



Term-by-term mathematics assessment across primary school

Curriculum Maps

for

Progress in Understanding Mathematics Assessment

Termly content for Year 4



The *PUMA* tests provide thorough coverage of the **new** National Curriculum Programme of Study for the particular year. These Curriculum Maps take in the new PoS, which describes what should be covered by the end of each year, and suggest how teaching of the material might be allocated to each term. For any test to give reliable results, it needs to be valid – that is, to assess what has been taught – so the Curriculum Maps help to define what *PUMA* assesses each term.

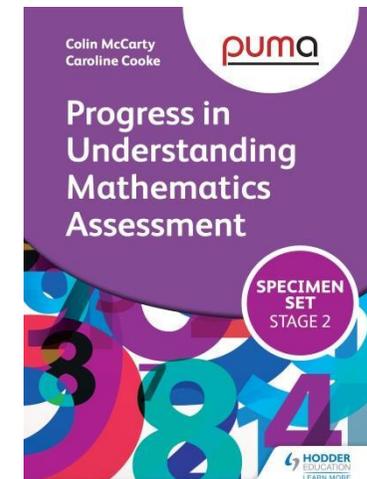
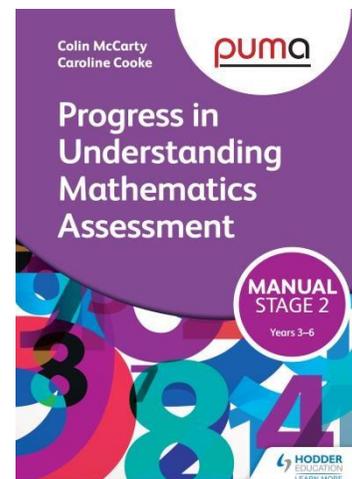
We hope that you will find the Curriculum Maps useful in planning your teaching and for liaison across the school. The *PUMA* test for each term includes much, but obviously not all, of the curriculum we have described for that term. We anticipate that much of the material is introduced in the Autumn term and reinforced in subsequent terms.

- **Blue highlighting** denotes specific material moved down from a higher year.
- **Yellow highlighting** denotes content not explicit in the PNS for the year, to help you transfer from your existing lesson planning.
- **Purple text** denotes repeated statements.
- *Italics* indicate illustrative examples, non-statutory notes and guidance from the new PoS. (NB most of the non-statutory notes and guidance are new, from a higher year, or beyond the PNS.)

You will notice a lot of yellow highlighting, to make you aware of even very small changes. It often indicates little more than an expansion and clarification of what you would already be teaching using the PNS. We have also highlighted the same material in all 3 terms, where it is typically taught in the autumn term, but used and reinforced in subsequent terms.

Boy	Girl	Test date / /	Chronological age	years	months	
		Category				Mark
		Number				18
		Operations				11
		Fractions				12
		Measures				15
		Geometry				15
		Statistics				15
		Total				140
		Problem solving				17
		Maths age				PUMA scale

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Year 4	Autumn	Spring	Summer
NUMBER			
Number and place value	<ul style="list-style-type: none"> Count in multiples of 6, 9, 25 and 1000 e.g. 625, 600, 575, 550, 525, 500, ... Find 1000 more or less than a given number e.g. $45 + 1000$, $8904 - 1000$ Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) Order and compare numbers beyond 1000 Identify, represent and estimate numbers using different representations <i>including measures and measuring instruments</i> Round any number to the nearest 10 or 100 Solve number and practical problems that involve place value and rounding and with increasingly large positive numbers 	<ul style="list-style-type: none"> 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 e.g. 8, 6, 4, 2, 0, -2, -4, -6, ... Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) Order and compare numbers beyond 1000 Identify, represent and estimate numbers using different representations <i>including measures and measuring instruments</i> Round any number to the nearest 10 or 100 Solve number and practical problems that involve place value and rounding and with increasingly large positive numbers 	<ul style="list-style-type: none"> 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 four-digit number (thousands, hundreds, tens, and ones) Order and compare numbers beyond 1000 Identify, represent and estimate numbers using different representations <i>including measures and measuring instruments</i> Round any number to the nearest 10, 100 or 1000 Solve number and practical problems that involve place value and rounding 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. e.g. $49 = XLIX$
Addition and subtraction	<ul style="list-style-type: none"> Use both mental and written methods with increasingly large numbers to 	<ul style="list-style-type: none"> Use both mental and written methods with increasingly large numbers to 	<ul style="list-style-type: none"> Use both mental and written methods with increasingly large numbers to

