Maths Overview

Year 2 and Year 3 and Year 4 Autumn

•	**Purple text** denotes repeated statements.
•	*Italics* indicate illustrative examples, non-statutory notes and guidance from the National Curriculum PoS

	Year 2	Year 3	Year 4
Number and place value	• count in steps of 2 and 5 from 0, and tens from any number, forward or backward *e.g. 93, 83, 73, 63, …* • recognise the place value of each digit in a two-digit number (tens, ones) • identify, represent and estimate numbers using different representations, including the number line • read and begin to write numbers to at least 100 in numerals and in words *e.g. forty* • compare and order numbers from 0 up to 100 • use place value and number facts to solve problems	• 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 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 *including measures and measuring instruments* • 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 •

Addition and subtraction	• add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
	  o a two-digit number and ones
	  o a two-digit number and tens *e.g. 87 – 30 = 57*
	
	• solve problems with addition and subtraction:
	  o using concrete objects and pictorial representations, including those involving numbers, quantities and measures
	  o applying their increasing knowledge of mental and written methods
	
	• begin to recall and use addition and subtraction facts to 20, *e.g. 19 – 7 = 12* and derive and use related facts up to 100
	• *e.g. 30 = 90 – 60*
	
	• recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.
	
	• show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
		• 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*
		
		$2 \times \square = 7 + \square$
			• *Use both mental and written methods with increasingly large numbers to aid fluency e.g. mentally calculate 540 + 400 or 900 – 360*
			
			• 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*

Multiplication and division	• begin to recall and use multiplication and division facts for the 2, and 10 multiplication tables, including recognising odd and even numbers *e.g. 22 ÷ 2 = 11* • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot • *recognise and use the inverse relationship between multiplication and division in calculations* • *relate multiplication and division to grouping and sharing discrete(e.g. counters and continuous quantities e.g. water* • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts *e.g. share 18 counters between 3 children*	• 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, 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, including missing number problems, involving multiplication and division *e.g. 90* ⬚	• 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 ÷ 3 = 200; 4 × 6 × 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 numbers by one digit *e.g.34 × 6 = (30 ×6) + (4 × 6)*, integer scaling problems and harder correspondence problems such as n objects are connected to m objects *e.g. 3 skirts and 4 tops, how many different outfits?* •
Fractions (including decimals and percentages)	• recognise, name and write fractions $^1/_3$, $^1/_4$, 2/4 and ¾ of a shape	• 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 *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 non-unit fractions 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 $^1/_3$, 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 show, using diagrams, equivalent fractions with small denominators *e.g. ½ = $^3/_6$* • 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?*	• *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. $4^1/_3,4^2/_3,5, 5^1/_3, 5^2/_3,6, 6^1/3$; 3.2, 3.1, 3, 2.9, 2.8, … 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. $^3/_{10} = ^{30}/_{100} = 0.30 = 0.3$* • Identify, name and write equivalent fractions of a given fraction, including tenths and hundredths *e.g. $^6/_9 = ^2/_3$* • Solve problems to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number *e.g. find $^4/_9$ of 18 counters* • Recognise and write decimal equivalents of any number of tenths or hundredths *e.g. $^9/_{10} = 0.9$; $^9/_{100} = 0.09$* • Recognise and write decimal equivalents to $^1/_4$; $^1/_2$; $^3/_4$ • 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 •
Measurement	• choose and use appropriate standard units to estimate and measure **length/height** in any direction (m/cm) to the nearest appropriate unit, using rulers	• 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? 5m or 450cm? Measure and draw*	• Convert between different units of measure *(e.g. kilometre to metre; hour to minute) e.g. 4½kg = 4500g;*

