<table>
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<tr>
<th>Strands</th>
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<th>Year 3</th>
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<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify processes and connections</td>
<td>Learners are able to:</td>
<td>• transfer mathematical skills to a variety of contexts and everyday situations</td>
<td>• identify the appropriate steps and information needed to complete the task or reach a solution</td>
<td>• select appropriate mathematics and techniques to use</td>
<td>• select and use suitable instruments and units of measurement</td>
</tr>
<tr>
<td>Represent and communicate</td>
<td>Learners are able to:</td>
<td>• explain results and procedures clearly using mathematical language</td>
<td>• refine informal methods of recording written calculations, moving to formal methods of calculation when developmentally ready</td>
<td>• use appropriate notation, symbols and units of measurement</td>
<td>• select and construct appropriate charts, diagrams and graphs with suitable scales</td>
</tr>
<tr>
<td>Review</td>
<td>Learners are able to:</td>
<td>• select from an increasing range of checking strategies to decide if answers are reasonable</td>
<td>• interpret answers within the context of the problem and consider whether answers, including calculator, analogue and digital displays, are sensible</td>
<td>• draw conclusions from data and recognise that some conclusions may be misleading or uncertain</td>
<td></td>
</tr>
</tbody>
</table>

**Key**

Within the table, text taken from the LNF will appear as non-bold. Text that has been extended from the LNF or that is a new skill will appear as bold. The text is further identified by the following icons.

- Extended skill
- Programme of study skill

**N.B.**

In order to comply with accessibility and legibility, these tables have been designed to be printed at their optimum size of A3.
## Key Stage 2 Mathematics Programme of Study

### Strands

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<tr>
<th>Elements</th>
<th>Year 3</th>
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<th>Year 6</th>
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</thead>
</table>
| **Number facts and relationships** | • read and write numbers to 1 000  
• compare and estimate with numbers up to 100  
• explain the value of a digit in numbers up to 1 000  
• use mental strategies to recall multiplication tables for 2, 3, 4, 5, 6 and 10 and use to solve division problems  
• multiply and divide numbers by 10 and 100  
• identify multiples of 2, 3, 4, 5 and 10; use the term multiple  
• identify odd and even numbers up to 1 000  
• multiply numbers by 10 | • read and write numbers to 10 000  
• compare and estimate with numbers up to 1 000  
• use mental strategies to recall multiplication tables for 2, 3, 4, 5, 6, 8 and 10 and to solve division problems  
• multiply and divide numbers by 10 and 100  
• identify multiples of 2, 3, 4, 5, 6, 8 and 10; use the terms multiple and factor  
• identify a prime number as having two factors; recognise that 1 is not a prime number  
• identify prime numbers below 10 | • read and write numbers to 100 000  
• compare numbers with 1 and 2 decimal places  
• use mental strategies to recall multiplication tables for 2, 3, 4, 5, 6, 8 and 10 and use to solve division problems  
• multiply and divide numbers and decimals by 10 and 100  
• identify multiples of 2, 3, 4, 5, 6, 8 and 10; use the terms multiple and factor  
• identify common multiples of two numbers  
• identify common factors of two numbers  
• identify prime numbers below 20  | • read and write numbers to 1 million and numbers to 3 decimal places  
• use mental strategies to recall multiplication tables up to 10 x 10 and use to solve division problems  
• multiply numbers and decimals by a multiple of 10, e.g. 15 x 30, 1.4cm x 20  
• identify multiples of numbers up to 10; use the terms multiple and factor  
• identify prime numbers below 20  
• identify prime numbers below 20 |
| **Fractions, decimals, percentages and ratio** | • use halves and quarters  
• halve 2-digit numbers in the context of number, money and measures  
• find fractional quantities linked to known multiplication facts, e.g. 1⁄2 of 18, 1⁄2 of 15  
• recognise a quarter as a half  | • halve 3-digit numbers in the context of number, money and measures  
• find fractional quantities using known table facts, e.g. 1⁄3 of 30cm  
• recognise fractions that are several parts of a whole, e.g. 2⁄3, 3⁄10  
• recognise connections between fractions, e.g. one-tenth is half of one-fifth  | • use understanding of simple fraction and decimal equivalences when measuring and calculating, e.g. 1⁄2 = 0.5, 1⁄10 = 0.1  
• calculate fractional quantities, e.g. 2⁄3 of 24 = 3, so 1⁄6 of 24 = 15  
• use doubling and halving strategies when working with simple proportions  
• share objects in a given ratio, e.g. red blocks and blue blocks in a ratio of 1:2  
• add and subtract fractions with the same denominator  
• add fractions to make a whole number  | • use understanding of simple fraction, decimal and percentage equivalences, e.g. find 25% of 60cm and know that this is equivalent to ¼ of 60cm  
• calculate percentage quantities based on 10%, e.g. 20%, 5%, 15%  
• use simple ratio and proportion  
• use ratio to express two or more quantities in words  
• state the proportion of a whole that each share represents, e.g. recognise that in a ratio of 1:3, 1 part represents a quarter of the total  
• find equivalent fractions  
• simplify fractions |

