

HOLLINS GRUNDY PRIMARY SCHOOL

Happiness, Health and Respect for Confident, Creative Learners

Year 1

Maths Objectives Over view

<https://www.ncetm.org.uk/classroom-resources/cp-year-1-curriculum-map/>

<https://whiterosemaths.com/resources/primary>

Term	Mathematical Strand	Focus Objective (2014 National Curriculum)	Teachable Steps (Stages of Learning)
		Pupils should be taught to:	
	ELG prior knowledge <i>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;</i> Year 2 knowledge <i>Recognise the place value of each digit in a two-digit number</i> <i>Compare and order numbers from 0 to 100</i>		
Autumn 1	Unit 1 – Number and Place Value	- Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number - Read and write numbers from 1 to 20 in numerals and in words	Within 10 - Sort objects (within 10) - Count objects from a larger group - Represent objects - Recognise numbers as words - Count on from any number 1 more - Count backwards within 10 1 less - Compare groups by matching; using fewer, more , same - Use language less than, greater than, equal to - Compare numbers using $>$ $<$ $=$ - Order objects and numbers - Use number lines

	ELG Prior Knowledge <i>Have a deep understanding of number to 10, including the composition of each number.</i>		
	Year 2 Knowledge Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and number bonds to 10, including double facts.		
Unit 2 – Addition /Subtraction	• Read, write and interpret mathematical statements involving addition (+) and equals (=) signs • Add one digit numbers to 20, including zero • Solve one step problems that involve addition, using concrete objects and pictorial representations, and missing number problems • Read, write and interpret mathematical statements involving subtraction (-) and equals (=) signs • Subtract one digit numbers to 20, including zero • Solve one step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems	• Find one more and one less and two more and two less • Introduce part whole models • Write number sentences, using the + and =symbols • Understand the effect of adding and subtracting zero • Fact families • Number bonds to and within 10 • Finding a part • Subtraction using part whole models • Fact families • Subtraction- take away/ cross out – How many left? • Subtraction on a number line • Subtract 1 or 2	

	Prior Knowledge Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: ‘sides’, ‘corners’; ‘straight’, ‘flat’, ‘round’ (Development Matters)		
	Year 2 Knowledge Compare and sort common 2-D shapes and everyday objects Identify 2-D shapes on the surface of 3-D shapes Identify and describe the properties of 2-D shapes		
Unit 3 – Shape	• Recognise and name common 2D shapes • Recognise and name common 3D shapes	• Identify what is and what is not a triangle, circle, square or rectangle • Recognise and name 2D shapes in different orientations • Recognise, from seeing a small portion of a 2D shape, what it could or could not be	

			• Recognise large versions of 2D shapes in the environment • Use informal language to describe the properties of triangles, squares, rectangles and circles • Find similarities and differences between different examples of a 2D shape, for example, different triangles or different rectangles • Sort shapes into 'examples of' and 'not examples of' • Use 2D shapes to make pictures, knowing when to rotate the shapes • Recognise which shapes belong and which shapes do not belong in a set • Match 3D shapes to classroom objects or things they might find at home • Find similarities and differences between different examples of a 3D shape, for example, different cylinders • Recognise 3D shapes in different orientations • Name some 3D shapes, including cuboids and cubes, cylinders, spheres and pyramids • Feel shapes in a bag, describe properties and say what the shape might be and what the shape cannot be • Suggest possibilities for shapes from a partial description • Patterns with 2-D and 3-D shapes
	ELG Prior knowledge Link the number symbol (numeral) with its cardinal number value Year 2 Knowledge Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value Find different combinations of coins that equal the same amounts of money		
	Unit 4 – Money	• Recognise and know the value of different denominations of coins and notes	• Develop an awareness of how money is used • Recognise 1p and 2p coins • Place coins in order of value up to 10p

Autumn 2	Unit 1 – Number and Place Value	Count, read and write numbers to 100 in numerals;	Within 20 - Count within 20 - Understand 10 - Understand 11,12, 13 - Understand 14, 15 and 16 - Understand 17, 18, and 19 - Understand 20 - Use and understand the language 1 more and 1 less - Use a number line to 20 - Estimate on a number line - Compare numbers to 20 - Order numbers to 20
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Prior Knowledge Compare sizes, weights etc. using gesture and language-‘bigger/little/ smaller’, ‘high/low’, ‘tall’, ‘heavy’. Compare length, weight and capacity. (Development Matters) Year 2 Knowledge Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) to the nearest appropriate unit, using rulers Compare and order lengths and record the results using >, < and =			
Unit 2 – Measurement	- Compare, describe and solve practical problems for length and height - Measure and begin to record length and height - Compare, describe and solve practical problems for mass and weight - Measure and begin to record mass and weight	- Compare lengths and heights - Measure length using objects - Measure length in centimetres - Feel objects and begin to use heavy and light to describe their mass, understanding that heavier objects will have a greater downward pull - Compare different weights by feeling them and using simple language, such as heavy, light, heavier, lighter - Begin to order objects by feeling their mass - Understand that the size of an object doesn't always relate to its mass and that changing the shape of something, such as stretching dough, will not affect its mass - Measure weights using a balance scale, understanding what happens to the scale when	

			objects with different masses are placed in the buckets • Estimate mass and weigh objects using non-standard measures, such as bricks. • Begin to read simple, fully numbered scales • Begin to order objects according to their mass • Solve practical problems for weight • Use accurate language to compare and describe mass and use reasoning to explain choices using full sentences
	Unit 3 - Addition & Subtraction	• Read, write and interpret mathematical statements involving addition (+) and equals (=) signs • Add two digit numbers to 20, including zero • Solve one step problems that involve addition, using concrete objects and pictorial representations, and missing number problems • Read, write and interpret mathematical statements involving subtraction (-) and equals (=) signs • Subtract two digit numbers to 20, including zero • Solve one step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems	• Use systematic methods to find number bonds • Represent and use bonds within and of 10 to solve problems • Comparing number bonds • Addition – add together/ adding more by counting on • Subtract ones using number bonds • Subtract by counting back • Subtract by finding the difference • Related facts

	ELG Prior Knowledge Solve problems including doubling, halving and sharing Year 2 Knowledge Recognise, find, name and write fractions $\frac{1}{3}$ $\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$		
	Unit 4- Fractions	• Recognise, find and name a half as one of two equal parts of an object, shape or quantity • Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	• Understand that a half is one of two equal parts • Understand the concept of a whole by putting equal parts of a shape or set of objects together • Find half of a shape or object and recognise what is not half • Understand that a quarter is one of four equal parts and that the four parts make the whole • Recognise or colour a quarter of a shape or object

	EYFS prior knowledge Development Matters Understand position through words alone – for example, “The bag is under the table,” – with no pointing Describe a familiar route Discuss routes and locations, using words like ‘in front of’ and ‘behind’ Year 2 Knowledge Order and arrange combinations of mathematical objects in patterns and sequences Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise)		
	Unit 5 – Position and Direction	Describe position and directions and movements, including half, quarter and three-quarter turns	- Describe turns - Describe position - Use the language of movement and position to describe the location of an object - Explore whole, half, turns from different starting positions and in different directions - Understand that a whole turn is a full circle - Connect turning with the how hands of clock move around a clock face (clockwise) - Explore quarter and three-quarter turns from different starting positions and in different directions
	Spring 1 Unit 1 – Number and Place Value	- Given a number, identify one more and one less - Identify and represent numbers using objects and pictorial representations including the number line, and use the language of equal to, more than, less than (fewer), most, least	Within 50 - Count from 20 to 50 20, 30, 40 and 50 - Count by making groups of tens - Groups of tens and ones
	ELG prior learning Explore and represent patterns with numbers upto 10, including evens and odds, double facts and how quantities can be distributed equally		