	• compare and order lengths and record the results using >, < and = • recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value • find different combinations of coins to equal the same amounts of money • *e.g. find different ways to make 25p* • solve simple problems in a practical context involving addition and subtraction of money of the same unit including giving change e.g. *I buy a toy for £14; how much change do I get from £20?* • compare and sequence intervals of time • tell and write the time quarter past/to the hour and draw the hands on a clock face to show these times *e.g. draw the hands on a clock face to show ¼ to 6, making sure the hour hand is located correctly*	*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 buy 2 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.	• Estimate, compare and calculate different measures, including money in pounds and pence *e.g. put in order: £1.20, 98p, £0.89, £1.08*
Ratio and proportion	•	•	•
Properties of shape	• identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line • *draw lines and shapes using a straight edge* • identify and describe the properties of 3-D shapes, including the number of vertices and faces • compare and sort common 2-D and 3-D shapes and everyday objects • *e.g. sort 3-D shapes in different ways such as whether they have triangular faces, all straight edges…* • *recognise and name, polygons e.g. pentagon, hexagon, octagon and cones*	• 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)*	• 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 isosceles and/or have a right angle* • Complete a simple symmetric figure with respect to a specific line of symmetry •
Position and direction	• order and arrange combinations of mathematical objects in patterns, *including those in different orientations e.g. a turning shape, draw the next shape in the pattern*	• 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*	• 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.* •
Use and interpret data	• interpret and begin to construct simple pictograms, tally charts, block diagrams and simple tables • answer simple questions by counting the number of objects in each category and sorting the categories by quantity • answer questions about totalling and comparing categorical 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 data presented in many contexts*	• Interpret and present discrete data using appropriate graphical methods, including bar charts, *using a greater range of scales* • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

Y2 and Y3 and Y4 Spring

	Year 2	Year 3	Year 4
Number and place value	• count in steps of 2, 3, and 5 from 0, and tens from any number, forward or backward • recognise the place value of each digit in a two-digit number (tens, ones) • identify, represent and estimate numbers using different representations, including the number line • read and write numbers to at least 100 in numerals and in words *e.g. forty-five* • compare and order numbers from 0 up to 100; use <, > and = signs • use place value and number facts to solve problems. • *partition numbers in different ways e.g. 23 = 20 + 3 = 10 + 13*	• 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 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 *including measures and measuring instruments* • 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 •

Addition and subtraction	•add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
	   o a two-digit number and ones
	   o a two-digit number and tens
	   o two two-digit numbers *e.g. 34+29*
	   o adding three one-digit numbers *e.g. 6 + 5 + 4*
	
	•solve problems with addition and subtraction:
	   o using concrete objects and pictorial representations, including those involving numbers, quantities and measures
	   o applying their increasing knowledge of mental and written methods
	
	•recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
	
	•recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.
	
	•show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
	
	use the language 'sum' and 'difference' e.g. find two numbers with a difference of 6 (3 and 9, 10 and 16..);
		• 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?*
			• *Use both mental and written methods with increasingly large numbers to aid fluency*
			
			• 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.*
			
			•

Multiplication and division	•recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	• Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	• Recall multiplication and division facts for multiplication tables up to 12 × 12

	• calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot • *recognise and use the inverse relationship between multiplication and division in calculations* • *relate multiplication and division to grouping and sharing discrete e.g. counters and continuous quantities e.g. water,* and relating these to fractions and measures e.g. 40cm ÷ 2 = 20cm; 20cm is ½ of 40cm • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	• *Develop efficient mental methods, for example, using commutativity and multiplication and division facts to derive related facts* • 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 *e.g. 34×5 or 64÷4* • Solve problems, including missing number problems, involving multiplication and division *e.g. 240 = × 4* ☐	• 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 × 6; 5 × 4 × 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. 2×6×5=2×5×6=10×6* • 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 ÷ 3* • Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit *e.g.34 × 6 = (30 ×6) + (4 × 6),* integer scaling problems and harder correspondence problems such as n objects are connected to m objects *e.g. the number of different choices on a menu* •
Fractions, decimals and percentages	• recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity *e.g. how long is $^1/_3$ of a ribbon which is 60 cm long?* • write simple fractions e.g. ½ of 6 = 3 and recognise the equivalence of two quarters and one half. • *count in fractions e.g. 0, ½, 1, 1½, 2, 2½, …*	• 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 • *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 non-unit fractions with small denominators *e.g. there are 8 marbles and three of them are red; what fraction of the marbles are red?* • *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 show, using diagrams, equivalent fractions with small denominators • Compare and order unit fractions, and fractions with the same denominators *e.g. put in order $^3/_8$, $^1/_8$, $^7/_8$, $^5/_8$* • Solve problems that involve fractions	• *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 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 $^1/_4$; $^1/_2$; $^3/_4$ • 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?* •