### Key
- **Non-bold text:** LNF statement
- **Extended skill:** Programme of study skill

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### Key Stage 2 Mathematics Programme of Study

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</thead>
<tbody>
<tr>
<td><strong>Calculate using mental and written methods</strong></td>
<td>- find differences within 100&lt;br&gt;- use mental strategies to add and subtract 2-digit numbers&lt;br&gt;- use partitioning to double and halve 2-digit numbers</td>
<td>- find differences within 1 000&lt;br&gt;- add a 2-digit number to, and subtract a 2-digit number from, a 3-digit number using an appropriate mental or written method&lt;br&gt;- use mental strategies to multiply and divide 2-digit numbers by a single digit number&lt;br&gt;- identify negative whole numbers on a number line&lt;br&gt;- order whole numbers between -10 and 10</td>
<td>- find differences between numbers with 1 decimal place&lt;br&gt;- add and subtract 3-digit numbers using an appropriate mental or written method&lt;br&gt;- multiply and divide 3-digit numbers by a single-digit number&lt;br&gt;- order negative and positive numbers, including decimals to 1 decimal place</td>
<td>- add and subtract numbers using whole numbers and decimals&lt;br&gt;- multiply 2- and 3-digit numbers by a 2-digit number&lt;br&gt;- divide 3-digit numbers by a 2-digit number&lt;br&gt;- add or subtract negative or positive numbers using a number line</td>
</tr>
<tr>
<td><strong>Estimate and check</strong></td>
<td>- check subtraction using addition&lt;br&gt;- check halving using doubling&lt;br&gt;- check multiplication using repeated addition</td>
<td>- check answers using inverse operations&lt;br&gt;- estimate by rounding to the nearest 10 or 100</td>
<td>- check answers using inverse operations&lt;br&gt;- estimate by rounding to the nearest 10, 100 or 1 000</td>
<td>- check answers using inverse operations&lt;br&gt;- estimate by rounding to the nearest 10, 100, 1 000 or whole number</td>
</tr>
<tr>
<td><strong>Manage money</strong></td>
<td>- use different combinations of money to pay for items up to £2 and calculate the change&lt;br&gt;- order and compare items up to £10&lt;br&gt;- record money spent and saved</td>
<td>- use money to pay for items up to £10 and calculate the change&lt;br&gt;- order and compare items up to £100&lt;br&gt;- add and subtract totals less than £10 using correct notation, e.g. £6.85 – £2.76&lt;br&gt;- manage money, compare costs from different retailers and determine what can be bought within a given budget</td>
<td>- order and compare the cost of items up to £1 000&lt;br&gt;- add and subtract totals less than £100 using correct notation, e.g. £28.18 + £33.45&lt;br&gt;- plan and track money and savings by keeping accurate records&lt;br&gt;- realise that budgeting is important</td>
<td>- use the terms profit and loss in buying and selling activities and make calculations for this&lt;br&gt;- understand the advantages and disadvantages of using bank accounts&lt;br&gt;- make comparisons between prices and understand which is best value for money</td>
</tr>
</tbody>
</table>

**Key:** Non-bold text: LNF statement  Extended skill ▲ Programme of study skill ▼
## Key Stage 2 Mathematics Programme of Study

### Using measuring skills

#### Length, weight/mass, capacity
- Learners are able to:
  - recognise that perimeter is the distance around a shape
  - use standard units to estimate and measure:
    - length: measure on a ruler to the nearest $\frac{1}{2}$ cm
    - weight/mass: use 5g, 10g and 100g weights
    - capacity: use litres and half litres; measure to the nearest 100ml
  - choose between metric units to measure a length

