calculation independently. |
| | Using multiplication and division facts | Identify common factors, common multiples and prime numbers. | With support, knowledge of the multiplication tables is used to identify common factors and common multiples.<br><br>There is an awareness of the terminology 'prime number' and its meaning as whole numbers greater than 1 that have no positive divisors other than 1 and itself. | Generally, common factors and common multiples are identified.<br><br>Generally, prime numbers are understood and identified. | Common factors and common multiples are identified independently.<br><br>There is an understanding that the number 2 is the only even prime number. |
| | | Establish whether a number up to 100 is prime and recall prime numbers up to 19. | With support, the prime numbers 2, 3, 5, 7,11, 13, 17, 19 are recalled.<br><br>With support, prime numbers up to 100 are identified. | Generally, prime numbers up to 19 are recalled at an increasing speed.<br><br>Generally, prime numbers up to 100 are recognised. | Prime numbers up to 19 are recalled at speed.<br><br>Prime numbers up to 100 are recognised. |
| | | Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. | Generally whole numbers are multiplied and divided by 10 or 100 independently.<br><br>With the support of a teacher and apparatus, such as a place value grid, decimals up to one decimal pace can be multiplied and divided by 10 or 100. | Multiplication and division questions involving multiples of 10, 100, 1000, etc. are answered correctly.<br><br>Generally, decimal numbers are multiplied and divided by 10, 100 and 1000. | Multiplication and division questions involving multiples of 10, 100 and 1000 etc. are answered correctly and at speed.<br><br>Decimal numbers are multiplied and divided by 10, 100 and 1000 independently. |
| | | Recognise and use square numbers and cube numbers, and the notation for squared ($^2$) and cubed ($^3$). | There is an emerging understanding of square numbers and cube numbers and the notion for both of these ($^2$ and $^3$). | Generally, there is a secure understanding that a square number is an integer multiplied by itself and the notation for this is $^2$.<br><br>There is an emerging understanding of cubed numbers being an integer multiplied by itself twice and that the notation for this is $^3$. | There is a secure understanding of square and cubed numbers and the notation for both ($^2$ and $^3$). |
| | | | | | |

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|---|---|---|---|---|---|
| To use fractions | Recognising fractions | Compare and order fractions whose denominators are all multiples of the same number. | With support, fractions with the same denominators are ordered.<br><br>With the support of a teacher, pictorial representations and concrete objects, fractions whose denominators are all multiples of the same number are ordered. | Generally, fractions whose denominators are all multiples of the same number are ordered and compared. | Fractions whose denominators are all multiples of the same number are ordered independently and at speed. |
| | | Compare and order fractions, including fractions > 1. | With support, fractions >1 are ordered. | Generally fractions > 1 are ordered. | Fractions >1 are ordered independently and at speed. |
| | | Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number. | With support, fractions, including mixed fractions, e.g. 1., 3., etc. are compared and ordered.<br><br>With support, numbers are converted between mixed numbers and improper fractions. | Generally, fractions, including mixed fractions, e.g. 1., 3., etc. are compared and ordered.<br><br>Numbers are converted between mixed numbers and improper fractions with prompts or reminders if necessary. | Numbers are converted between mixed numbers and improper fractions independently. |
| | | Round decimals with two decimal places to the nearest whole number and to one decimal place. | With prompts, decimals with one decimal place are rounded to the nearest whole number. | Generally, decimals with two decimal places are rounded to the nearest whole number.<br><br>Generally decimals with two decimal places are rounded to one decimal place. | Decimals presented in a wide range of contexts with up to three decimal places can be rounded to the nearest whole number.<br><br>Decimals presented in a wide range of contexts with up to three decimal places can be rounded to one decimal places. |
| | | Read, write, order and compare numbers with up to three decimal places. | With the support of a teacher, problems involving numbers up to three decimal places are solved. | Numbers with up to three decimal places can be read, written and ordered. | Numbers with up to three decimal places can be read, written and ordered in a wide range of contexts. |