Measurement	•choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); **mass** (kg/g) to the nearest appropriate unit, using rulers, scales
	
	•compare and order lengths, masses and record the results using >, < and =
	
	•recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
	
	•find different combinations of coins to equal the same amounts of money
	
	•solve simple problems in a practical context involving addition and subtraction of money of the same unit including giving change *e.g. I buy 2 bags of sweets for 20p each, how much change will I get from 50p?*
	
	•compare and sequence intervals of time
	
	•tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.
		• 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 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
			• Convert between different units of measure *(e.g. kilometre to metre; hour to minute) e.g. 90 minutes = 1½ 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. ¼ 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:*
			  o *Isabel 39 months*
			  o *Ben 32 months*
			  o *Cara 50 months*
			  o *Dylan 42 months*
			•

Properties of shape	•identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line •*draw lines and shapes using a straight edge* •identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces •compare and sort common 2-D and 3-D shapes and everyday objects *e.g. sort 3-D shapes in different ways such as whether they are prisms, whether they have more than 8 edges…* •*recognise and name* quadrilaterals, *polygons e.g. pentagon, hexagon, octagon, prisms and cones* •identify 2-D shapes on the surface of 3-D shapes, for example a circle on a cylinder and a triangle on a 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*	• 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 symmetry or parallel edges* • 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, *without using a protractor* •

Position and direction	•order and arrange combinations of mathematical objects in patterns, *including those in different orientations* •use mathematical vocabulary to describe position, direction and movement, including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise), and movement in a straight line. •*Use the concept and language of angles to describe 'turn' by applying rotations, including in practical contexts (e.g. pupils themselves moving in turns, giving instructions to other pupils to do so, and programming robots using instructions given in right angles)*		• 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
Use and interpret data	•interpret and construct simple pictograms *e.g. where the symbol represents 2, 5 or 10 units,* tally charts, block diagrams and simple tables •answer simple questions by counting the number of objects in each category and sorting the categories by quantity •answer questions about totalling and comparing categorical 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 data presented in many contexts*	• Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs, *using a greater range of scales e.g. height of a sunflower plant, measured daily for 2 weeks* • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs •

Y2 and Y3 and Y4 Summer

	Year 2	Year 3	Year 4
Number and place value	• count in steps of 2, 3, and 5 from 0, and tens from any number, forward or backward • recognise the place value of each digit in a two-digit number (tens, ones) • identify, represent and estimate numbers using different representations, including the number line • read and write numbers to at least 100 in numerals and in words • compare and order numbers from 0 up to 100; use <, > and = signs • use place value and number facts to solve problems. • *partition numbers in different ways e.g. 23 = 20 + 3 = 10 + 13*	• 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	• 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 *including measures and measuring instruments* • 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	• add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
	    o a two-digit number and ones
	    o a two-digit number and tens
	    o two two-digit numbers *e.g. 63-29*
	    o ☐adding three one-digit numbers *e.g. 9 + 7 + 9*
	
	• solve problems with addition and subtraction:
	    o using concrete objects and pictorial representations, including those involving numbers, quantities and measures
	    o applying their increasing knowledge of mental and written methods
	
	• recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
	
	• recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.
	