	Year 2 Prior Knowledge		
	Unit 2 – Multiplication	Solve one-step problems involving multiplication, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	- Identify equal and unequal groups - Make equal groups and count the groups - Respond to groups of objects or pictures, describe the groups, group size and how many objects altogether - Make equal groups of objects (2s, 5s, or 10s) and add the groups to find the total - Make arrays of objects and describe what they can see - Understand doubles as two of something or the same again - Add equal groups

	Unit 3- Division	Solve one-step problems involving division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	- Identify equal and unequal groups - Make equal groups (sharing)
	Unit 4 – Fractions	Recognise, find and name a half as one of two equal parts of an object, shape or quantity	- Find half of a quantity, or a number, by sharing - Have recall of some small halves, such as half of ten - Find a quarter of a number, or of a quantity, by sharing
	Unit 5- Measurement	Compare, describe and solve practical problems for length and height Measure and begin to record length and height	- Explore the differences between the vocabulary of length and height and begin to use the terms accurately - Use concrete objects or pictures to compare different lengths using the terms long, short, longer and shorter - Measure lengths or heights using nonstandard measures, such as cubes, feet or ribbon

			• Begin to understand why standard measures are used • Use centimetre cubes to measure objects and count the cubes • Begin to use a ruler with a centimetre scale, understanding how to line it up against a line or object and how to read the scale • Compare different heights using the terms short, tall, shorter and taller • Estimate lengths and heights, reasoning about their choices • Compare, describe and solve practical problems for length and height using addition and subtraction
Spring 2	Unit 1 – Number and Place Value	• Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • Read and write numbers from 1 to 20 in numerals and in words	Within 50 • Partition into tens and ones • Number line to 50 • Estimate on a number line to 50 • 1 more or less
	Unit 2 – Division	• Solve one-step problems involving division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	• . Make equal groups - sharing

	Unit 3 – Addition & subtraction	• Read, write and interpret mathematical statements involving addition (+) and equals (=) signs • Add two digit numbers to 20, including zero • Solve one step problems that involve addition, using concrete objects and pictorial representations, and missing number problems • Read, write and interpret mathematical statements involving subtraction (-) and equals (=) signs • Subtract two digit numbers to 20, including zero • Solve one step problems that involve subtraction, using concrete objects and • pictorial representations, and missing number problems	• Add by counting on within 20 • Add ones using number bonds • Find and make number bonds to 20 • Represent number bonds of 10, compare these to bonds of 20 and use these to solve problems • Doubles • Subtraction - finding the difference • Related facts • Apply number bonds of and within 10 to subtract numbers through bridging ten • Missing number problems
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	Unit 4 – Measurement	• Compare, describe and solve practical problems for capacity /volume • Measure and begin to record capacity /volume	• Full and empty • Compare volume • Measure capacity • Compare capacity • Use simple language to describe volume, such as full and empty, nearly full and nearly empty • Begin to compare the capacity of different containers by pouring liquid between them, understanding that a container does not necessarily have a greater capacity just because it is taller • Begin to compare volume using non-standard measures, such as teaspoons and dessert spoons, and understand why the answer is different • Explore and describe the volume of liquid in different containers using more than, less than, half full, quarter full • Order containers according to their capacity or volume. This may be ordering identical containers by eye or by exploring the capacity of each container by pouring. • Begin to read simple, fully numbered scales Solve practical problems for weight and volume.
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			• Begin to order objects according to their volume • Solve practical problems for volume. • Use accurate language to compare and describe volume and use reasoning to explain choices using full sentences
	Unit 5 – Money	• Recognise and know the value of different denominations of coins and notes	• Recognise 20p, 50p, £1 and £2 coins • Recognising coins • Recognising notes • Counting in coins • Count 1p coins in ones and 2p coins in twos • Recognise 5p and 10p coins • Count 5p coins in fives and 10p coins in tens • Understand that some amounts up to 10p cannot be made with only one coin
Summer 1	Unit 1 – Fractions	• Recognise, find and name a half as one of two equal parts of an object, shape or quantity • Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	• Recognise and name halves and quarters from different representations
	Unit 2 – Addition and Subtraction	• Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • Add and subtract two digit numbers to 20, including zero • Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems	• Explore fact families, demonstrating understanding with equipment • Use fact families to solve missing number problems Use known facts to find near doubles

	Prior knowledge Begin to describe a sequence of events, real or fictional, using words such as ‘first’, ‘then...’ (Development Matters) Year 2 Knowledge 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.		
	Unit 3 – Time	• Compare, describe and solve practical problems for time • Measure and begin to record time • Sequence events in chronological order Tell the time to the hour and half past the hour and draw hands on a clock face to show these times	• Understand and describe daily routines and use familiar language, such as morning or bedtime • Use more detailed language: morning, afternoon, evening, nighttime, lunchtime, tea time, before, after • Use vocabulary such as earlier and later, before and after, next, first to describe and compare daily routines and events • Explore the length of a second and a minute • Become familiar with an analogue clock face by counting around a clock face from one to twelve • Recognise that the hands on an analogue clock are different lengths and travel round the clock at different speeds • Recognise o'clock, understanding the position and function of each of the hands • Draw hands on a clock to indicate an o'clock time or move hands around a clock to indicate a time
	Unit 4 – Multiplication	• Solve one-step problems involving multiplication, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	• Make equal groups of objects (2s, 5s, or 10s) and add the groups to find the total • Make arrays of objects and describe what they can see • Make arrays • Understand doubles as two of something or the same again
	Unit 5 - Money	• Recognise and know the value of different denominations of coins and notes	• Discuss the similarities and differences between coins .Understand the size of the coin does not reflect its value

			- Count £1 coins in ones and £2 coins in twos - Read and write amounts of money in pence - Add 1p or 2p to another coin - Recognise £5 and £10 notes - Identify that £1 is equivalent to 100 pennies or 10 ten pence coins. - Match/ exchange the equivalent value of 1p coins to 2p, 5p and 10p - Use counting patterns to exchange a 10p/20p coin for an equivalent value of 1p, 2p and 5p coins - Use (or draw) coins to make given amounts by counting in multiples - Sort coins in different ways, such as less than/more than a given amount, bronze and silver or £ and p
Summer 2	Unit 1 – Number and Place Value	- Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number - Read and write numbers from 1 to 20 in numerals and in words	Within 100 - Counting to 100 - Counting forwards and backwards within 100 - Partitioning into tens and ones - Comparing numbers - Ordering numbers - Understand one more/less

	Unit 2– Addition & Subtraction	- Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs - Add and subtract two digit numbers to 20, including zero - Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems	- Apply number bonds of and within 10 to add and subtract numbers through bridging ten - Addition problems
	Unit 3 – Money	Recognise and know the value of different denominations of coins and notes	- Recognise £5 and £10 notes - Exchange £5, £10 and £20 notes for an equivalent value of £1 or £2 coins - Use counting patterns to exchange a £1 coin for an equivalent value of 10p coins - Find all the possibilities for making different amounts of money up to 10p using known facts

			- Sort coins in different ways, such as less than/more than a given amount, bronze and silver or £ and p - Use (or draw) coins to make given amounts by counting in multiples
	Unit 4 – Time	- Compare, describe and solve practical problems for time - Measure and begin to record time - Sequence events in chronological order - Tell the time to the hour and half past the hour and draw hands on a clock face to show these times	- Order days of the week and compare them using vocabulary such as earlier and later - Order months of the year and compare them using vocabulary such as earlier and later - Use vocabulary such as earlier and later, before and after, next, first to describe and compare daily routines and events - Recite days of the week and months of the year, in order, through songs or chanting - Talk about days, months and years through a familiar context such as a daily calendar or birthdays - Use vocabulary such as quicker and slower, longer and shorter to describe and compare the duration of actions and activities - Recognise o'clock, understanding the position and function of each of the hands - Draw hands on a clock to indicate an o'clock time or move hands around a clock to indicate a time - Recognise half past and understand that the hour hand is halfway between two numbers on the clock - Draw hands on a clock to the placement of the hour hand. indicate a half past time or move hands around a clock to indicate a time, placing the hour hand halfway between two numbers on the clock - Observe clocks throughout the day and recognise o'clock and half past times, as well as recognising when the clock does not say one of these times
	Unit 5- Statistics	- Bar charts and sorting using venns and carrolls - Collect and sort data to test a simple hypothesis.	

