

2014 MATHEMATICS CURRICULUM - Year 4

Number - Number and place value

- Count in multiples of 6, 7, 9, 25 and 1000
- Find 1000 more or less than a given number
- Count backwards through zero to include negative numbers
- Recognise the place value of each digit in a 4-digit number (thousands, hundreds, tens, and ones)
- Order and compare numbers beyond 1000
- Identify, represent and estimate numbers using different representations
- Round any number to the nearest 10, 100 or 1000
- Solve number and practical problems that involve all of the above and with increasingly large positive numbers
- 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
- Use a variety of representations, including measures
- Know the place value and order numbers beyond 1000, including counting in tens and hundreds, and maintaining fluency in other multiples through varied and frequent practice
- Begin to extend their knowledge of the number system to include the decimal numbers and fractions that they have met so far
- Connect estimation and rounding numbers to the use of measuring instruments
- Put Roman numerals in their historical context - eg. to know that there have been different ways to write whole numbers and that zero and place value were introduced over a period of time

Number - Addition and subtraction

- Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- Estimate and use the inverse operations to check answers to a calculation
- Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why
- Practise both mental methods and columnar addition and subtraction with increasingly large numbers

Statistics

- Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs
- Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs
- Understand and use a greater range of scales in their representations
- Begin to relate to the graphical representation of data to recording change over time

Measurement

- Convert between different units of measure (eg. km to m; hour to minute)
- Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
- Find the area of rectilinear shapes by counting squares
- Estimate, compare and calculate different measures, including money in pounds and pence
- Read, write and convert time between analogue and digital 12- and 24- hour clocks
- Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days
- Record metric measures, including money
- Express perimeter algebraically as $2(a + b)$ where a and b are dimensions in the same unit
- Relate arrays to area and multiplication

<p>Number - Multiplication and division</p> <ul style="list-style-type: none"> Recall multiplication and division facts for multiplication tables up to 12 x 12 Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; dividing by 1; multiplying together three numbers Recognise and use factor pairs and commutativity in mental calculations Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout Solve problems involving multiplying and adding, 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 Practise mental methods and extend this to 3-digit numbers to derive facts - eg. $600 \div 3 = 200$ can be derived from $2 \times 3 = 6$) Become fluent in the formal written method of short multiplication and short division with exact answers Write statements about the equality of expressions - eg. use the distributive law $39 \times 7 = 30 \times 7 + 9 \times 7$ and associative law $(2 \times 3) \times 4 = 2 \times (3 \times 4)$ Combine their knowledge of number facts and rules of arithmetic to solve mental and written calculations - eg. $2 \times 6 \times 5 = 10 \times 6$ Solve two-step problems in contexts, choosing the appropriate operation, working with increasingly hard numbers - include correspondence questions such as the number of choices of a meal on a menu, or three cakes equally shared between 10 children 	<p>Number - Fractions (including decimals)</p> <ul style="list-style-type: none"> Recognise and show, using diagrams, families of common equivalent fractions Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number Add and subtract fractions with the same denominator, extending to beyond one whole Recognise and write decimal equivalents of any number of tenths or hundredths Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ Find the effect of dividing a one- or two- digit number by 10 and 100, identifying the value of digits in the answer as ones, tenths and hundredths Round decimals with one decimal place to the nearest whole number Compare numbers with the same number of decimal places up to two decimal places Solve simple measure and money problems involving fractions and decimals to two decimal places Connect hundredths to tenths and place value and decimal measure Use a number line to connect fractions, numbers and measures Understand the relation between non-unit fractions and multiplication and division of quantities - emphasis on tenths and hundredths 	<ul style="list-style-type: none"> Make connections between fractions of a length, of a shape and as a representation of one whole or set of quantities Use factors or multiples to recognise equivalent fractions and simplify where appropriate Know that decimals and fractions are different ways of expressing numbers and proportions Relate decimal notation to the division of a whole number by 10 and then 100 Count using simple fractions, both forwards and backwards Make comparisons and order decimal amounts and quantities that are expressed to the same number of decimal places Represent numbers with one or two decimal places in different ways, including on a number line
<p>Geometry - Position and direction</p> <ul style="list-style-type: none"> Describe positions on a 2-D grid as coordinates in the first quadrant Describe movements between positions as translations of a given unit to the left / right and up / down Plot specified points and draw sides to complete a given polygon Draw a pair of axes in one quadrant, with equal scales and integer labels Read, write and use pairs of coordinates eg. (2, 5), including using coordinate plotting ICT tools 	<p>Geometry - Properties of shapes</p> <ul style="list-style-type: none"> Compare and classify geometric shapes, including quadrilaterals (eg. parallelogram, rhombus, trapezium) and triangles (eg. isosceles, equilateral, scalene), based on their properties and sizing Identify acute and obtuse angles Compare and order angles up to two right angles by size Identify two lines of symmetry in 2-D shapes presented in different orientations Complete a simple symmetric figure with respect to a specific line of symmetry Compare lengths and angles to decide if a polygon is regular or irregular Draw symmetric patterns using a variety of media to become familiar with different orientations of lines of symmetry <p>Recognise line symmetry in a variety of diagrams, including where the line of symmetry does not dissect the original shape</p>	