| | | Identify the value of each digit in numbers given to three decimal places. | With support, the value of each digit in numbers given to three decimal places, is identified. | Generally, the value of each digit in numbers given to three decimal places, is identified. | Independently, the value of each digit in numbers given to three decimal places is identified in a wide range of contexts. |
| | | Solve problems involving numbers up to three decimal places. | With support, problems involving up to three decimal places are undertaken. | Problems involving numbers up to three decimal places are solved. | Problems involving numbers up to three decimal places are solved independently in a wide range of contexts. |
| | | Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal. | There is an emerging understanding that the term per cent relates to 'number of parts per hundred'.<br><br>With the support of a teacher, percentages can be written as a fraction with denominator 100 and as a decimal. | The per cent symbol (%) is understood and related to 'number of parts per hundred'.<br><br>Percentages as a fraction with denominator 100 and as a decimal are written, e.g. 30/100 = 30% = 0.30. | Percentages as a fraction with denominator 100 and as a decimal are written, e.g. 43/100 = 43%.<br><br>Percentage values of a given value or quantity can be identified and solved, even when the percentage is complex, e.g. 16% of 96 = 15.36. |

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|---|---|---|---|---|---|
| | Equivalence | Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. | Generally, 0.5, 0.25 and 0.75 can be written and read as fractions. | Generally, equivalent fractions of a given fraction are identified, named and written. With more complex fractions, visual prompts or reminders may be needed. | Equivalent fractions including tenths and hundredths are independently identified, named and written. |
| | | Read and write decimal numbers as fractions. | With the support of a teacher, common decimal numbers, 0.5, 0.1–0.9, 0.25 and 0.75, can be converted into fractions. | Common decimal numbers, 0.5, 0.1–0.9, 0.25 and 0.75, can be converted into fractions with reminders if necessary. | Decimal numbers, including 0.33 and 0.66 can be converted into fractions. |
| | | Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. | Tenths are recognised in a number, with prompts where necessary.<br><br>With support, tenths and hundredths are recognised in a number. | Thousandths are recognised in numbers up to three decimal places when prompts are given.<br><br>Generally, thousandths can be related to tenths, hundredths and decimal equivalents. | Equivalent fractions of a given fraction, including tenths and hundredths can be identified, named and written independently.<br><br>Thousandths can be related to tenths, hundredths and decimal equivalents independently. |
| | | Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. | With support, fractions can be simplified to express fractions in the same denomination. | Generally, fractions can be reduced to their simplest form by cancelling common factors and to express fractions in the same denomination. | Fractions can be reduced to their simplest form by cancelling common factors and to express fractions in the same denomination without support. |
| | | Associate a fraction with division and calculate decimal fraction equivalents. | With support, numerators are divided by denominators to provide decimal fraction equivalents. | Generally, numerators are divided by denominators to provide decimal fraction equivalents. | Independently, numerators are divided by denominators to provide decimal fraction equivalents in a range of contexts. |
| | | Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. | With prompts and support, equivalences between fractions: 1, $^1/2$, $^1/4$, $^2/4$, $^3/4$; decimals: 1, 0.5, 0.25, 0.75 and percentages: 100%, 50%, 25%, 75% are recalled and used. | Generally, equivalence between most fractions, decimals and percentages are recalled and used in a number of contexts. | Equivalence between most fractions, decimals and percentages are recalled and used independently in a number of contexts. |
| | Solving problems | Add and subtract fractions with the same denominator and denominators that are multiples of the same number. | With support, fractions with the same denominator are added and subtracted. With support, denominators that are multiples of the same number are added and subtracted independently, e.g. $^1/3 + ^2/6 = ^2/3$. | Generally, fractions with the same denominator are added and subtracted.<br><br>Generally, denominators that are multiples of the same number are added and subtracted independently, e.g. $^1/3 + ^2/6 = ^2/3$. | Fractions with the same denominator are added and subtracted fluently and accurately.<br><br>Denominators that are multiples of the same number are added and subtracted independently. |
| | | Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. | With support, fractions with different denominators and mixed numbers can be added and subtracted by using the concept of equivalent fractions. | Fractions with different denominators and mixed numbers can be added and subtracted by using the concept of equivalent fractions. | Fractions with different denominators can be ordered and decimals that have a mixture of one, two or three decimal places can be ordered independently.<br><br>Fractions with different denominators and mixed numbers are added and subtracted independently. |

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|---|---|---|---|---|---|
| | | Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. | With the support of a teacher and other materials and diagrams, proper fractions can be multiplied by whole numbers. | Generally, proper fractions and mixed numbers can be multiplied by whole numbers using materials and diagrams. | Independently, proper fractions and mixed numbers are multiplied by whole numbers and simple pairs of proper fractions are multiplied. |
| | | Multiply simple pairs of proper fractions, writing the answer in its simplest form. | With support, simple pairs of proper fractions can be multiplied, the answer being written in its simplest form. | Generally, simple pairs of proper fractions can be multiplied, the answer being written in its simplest form. | Simple pairs of proper fractions can be multiplied, the answer being written in its simplest form. |
| | | Solve problems which require knowing percentage and decimal equivalents of $^1/_2$, $^1/_4$, $^1/_5$, $^2/_5$, $^4/_5$ and those fractions with a denominator of a multiple of 10 or 25. | Simple equivalence between fractions, decimals and percentages, e.g. $^1/_4$, 0.25 and 25% are recognised. Support from materials and diagrams may be necessary. | Simple equivalences between fractions, decimals and percentages, (e.g. $^1/_4$, $^2/_4$, $^1/_3$ and $^1/_2$) can be used to solve problems independently.<br><br>Generally, problems which require knowing percentage and decimal equivalents of $^1/_5$, $^2/_5$, $^4/_5$ and fractions with a denominator of a multiple of 10 or 25, are solved. | Problems are solved using more complex equivalences, such as $^2/_5$ into decimals and percentages. |
| | | Divide proper fractions by whole numbers. | With support, proper fractions can be divided by whole numbers. | Generally, proper fractions can be divided by whole numbers. | Proper fractions can be divided by whole numbers independently. |
| | | Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. | With support, numbers are multiplied by 10, 100 and 1000.<br><br>With the support of a teacher, numbers are divided by 10, 100 and 1000 giving answers up to three decimal places. | Generally, numbers are multiplied by 10, 100 and 1000.<br><br>Generally, numbers are divided by 10, 100 and 1000 giving answers up to three decimal places. | Numbers can be multiplied by 10, 100 and 1000.<br><br>Numbers are divided by 10, 100 and 1000 giving answers up to three decimal places. |
| | | Solve problems involving the calculation of percentages and the use of percentages for comparison. | With support, problems involving the calculation of percentages are calculated.<br><br>With support, problems that involve calculating and comparing percentages are undertaken. | Generally, problems involving the calculation of percentages are calculated.<br><br>Generally, problems that involve calculating and comparing percentages are solved. | Problems involving the calculation of percentages are calculated independently and accurately.<br><br>Problems that involve calculating and comparing percentages are identified and solved independently. |
| | | Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. | Problems involving unequal sharing and grouping can be solved with the support of a teacher or practical apparatus. | Problems involving unequal sharing and grouping, using knowledge of fractions and multiples, can be solved. | Problems involving the calculation of percentages and unequal sharing and the grouping of fractions and multiples are solved independently. |

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| To understand the properties of shapes | | Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. | When reminders are given, 3-D shapes are identified from 2-D representations. | Generally, 3-D shapes are identified from 2-D representations. | 3-D shapes are identified from 2-D representations.<br><br>When presented with a range of 2-D representations, those that represent 3-D shapes are sorted from those that do not. |
| | | Know that angles are measured in degrees; estimate and compare acute, obtuse and reflex angles. | With support, it is understood that angles are measured in degrees.<br><br>With support, angles are estimated and compared and described as acute, obtuse or reflex angles. | Generally, it is understood that angles are measured in degrees.<br><br>Generally, acute, obtuse and reflex angles are estimated and compared. | It is understood that angles are measured in degrees.<br><br>Acute, obtuse and reflex angles are estimated and compared. |