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Year 2

Maths Objectives Overview

<https://www.ncetm.org.uk/classroom-resources/cp-year-2-curriculum-map/>

<https://whiterosemaths.com/resources/primary>

Term	Mathematical Strand	Focus Objective (2014 National Curriculum)	Teachable Steps (Stages of Learning)
		Pupils should be taught to:	WALT:
	Year 1 prior learning Find one more and one less Use the language of: equal to, more than, less than (fewer), most, least Identify and represent numbers using objects and pictorial representations		
	Year 3 knowledge Compare and order numbers to 1000 Recognise the place value of each digit in three-digit numbers		
Autumn 1	Unit 1 – Number and Place Value	- Read and write numbers to at least 100 in numerals and in words - Use place value and number facts to solve problems - Count in steps of 2, 3 and 5 from 0, and in tens from any given number, forward or backward	- Count to and beyond 100, forwards and backwards, fluently crossing tens boundaries, using the repeating pattern of the number system to help - Read and write numbers to 50 in numerals and words - Read and write numbers to at least 100 in numerals and words - Understand zero as a placeholder - Count in steps of two from zero, continuing beyond the 12th multiple - Count in steps of ten from zero, continuing beyond the 12th multiple - Count in steps of five from zero, continuing beyond the 12th multiple - Count in steps of two, five and ten, starting from a multiple other than zero - Explain the repeating pattern when counting in twos, fives and tens and use this to predict higher multiples - Count in tens fluently, starting from any number, forwards and backwards

			- Move between counting in tens and ones, e.g. 10, 20, 30, 31, 32, 33, 34 when counting objects - Count in threes
Year 1 prior learning Read, write and interpret mathematical statements Represent and use number bonds and related subtraction facts within 20 Add and subtract one-digit and two-digit numbers to 20, including zero			
Year 3 knowledge Estimate the answer to a calculation and use inverse operations to check answers Add and subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens a three-digit number and hundreds			
Unit 2 - Addition & Subtraction	- Recall and use addition facts to 20 fluently and derive and use related facts up to 100 - Solve problems with addition – using concrete objects and pictorial representations, including those involving numbers, quantities and measures and apply their increasing knowledge of mental and written methods - Recall and use subtraction facts to 20 fluently and derive and use related facts up to 100 - Solve problems with subtraction – using concrete objects and pictorial representations, including those involving numbers, quantities and measures and apply their increasing knowledge of mental and written methods	- Add a one-digit number to a multiple of ten and subtract all the ones from a two digit number - Add and subtract nine to and from a two digit number - Use knowledge of number bonds of ten to make the next multiple of ten - Understand that addition and subtraction are inverse operations - Explore and understand why addition is commutative but subtraction is not	
Year 1 Prior Knowledge Recognise and name common 2-D and 3-D shapes			
Year 3 knowledge Draw 2-D shapes and make 3-D shapes using modelling materials Identify right angles, identify whether angles are greater than or less than a right angle			
Unit 3 – Shape	- Identify and describe the properties of 2D shapes, including the number of sides - Compare and sort common 2D shapes and everyday objects - Identify and describe the properties of 3D shapes including the number of edges, vertices and faces - Identify 2D shapes on the surface of 3D shapes - Compare and sort common 3D shapes and everyday objects	- Count the sides on 2D shapes - Count each vertex and say how many vertices there are altogether on 2D shapes - Recognise and name common 2D shapes from regular/irregular examples presented in different orientations - Begin to use regular and irregular when describing 2D shapes - Understand that irregular shapes may have some sides of the same length - Use full sentences to describe and name 2D shapes - Identify polygons and quadrilaterals - Draw lines using a ruler	

			• Draw 2D shapes with straight edges • Point to the faces, edges or vertices on 3D shapes • Understand the difference between a face and a surface of a 3D shape • Identify and name 2D faces on 3D shapes • Understand and explain the difference between a 2D and a 3D shape • Count the faces on 3D shapes, distinguishing between curved surfaces and faces • Count the edges on 3D shapes • Count the vertices on 3D shapes • Identify 3D shapes from a description of their properties • Describe 3D shapes using precise language • Find and name examples of 3D shapes in real life, such as tin cans and cereal boxes • Compare 3D shapes, understanding what is the same and what is different • Recognise 3D shapes in unusual orientations • Identify pyramids according to the shape of their base • Use precise vocabulary including quadrilaterals, polygons and prisms • Discuss the properties of regular polyhedrons (without naming them)
	Unit 4 – Number and Place Value	• Recognise the place value of each digit in a two-digit number • Identify, represent and estimate numbers using different representations, including the number line • Use place value and number facts to solve problems	• Count objects to 100 by making 10s • Represent numbers up to 100 in different ways • Recognise and represent the value of the digits in a two-digit number • Use a place value chart • Partition a number into tens and ones and recombine • Estimate numbers from representations • Write numbers to 100 in words • Compare numbers up to 100 using different representations • Order numbers to 100 using objects and representations

Autumn 2			- Order numerals to 100 - Use the symbols > < and = when comparing numbers
	Unit 1 - Addition & Subtraction	- Add using concrete objects, pictorial representations, and mentally including: a two digit number and ones - Show that addition of two numbers can be done in any order (commutative) - Solve problems with addition – using concrete objects and pictorial representations, including those involving numbers, quantities and measures and apply their increasing knowledge of mental and written methods - Subtract using concrete objects, pictorial representations, and mentally including: a two digit number and ones - Show that subtraction of two numbers cannot be done in any order - Solve problems with subtraction – using concrete objects and pictorial representations, including those involving numbers, quantities and measures and apply their increasing knowledge of mental and written methods	- Recall and use number bonds of 20 and corresponding subtraction statements - Use number bonds of ten to make number bonds of 100 (using multiples of ten) - Derive all bonds of 100, recognising and making connections with number bonds of ten - Add and subtract two multiples of ten, not crossing 100 - Bridge through ten to add and subtract two-digit and one-digit numbers
	Year 1 prior learning Recognise, find and name a half and a quarter as equal parts of an object, shape or quantity Year 3 Learning Count up and down in tenths Recognise, find and write fractions of a discrete set of objects Recognise and use fractions as numbers: 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 Compare and order unit fractions, and fractions with the same denominators Solve problems that involve all of the above		
	Unit 2- Fractions	- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects and quantity - Write simple fractions and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$	- Make equal parts - Recognise a half -Recognise, name and colour and using diagrams, shapes and objects - Find a half of a set of objects or quantity - Recognise a quarter Recognise, name and colour and using diagrams, shapes and objects - Find a quarter of a set of objects or quantity - find a quarter of numbers up to 40 by halving twice