	• show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
	
	• *use the language 'sum' and 'difference' e.g. three numbers sum to 12, two numbers are 3 and 7, what is the third number?*
		• 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*
		
		☐ 3 = 2 ☐ ☐ 6
			• *Use both mental and written methods with increasingly large numbers to aid fluency e.g. mentally calculate 540 + 270 or 900 – 365*
			
			• 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?*
			
			•

Multiplication and division	• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (✗), division (÷) and equals (=) signs • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot • *recognise and use the inverse relationship between multiplication and division in calculations* • *relate multiplication and division to grouping and sharing discrete e.g. counters and continuous quantities e.g. water, and relating these to fractions and measures e.g. 40cm ÷ 2 = 20cm; 20cm is ½ of 40cm* • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts *e.g. there are 10 pencils in a box, I have 5 boxes and 3 spare pencils, how many do I have altogether?*	• 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* • 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 *e.g. 46×8 or 81÷3* • Solve problems, including missing number problems, involving multiplication and division, including integer scaling problems *(e.g. change a recipe for 2 people to make enough for 6 people)* and correspondence problems in which n objects are connected to m objects. *e.g. 3 hats and 4 coats, how many different outfits? Or Share 6 cakes equally between 4 children.*	• 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 ÷ 8 = 80; 4 × 6 × 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 • *Use the formal written method for short division with exact answers when dividing by a one-digit number e.g. 736 ÷ 8* • Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit *e.g.34 × 6 = (30 ×6) + (4 × 6),* integer scaling problems and harder correspondence problems such as n objects are connected to m objects *e.g. 3 cakes shared equally between 10 children.* •
Fractions, decimals, percentages	• recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity • write simple fractions e.g. 1/2 of 6 = 3 and recognise the equivalence of two quarters and one half. • *count in fractions e.g. 3¼, 3²/₄, 3¾, 4, 4¼, …*	• 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 • *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 non-unit fractions with small denominators *e.g. find $^4/_5$ of 30* • *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 show, using diagrams, equivalent fractions with small denominators • 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 $^5/_7$ + $^1/_7$ = $^6/_7$* • 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?*	• *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 fractions of a given fraction, including tenths and hundredths • Add and subtract fractions with the same denominator *e.g. $^2/_5$ + $^4/_5$ = $^6/_5$* • 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. $^1/_5$ of is 9* • Recognis□and write decimal equivalents of any number of tenths or hundredths • Recognise and write decimal equivalents to $^1/_4$; $^1/_2$; $^3/_4$

		• 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 ¼ kg of sweets costing £3.20 per kilo; how much change does he receive from £10?*
Measurement	•choose and use appropriate standard units to estimate and measure: length/height in any direction (m/cm); mass (kg/g); **temperature** (°C); **capacity** (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels •compare and order lengths, masses, volume/capacity and record the results using >, < and = •recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value *e.g. make 73p using the fewest coins* •find different combinations of coins to equal the same amounts of money •solve simple problems in a practical context involving addition and subtraction of money of the same unit including giving change *e.g. I buy a cake for 60p and a biscuit for 25p, how much change will I get from £1?* •compare and sequence intervals of time •tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.	• 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 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	• 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, 4½kg, 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* •
Properties of shape	•identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line •*draw lines and shapes using a straight edge* •identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces •compare and sort common 2-D and 3-D shapes and everyday objects *e.g. sort 2-D shapes in different ways such as whether they are quadrilaterals and have line symmetry….*	•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	• 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 • 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, *without using a protractor*

	•*recognise and name quadrilaterals, polygons e.g. pentagon, hexagon, octagon, prisms and cones* •identify 2-D shapes on the surface of 3-D shapes, for example a circle on a cylinder and a triangle on a pyramid	•*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	• *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	•order and arrange combinations of mathematical objects in patterns, *including those in different orientations* •use mathematical vocabulary to describe position, direction and movement, including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise), and movement in a straight line. •*Use the concept and language of angles to describe 'turn' by applying rotations, including in practical contexts (e.g. pupils themselves moving in turns, giving instructions to other pupils to do so, and programming robots using instructions given in right angles)*		• 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
Use and interpret data	•interpret and construct simple pictograms *e.g. where the symbol represents 2, 5 or 10 units,* tally charts, block diagrams and simple tables •answer simple questions by counting the number of objects in each category and sorting the categories by quantity •answer questions about totalling and comparing categorical 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 data presented in many contexts*	• Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs, *using a greater range of scales* • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs •