

Maths Curriculum 2014 - Year 4 Medium Term Planning

Unit 4.1: Larger Numbers, Negative Numbers and Roman Numerals

Topic	Key Concepts	Strand	Notes/Non-statutory guidance
Number and place value	recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)	Numbers and the number system	Using a variety of representations, including measures, pupils become fluent in the order and place value of numbers beyond 1000, including counting in tens and hundreds, and maintaining fluency in other multiples through varied and frequent practice. They begin to extend their knowledge of the number system to include the decimal numbers and fractions that they have met so far. They connect estimation and rounding numbers to the use of measuring instruments. Roman numerals should be put in their historical context so pupils understand that there have been different ways to write whole numbers and that the important concepts of zero and place value were introduced over a period of time.
Number and place value	find 1000 more or less than a given number		
Number and place value	order and compare numbers beyond 1000		
Number and place value	count backwards through zero to include negative numbers		
Number and place value	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.		
Number and place value	identify, represent and estimate numbers using different representations		
Number and place value	solve number and practical problems that involve all of the above and with increasingly large positive numbers		

Unit 4.2: Converting Time

Topic	Key Concepts	Strand	Notes/Non-statutory guidance
Distance, Capacity, Time And Money	read, write and convert time between analogue and digital 12 and 24-hour clocks	Time	
Distance, Capacity, Time And Money	solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.		

Unit 4.3: Times Tables and Formal Methods for Addition and Subtraction

Topic	Key Concepts	Strand	Notes/Non-statutory guidance
Multiplication and Division	recall multiplication and division facts for multiplication tables up to 12 x 12	N2: Mental methods of calculation	Pupils continue to practise recalling and using multiplication tables and related division facts to aid fluency.
Addition and Subtraction	add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	N3: Written methods of calculation	Pupils continue to practise both mental methods and columnar addition and subtraction with increasingly large numbers to aid fluency (see Mathematics Appendix 1).
Addition and Subtraction	solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.		

Unit 4.4: Rounding and Arithmetic

Topic	Key Concepts	Strand	Notes/Non-statutory guidance
Number and place value	round any number to the nearest 10, 100 or 1000	N5: Accuracy	They connect estimation and rounding numbers to the use of measuring instruments.
Multiplication and Division	multiply two-digit and three-digit numbers by a one-digit number using formal written layout	N3: Written methods of calculation	Pupils continue to practise recalling and using multiplication tables and related division facts to aid fluency.
Multiplication and Division	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.		Pupils practise mental methods and extend this to three-digit numbers to derive facts, (for example $600 \div 3 = 200$ can be derived from $2 \times 3 = 6$). Pupils practise to become fluent in the formal written method of short multiplication and short division with exact answers (see Mathematics Appendix 1). Pupils write statements about the equality of expressions (for example, use the distributive law $39 \times 7 = 30 \times 7 + 9 \times 7$ and associative law $(2 \times 3) \times 4 = 2 \times (3 \times 4)$). They combine their knowledge of number facts and rules of arithmetic to solve mental and written calculations for example, $2 \times 6 \times 5 = 10 \times 6 = 60$.
Addition and Subtraction	estimate and use inverse operations to check answers to a calculation	N5: Accuracy	Pupils solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers. This should

include correspondence questions such as the numbers of choices of a meal on a menu, or three cakes shared equally between 10 children.

Unit 4.5: Coordinates and Plotting

Topic	Key Concepts	Strand	Notes/Non-statutory guidance
Position and Direction	describe positions on a 2-D grid as coordinates in	A6: Algebraic graphs	Pupils draw a pair of axes in one quadrant, with equal scales and integer labels. They read, write and use pairs of coordinates, for example (2, 5), including using coordinate-plotting ICT tools.
Position and Direction	plot specified points and draw sides to complete a given polygon.	G2: Construction	

Unit 4.6: Solve Problems using Fractions

Topic	Key Concepts	Strand	Notes/Non-statutory guidance
Number and Place Value	count in multiples of 6, 7, 9, 25 and 1000	N1: Number and the Number system	Pupils should connect hundredths to tenths and place value and decimal measure. They extend the use of the number line to connect fractions, numbers and measures. Pupils understand the relation between non-unit fractions and multiplication and division of quantities, with particular emphasis on tenths and hundredths. Pupils make connections between fractions of a length, of a shape and as a representation of one whole or set of quantities. Pupils use factors and multiples to recognise equivalent fractions and simplify where appropriate (for example, $6/9 = 2/3 = 1/2 = 2/8$) Pupils continue to practise adding and subtracting fractions with the same denominator, to become fluent through a variety of increasingly complex problems beyond one whole. Pupils are taught throughout that decimals and fractions are different ways of expressing numbers and proportions. Pupils' understanding of the number system and decimal place value is extended at this stage to tenths and then hundredths. This includes relating the decimal notation to division of whole number by 10 and later 100. They practise counting using simple fractions and decimals, both forwards and backwards.
Fractions (Including Decimals)	count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten.	N7: Fractions and decimals	
Fractions (Including Decimals)	add and subtract fractions with the same denominator		
Fractions (Including Decimals)	recognise and show, using diagrams, families of common equivalent fractions	N9: Proportional reasoning	
Fractions (Including Decimals)	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	N7: Fractions and decimals	