#### Time
- Learners are able to:
  - tell the time to the nearest 5 minutes on an analogue clock and calculate how long it is to the next hour
  - read hours and minutes on a 12-hour digital clock using am/pm conventions
  - calculate start times, finish times and durations using hours, 30-minute intervals and 15-minute intervals

#### Temperature
- Learners are able to:
  - take temperature readings using thermometers and interpret readings above and below 0°C

### Key:
- Non-bold text: LNF statement
- Extended skill ▲ Programme of study skill ▼
### Key Stage 2 Mathematics Programme of Study

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<tbody>
<tr>
<td><strong>Using measuring skills</strong></td>
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<td><strong>Learners are able to:</strong></td>
<td><strong>Learners are able to:</strong></td>
<td><strong>Learners are able to:</strong></td>
<td><strong>Learners are able to:</strong></td>
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</tbody>
</table>
| Area and volume               |          | • find areas by counting squares  
• use the four compass points to describe directions  
• identify right angles  
• recognise that two right angles make a half turn, and that four right angles make a full turn  
• recognise volume in practical contexts  
• use eight compass points to describe direction  
• describe an angle as more or less than a right angle  
• calculate, estimate and compare the area of squares and rectangles using standard units  
• find volumes by counting and other practical methods  
• use coordinates to specify location  
• draw and measure acute angles in multiples of 10 degrees  
• recognise acute and obtuse angles  
• calculate the area of squares and rectangles  
• use grid references to specify location  
• recognise reflex angles  
• calculate a missing angle within a right angle | • recognise, classify and sketch polygons with up to eight sides, including irregular cases  
• recognise and classify 3D shapes, using their own criteria  
• identify congruent shapes in different orientations  
• recognise and classify triangles, using their own criteria  
• identify rotational symmetry of shapes  
• find all the lines of symmetry for a given shape  
• identify rotational symmetry of shapes | • recognise and classify triangles, squares, rectangles, pentagons and hexagons, including irregular cases  
• recognise 3D shapes, including prisms  
• identify congruent shapes in the same orientation  
• recognise and classify 3D shapes, using their own criteria  
• identify congruent shapes in different orientations  
• recognise tetrahedra and square based pyramids  
• recognise and sketch different types of quadrilaterals  
• explore the tessellation of different shapes  
• identify a net of a cube  | • recognise and classify triangles, squares, rectangles, pentagons and hexagons, including irregular cases  
• recognise 3D shapes, including prisms  
• identify congruent shapes in the same orientation  
• recognise and classify 3D shapes, using their own criteria  
• identify congruent shapes in different orientations  
• recognise tetrahedra and square based pyramids  
• recognise and sketch different types of quadrilaterals  
• explore the tessellation of different shapes  
• identify a net of a cube  |
| Angle and position            |          | • recognises area and volume  
• recognises area and volume  
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• recognises area and volume  |
| **Using geometry skills**     |          | • draw lines to the nearest half centimetre  
• draw lines to the nearest half centimetre  
• draw lines to the nearest half centimetre  
• draw lines to the nearest half centimetre  | • draw lines to the nearest millimetre  
• draw lines to the nearest millimetre  
• draw lines to the nearest millimetre  
• draw lines to the nearest millimetre  | • draw and label lines accurately, e.g. AB  
• construct solids from given nets  
• draw squares, rectangles and right angled triangles accurately  | • draw cubes and cuboids on isometric paper  
• draw nets of cubes on square paper  
• draw cubes and cuboids on isometric paper  
• draw nets of cubes on square paper  |
| **Shape**                     |          | • recognises and classifies shapes  
• recognises and classifies shapes  
• recognises and classifies shapes  
• recognises and classifies shapes  | • recognises, classifies and sketches shapes  
• recognises, classifies and sketches shapes  
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• recognises and classifies shapes  |
| **Construction**              |          | • identifies lines of symmetry in 2D shapes  
• identifies lines of symmetry in 2D shapes  
• identifies lines of symmetry in 2D shapes  
• identifies lines of symmetry in 2D shapes  | • draws lines of symmetry  
• draws lines of symmetry  
• draws lines of symmetry  
• draws lines of symmetry  | • translate a shape on squared paper horizontally or vertically  
• draws the reflection of a shape in any line  
• complete a partly drawn shape after rotation  | • find all the lines of symmetry for a given shape  
• identify rotational symmetry of shapes  
• find all the lines of symmetry for a given shape  
• identify rotational symmetry of shapes  |
| **Movement**                  |          | • identifies lines of symmetry in 2D shapes  
• identifies lines of symmetry in 2D shapes  