			(whole number answers); begin to find $\frac{3}{4}$ of amounts.
Year 1 prior learning Measure and begin to record lengths and heights Compare, describe and solve practical problems for lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]			
Year 3 Learning Measure, compare, add and subtract lengths (m/cm/mm)			
Unit 3- Measurement	- Choose and use appropriate standard units to estimate and measure length / height in any direction, to the nearest appropriate unit, using rulers - Compare and order lengths / height and record the results using < and > and = signs - Choose and use appropriate standard units to estimate and measure mass to the nearest appropriate unit, using scales - Compare and order mass and record the results using < and > and = signs - Choose and use appropriate standard units to estimate and measure capacity to the nearest appropriate unit, using measuring vessels - Compare and order capacity and record the results using < and > and = signs	- Compare lengths and heights - Use a ruler to measure length and height to the nearest centimetre in any direction, focusing on starting from 0 on the scale Measure length (cm) - Use a ruler to accurately measure objects and lines and to draw lines of a given length - Estimate lengths and heights in centimetres - Begin to explore metres and estimate what is less than, more than or about a metre using an unmarked stick and record this using m (e.g. longer than 1m) - Use a metre stick to measure lengths accurately and know that a metre is equivalent to 100cm Measure length (m) - Choose appropriate measures such as metres or centimetres when measuring and explain their choices - Measure lengths in metres and centimetres using mixed notation such as 1m 20cm - Compare and order lengths using vocabulary longer, longest, shorter, shortest, taller, tallest - Compare lengths using symbols and = including comparing different measures such as 3m and 30cm - Use reasoning to solve measures problems, such as how to measure a piece of string or something that is longer than the ruler - Solve problems involving addition and subtraction of lengths and heights including comparing objects to find the difference in length or height	

			- begin to know standard units of weight (g and kg) - begin to read a scale marked in intervals of 100g. - compare 2 weights and record using the < and > signs. - begin to know standard units of capacity (ml and l) - begin to read a scale marked in intervals of 10ml. - compare 2 capacity measures and record using the < and > signs.
Year 1 prior learning Describe position, direction and movement, including whole, half, quarter and three-quarter turns Make whole, half, quarter and three-quarter turns in both directions and connect turning clockwise with movement on a clock face Use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside Year 3 Learning Note: There is not a Position and Direction strand in the Y3 curriculum. Describe positions on a 2-D grid as coordinates in the first quadrant Describe movements between positions as translations of a given unit to the left/right and up/down Plot specified points and draw sides to complete a given polygon			
Unit 4 – Position and Direction	- Order and arrange combinations of mathematical objects in patterns and sequences - Use mathematical vocabulary to describe position, direction and movement including distinguishing between rotation as a turn in terms of right angles for quarter turn, half and three-quarter turns (clockwise and anti-clockwise) and movement in a straight line	- Create, explain and describe an ABAB or an ABBA pattern that includes a combination of colour, shape and orientations - Describe and create patterns that involve using rotational and positional language - Describe a number sequence pattern, predict what comes next in the sequence and continue the pattern - Explain the rule of a pattern and use this to solve simple problems or correct errors within a pattern - Give and follow instructions for moving along a route in a straight line - Recognise, use and describe whole, half, quarter and three-quarter turns and use this knowledge to rotate an object	

			Use the words 'forwards', 'backwards', 'up', 'down', 'left' and 'right' to describe movement in a straight line
	Year 1 prior learning Recognise and know the value of different denominations of coins and notes Year 3 Learning Add and subtract amounts of money to give change, using both £ and p in practical contexts		
	Unit 5 - Money	- Recognise and use symbols (£) and pence (p); combine to make a particular value - Find different combinations of coins that equal the same amounts of money - Solve simple problems in a practical context involving addition and subtraction of money of the same unit	- Read amounts of money - Count money -in steps of 2p, 5p and 10p and use the pattern to count £2 , £5 and £10 notes - Know that two 5p coins make a 10p and that five is half of ten; link this to 50p and £1 - Add 5p, 2p, 1p to a multiple of 10p - Subtract 5p, 2p, 1p from a multiple of 10p - Count coins and notes beginning with one type of coin and note, not crossing pounds - begin to write using £.p notation - Count mixed amounts of money and write the amount using £ and p not crossing pounds - Count mixed amounts of money, crossing pounds - Select coins or notes to make a given amount
Spring 1	Unit 1 – Number and Place Value	- Compare and order numbers from 0 up to 100; use < and > and = signs - Use place value and number facts to solve problems	- Use a number line - Estimate numbers on a number line - Compare and order numbers up to 100 using different representations. - Represent numbers up to 100 in different ways - Recognise the = sign as a balance. And creating balancing calculations

			• show using various practical apparatus how different numbers can be made up. E.g. $26 = 2 \text{ } 10\text{'s}$ and $6 \text{ } 1\text{'s}$/ 1×10 and 12. • compare 2-digit numbers using the $<$ and $>$ signs. • Solve missing number problems using the balance sign.
	Unit 2 – Addition & subtraction	• Add using concrete objects, pictorial representations, and mentally including: a two digit number and tens • Show that addition of two numbers can be done in any order (commutative) • Solve problems with addition – using concrete objects and pictorial representations, including those involving numbers, quantities and measures and apply their increasing knowledge of mental and written methods • Subtract using concrete objects, pictorial representations, and mentally including: a two digit number and tens • Show that subtraction of two numbers cannot be done in any order • Solve problems with subtraction – using concrete objects and pictorial representations, including those involving numbers, quantities and measures and apply their increasing knowledge of mental and written methods	• Bridge through ten to add and subtract two-digit and one-digit numbers • Find ten more and ten less than a multiple of ten • Find ten more and ten less than any two-digit number • Apply knowledge of mental methods to solve problems in different contexts • Counting on to find the difference between two numbers
	Year 1 prior learning Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher Year 3 Learning 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		
	Unit 3 – Multiplication	• Recall and use multiplication facts for the 2, 5 and 10 times tables, including recognising odd and even numbers • Show that the multiplication of 2 numbers can be done in any order • Solve problems involving multiplication, using materials, arrays, repeated addition, mental methods and multiplication facts including problems in context	• Make equal groups, count the groups, count in multiples to find the value of the whole • Explore the effect on the product when zero or one is a factor, spotting patterns and making generalisations • Begin to use knowledge of counting in multiples to recite multiplication facts for the 2, 5 and 10 times tables in order

			• Recognise odd and even numbers and use this to explore patterns within multiplication tables • Explore and understand the relationship between the 5 and the 10 times tables • Interpret and write repeated addition calculations • Compare repeated addition equations to multiplication equations and begin to form multiplication equations using equipment and pictorial representations • Demonstrate the commutativity of multiplication using pictures and stories • Recall the 2, 5 and 10 times tables and make connections between them
	Unit 4 – Shape	• Identify and describe the properties of 2D shapes, including symmetry in a vertical line • Compare and sort common 2D shapes and everyday objects	• Revisit the properties of 2D 3D shapes • Sort 2D shapes according to their properties • Explore symmetry by folding paper shapes to find vertical lines of symmetry • Draw vertical lines of symmetry on 2D shapes • Discuss the space inside 2D shapes that have been drawn on squared paper • Explore symmetry by folding paper shapes to find vertical lines of symmetry • Sort 3D shapes using simple criteria, such as has 6 faces or does not have 6 faces • Sort 3D shapes using more complex criteria such as sorting into overlapping hoops •
	Unit 5 – Statistics	• Interpret and construct simple pictograms, tally chart, block diagrams and simple tables • Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • Ask and answer questions about totalling and comparing categorical data	• Make tally charts • Draw pictograms (1-1) • Interpret pictograms (1-1) • Draw pictograms (2, 5 and 10) • Interpret pictograms (2, 5 and 10) • Block diagrams • use tally charts to record data • complete a pictogram and interpret and complete pictograms and block graphs where one picture or block represents one item.

