# Mathematics - National Curriculum Attainment Targets Levels 1 to 6

| Ma 2 Number and algebra | Ma 3 Shape, space and measures | Ma 4 Handling data |
|---|---|---|
| Pupils count, order, add and subtract numbers when solving problems involving up to 10 objects. | When working with 2D and 3D shapes, pupils use everyday language to describe properties and positions. | Pupils sort objects and classify them, demonstrating the criterion they have used. |
| They read and write the numbers involved. | They measure and order objects using direct comparison, and order events. | Pupils sort objects and classify them using more than one criterion. |
| Pupils count sets of objects reliably, and use mental recall of addition and subtraction facts to 10. | Pupils use mathematical names for common 3D and 2D shapes and describe their properties, including numbers of sides and corners. | When they have gathered information, pupils record results in simple lists, tables and block graphs, in order to communicate their findings. |
| They begin to understand the place value of each digit in a number and use this to order numbers up to 100. | They distinguish between straight and turning movements, understand angle as a measurement of turn, and recognise right angles in turns. | Pupils extract and interpret information presented in simple tables and lists. |
| They choose the appropriate operation when solving addition and subtraction problems. | They begin to use everyday non-standard and standard units to measure length and mass. | They construct bar charts and pictograms, where the symbol represents a group of units, to communicate information they have gathered, and they interpret information presented to them in these forms. |
| They usually listen carefully and respond with increasing appropriateness to what others say. | Pupils classify 3D and 2D shapes in various ways using mathematical properties such as reflective symmetry for 2D shapes. | Pupils collect discrete data and record them using a frequency table. |
| They use the knowledge that subtraction is the inverse of addition. | They use non-standard units, standard metric units of length, capacity and mass, and standard units of time, in a range of contexts. | They understand and use the mode and range to describe sets of data. |
| They use mental calculation strategies to solve number problems involving money and measures. | Pupils make 3D mathematical models by linking given faces or edges, draw common 2D shapes in different orientations on grids. | They group data, where appropriate, in equal class intervals, represent collected data in frequency diagrams and interpret such diagrams. |
| They recognise sequences of numbers, including odd and even numbers. | They reflect simple shapes in a mirror line. | They construct and interpret simple line graphs. |
| Pupils show understanding of place value in numbers up to 1000 and use this to make approximations. | They choose and use appropriate units and instruments, interpreting, with appropriate accuracy, numbers on a range of measuring instruments. | Pupils understand and use the mean of discrete data. |
| They begin to use decimal notation and to recognise negative numbers, in contexts such as money and temperature. | They find perimeters of simple shapes and find areas by counting squares. | They compare two simple distributions, using the range and one of the mode, median or mean. |
| Pupils use mental recall of addition and subtraction facts to 20 in solving problems involving larger numbers. | When constructing models and when drawing or using shapes, pupils measure and draw angles to the nearest degree, and use language associated with angle. | They interpret graphs and diagrams, including pie charts, and draw conclusions. |
| They add and subtract numbers with two digits mentally and numbers with three digits using written methods. | Pupils know the angle sum of a triangle and that of angles at a point. | They understand and use the probability scale from 0 to 1. |
| They use mental recall of the 2, 3, 4, 5 and 10 multiplication tables and derive the associated division facts. | They identify all the symmetries of 2D shapes. | Pupils find and justify probabilities, and approximations to these, by selecting and using methods based on equally likely outcomes and experimental evidence, as appropriate. |
| They solve whole-number problems involving multiplication or division, including those that give rise to remainders. | They know the rough metric equivalents of imperial units still in daily use and convert one metric unit to another. | They understand that different outcomes may result from repeating an experiment. |
| They use simple fractions that are several parts of a whole and recognise when two simple fractions are equivalent. | They make sensible estimates of a range of measures in relation to everyday situations. | Pupils collect and record continuous data, choosing appropriate equal class intervals over a sensible range to create frequency tables. |
| Pupils use their understanding of place value to multiply and divide whole numbers by 10 or 100. | Pupils understand and use the formula for the area of a rectangle. | They construct and interpret frequency diagrams. |
| In solving number problems, pupils use a range of mental methods of computation with the four operations, including mental recall of multiplication facts up to 10 x 10 and quick derivation of corresponding division facts. | Pupils recognise and use common 2D representations of 3D objects. | They construct pie charts. |
| They use efficient written methods of addition and subtraction and of short multiplication and division. | They know and use the properties of quadrilaterals in classifying different types of quadrilateral. | Pupils draw conclusions from scatter diagrams, and have a basic understanding of correlation. |
| They add and subtract decimals to two places and order decimals to three places. | They solve problems using angle and symmetry properties of polygons and angle properties of intersecting and parallel lines, and explain these properties. | When dealing with a combination of two experiments, pupils identify all the outcomes, using diagrammatic, tabular or other forms of communication. |
| In solving problems with or without a calculator, pupils check the reasonableness of their results by reference to their knowledge of the context or to the size of the numbers. | They devise instructions for a computer to generate and transform shapes and paths. | In solving problems, they use their knowledge that the total probability of all the mutually exclusive outcomes of an experiment is 1. |
| They recognise approximate proportions of a whole and use simple fractions and percentages to describe these. | They understand and use appropriate formulae for finding circumferences and areas of circles, areas of plane rectilinear figures and volumes of cuboids when solving problems. | |
| Pupils recognise and describe number patterns, and relationships including multiple, factor and square. | They enlarge shapes by a positive whole-number scale factor. | |
| They begin to use simple formulae expressed in words. Pupils use and interpret coordinates in the first quadrant. | | |
| Pupils use their understanding of place value to multiply and divide whole numbers and decimals by 10, 100 and 1000. | | |
| They order, add and subtract negative numbers in context. | | |
| They use all four operations with decimals to two places. | | |
| They reduce a fraction to its simplest form by cancelling common factors and solve simple problems involving ratio and direct proportion. | | |
| They calculate fractional or percentage parts of quantities and measurements, using a calculator where appropriate. | | |
| Pupils understand and use an appropriate non-calculator method for solving problems that involve multiplying and dividing any three-digit number by any two-digit number. | | |
| They check their solutions by applying inverse operations or estimating using approximations. | | |
| They construct, express in symbolic form, and use simple formulae involving one or two operations. | | |
| They use brackets appropriately. Pupils use and interpret coordinates in all four quadrants. | | |
| Pupils order and approximate decimals when solving numerical problems and equations [for example, x3 + x = 20], using trial and improvement methods. | | |
| Pupils are aware of which number to consider as 100 per cent, or a whole, in problems involving comparisons, and use this to evaluate one number as a fraction or percentage of another. | | |
| They understand and use the equivalences between fractions, decimals and percentages, and calculate using ratios in appropriate situations. | | |
| They add and subtract fractions by writing them with a common denominator. | | |
| When exploring number sequences, pupils find and describe in words the rule for the next term or nth term of a sequence where the rule is linear. | | |
| They formulate and solve linear equations with whole-number coefficients. | | |
| They represent mappings expressed algebraically, and use Cartesian coordinates for graphical representation interpreting general features. | | |

