puma

Term-by-term mathematics assessment across primary school

Curriculum Maps

for

Progress in Understanding Mathematics Assessment
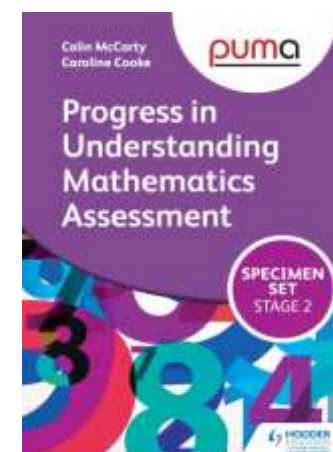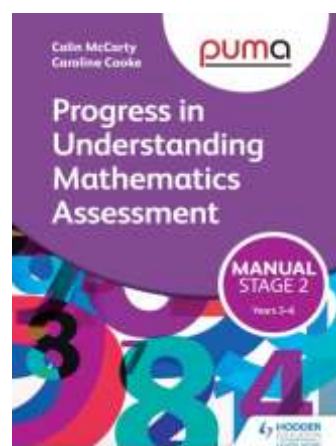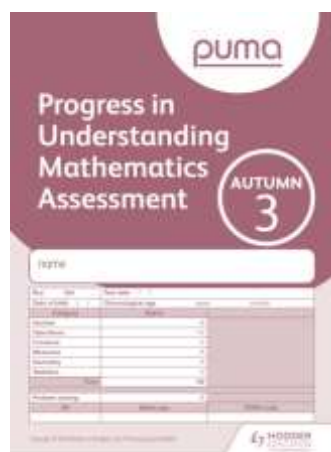### Termly content for Year 3

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.

Year 3	Autumn	Spring	Summer
NUMBER			
Number and place value	• Count from 0 in multiples of 4, 50 and 100; find 10 or 100 more or less than a given number *e.g. 10 more than 395* • Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • Identify, represent and estimate numbers using different representations *including those related to measure e.g. using place value cards to show 985 = 900 + 80 + 5; tally marks; base 10 apparatus.* • *Apply partitioning related to place value using varied and increasingly complex problems e.g. 146 = 100 and 40 and 6, 146 = 130 and 16* • Read and write numbers to at least 1000 in numerals • Compare and order numbers up to 1000 • Solve number problems and practical problems involving place value and rounding.	• Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number • Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • Identify, represent and estimate numbers using different representations *including those related to measure* • *Apply partitioning related to place value using varied and increasingly complex problems* • Read and write numbers to at least 1000 in numerals and in words *e.g. three hundred and forty-six* • Compare and order numbers up to 1000 • Solve number problems and practical problems involving place value and rounding	• Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number • Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • Identify, represent and estimate numbers using different representations *including those related to measure* • *Apply partitioning related to place value using varied and increasingly complex problems* • Read and write numbers to at least 1000 in numerals and in words • Compare and order numbers up to 1000 • Solve number problems and practical problems involving place value and rounding

Addition and subtraction	• Add and subtract numbers mentally, including:
	  o a three-digit number and ones
	  o a three-digit number and tens
	  o a three-digit number and hundreds *e.g. 858 – 300*
	  o *two-digit numbers where the answer could exceed 100 e.g. 99+18*
	
	• Add and subtract numbers with up to three digits
	
	• Estimate the answer to a calculation and use inverse operations to check answers *e.g. 702 – 249 is approximately 700 – 250 = 450; check 453 + 249 = 702*
	
	• Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction *e.g. investigate the numbers which could go in the boxes when*
	
	$2 \times \square = 7 + \square$
		• Add and subtract numbers mentally, including:
		  o a three-digit number and ones
		  o a three-digit number and tens *e.g. 476 + 50*
		  o a three-digit number and hundreds.
		  o *two-digit numbers where the answer could exceed 100*
		
		• Add and subtract numbers with up to three digits, **using formal written methods of columnar addition**
		
		• Estimate the answer to a calculation and use inverse operations to check answers
		
		• Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction *e.g. There are 46 boys and 58 girls in Year 3, but 12 children are away; how many Year 3 children are at school?*
			• Add and subtract numbers mentally, including:
			  o a three-digit number and ones
			  o a three-digit number and tens *e.g. 824 – 30*
			  o a three-digit number and hundreds
			  o *two-digit numbers where the answer could exceed 100 e.g. 68+47*
			
			• Add and subtract numbers with up to three digits, **using the efficient written methods of columnar addition** and subtraction
			
			• Estimate the answer to a calculation and use inverse operations to check answers
			
			• Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction *e.g. investigate the numbers which could go in the boxes when*
			