			- interpret and complete a pictogram using one symbol to represent two children. - construct and interpret a block graph.
Spring 2	Unit 1– Addition/Subtraction	- Add using concrete objects, pictorial representations, and mentally including: adding three one-digit numbers - Show that addition of two numbers can be done in any order (commutative) - Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems - Solve problems with addition – using concrete objects and pictorial representations, including those involving numbers, quantities and measures and apply their increasing knowledge of mental and written methods - Subtract using concrete objects, pictorial representations, and mentally including: adding three one-digit numbers - Show that subtraction of two numbers can be done in any order (commutative) - Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems - Solve problems with subtraction – using concrete objects and pictorial representations, including those involving numbers, quantities and measures and apply their increasing knowledge of mental and written methods	- Add and subtract multiples of ten from any number - Add and subtract pairs of two-digit numbers, not crossing a tens boundary - Add three single-digit numbers, choosing the most efficient method - Add and subtract pairs of two-digit numbers, crossing a tens boundary

	Unit 2 – Position and Direction	• Use mathematical vocabulary to describe position, direction and movement including distinguishing between rotation as a turn in terms of right angles for quarter turn, half and three- quarter turns (clockwise and anti-clockwise) and movement in a straight line	• Understand that two half turns and four quarter turns make a whole turn • Understand that two quarter turns make a half turn Know that three-quarter turns are made with three quarter-sized turns • Know that three-quarter turns are made by combining a one-quarter turn with a half turn • Know that a three-quarter turn is a one-quarter turn less than a whole turn • Understand that a quarter turn is the same as a right angle and use this in relevant contexts, such as points of a compass • Explore and describe different sizes of turns on a clock and move in clockwise and anticlockwise directions • Use positional and directional language to describe familiar routes or journeys Use knowledge of position, direction, movement and turn to programme robots or operate simple computer software
	Unit 3 – Money	• Recognise and use symbols (£) and pence (p); combine to make a particular value • Find different combinations of coins that 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	• Count in steps of 10p and use the pattern to count £10 notes • Count in steps of 2p and £2; use the pattern to count in steps of 20p and £20 notes • Count in steps of 5p and £5; use the pattern to count in steps of 50p and £50 notes • Count in steps of 5p and £5; use the pattern to count in steps of 50p and £50 notes • Know that two 5p coins make a 10p and that five is half of ten; link this to 50p and £1 • Add 5p, 2p, 1p to a multiple of 10p • Subtract 5p, 2p, 1p from a multiple of 10p • Count coins and notes beginning with one type of coin and note, not crossing pounds • recognise & know value of coins 1p-£2 & notes £5-£20 • add several coins adding by counting on in £, 10ps and 1ps

			• Count mixed amounts of money and write the amount using £ and p not crossing pounds • Select coins or notes to make a given amount • Give change up to £1. • Find all the ways to make a given amount • Find the way to make an amount that requires the least amount of coins or notes • Add and subtract two, 2-digit amounts of money, not crossing tens within £1 • Add and subtract a multiple of 10p coins to a two digit amount of money within £1 • Add three coins from 1p, 2p and 5p or three from a selection of £2 coins, £1 coins and £5 notes
	Year 1 prior learning Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times Year 3 Learning Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours		

	Unit 4– Time	• 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	• recognise and identify units of time: minutes, hours, days, weeks, months and years • Sequence days of the week or months of the year when not all are provided • Compare and order intervals of time using vocabulary such as longer, shorter, longest and shortest • begin to know how to express each unit of time in terms of another, smaller unit, e.g. 4 weeks in a month, 24 hours in a day, etc. • understand how long an hour, a minute and a second is and recognise and use these units of time. • Divide a clock into four quarters and recognise where each quarter starts and ends • tell the time on analogue and digital clocks to the nearest quarter of an hour (quarter past, half past, quarter to and o'clock). • Identify the number of minutes in an hour • Identify the number of hours in a day • Count around a clock in fives, recognising that each number on the clock represents five minutes
Summer 1	Unit 1 – Number and Place Value	• Count in steps of 2, 3 and 5 from 0, and in tens from any given number, forward or backward • Read and write numbers to at least 100 in numerals and in words • Use place value and number facts to solve problems • Recognise the place value of each digit in a two-digit number • Identify, represent and estimate numbers using different representations, including the number line • Use place value and number facts to solve problems	• recognise and count in multiples of 5 and 10 from any given number forwards and backwards. • recognise and count in multiples of 2 and 3, from any given number forwards and backwards. • solve problems using partitioning. • solve problems using known number facts. • order three 2-digit numbers. • know what each digit represents in 2-digit numbers and numbers up to 100. • show using various practical apparatus how different numbers can be made up. E.g. 26= 2 10's and 6 1's/ 1 x 10 and 12. • compare two numbers showing their position on a number line. • solve problems using partitioning.
	Unit 2 – Multiplication & Division	• Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (x) and equals sign (=)	

		• Solve problems involving multiplication, using materials, arrays, repeated addition, mental methods and multiplication facts including problems in context • Recall and use division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers • Show that the division of 2 numbers cannot be done in any order • Solve problems involving division, using materials, arrays, repeated addition, mental methods and multiplication facts including problems in context	• Understand division as both grouping and sharing Divide by 2, 5, and 10, using concrete materials, pictures and context • Understand the concept of a remainder • Interpret division calculations using equipment and pictorial representations • Write division calculations derived from equipment and pictorial representations • Make an array to match a multiplication or division equation • Understand multiplication and division as inverses • Understand and demonstrate why division is not commutative • Write 2 multiplication and 2 division equations to match an array • Link doubling to multiplying by 2 • Link halving to dividing by 2 • Understand doubling and halving as inverses
	Unit 3 – Measurement	• Choose and use appropriate standard units to estimate and measure temperature to the nearest appropriate unit, using thermometers • Compare and order temperatures and record the results using < and > and = signs	• read temperatures on a thermometer including negative numbers. X 3 • compare 2 temperatures and record using the < and > signs
	Unit 4 – Fractions	• Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects and quantity • Write simple fractions and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ •	• Equivalence of a half and 2 quarters - Recognise the equivalence of and by colouring shapes and folding paper strips • Find three quarters of a set of objects, length or quantity • Count in fractions using objects, pictures or a number line • Problem solving with fractions • Find and $\frac{1}{2}$, $\frac{2}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ and $\frac{4}{4}$ of an amount using pictures and diagrams, such as bar models, to help make links with fraction notation • Recognise a third Recognise, name and colour and using diagrams, shapes and objects • Find a third of a set of objects or quantity • Unit fractions • Non-unit fractions

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Summer 2	Unit 1 – Number and Place Value	• Compare and order numbers from 0 up to 100; use < and > and = signs • Use place value and number facts to solve problems	• Partition a number in different ways • Use the symbols > < and = when comparing numbers • Solve missing number problems using the balance sign.
	Unit 2 – Division	• Calculate mathematical statements for division within the tables and write them using the multiplication (÷) and equals sign (=) • Solve problems involving multiplication, using materials, arrays, repeated addition, mental methods and multiplication facts including problems in context	• Recall division facts for the 2, 5 and 10 tables • Solve multiplication and division context problems demonstrating their thinking with pictures or arrays • Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor and to division equations
	Unit 3 – Time	• 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	• Tell the time on an analogue clock to the nearest 5 minutes (twenty to etc.) • Recognise and record all times to five minutes • Say what time it will be one hour later/earlier, leading to half an hour later/earlier, using o'clock and half past times • Say what time it will be half an hour later/earlier using quarter past and quarter to times • Find start and end times by counting on/back in hours or half hours • Solve simple time and end times. problems, such as working out start/end times from given clues or finding durations of time
	Unit 4 – Addition & Subtraction	• Recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100 • Solve problems with addition and subtraction – using concrete objects and pictorial representations, including those involving numbers, quantities and measures and apply their increasing knowledge of mental and written methods	• Add and subtract pairs of two-digit numbers, crossing a tens boundary • Understand that finding the difference is a type of subtraction • Counting on to find the difference between two numbers • Record addition calculations vertically to prepare for formal written methods • Solve missing number problems • Check answers to calculations using the inverse operation