| | | Draw given angles, and measure them in degrees (°). | With the support of a teacher, given angles can be drawn and measured. | Generally, given angles can be drawn and angles can be measured to the nearest 5°. | Given angles can be drawn and measured in ° accurately.<br><br>Reflex angles to the nearest degree, when neither edge is horizontal/vertical, can be measured and drawn without support. |
| | | Identify:<br><br>• Angles at a point and one whole turn (total 360°)<br>• Angles at a point on a straight line and a turn (total 180°)<br>• Other multiples of 90° | With reminders, angles at a point and one whole turn (total 360°), angles at a point on a straight line and a turn (total 180°) are identified. | Generally, angles at a point and one whole turn (total 360°), angles at a point on a straight line and a turn (total 180°) and other multiples of 90°are identified. | Without support, angles at a point and one whole turn (total 360°), angles at a point on a straight line and a turn (total 180°) and other multiples of 90°are identified.<br><br>Angles at a point, such as the angle between the hands of a clock, can be calculated.<br><br>Triangles are constructed by working out unknown measurements from information given.<br><br>Without support, missing angles in triangles and angles on a straight line can be calculated correctly. |

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| | | Use the properties of rectangles to deduce related facts and find missing lengths and angles. | With support there is an understanding of the properties of a rectangle and this awareness is used to be able to find missing lengths. | Generally, the properties of a rectangle are used to be able to find missing lengths and angles. | The properties of a rectangle are used to find missing lengths and angles.<br><br>The properties of rectangles and triangles are used to deduce related facts, including the area and perimeter of rectangles. |
| | | Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. | With support, simple properties, such as equal sides, are used to distinguish between regular and irregular polygons. | Generally, reasoning about equal sides and angles is used to distinguish between regular and irregular polygons. | Reasoning about equal sides and angles is used independently to distinguish between regular and irregular polygons. |
| | | Draw 2-D shapes using given dimensions and angles. | With the support of a teacher, common 2-D shapes, such as rectangles, are drawn using given dimensions and angles. | Generally, 2-D shapes are drawn using given dimensions and angles. | 2-D shapes are drawn independently using given dimensions and angles. |
| | | Recognise, describe and build simple 3-D shapes, including making nets. | When prompts are given, nets for cubes and cuboids can be recognised and built. | Nets for simple 3-D shapes can be recognised, described and built. | Without support, nets for a variety of 3-D shapes are built, recognised and described. 3-D shapes can be visualised from their net and vertices that will be joined are matched.<br><br>Patterns that will occur on a net for a 3-D shape can be visualised. |
| | | Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons. | Simpler geometric 2-D and 3-D shapes can be compared and classified. | Generally, geometric shapes can be compared and classified based on their properties and sizes, and unknown angles in any triangles, quadrilaterals and regular polygons can be found. | Geometric shapes can be compared and classified based on their properties and sizes and unknown angles in any triangles, quadrilaterals and regular polygons can be found independently. |
| | | Illustrate and name parts of circles, including radius, diameter and circumference, and know that the diameter is twice the radius. | There is an emerging understanding of the terminology 'radius', 'diameter' and 'circumference'. However, this vocabulary is not used independently. | Parts of circles can be illustrated and named using the terminology 'radius', 'diameter' and 'circumference'.<br><br>Generally, the terms 'parallel' and 'perpendicular' are understood. | Parts of circles can be illustrated and named using the terminology 'radius', 'diameter' and 'circumference' and there is understanding that the diameter is twice the radius. |
| | | Recognise angles where they meet at a point, are on a straight line or are vertically opposite, and find missing angles. | There is an emerging awareness of the terminology 'parallel' and 'perpendicular'. | Generally, angles on a straight line and missing angles in a triangle can be calculated.<br><br>Different types of triangles (isosceles, right-angled, scalene and equilateral) are classified using properties such as length of sides and angles. | The terms 'parallel' and 'perpendicular' are used accurately when identifying properties of shapes. |