			$\boxed{}\,\boxed{3} = \boxed{2}\,\boxed{}\quad\boxed{}\,\boxed{6}$

Multiplication and division	• Recall and use multiplication and division facts for the 3 and 4 multiplication tables • *Develop efficient mental methods, for example, using commutativity e.g. 2 × 7 × 5 = 2 × 5 × 7 = 10 × 7 = 70 and multiplication and division facts to derive related facts e.g. using 3 × 2 = 6,*	• Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • *Develop efficient mental methods, for example, using commutativity and multiplication and division facts to derive related facts*	• Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • *Develop efficient mental methods, for example, using commutativity e.g. 4 × 12 × 5 = 4 × 5 × 12 = 20 × 12 = 240 and multiplication and division facts to derive related facts*

	6 ÷ 3 = 2 and 2 = 6 ÷ 3 to derive 30 × 2 = 60, 60 ÷ 3 = 20 and 20 = 60 ÷ 3 • Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know including for two-digit numbers times one-digit numbers, using mental methods *e.g. 22×3* • Solve problems, <mark>including missing number problems</mark>, involving multiplication and division *e.g. 90 = 3 ×☐*	• Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and <mark>progressing to formal written methods</mark> *e.g. 34×5 or 64÷4* • Solve problems, <mark>including missing number problems</mark>, involving multiplication and division *e.g. 240 = ☐ × 4*	• Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and <mark>progressing to formal written methods</mark> *e.g. 46×8 or 81÷3* • Solve problems, <mark>including missing number problems</mark>, involving multiplication and division, <mark>including</mark> <mark style="background:cyan">integer scaling problems</mark> *(e.g. change a recipe for 2 people to make enough for 6 people)* and <mark>correspondence problems in which n objects are connected to m objects.</mark> *e.g. 3 hats and 4 coats, how many different outfits? Or Share 6 cakes equally between 4 children.*
Fractions	• <mark>Count up and down in tenths</mark>; recognise that tenths arise from dividing an object into 10 equal parts <mark style="background:cyan">and in dividing one-digit numbers or quantities by 10</mark> *e.g. 3 cakes shared between 10 children gives $^3/_{10}$ each.* • Recognise, find and write fractions of a discrete set of objects: unit fractions and <mark>non-unit fractions</mark> with small denominators *e.g. find $^1/_3$ of 9 beads, then $^2/_3$ of 9 beads* • *understand the relation between unit fractions as operators (fractions of), and division by integers e.g. to find $^1/_3$,*	• <mark>Count up and down in tenths</mark>; recognise that tenths arise from dividing an object into 10 equal parts <mark style="background:cyan">and in dividing one-digit numbers or quantities by 10</mark> • *Connect tenths to place value, decimal measures and to division by 10 e.g. $^7/_{10}$ = 0.7* • Recognise, find and write fractions of a discrete set of objects: unit fractions and <mark>non-unit fractions</mark> with small denominators *e.g. there are 8 marbles and three of them are red; what fraction of the marbles are red?*	• <mark>Count up and down in tenths</mark>; recognise that tenths arise from dividing an object into 10 equal parts <mark style="background:cyan">and in dividing one-digit numbers or quantities by 10</mark> • *Connect tenths to place value and decimal measures (not restricted to decimals between 0 and 1) and to division by 10 e.g. $^{13}/_{10}$ = 1.3* • Recognise, find and write fractions of a discrete set of objects: unit fractions and <mark>non-unit fractions</mark> with small denominators *e.g. find $^4/_5$ of 30*

	you divide by 3; to find $^1/_5$, you divide by 5	• Understand the relation between unit fractions as operators (fractions of), and division by integers e.g. to find $^1/_3$, you divide by 3; to find $^1/_5$, you divide by 5	• Understand the relation between unit fractions as operators (fractions of), and division by integers e.g. to find $^1/_3$, you divide by 3; to find $^1/_5$, you divide by 5
	• Recognise and use fractions as numbers *on the number line*: unit fractions and non-unit fractions with small denominators	• Recognise and use fractions as numbers *on the number line:* unit fractions and non-unit fractions with small denominators	• Recognise and use fractions as numbers *on the number line:* unit fractions and non-unit fractions with small denominators
	• Recognise and show, using diagrams, equivalent fractions with small denominators *e.g. ½ = $^3/_6$*	• Recognise and show, using diagrams, equivalent fractions with small denominators	• Recognise and show, using diagrams, equivalent fractions with small denominators
		• Compare and order unit fractions, and fractions with the same denominators *e.g. put in order $^3/_8$, $^1/_8$, $^7/_8$, $^5/_8$*	• Add and subtract fractions with the same denominator within one whole *e.g. If $^1/_3$ of a cake is eaten then $^2/_3$ remains or $^5/_7 + ^1/_7 = ^6/_7$*
	• Solve problems that involve fractions *e.g. Amy ate ¼ of her 12 sweets and Ben ate ½ of his 8 sweets, who ate more sweets?*	• Solve problems that involve fractions	• Compare and order unit fractions, and fractions with the same denominators *e.g. put in order $^1/_2$, $^1/_8$, $^1/_4$, $^1/_6$*
			• Solve problems that involve fractions *e.g. Ali, Ben and Cara have 24 fish. $^2/_3$ of them belong to Ali, ¼ belong to Ben and the rest belong to Cara; how many fish belong to Cara?*
MEASUREMENT			
Measurement	• Measure, compare, add and subtract: **length** (m/cm/mm) *e.g. how much ribbon is left when 36cm is cut from 1m? Which is longer: 6½cm or 62mm?*	• Measure, compare, add and subtract: length (m/cm/mm) **mass** (kg/g) *e.g. find 3 vegetables which weigh between 100g and 300g. Read 250g*	• measure, compare, add and subtract: length (m/cm/mm); mass (kg/g); **volume/capacity** (l/ml) *e.g. Read 300ml on a scale labelled every*