	Unit 5 – Money	- Recognise and use symbols (£) and pence (p); combine to make a particular value - Find different combinations of coins that 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	- Find efficient ways to add a combination of coins - Find the difference between two amounts of money - Work out change needed and which coins or notes would be used up to £1 - Solve simple addition and subtraction problems Solve problems that involve reasoning about money
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Year 3

Maths Objectives Over view

<https://whiterosemaths.com/resources/primary>

<https://www.ncetm.org.uk/classroom-resources/cp-year-3-curriculum-map/>

Term	Mathematical Strand	Focus Objective (2014 National Curriculum)	Teachable Steps (Stages of Learning)
		Pupils should be taught to:	WALT:
	Year 2 prior learning Count, read and write numbers to 100 in numerals Count in multiples of twos, fives and tens Use the language of: equal to, more than, less than (fewer), most, least Year 4 Knowledge 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 Order and compare numbers beyond 1000 Identify, represent and estimate numbers using different representations Round any number to the nearest 10, 100 or 1000 Solve number and practical problems that involve all of the above 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		
Autumn 1	Unit 1 – Number and Place Value	- Count from 0 in multiples of 4,8,50 and 100 more or less than a given number - Compare and order numbers up to 1000 - Read and write numbers up to 1000 in numerals and words	- Count in steps of 100 from 0, recognise multiples of 100 and missing numbers in a sequence - Count in steps of 50 from 0 and recognise multiples of 50 and missing numbers in a sequence - Count in steps of 4 from 0

		Solve number problems and practical problems involving these ideas	- Count in steps of 8 from 0 - Read and write numbers up to 1000 in numerals and words
	Year 2 prior learning Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures and 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 Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems Year 4 Knowledge 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		
	Unit 2 – Addition & Subtraction	- Add numbers mentally including a three-digit number and ones - Add numbers with up to three digits, using formal written methods of columnar addition - Solve problems, including missing number problems using number facts, place value and more complex addition - Subtract numbers mentally including a three-digit number and ones - Subtract numbers with up to three digits, using formal written methods of columnar addition - Find 10 more or 10 less than any two- or three-digit number (mentally) - Solve problems, including missing number problems using number facts, place value and more complex subtraction	- Fluent recall of addition facts that bridge 10 <i>Add ones, tens or hundreds to/ from any three-digit number and identify which column changes</i> - Add 1s (with numbers up to 3 digits) - Add 10s - Add 100s - Add 1s across a 10 - Add 10s across a 100 <i>Subtract ones, tens or hundreds to/ from any three-digit number and identify which column changes</i> - subtract 1s - subtract 10s - subtract 100s - Subtract 1s across a 10 - Subtract 10s across a 100 - Find 10 more or 10 less than any two- or three-digit number (mentally)

	Year 2 prior learning 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 ($\times$), division ($\div$) and equals (=) signs Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts Year 4 Knowledge 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 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 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		
	Unit 3 – Multiplication	- Recall and use multiplication facts for the 3, 4 and 8 multiplication tables - Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including two-digit numbers times one-digit numbers using mental methods and progressing to formal written methods - Solve problems, including missing number problems, involving multiplication, including integer scaling problems in which 'n' objects are connected to 'm' objects	- Learn the 4 times table multiplication, connecting this to the 2 times table through doubling - Learn the 8 times table multiplication, connecting this to the 2 and 4 times table through doubling - Learn the 3 times table multiplication Recall multiplication facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number (3NF - 2)
	Year 2 prior learning Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels Compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$ Year 4 Knowledge Convert between different units of measure [for example, kilometre to metre; hour to minute] Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres		
	Unit 4- Measurement	Measure, compare, add and subtract lengths	- Explore a ruler - Measure straight lines - Draw straight lines - Measure lengths

			• Convert between millimetres and centimetres • Convert between metres and centimetres • Compare and order lengths given in different units of measurement • Add and subtract lengths given in different units of measurement
	Year 2 prior learning Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value Find different combinations of coins that 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 Year 4 Knowledge Estimate, compare and calculate different measures, including money in pounds and pence		
	Unit 5 - Money	• Add and subtract amounts of money to give change, using both £ and p in practical contexts	• Write amounts in £ and pence • Convert money in £ and pence • Add and subtract amounts • Give / calculate change
Autumn 2	Unit 1 – Number and Place Value	• Recognise the place value of each digit in a three digit number (hundreds, tens, ones) • Identify, represent and estimate numbers using different representations • Solve number problems and practical problems involving these ideas	• Find 10 more and 10 less than a given number up to 1000 (initially, using concrete resources) • Recognise the place value of three-digit numbers and partition in standard ways (using a place value chart and concrete resources) • Find 100 more and 100 less using base ten (or similar concrete resources) • Explore 100 using tens knowledge • Partition three-digit numbers in non-standard ways

	Unit 2 – Addition & Subtraction	• Add numbers with up to three digits, using formal written methods of columnar addition • Solve problems, including missing number problems using number facts, place value and more complex addition • Subtract numbers mentally including a three-digit number and tens • Subtract numbers with up to three digits, using formal written methods of columnar addition • Solve problems, including missing number problems using number facts, place value and more complex subtraction	• Add and subtract a two-digit multiple of 10 from any three-digit number, initially without bridging, then crossing the hundreds boundary (using formal written methods of columnar addition) • Add or subtract ones, tens or hundreds to/ from any three-digit number and identify which column changes • Subtract two numbers (no exchange) • Subtract two numbers (across a 10) • Subtract two numbers (across a 100) • Subtract a 2-digit number from a 3-digit number
	Year 2 prior learning 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 ($\times$), division ($\div$) and equals (=) signs Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts Year 4 Knowledge 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 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 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		
	Unit 3 – Division	• Recall and use division facts for the 3, 4 and 8 multiplication tables • Write and calculate mathematical statements for division using the multiplication tables that they know, including two-digit numbers times one-digit numbers using mental methods and progressing to formal written methods • Solve problems, including missing number problems, involving division, including integer scaling problems in which 'n' objects are connected to 'm' objects	• Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • Divide 3-digit multiples of 10 by 10 • Divide near multiples by 2, 3, 4, 5, 8, 10 • Divide 2 digits by 1 digit with no regrouping or remainders using partitioning

	Year 2 prior learning Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces Identify 2-D shapes on the surface of 3-D shapes Compare and sort common 2-D and 3-D shapes and everyday objects Year 4 Knowledge Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes Identify acute and obtuse angles and compare and order angles up to two right angles by size Identify lines of symmetry in 2-D shapes presented in different orientations Complete a simple symmetric figure with respect to a specific line of symmetry		
	Unit 4 – Shape	• Draw 2D shapes using modelling materials • Measure the perimeter of simple 2D shapes • Draw 3D shapes using modelling materials • Recognise 3D shapes in different orientations and describe them • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines	• Recognise 2D shapes • Describe 2D shapes • Draw 2D shapes accurately • Measure the perimeter of simple 2D shapes • Recognise 3D shapes • Draw 3D shapes using modelling materials • Describe 3D shapes • Recognise 3D shapes in different orientations • Construct 3D shapes using materials • Identify horizontal and vertical lines • Identify pairs of perpendicular lines • Identify pairs of parallel lines
Spring 1	Unit 1 – Number and Place Value	• Count from 0 in multiples of 4,8,50 and 100 more or less than a given number • Compare and order numbers up to 1000 • Read and write numbers up to 1000 in numerals and words • Solve number problems and practical problems involving these ideas	• Count in a range of different steps • Compare and order number up to 1000 (initially, with concrete resources) • Use > < and = to compare • Solve problems involving multiples, place value, partitioning, comparing and ordering and numbers in different representations