• identifies lines of symmetry in 2D shapes  
• identifies lines of symmetry in 2D shapes  | • draws lines of symmetry  
• draws lines of symmetry  
• draws lines of symmetry  
• draws lines of symmetry  | • translate a shape on squared paper horizontally or vertically  
• draws the reflection of a shape in any line  
• complete a partly drawn shape after rotation  | • find all the lines of symmetry for a given shape  
• identify rotational symmetry of shapes  
• find all the lines of symmetry for a given shape  
• identify rotational symmetry of shapes  |
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<tbody>
<tr>
<td><strong>Using algebra skills</strong></td>
<td><strong>Number sequences</strong></td>
<td>Learners are able to:</td>
<td>Learners are able to:</td>
<td>Learners are able to:</td>
<td>Learners are able to:</td>
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<tr>
<td></td>
<td>• explore sequences of whole numbers involving addition and subtraction, e.g. counting in 2s, 3s and 4s from different starting points</td>
<td>• explore sequences of positive whole numbers involving addition and subtraction in 2s, 3s, 4s, 5s, 6s, 8s and 10s from different starting points</td>
<td>• recognise and state the difference in sequences that involve adding or subtracting</td>
<td>• write the next two (or more) terms in sequences that involve addition or subtraction</td>
<td>• find the term to term rule for ascending and descending sequences, e.g. 3, 7, 11, 15 add 4</td>
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<td><strong>Expressions and formulae</strong></td>
<td>• explore general statements through practical activities, e.g. that a + a + a = 3a, 3 x a = 3a and a + a + a + b + b = 3a + 2b</td>
<td>• simplify expressions involving the addition of one variable, e.g. 5t + 3t = 8t</td>
<td>• express output generated from one step function machines using algebra</td>
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<td><strong>Functions and graphs</strong></td>
<td>• use one and two step function machines to generate input and output involving addition and subtraction within 100; express, in words, the operations from function machines</td>
<td>• use one and two step function machines to generate input and output using all four operations; express, in words, the operations from function machines</td>
<td>• use multistep function machines to generate input and output using all four operations; express, in words, the operations from function machines</td>
<td>• express output generated from one step function machines using algebra</td>
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<td><strong>Equations and inequalities</strong></td>
<td>• be able to list numbers that are ‘greater than’ or ‘less than’ another number</td>
<td>• use &gt; to describe whether a number is greater than another</td>
<td>• use &lt; to describe whether a number is less than another</td>
<td>• construct and solve one step equations with whole number solutions</td>
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<td>• find an ‘unknown’ in one step equations, e.g. 6 + □ = 10</td>
<td>• solve one step equations using letters to present ‘unknowns’ with integer solutions, e.g. 6 + a = 10 and b + b = 8</td>
<td>• be able to list numbers between two points using the terminology ‘less than or equal to’ and ‘greater than or equal to’</td>
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<tr>
<td><strong>Key:</strong></td>
<td>Non-bold text: LNF statement</td>
<td>Extended skill</td>
<td>Programme of study skill</td>
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<th>Elements</th>
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<th>Year 5 Learners are able to:</th>
<th>Year 6 Learners are able to:</th>
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<tr>
<td></td>
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<td>Collect and record data</td>
<td>Present and analyse data</td>
<td>Interpret results</td>
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<td>• represent data using:</td>
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<td>graphs labelled in 2s, 5s</td>
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<td>• extract and interpret</td>
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<td>• use the words ‘certain’</td>
<td>• recognise that some</td>
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<td>and ‘impossible’ to describe the</td>
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<td>likelihood of an event</td>
<td>some events are certain</td>
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<td>• recognise that some events</td>
<td>• recognise that some events are more likely than others</td>
<td>• use the words ‘likely’, ‘unlikely’ and ‘even chance’.</td>
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<td>are equally likely</td>
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<td>• use numbers to describe</td>
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<td>the likelihood of an event</td>
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<td>e.g. a one-in-six chance</td>
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<td>• recognise that some events are equally likely</td>
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<td></td>
<td>• identify the outcomes of simple events, e.g. flipping a coin, rolling a dice.</td>
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