	<p><i>aid fluency e.g. mentally calculate</i> $540 + 400$ or $900 - 360$</p> <ul style="list-style-type: none"> • Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate • Estimate and use inverse operations to check answers to a calculation e.g. $8702 - 499$ is approximately $9000 - 500 = 8500$; check $8203 + 499 = 8702$ • Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why e.g. It costs £3.50 for Ben to go swimming and £5.70 for his mum; how much change is there from £10? 	<p><i>aid fluency</i></p> <ul style="list-style-type: none"> • Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate • Estimate and use 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 e.g. investigate which amounts of money cannot be made using exactly three coins. 	<p><i>aid fluency e.g. mentally calculate</i> $540 + 270$ or $900 - 365$</p> <ul style="list-style-type: none"> • Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate • Estimate and use 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 e.g. Mr Smith sets out on a 619 mile journey; he drives 320 miles before lunch and 185 miles after lunch; how much farther does he need to drive?
<p>Multiplication and division</p>	<ul style="list-style-type: none"> • Recall multiplication and division facts for multiplication tables up to 10×10 • 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 e.g. $600 \div 3 = 200$; $4 \times 6 \times 2$ • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout (see appendix) • solve problems involving multiplying and adding, including using the distributive law to multiply two digit 	<ul style="list-style-type: none"> • Recall multiplication and division facts for multiplication tables up to 12×12 • 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 e.g. $420 = 70 \times 6$; $5 \times 4 \times 9$ • Recognise and use factor pairs and commutativity in mental calculations e.g. factor pairs of 20 are 1 and 20, 2 and 10, 4 and 5; addition and multiplication are commutative e.g. $2 \times 6 \times 5 = 2 \times 5 \times 6 = 10 \times 6$ 	<ul style="list-style-type: none"> • recall multiplication and division facts for multiplication tables up to 12×12 • 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 e.g. $640 \div 8 = 80$; $4 \times 6 \times 20$ • recognise and use factor pairs and commutativity in mental calculations • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout • <i>Use the formal written method for</i>

	<p>numbers by one digit e.g. $34 \times 6 = (30 \times 6) + (4 \times 6)$, integer scaling problems and harder correspondence problems such as n objects are connected to m objects e.g. <i>3 skirts and 4 tops, how many different outfits?</i></p>	<ul style="list-style-type: none"> • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout • Use the formal written method for short division with exact answers when dividing by a one-digit number e.g. $456 \div 3$ • Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit e.g. $34 \times 6 = (30 \times 6) + (4 \times 6)$, integer scaling problems and harder correspondence problems such as n objects are connected to m objects e.g. <i>the number of different choices on a menu</i> 	<p><i>short division with exact answers when dividing by a one-digit number e.g. $736 \div 8$</i></p> <ul style="list-style-type: none"> • Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit e.g. $34 \times 6 = (30 \times 6) + (4 \times 6)$, integer scaling problems and harder correspondence problems such as n objects are connected to m objects e.g. <i>3 cakes shared equally between 10 children.</i>
<p>Fractions (including decimals)</p>	<ul style="list-style-type: none"> • Know that decimals and fractions are different ways of expressing proportions • Recognise and show, using diagrams, families of common equivalent fractions • Count using simple fractions and decimal fractions, both forwards and backwards e.g. $4\frac{1}{3}, 4\frac{2}{3}, 5, 5\frac{1}{3}, 5\frac{2}{3}, 6, 6\frac{1}{3}; 3.2, 3.1, 3, 2.9, 2.8, \dots$ and represent fractions and decimals on a number line • Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten e.g. $\frac{3}{10} = \frac{30}{100}$ 	<ul style="list-style-type: none"> • Know that decimals and fractions are different ways of expressing proportions • Recognise and show, using diagrams, families of common equivalent fractions • Count using simple fractions and decimal fractions, both forwards and backwards and represent fractions and decimals on a number line • Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten • Identify, name and write equivalent 	<ul style="list-style-type: none"> • Know that decimals and fractions are different ways of expressing proportions • Recognise and show, using diagrams, families of common equivalent fractions • Count using simple fractions and decimal fractions, both forwards and backwards and represent fractions and decimals on a number line • Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten • Identify, name and write equivalent

$$= 0.30 = 0.3$$

- Identify, name and write equivalent fractions of a given fraction, including tenths and hundredths e.g. $\frac{6}{9} = \frac{2}{3}$
- Solve problems to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number e.g. find $\frac{4}{9}$ of 18 counters
- Recognise and write decimal equivalents of any number of tenths or hundredths e.g. $\frac{9}{10} = 0.9$; $\frac{9}{100} = 0.09$
- 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 the digits in the answer as units, tenths and hundredths

fractions of a given fraction, including tenths and hundredths

- Solve problems to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number e.g. What fraction of a day is 3 hours?
- 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 the digits in the answer as units, tenths and hundredths
- Round decimals with one decimal place to the nearest whole number e.g. 32.5 rounds to 33; 49.7 rounds to 50
- Compare numbers with the same number of decimal places up to two decimal places e.g. put in order: 2.56, 26.52, 2.65, 25.62, 2.62
- Solve simple measure and money problems involving fractions and decimals to two decimal places e.g. two parcels weigh 5.5kg altogether, one weighs 3.8kg, what is the mass of the other?