	Unit 2 – Addition & Subtraction	• Add numbers mentally including a three-digit number and hundreds • Add 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 • Subtract numbers mentally including a three-digit number and hundreds • 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 subtraction	• Add a multiple of 100 to/from any three-digit number • Use and apply the commutative law for efficient addition • Round and adjust to add a two-digit to a three-digit number or 2 three-digit numbers • Choose the most efficient strategy to add • Estimate the answer to a calculation and use inverse operations to check answers • Subtract a 2-digit number from a 3-digit number • Subtract numbers with up to three digits, using formal written methods of columnar addition • Inverse operations • Estimate answers
	Year 2 prior learning Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity Write simple fractions e.g. $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ Year 4 Knowledge Recognise and show, using diagrams, families of common equivalent fractions Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten. 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 Add and subtract fractions with the same denominator 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.		
	Unit 3 – Fractions	• Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominations • Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators	• Explaining what each part of a fraction is called • Recognising and using unit fractions of shapes and objects

		• Recognise and show, using diagrams, equivalent fractions with small denominators • Add and subtract fractions with the same denominator • Compare and order unit fractions, and fractions with the same denominator	• Identifying fractions with the same denominator that complete a whole. • Identifying the number of equal parts on a number line • Labelling number lines up to one whole in fractions • Placing or estimating the value of fractions on unlabelled number lines • Identifying the number of equal parts on a number line to help with counting forwards and backwards in fractions • Drawing number lines to help count in a given fractional amount • Identifying the fraction a number line is counting in. • Counting equal parts on a scale to determine the value of each increment • Identifying fractional values on unlabelled scales • Solving simple measurement problems which involve reading scales.
	Unit 4- Measurement	• Measure, compare, add and subtract mass • Measure, compare, add and subtract mass/ volume / capacity	• Measure mass in g or kg using a range of scales • Measure mass in g and kg using a range of scales • Compare and order mass using mixed measurements • Add and subtract mass • Measure capacity in l or ml using a range of scales range of scales • Measure capacity in l and ml using a range of scales • Compare and order capacity using different units of measurement • Add and subtract capacities and volumes
	Year 2 prior learning Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value Find different combinations of coins that 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		

	Year 4 Knowledge Estimate, compare and calculate different measures, including money in pounds and pence		
	Unit 5 - Money	Add and subtract amounts of money to give change, using both £ and p in practical contexts	- Write amounts in £ and pence - Convert money in £ and pence - Add and subtract amounts - Give / calculate change
Spring 2	Unit 1 – Number and Place Value	- Recognise the place value of each digit in a three digit number (hundreds, tens, ones) - Identify, represent and estimate numbers using different representations - Solve number problems and practical problems involving these ideas	- Find the smallest and largest number that can be made with three given digits - Represent numbers up to 1000 using different resources, e.g. place value cards, base ten, part-whole models - Estimate a number on a number line - Identify and sort numbers using set criteria, e.g. odd and even - Solve problems involving multiples, place value, partitioning, comparing and ordering and numbers in different representations
	Unit 2 – Multiplication & Division	- Recall and use multiplication facts for the 3, 4 and 8 multiplication tables - Solve problems, including missing number problems, involving multiplication, including integer scaling problems in which ‘n’ objects are connected to ‘m’ objects - Recall and use division facts for the 3, 4 and 8 multiplication tables - Solve problems, including missing number problems, involving division, including integer scaling problems in which ‘n’ objects are connected to ‘m’ objects	- Use and apply the commutative and associative property of multiplication to simplify the arithmetic - Multiply 2-digit numbers by 10 - Apply place-value knowledge to known multiplicative number facts to scale by 10 - Divide 2 digits by 1 digit with no regrouping or remainders using partitioning - Divide 2 digits by 1 digit using repeated subtraction with remainders
	Unit 3 – Fractions	- Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominations - Recognise and use fractions as numbers: 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	- Continuing to count and write fractions beyond one whole, using models to help - Continuing to count and write fractions beyond one whole, using number lines to help - Positioning or estimating the value of fractions beyond one whole on unlabelled number lines - Comparing unit fractions using bar models - Ordering unit fractions using bar models

		• Compare and order unit fractions, and fractions with the same denominator • Solve problems involving the above	• Comparing and ordering non-unit fractions using bar models • Making links between comparing and ordering fractions with different denominators and non-unit fractions with the same denominator.
Year 2 prior learning Interpret and construct simple pictograms, tally charts, block diagrams and simple tables Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity Ask and answer questions about totalling and comparing categorical data Year 4 Knowledge Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs			
Unit 4 – Statistics		• Interpret and present data using bar chart, pictograms and tables • Solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables • Interpret and present data using pictograms • Solve one-step and two-step questions using information presented in and pictograms • Interpret and present data using tables • Solve one-step and two-step questions using information presented in tables	• Interpret information in tables • Construct a table • Solve one-step questions using a table • Interpret information in pictograms • Construct a pictogram • Solve one-step questions using a pictogram • Solve two-step questions using a pictogram • Interpret information in bar charts • Construct a bar chart • Solve one-step questions using a scaled bar chart • Solve two-step questions using a scaled bar chart
Year 2 prior learning 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 Know the number of minutes in an hour and the number of hours in a day Year 4 Knowledge 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.			

	Unit 5 – Time	• Tell and write the time from an analogue clock, including Roman numerals from I to XII, and 12 hour and 24 hour clocks • Estimate and read time with increasing accuracy to the nearest minute; • Use vocabulary such as am / pm, morning, afternoon, noon and midnight • Know the number of seconds in a minute and the number of days in each month, year and leap year • Record and compare time in terms of seconds, minutes, hours and o'clock • Compare durations of events, for example to calculate the time taken to complete particular tasks or events	• Know the number of seconds in a minute and the number of days in each month, year and leap year • Tell the time to 5 minutes • Tell the time to one minute • Estimate time in minutes • To use and understand am and pm • Calculate duration . • Comparing the duration. • Calculate start and end times. • Measuring time in seconds • Tell and write the time from an analogue clock, including Roman numerals from I to XII, and 12 hour and 24 hour clocks • Calculate duration . • Comparing the duration. • Calculate start and end times. • Measuring time in seconds
Summer 1	Unit 1 – Number and Place Value	• Count from 0 in multiples of 4,8,50 and 100 more or less than a given number • Compare and order numbers up to 1000 • Read and write numbers up to 1000 in numerals and words • Solve number problems and practical problems involving these ideas	• Identify the previous and next multiple for any given three-digit number • Compare and order number up to 1000 (initially, with concrete resources) • Use > < and = to compare • Solve problems involving multiples, place value, partitioning, comparing and ordering and numbers in different representations
	Unit 2 – Multiplication	• Recall and use multiplication facts for the 3, 4 and 8 multiplication tables • Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including two-digit numbers times one-digit numbers using mental methods • Solve problems, including missing number problems, involving multiplication, including integer scaling problems in which 'n' objects are connected to 'm' objects	• Use short multiplication to multiply 2 digits by 1 digit with no regrouping • Use short multiplication to multiply 2 digits by 1 digit with regrouping in the ones • Use short multiplication to multiply 2 digits by 1 digit with regrouping in the tens
	Unit 3 - Fractions	• 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	• Recognising what a tenth looks like • Matching pictures of tenths to fractions

Summer 2		Solve Problems involving the above	- Representing tenths as fractions in different ways. - Continuing sequences by counting in tenths; - Identifying the value of a tenth on a number line; - Estimating the position of tenths on a number line; - Counting forwards in tenths beyond one whole.
	Unit 4 - Shape	- Recognise that angles, recognise that two-right angles makes 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	- Understand that an angle is a description of a turn: make quarter, half, three-quarter turns clockwise and anticlockwise in practical contexts - Understand angles as a property of shape: recognise that angles are created when two straight lines meet at a point - Identify a right angle as a quarter turn - Use a right angle finder to identify right angles in the environment and in different orientations - Use a right angle finder to identify right angles in the environment and in different orientations - Identify right angles in polygons - Link right angles to quarter turns such as two right angles equal a half turn - Identify whether angles are greater than or less than a right angle
	Unit 1 – Number and Place Value	- Recognise the place value of each digit in a three digit number (hundreds, tens, ones) - Identify, represent and estimate numbers using different representations - Solve number problems and practical problems involving these ideas	- Partition three-digit numbers in non-standard ways - Represent numbers up to 1000 using different resources, e.g. place value cards, base ten, part-whole models - Identify a missing number on a number line which has marked intervals - Estimate a number on a number line
	Unit 2 – Fractions	Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominations	Using given number lines to find equivalent fractions;