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| To describe position, direction and movement | | Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. | With support, reflections of shapes can be drawn on a horizontal and vertical mirror line and, when modelling is provided, reflections of shapes can be drawn on a mirror line at 45°.<br><br>There is an emerging understanding of the terminology 'reflection' and 'translation'. | Reflections of shapes can be drawn where the mirror line is at 45° and whether the shape is touching the line or not.<br><br>A shape is rotated around its centre or vertex.<br><br>Generally, shapes can be translated along an oblique line.<br><br>Generally, the position of a shape following a reflection or translation is identified and described and there is an understanding that the shape has not changed. | Independently, a shape is rotated around its centre or vertex and through 90° or 180°, where the shape does not touch or cross the mirror line.<br><br>Shapes can be translated along an oblique line without support.<br><br>Lines of reflection symmetry in shape and diagrams can be found without support.<br><br>The order of rotation symmetry can be recognised independently.<br><br>Patterns that will occur on a net for a 3-D shape can be visualised.<br><br>The position of a shape, following a reflection or translation, is identified, represented and described independently.<br><br>Also, there is an understanding that the shape has not changed. |
| | | Describe positions on the full coordinate grid (all four quadrants). | Positions on a coordinate grid, with two quadrants, are described. | Positions on the full coordinate grid (all four quadrants) are recognised and described. | Positions on the full coordinate grid (all four quadrants) are recognised and described without support. |
| | | Draw and translate simple shapes on the coordinate plane, and reflect them in the axes. | 2-D shapes can be drawn in different positions on a grid. | Simple shapes can be drawn and then translated on a coordinate plane. | More complicated shapes can be drawn and then translated on a coordinate plane. |
| To use measures | | Convert between different units of metric measure. | With the support of a teacher, metric measures are converted between different units.<br><br>With reminders, measurements of length and distance are converted. | Generally, lengths can be measured using mm to within 2mm.<br><br>Generally, metric measures are converted between different units. | Converting between different units of metric measure occurs confidently and is applied when solving problems. |
| | | Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. | With support, the equivalences between metric units and common imperial units are understood. | The equivalences between metric units and common imperial units are understood. | Independently, the equivalences between metric units and common imperial units are understood and used. |

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| | | Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. | The perimeter of simple, regular shapes (such as square, rectangle, hexagon, pentagon) can generally be calculated when reminders are given. | Generally, perimeters of composite rectilinear shapes (shapes made up of two shapes) can be measured and calculated in mm and cm. | Perimeters of composite rectilinear shapes (shapes made up of two shapes) can be measured and calculated in mm and cm. |
| | | Calculate and compare the area of rectangles (including squares), using standard units (square centimetres ($cm^2$) and square metres ($m^2$)) and estimate the area of irregular shapes. | With the support of a teacher and by using strategies such as counting squares inside a shape or finding the number of squares in a row and multiplying by the number of rows, the area of rectangles can be calculated using standard units – $cm^2$ and $m^2$. | The area of rectangles, including squares, can be calculated using standard units – $cm^2$ and $m^2$.<br><br>When prompts are provided, the area of irregular shapes is estimated. | The area of irregular shapes and composite shapes can be calculated and estimated accurately and independently. |
| | | Estimate volume and capacity. | With prompts, capacity can be estimated. | Capacity and volume can be estimated and are generally accurate. | Capacity and volume can be estimated and estimates are very close to the exact measure. |
| | | Solve problems involving converting between units of time. | With the support of a teacher, practical apparatus and concrete objects, problems involving converting between units of time and involving measure are solved.<br><br>When reminders are provided and with pictorial representations if necessary, time durations over the hour can be calculated. | Generally, problems involving converting units of time are solved.<br><br>Time durations that are over the hour can be calculated and, with prompting, a timetable can be interpreted and used. | Time durations that are over the hour can be calculated and a timetable can be interpreted and used. |