| Key: |
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| Level 1 |
| Level 2 |
| Level 3 |
| Level 4 |
| Level 5 |
| Level 6 |

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| They read and write the numbers involved. | They measure and order objects using direct comparison, and order events. | Pupils sort objects and classify them using more than one criterion. |
| Pupils count sets of objects reliably, and use mental recall of addition and subtraction facts to 10. | Pupils use mathematical names for common 3D and 2D shapes and describe their properties, including numbers of sides and corners. | When they have gathered information, pupils record results in simple lists, tables and block graphs, in order to communicate their findings. |
| They begin to understand the place value of each digit in a number and use this to order numbers up to 100. | They distinguish between straight and turning movements, understand angle as a measurement of turn, and recognise right angles in turns. | Pupils extract and interpret information presented in simple tables and lists. |
| They choose the appropriate operation when solving addition and subtraction problems. | They begin to use everyday non-standard and standard units to measure length and mass. | They construct bar charts and pictograms, where the symbol represents a group of units, to communicate information they have gathered, and they interpret information presented to them in these forms. |
| They usually listen carefully and respond with increasing appropriateness to what others say. | Pupils classify 3D and 2D shapes in various ways using mathematical properties such as reflective symmetry for 2D shapes. | Pupils collect discrete data and record them using a frequency table. |
| They use the knowledge that subtraction is the inverse of addition. | They use non-standard units, standard metric units of length, capacity and mass, and standard units of time, in a range of contexts. | They understand and use the mode and range to describe sets of data. |
| They use mental calculation strategies to solve number problems involving money and measures. | Pupils make 3D mathematical models by linking given faces or edges, draw common 2D shapes in different orientations on grids. | They group data, where appropriate, in equal class intervals, represent collected data in frequency diagrams and interpret such diagrams. |
| They recognise sequences of numbers, including odd and even numbers. | They reflect simple shapes in a mirror line. | They construct and interpret simple line graphs. |
| Pupils show understanding of place value in numbers up to 1000 and use this to make approximations. | They choose and use appropriate units and instruments, interpreting, with appropriate accuracy, numbers on a range of measuring instruments. | Pupils understand and use the mean of discrete data. |
| They begin to use decimal notation and to recognise negative numbers, in contexts such as money and temperature. | They find perimeters of simple shapes and find areas by counting squares. | They compare two simple distributions, using the range and one of the mode, median or mean. |
| Pupils use mental recall of addition and subtraction facts to 20 in solving problems involving larger numbers. | When constructing models and when drawing or using shapes, pupils measure and draw angles to the nearest degree, and use language associated with angle. | They interpret graphs and diagrams, including pie charts, and draw conclusions. |
| They add and subtract numbers with two digits mentally and numbers with three digits using written methods. | Pupils know the angle sum of a triangle and that of angles at a point. | They understand and use the probability scale from 0 to 1. |
| They use mental recall of the 2, 3, 4, 5 and 10 multiplication tables and derive the associated division facts. | They identify all the symmetries of 2D shapes. | Pupils find and justify probabilities, and approximations to these, by selecting and using methods based on equally likely outcomes and experimental evidence, as appropriate. |
| They solve whole-number problems involving multiplication or division, including those that give rise to remainders. | They know the rough metric equivalents of imperial units still in daily use and convert one metric unit to another. | They understand that different outcomes may result from repeating an experiment. |
| They use simple fractions that are several parts of a whole and recognise when two simple fractions are equivalent. | They make sensible estimates of a range of measures in relation to everyday situations. | Pupils collect and record continuous data, choosing appropriate equal class intervals over a sensible range to create frequency tables. |
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