5m or 450cm? Measure and draw lines to the nearest ½ cm. Know the approximate length of a book, a room, a handspan…

- Add and subtract amounts of money to give change, using both £ and p in practical contexts *e.g. I buy2 packs of sweets for 75p each; how much change will I get from £2?*

- Tell and write the time from an analogue clock *e.g. draw hands on a clock face to show 'ten to four', making sure the hour hand is located correctly*

- Record and compare time in terms of ==seconds==, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight

- Compare durations of events, for example to calculate the time taken by particular events or tasks.

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on a scale labelled every 100g. Which is heavier: 1kg 300g or 1½kg? Know the approximate mass of a book, an apple, a baby, a man…

- Add and subtract amounts of money to give change, using both £ and p in practical contexts *e.g. I have a £2 coin, two £1 coins, three 50p coins, a 20p and seven 5p coins; how much more do I need to make £10?*

- Tell and write the time from an analogue clock, ==including using Roman numerals from I to XII==, and 12-hour *digital* clocks

- Estimate and read time with increasing accuracy to the ==nearest minute==; record and compare time in terms of ==seconds==, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight

- Compare durations of events, for example to calculate the time taken by particular events or tasks.

- ==Know the number of seconds in a minute and the number of days in each month, year and leap year==

200ml. Order a set of containers by capacity, using a measuring jug and water to check. Know the approximate capacity of a cup, a jug, a bucket…

- ==measure the perimeter of simple 2-D shapes== *e.g. measure accurately the sides of a triangle in cm or mm, in order to find the perimeter*

- add and subtract amounts of money to give change, using both £ and p in practical contexts *e.g. Ali is saving 80p each week, to buy a toy costing £5; how many weeks will it take him?*

- tell and write the time from an analogue clock, ==including using Roman numerals from I to XII==, and 12-hour ==and 24-hour== *digital* clocks

- estimate and read time with increasing accuracy to the ==nearest minute==; record and compare time in terms of ==seconds==, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight

- Compare durations of events, for example to calculate the time taken by particular events or tasks.

- ==Know the number of seconds in a minute and the number of days in each month, year and leap year==

GEOMETRY			
Properties of shapes	• Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations; and describe them *e.g. number of faces, edges and vertices (singular: vertex), e.g. guess my shape: it has a square face and four triangular faces (square-based pyramid)*	• Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations; and describe them • Recognise that angles are a property of shape or a description of turn • Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle • *Describe the properties of shapes using accurate language, including symmetrical/not symmetrical, lengths of lines, and acute and obtuse angles e.g. sort triangles into those with an obtuse angle and those without*	• Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations; and describe them • Recognise that angles are a property of shape or a description of turn • Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle • *Describe the properties of shapes using accurate language, including symmetrical/not symmetrical, lengths of lines, and acute and obtuse angles* • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines
STATISTICS			
Use and interpret data	• Interpret and present data using bar charts, pictograms and tables, *understanding and using simple scales e.g. 2, 5, 10 units per cm with increasing accuracy.* • Solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.	• Interpret and present data using bar charts, pictograms and tables, *understanding and using simple scales e.g. 2, 5, 10 units per cm with increasing accuracy.* • Solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.	• Interpret and present data using bar charts, pictograms and tables, *understanding and using simple scales e.g. 2, 5, 10 units per cm with increasing accuracy.* • Solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.

	• *Interpret data presented in many contexts*	• *Interpret data presented in many contexts*	• *Interpret data presented in many contexts*