| | | Use all four operations to solve problems involving measure (for example, length, mass, volume, money) using decimal notation, including scaling. | With the support of a teacher, measures of mass, volume and time are converted from a smaller unit of measure to a larger unit. These can also be read and written. | Using all four operations, problems involving measure and using decimal notation are solved with prompts or reminders if needed. | Using all four operations, problems involving measure, using decimal notation, are solved and problems involving converting units of time are solved independently. |
| | | Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. | With support, problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate, are solved. | Generally, problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate, are solved. | Problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate, are solved without support. |
| | | Use, read, write and convert between 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. | When support is provided, measurements are converted between standard units of length, mass, volume and time (from a smaller unit to a larger unit, and vice versa).<br><br>Decimal notation up to three decimal places is used, read and written. | Measurements are converted between standard units of length, mass, volume and time (from a smaller unit to a larger unit, and vice versa). Decimal notation up to three decimal places is used, read and written. | Measurements are converted independently between standard units of length, mass, volume and time (from a smaller unit to a larger unit and vice versa). Decimal notation to up to three decimal places is used, read and written. |
| | | Convert between miles and kilometres. | With support, the conversion between miles and kilometres is calculated. | Generally, the conversion between miles and kilometres is calculated. | The conversion between miles and kilometres is calculated with speed. |

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| | | Recognise that shapes with the same area can have different perimeters and vice versa. | With support, it is recognised that shapes with the same area can have different perimeters and vice versa. | It is understood that shapes with the same area can have different perimeters and vice versa. | Explanations and examples are provided to show that shapes with the same area can have different perimeters and vice versa. |
| | | Recognise when it is possible to use formulae for calculating the area and volume of shapes. | With support, formulae for calculating the area and volume of shapes are used. | During problem-solving activities, it is recognised when it is possible to use formulae for calculating the area of shapes. | The formulae for calculating the area and volume of shapes are recognised and used appropriately and accurately. |
| | | Calculate the area of parallelograms and triangles. | With support, the formula A=1/2(b*h) where A= Area of triangle, b= length of base of triangle, h= length of height of triangle is used to calculate the area of a triangle.<br><br>With support, triangles are recognised as part of a parallelogram. | Generally, the formula A=1/2(b*h) where A= Area of triangle, b= length of base of triangle, h= length of height of triangle is used to calculate the area of a triangle.<br><br>Generally, triangles are identified within parallelograms and used to calculate the area of a parallelogram. | The formula A=1/2(b*h) where A= Area of triangle, b= length of base of triangle, h= length of height of triangle is used to calculate the area of a triangle.<br><br>Triangles are identified within parallelograms and used to calculate the area of a parallelogram. |
| | | Calculate, estimate and compare the volume of cubes and cuboids using standard units, including cubic centimetres ($cm^3$) and cubic metres ($m^3$), and extending to other units. | There is an emerging awareness of the formula for the volume of cubes and cuboids (length x width x depth). These are calculated using standard units and recorded using $cm^3$ and $m^3$. | Generally, the formula for the volume of cubes and cuboids (length x width x depth) is used to estimate and compare the volume of cubes and cuboids.<br><br>These are calculated using standard units and recorded using $cm^3$ and $m^3$. | The volume of cubes and cuboids is calculated, estimated and compared correctly and accurately, using standard units. These are calculated using standard units and recorded using $cm^3$ and $m^3$. |
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| To use statistics | | Solve comparison, sum and difference problems using information presented in a line graph. | With support, line graphs are used to solve comparison, sum and difference problems. | Generally, line graphs are used to solve comparison, sum and difference problems. | Line graphs are used to solve comparison, sum and difference problems. |
| | | Complete, read and interpret information in tables, including timetables. | With support, a range of tables can be used to record data.<br><br>With support, information in tables, including timetables is interpreted. | Generally, a range of tables can be used to record data.<br><br>Generally, information in tables can be read and interpreted. | When data is provided, and without support, two-way tables are completed.<br><br>Information from a range of tables is interpreted. |

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| | | Interpret and construct pie charts and line graphs and use these to solve problems. | With the support of a teacher, an appropriate scale is chosen and used when constructing graphs and charts.<br><br>When prompts are given, simple pie charts can be constructed and interpreted.<br><br>When prompts are given, the scale on bar graphs and line graphs can be interpreted.<br><br>Generally, questions asked about a set of data are responded to. | Generally, appropriate scales are chosen for graphs.<br><br>Frequency tables can be used to record discrete data independently.<br><br>Pie charts are constructed and interpreted and the scale on bar graphs and line graphs can be interpreted. The information gathered from this interpretation can be used to solve problems.<br><br>Generally, the difference between discrete and continuous data is recognised.<br><br>The outcomes from data can be described and predicted, using the language of chance and likelihood. | Appropriate scales are chosen for graphs independently.<br><br>Information in tables (including timetables) can be read, interpreted and completed.<br><br>Pie charts can be interpreted and the scale on bar graphs and line graphs can be interpreted.<br><br>The information gathered from this interpretation can be used to solve problems independently.<br><br>Pie charts are interpreted and compared independently, where it is not necessary to measure angles.<br><br>The difference between discrete and continuous data is recognised.<br><br>Data presented in a misleading way is recognised.<br><br>The outcomes from data can be described and predicted independently, using the language of chance and likelihood. |
| | | Calculate and interpret the mean as an average. | With support, the mode and range are understood and used to describe a set of data and the mean can be calculated and interpreted as an average.<br><br>With support, two sets of results are described and compared using the range, mode, mean or median. | Generally, the mode and range are understood and used to describe a set of data and the mean can be calculated and interpreted as an average.<br><br>Generally, two sets of results are described and compared using the range, mode, mean or median. | Without support, the mode and range are understood and used to describe a set of data, and the mean can be calculated and interpreted as an average.<br><br>The probability scale from 0 to 1 is used and understood, and methods based on equally likely outcomes to find and justify probabilities are used.<br><br>Two sets of results are described and compared independently using the range, mode, mean or median. |
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| To use algebra | | Use simple formulae. | There is an emerging understanding of how to solve balancing equations, such as: 20 + x = 40 – 10.<br><br>Simple formulae expressed in words are used. | Simple formulae can be used, with reminders if necessary. | Formulae can be used when solving problems. |
| | | Generate and describe linear number sequences. | With support, linear number sequences can be described and generated. | Linear number sequences can be described and generated. | Complex linear number sequences can be described and generated. |
| | | Express missing number problems algebraically. | With support, missing number problems can be expressed algebraically. | Generally, missing number problems can be expressed algebraically. | Missing number problems are expressed algebraically. |
| | | Find pairs of numbers that satisfy an equation with two unknowns. | With support, pairs of numbers that satisfy an equation, with two unknowns, can be found. | Generally, pairs of numbers that satisfy an equation, with two unknowns, can be found. | Pairs of numbers that satisfy an equation with two unknowns can be found. |
| | | Enumerate possibilities of combinations of two variables. | With support, possibilities of combinations of two variables can be enumerated. | Generally, possibilities of combinations of two variables can be enumerated. | Possibilities of combinations of two variables can be enumerated. |