			Pupils learn decimal notation and the language associated with it, including in the context of measurements. They make comparisons and order decimal amounts and quantities that are expressed to the same number of decimal places. They should be able to represent numbers with one or two decimal places in several ways, such as on number lines.
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Unit 4.7: Translations, Reflections, Angles and Shapes

Topic	Key Concepts	Strand	Notes/Non-statutory guidance
Position And Direction	describe movements between positions as translations of a given unit to the left/right and up/down	G3: Transformations	Pupils draw a pair of axes in one quadrant, with equal scales and integer labels. They read, write and use pairs of coordinates, for example (2, 5), including using coordinate-plotting ICT tools. Pupils compare and order angles in preparation for using a protractor and compare lengths and angles to decide if a polygon is regular or irregular. Pupils draw symmetric patterns using a variety of media to become familiar with different orientations of lines of symmetry; and recognise line symmetry in a variety of diagrams, including where the line of symmetry does not dissect the original shape.
Properties of Shapes	identify acute and obtuse angles and compare and order angles up to two right angles by size	G4: Angles	
Properties of Shapes	identify lines of symmetry in 2-D shapes presented in different orientations	G5: Properties of 2D shapes	
Properties of Shapes	complete a simple symmetric figure with respect to a specific line of symmetry.		
Properties of Shapes	compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes		

Unit 4.8: Decimals, Rounding and Multiplying or Dividing by 10 and 100

Topic	Key Concepts	Strand	Notes/Non-statutory guidance
Fractions (Including Decimals)	recognise and write decimal equivalents of any number of tenths or hundredths	N7: Fractions and decimals	Pupils should connect hundredths to tenths and place value and decimal measure. They extend the use of the number line to connect fractions, numbers and measures. Pupils understand the relation between non-unit fractions and multiplication and division of quantities, with particular emphasis on tenths and hundredths.
Fractions (Including Decimals)	compare numbers with the same number of decimal places up to two decimal places		
Fractions (Including Decimals)	recognise and write decimal equivalents to $\frac{1}{4}$; $\frac{1}{2}$; $\frac{3}{4}$		
Fractions (Including Decimals)	round decimals with one decimal place to the nearest whole number	N5: Accuracy	Pupils make connections between fractions of a length, of a shape and as a representation of one whole or set of quantities. Pupils use

Fractions (Including Decimals)	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 units, tenths and hundredths	N7: Fractions and decimals	<p>factors and multiples to recognise equivalent fractions and simplify where appropriate (for example, $6/9 = 2/3 = 1/3 = 2/6$). Pupils continue to practise adding and subtracting fractions with the same denominator, to become fluent through a variety of increasingly complex problems beyond one whole.</p> <p>Pupils are taught throughout that decimals and fractions are different ways of expressing numbers and proportions.</p> <p>Pupils' understanding of the number system and decimal place value is extended at this stage to tenths and then hundredths. This includes relating the decimal notation to division of whole number by 10 and later 100.</p> <p>They practise counting using simple fractions and decimals, both forwards and backwards.</p> <p>Pupils learn decimal notation and the language associated with it, including in the context of measurements. They make comparisons and order decimal amounts and quantities that are expressed to the same number of decimal places. They should be able to represent numbers with one or two decimal places in several ways, such as on number lines.</p>
Fractions (Including Decimals)	solve simple measure and money problems involving fractions and decimals to two decimal places		

Unit 4.9: Interpret and Present Data for Calculating

Topic	Key Concepts	Strand	Notes/Non-statutory guidance
Interpreting data	interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	Statistics	<p>Pupils understand and use a greater range of scales in their representations.</p> <p>Pupils begin to relate the graphical representation of data to recording change over time.</p>
Interpreting data	solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.		

Unit 4.10: Perimeter and Area of Rectilinear Shapes

Topic	Key Concepts	Strand	Notes/Non-statutory guidance
Distance, capacity, Time and Money	measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	G7: Area, perimeter and volume	Perimeter can be expressed algebraically as $2(a + b)$ where a and b are the dimensions in the same unit. They relate area to arrays and multiplication.
Distance, capacity, Time and Money	find the area of rectilinear shapes by counting squares		

Unit 4.11: Mental Calculations

Topic	Key Concepts	Strand	Notes/Non-statutory guidance
Multiplication And Division	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	N2: Mental methods of calculation	Pupils continue to practise recalling and using multiplication tables and related division facts to aid fluency. Pupils practise mental methods and extend this to three-digit numbers to derive facts, (for example $600 \div 3 = 200$ can be derived from $2 \times 3 = 6$).
Multiplication And Division	recognise and use factor pairs and commutativity		

Unit 4.12: Converting Measurements and Money

Topic	Key Concepts	Strand	Notes/Non-statutory guidance
Distance, capacity, Time and Money	Convert between different units of measure (e.g. kilometre to metre; hour to minute)	G9: Measures	Pupils build on their understanding of place value and decimal notation to record metric measures, including money. They use multiplication to convert from larger to smaller units.
Distance, capacity, Time and Money	estimate, compare and calculate different measures, including money in pounds and pence		