

Unit 1: Developing fluency, problem solving & reasoning: counting partitioning, calculating & measurement

Key ideas:

- **Counting** in steps of 4, 8, 50 and 100 (Y3) and 6, 7, 9, 25 and 1000 (Y4) involving positive (and negative numbers Y4)
 - **Place value:** to 3-digit numbers in Y3 and in Y4 4-digit numbers and also numbers with one decimal place: reading & writing, partitioning, ordering, rounding. Roman numerals
 - **Calculating: (addition & subtraction)** mental calculation strategies and developing written calculation and solving problems
- Mathematical contexts for key ideas:** Measurement: length (autumn), mass (spring) and capacity (summer)

				National curriculum statements: Year 3	National curriculum statements: Year 4
Week	Autumn	Spring	Summer	<p>Ongoing throughout unit: PV count from 0 in multiples of 4, 8, 50 and 100; PV find 10 or 100 more or less than a given number PV read and write numbers up to 1,000 in numerals and in words</p>	<p>Ongoing throughout unit: PV Count in multiples of 6, 7, 9, 25 and 1000 PV Count backwards through zero to include negative numbers PV Find 1000 more or less than a given number</p>
Week 1	05/09/16 (PD)	03/01/17 (PD)	24/04/17	<p>PV recognise the place value of each digit in a 3-digit number (100s, 10s, 1s) PV compare and order numbers up to 1,000 PV identify, represent and estimate numbers using different representations</p> <p>M measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</p> <p>PV solve number problems and practical problems involving these ideas (number and place value)</p>	<p>PV Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones) PV Order and compare numbers beyond 1000 PV Identify, represent and estimate numbers using different representations</p> <p>M Estimate, [measure], compare and calculate different measures (length, mass & capacity/volume) PV Round any number to the nearest 10, 100 or 1000 FD Round decimals with one decimal place to the nearest whole number PV solve number problems and practical problems that involve all of the above and with increasingly large positive numbers FD Compare numbers with the same number of decimal places up to 2-decimal places FD 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 ones, tenths and hundredths</p>
Week 2	12/09/16	09/01/17	02/05/17 (BH)	<p>M measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</p> <p>PV find 10 or 100 more or less than a given number A/S add and subtract numbers mentally, including: <ul style="list-style-type: none"> ○ a three-digit number and 1s ○ a three-digit number and 10s ○ a three-digit number and 100s </p> <p>PV tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</p>	<p>M Estimate, [measure], compare and calculate different measures (length, mass & capacity/volume) M Convert between different units of measurement [eg: kilometre to metre; hour to minute] PV Find 1000 more or less than a given number</p> <p>PV 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.</p>
Week 3	19/09/16	16/01/17	08/05/17	<p>A/S add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction (<i>E.g. numberline recording Autumn; introduce vertical methods for addition; & vertical methods for subtraction Summer term</i>) A/S estimate the answer to a calculation and use inverse operations to check answers A/S solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction</p> <p>M measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</p> <p>S interpret and present data using bar charts, pictograms and tables S solve one-step and two-step questions [for example ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts and pictograms & tables</p>	<p>A/S Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</p> <p>A/S Estimate and use inverse operations to check answers to a calculation A/S Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why</p> <p>M Estimate, compare and calculate different measures (length, mass & capacity/volume) S solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs</p>

Unit 2: Developing fluency, problem solving and reasoning: properties of number, multiplication and position & direction				
<p>Key ideas:</p> <ul style="list-style-type: none"> Calculation: application of addition & subtraction; multiplication & division with an emphasis on multiplication - mental calculation, recall of facts and multiplicative reasoning Properties of number: multiplies and factors (Y4) Measurement: perimeter and area (Y4) <p>Also: Geometry: position & direction – reflection & translation including coordinates</p>				
National curriculum statements: Year 3			National curriculum statements: Year 4	
Week	Autumn	Spring	Summer	
<p>Ongoing throughout unit: M/D recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</p>			<p>Ongoing throughout unit: M/D Recall multiplication and division facts for multiplication tables up to 12 × 12. M/D 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.</p>	
<p>NB. During the first week of this unit, you may wish to focus on either the application of addition and subtraction including statistics OR using facts for mental multiplication. This may vary from term to term according to the needs of the class.</p>				
Week 4	26/09/16	23/01/17	15/05/17	
<p>A/S solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction A/S estimate the answer to a calculation and use inverse operations to check answers</p> <p>S solve one-step and two-step questions [for example 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms & tables</p> <p>G identify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn; identify whether angles are greater than or less than a right angle</p> <p>G identify horizontal and vertical lines and pairs of perpendicular and parallel lines</p>			<p>M/D Recognise and use factor pairs and commutativity in mental calculations</p> <p>M/D 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.</p> <p>P&D Describe positions on a 2-D grid as coordinates in the first quadrant</p> <p>P&D Describe movements between positions as translations of a given unit to the left/right and up/down</p> <p>P&D Plot specified points and draw sides to complete a given polygon</p>	
Week 5	03/10/16	30/01/17	22/05/17	
<p>M/D 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 progressing to formal written methods</p> <p>M measure the perimeter of simple 2-D shapes</p>			<p>M/D Recognise and use factor pairs and commutativity in mental calculations</p> <p>M measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</p> <p>M find the area of rectilinear shapes by counting squares</p>	
Week 6	10/10/16	06/02/17	05/06/17	
<p>M/D 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 progressing to formal written methods</p> <p>M/D Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects</p>			<p>M/D Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.</p> <p>M/D 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</p>	
Week 7	17/10/16	13/02/17		
<p><i>Separate unit of work e.g. statistics</i></p> <p>S interpret and present data using bar charts, pictograms and tables</p> <p>S solve one-step and two-step questions [for example 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables</p>			<p><i>Separate unit of work e.g. statistics</i></p> <p>S interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs</p> <p>S solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs</p>	
24/10/16	20/02/17	29/05/17	HALF TERM	

Unit 3: Developing fluency, problem solving and reasoning: division, fractions & decimals				
Key ideas:				
<ul style="list-style-type: none"> Properties of number: count in steps of multiples and also tenths and hundredths (Y4) Fractions & decimals : recognise common fractions & tenths and equivalence; find fractions of quantities; add & subtract fractions; round and compare numbers with 1 decimal place Calculation: multiplication & division with an emphasis on division: recall of multiplication & division facts; mental calculation and written calculation informal recording; divide by 10 to generate tenths (and divide by 100 to generate hundredths); solve problems using multiplication & division including scaling & correspondence problems. Mathematical contexts for key ideas: Measurement: 				
			National curriculum statements: Year 3	National curriculum statements: Year 4
Week	Autumn	Spring	Summer	
			05/06/17 See week 6: unit 2 above Ongoing throughout unit: PV count from 0 in multiples of 4, 8, 50 and 100; M/D recall and use multiplication and division facts for the 3, 4 & 8 multiplication tables FD count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10	Ongoing throughout unit: PV Count in multiples of 6, 7, 9, 25 and 1000 M/D Recall multiplication and division facts for multiplication tables up to 12 × 12. FD Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten
Week 8	31/10/16	27/02/17	12/06/17	
			<p>M/D 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 progressing to formal written methods</p> <p>M/D Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects</p> <p>FD count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10</p>	<p>M/D 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.</p> <p>M/D e.g. divide numbers up to 3 digits by a one-digit number (non-statutory)</p> <p>FD Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten</p> <p>FD 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</p>
Week 9	07/11/16	06/03/17	19/06/17	
			<p>FD recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</p> <p>FD recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators</p> <p>FD compare and order unit fractions, and fractions with the same denominators</p> <p>FD recognise and show, using diagrams, equivalent fractions with small denominators</p> <p>FD add and subtract fractions with the same denominator within one whole eg $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$</p>	<p>FD Recognise and show, using diagrams, families of common equivalent fractions</p> <p>FD Add and subtract fractions with the same denominator</p> <p>FD Recognise and write decimal equivalents to $\frac{1}{4}$; $\frac{1}{2}$; $\frac{3}{4}$.</p> <p>FD Recognise and write decimal equivalents of any number of tenths or hundredths</p>
Week 10	14/11/16	13/03/17	26/06/17	
			<p>FD solve problems that involve all of the above (fractions)</p> <p>FD add and subtract amounts of money to give change, using both £ and p in practical contexts</p> <p>M/D Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects</p>	<p>FD 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</p> <p>FD Solve simple measure and money problems involving decimals and decimals to two decimal places</p> <p>FD Round decimals with one decimal place to the nearest whole number</p> <p>M/D 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</p>

				Unit 4: Developing fluency, problem solving and reasoning: four operations, measurement (time and money), properties of shape	
Key ideas:				<ul style="list-style-type: none"> Four operations: opportunity to revisit aspects of recall of facts, mental and written calculation – see units 1, 2 and 3. Solve problems involving all operations in a variety of mathematical (including measures, time & money) and every day contexts. Time: analogue clocks; solving problems involving conversion between units Perimeter: estimate, measure & calculate the perimeter Geometry: properties of shape – 2D & 3D shapes, horizontal and vertical lines and pairs of perpendicular and parallel lines; & angles –right angles Mathematical contexts for key ideas: measurement - length, mass and capacity, time and money 	
				National curriculum statements: Year 3	National curriculum statements: Year 4
Week	Autumn	Spring	Summer	Ongoing throughout unit: PV count from 0 in multiples of 4, 8, 50 and 100; M/D recall & use multiplication and division facts for the 3, 4 and 8 multiplication tables M tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks	Ongoing throughout unit: PV Count in multiples of 6, 7, 9, 25 and 1000 M/D Recall multiplication and division facts for multiplication tables up to 12 × 12.
Week 11	21/11/16	20/03/17	3/07/17	M measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) A/S solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction M/D Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects FD add and subtract amounts of money to give change, using both £ and p in practical contexts A/S estimate the answer to a calculation and use inverse operations to check answers	M Estimate, compare and calculate different measures (length, mass & capacity/volume) A/S Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why A/S Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why M/D Solve problems involving multiplying & 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. F/D Solve simple measure and money problems involving fractions and decimals to two decimal places M Calculate different measures, including money in pounds and pence A/S Estimate and use inverse operations to check answers to a calculation
Week 12	28/11/16	27/03/17	10/07/17	M tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks M estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight M know the number of seconds in a minute and the number of days in each month, year and leap year M compare durations of events eg, to calculate the time taken by particular events/tasks	M read, write and convert time between analogue and digital 12- and 24-hour clocks M solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days
Week 13	05/12/16	03/04/17	17/07/17	G draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them G identify horizontal and vertical lines and pairs of perpendicular and parallel lines G recognise angles as a property of shape or a description of a turn G identify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn; identify whether angles are greater than or less than a right angle	G compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes G identify lines of symmetry in 2-D shapes presented in different orientations G complete a simple symmetric figure with respect to a specific line of symmetry G identify acute and obtuse angles and compare and order angles up to two right angles by size
Week 14	12/12/16		24/07/17 (PD)	<i>Separate unit of work e.g. statistics</i> S interpret and present data using bar charts, pictograms and tables S solve one-step and two-step questions [for example 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables	<i>Separate unit of work e.g. statistics</i> S interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs S solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

	19/12/16	10/04/17	31/07/17	
	26/12/16	17/04/17		

HOLIDAY

HOLIDAY