fractions of a given fraction, including tenths and hundredths

- Add and subtract fractions with the same denominator e.g. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5}$
- 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 e.g. $\frac{9}{5}$ of is 9
- 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 the digits in the answer as units, 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 e.g. Ben buys a toy costing £4.55 and $\frac{1}{4}$ kg of sweets costing £3.20 per kilo; how much change does he receive

			from £10?
MEASUREMENT			
Measurement	<ul style="list-style-type: none"> Convert between different units of measure (e.g. kilometre to metre; hour to minute) e.g. $4\frac{1}{2}\text{kg} = 4500\text{g}$; Estimate, compare and calculate different measures, including money in pounds and pence e.g. put in order: £1.20, 98p, £0.89, £1.08 	<ul style="list-style-type: none"> Convert between different units of measure (e.g. kilometre to metre; hour to minute) e.g. $90\text{ minutes} = 1\frac{1}{2}\text{ hours}$ 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 e.g. $\frac{1}{4}$ to 8 in the evening can be written as 19:45 Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. e.g. which of these children are 3 years old: <ul style="list-style-type: none"> Isabel 39 months Ben 32 months Cara 50 months Dylan 42 months 	<ul style="list-style-type: none"> Convert between different units of measure (e.g. kilometre to metre; hour to minute) Estimate, compare and calculate different measures, including money in pounds and pence e.g. put in order: 4.2kg, 4700g, $4\frac{1}{2}\text{kg}$, 490g 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. Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres e.g. find the perimeter of an L-shape where the lengths are given or can be measured Find the area of rectilinear shapes by counting squares e.g. find the area of an L-shape drawn on squared paper
GEOMETRY			
Properties of shapes	<ul style="list-style-type: none"> Compare and classify geometric shapes, including quadrilaterals (e.g. parallelogram, rhombus, trapezium) and triangles (e.g. isosceles, equilateral, scalene), based on their properties and sizes e.g. sort triangles to find those that are 	<ul style="list-style-type: none"> Compare and classify geometric shapes, including quadrilaterals (e.g. parallelogram, rhombus, trapezium) and triangles (e.g. isosceles, equilateral, scalene), based on their properties and sizes e.g. sort quadrilaterals to find those with line 	<ul style="list-style-type: none"> Compare and classify geometric shapes, including quadrilaterals (e.g. parallelogram, rhombus, trapezium) and triangles (e.g. isosceles, equilateral, scalene), based on their properties and sizes

	<p><i>isosceles and/or have a right angle</i></p> <ul style="list-style-type: none"> Complete a simple symmetric figure with respect to a specific line of symmetry 	<p><i>symmetry or parallel edges</i></p> <ul style="list-style-type: none"> Complete a simple symmetric figure with respect to a specific line of symmetry Identify acute and obtuse angles and compare and order angles up to two right angles by size, <i>without using a protractor</i> 	<ul style="list-style-type: none"> Complete a simple symmetric figure with respect to a specific line of symmetry. Identify acute and obtuse angles and compare and order angles up to two right angles by size, <i>without using a protractor</i> Compare lengths and angles to decide if a polygon is regular or irregular. e.g. regular polygons have edges with the same lengths and angles all the same size e.g. a square is the only regular quadrilateral Identify lines of symmetry in 2-D shapes presented in different orientations
Position and direction	<ul style="list-style-type: none"> Describe positions on a 2-D grid as coordinates in the first quadrant Plot specified points and draw sides to complete a given polygon. e.g. find the coordinates of the missing vertex of a shape. 	<ul style="list-style-type: none"> Describe positions on a 2-D grid as coordinates in the first quadrant Plot specified points and draw sides to complete a given polygon. Describe movements between positions as translations of a given unit to the left/right and up/down 	<ul style="list-style-type: none"> describe positions on a 2-D grid as coordinates in the first quadrant Plot specified points and draw sides to complete a given polygon. Describe movements between positions as translations of a given unit to the left/right and up/down
STATISTICS			
Use and interpret data	<ul style="list-style-type: none"> Interpret and present discrete data using appropriate graphical methods, including bar charts, <i>using a greater range of scales</i> Solve comparison, sum and 	<ul style="list-style-type: none"> Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs, <i>using a greater range of scales e.g. height of a sunflower plant, measured daily for</i> 	<ul style="list-style-type: none"> Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs, <i>using a greater range of scales</i>

	difference problems using information presented in bar charts, pictograms, tables and other graphs	<i>2 weeks</i> <ul style="list-style-type: none">• Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	<ul style="list-style-type: none">• Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs
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