		• Recognise and use fractions as numbers: 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 • Compare and order unit fractions, and fractions with the same denominator • Solve problems involving the above	• Drawing own number lines where 0 and 1 are lined up to find equivalent fractions • Adding increments to a given number line to find further equivalent fractions • Finding a unit fraction of an amount by dividing the amount by the denominator (sharing into equal groups) • Using bar models to calculate a unit fraction of a whole number.
	Unit 3 – Division	• Recall and use division facts for the 3, 4 and 8 multiplication tables • Write and calculate mathematical statements for division using the multiplication tables that they know, including two-digit numbers times one-digit numbers using mental methods • Solve problems, including missing number problems, involving division, including integer scaling problems in which 'n' objects are connected to 'm' objects	• Divide 2 digits by 1 digit using repeated subtraction with remainders • Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division
	Unit 4 – Addition & Subtraction	• Add and Subtract numbers mentally including a three-digit number and ones, tens or hundreds • 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	• Partition to add 2 two-digit numbers that sum to a three-digit number and 2 three-digit numbers • Round and adjust to add a two-digit to a three-digit number or 2 three-digit numbers • 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

Year 4

Maths Objectives Over view

<https://www.ncetm.org.uk/classroom-resources/cp-year-4-curriculum-map/>

<https://whiterosemaths.com/resources/primary>

Term	Mathematical Strand	Focus Objective (2014 National Curriculum)	Teachable Steps (Stages of Learning)
		Pupils should be taught to:	WALT:
	Year 3 prior learning 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) Compare and order numbers up to 1000 Identify, represent and estimate numbers using different representations Read and write numbers up to 1000 in numerals and in words Solve number problems and practical problems involving these ideas Year 5 knowledge Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 Solve number problems and practical problems that involve all of the above Read Roman numerals to 1000 (M) and recognise years written in Roman numerals		
Autumn 1	Unit 1 – Number and Place Value	- Count in multiples of 6, 7, 9, 25 and 1000 - Count backwards through zero to include negative numbers - Order and compare number beyond 1000 Solve Number and practical problems that involve all of the above and with increasingly large positive numbers - Find 1000 more or less than a given number - Recognise the place value of each digit in a four-digit number (Thousand, hundreds, tens and ones) - Order and compare numbers beyond 1000 - Identify, represent and estimate numbers using different representations - Solve Number and practical problems that involve all of the above and with increasingly large positive numbers	- Read and write numbers to 1000 - Count on or back in multiples of 1000 from 0 and in steps of 1000 from numbers that are not multiples of 1000, including identifying missing numbers in sequences/multiples of 1000 - Count on in multiples of 25 from 0, then from any given multiple of 25 with up to four digits and identify missing multiples - Count in multiples of 6 - Count in multiples of 9 - Count in multiples of 7 - Find 10 or 100 more or less than a given four-digit number - Find 1000 more or less than a given four-digit number (initially using concrete resources)

			- Count backwards from 20 to negative 20, using a number line and real-life representations to support - Explore a thousand, using tens and hundreds knowledge and apply this to work out how many hundreds there are in other four-digit multiples of 100 - Partition four-digit multiples of 100 into hundreds parts
	Year 3 prior learning Add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds Add and subtract numbers with up to three digits, using formal 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. Year 5 knowledge Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Add and subtract numbers mentally with increasingly large numbers Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why		

	Unit 2 – Addition/ Subtraction	• Add numbers with up to 4 digits using the formal written methods of columnar addition where appropriate • Estimate and use inverse operations to check answers to a calculation • Solve addition two-step problems in contexts, deciding which operations and methods to use and why. • Subtract numbers with up to 4 digits using the formal written methods of columnar subtraction where appropriate • Estimate and use inverse operations to check answers to a calculation • Solve subtraction two-step problems in contexts, deciding which operations and methods to use and why.	• Scale additive number facts by 100 • Calculate the complements of 1000 • Transform calculations by redistributing to add and subtract • Use column addition to add numbers with up to four digits with no regrouping • Use column subtraction to subtract numbers with up to four digits with no exchange
	Year 3 prior learning Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables 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 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 Year 5 knowledge Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers Know and use the vocabulary of prime numbers, prime factors and composite numbers Establish whether a number up to 100 is prime and recall prime numbers up to 19 Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method Multiply and divide numbers mentally drawing upon known facts Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 Recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes Solve problems involving addition, subtraction, multiplication and division Solve problems involving multiplication and division, including scaling by simple fractions		
	Unit 3 – Multiplication	• Recall multiplication facts for tables up to 12x12	• Recall multiplication and corresponding division facts for the 6 times table

		• Use place value, known and derived facts to multiply mentally, including multiplying by 0 and 1; multiplying together 3 numbers • Recognise and use factor pairs and commutatively in mental calculations • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout • Solve problems involving multiplying and adding, including 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	• Recall multiplication and corresponding division facts for the 9 times table • Recall multiplication and corresponding division facts for the 7 times table • Recall multiplication and corresponding division facts for the 11 times table • Recall multiplication and corresponding division facts for the 12 times table
Year 3 prior learning Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them Recognise angles as a property of shape or a description of a turn 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 Identify horizontal and vertical lines and pairs of perpendicular and parallel lines Year 5 knowledge Identify 3-D shapes, including cubes and other cuboids, from 2-D representations Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Draw given angles, and measure them in degrees (°) Identify angles at a point and one whole turn (total 360°), angles at a point on a straight line and half a turn (total 180°) and other multiples of 90° Use the properties of rectangles to deduce related facts and find missing lengths and angles Distinguish between regular and irregular polygons based on reasoning about equal sides and angles			
	Unit 4 - Shape	• Identify acute and obtuse angles and compare and order angles up to two right angles by size • Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	• Identify acute angles • Identify obtuse angles • Compare acute and obtuse angles to right angles • Order angles up to two right angles by size • Compare and classify triangles using geometrical properties • Compare and classify quadrilaterals using geometrical properties • Compare lengths and angles to identify regular and irregular polygons

Autumn 2	Unit 1 - Addition Subtraction	• Add numbers with up to 4 digits using the formal written methods of columnar addition where appropriate • Estimate and use inverse operations to check answers to a calculation • Solve addition two-step problems in contexts, deciding which operations and methods to use and why. • Subtract numbers with up to 4 digits using the formal written methods of columnar addition where appropriate • Estimate and use inverse operations to check answers to a calculation • Solve subtraction two-step problems in contexts, deciding which operations and methods to use and why.	• Use column addition to add numbers with up to four digits with regrouping • Use column subtraction to subtract numbers with up to four digits with no exchange • Use column subtraction to subtract numbers with up to four digits with exchange
	Unit 2 – Multiplication & Division	• Recall multiplication facts for tables up to 12x12 • Use place value, known and derived facts to multiply mentally, including multiplying by 0 and 1; multiplying together 3 numbers • Recognise and use factor pairs and commutatively in mental calculations • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout • Solve problems involving multiplying and adding, including 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	• Recall multiplication and corresponding division facts for the 12 times table • Apply place value knowledge to known multiplicative number facts to scale by 100 • Multiply whole numbers by 10 and 100 • Multiply by 1 and 0
	Year 3 prior learning 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 Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators Recognise and use fractions as numbers: 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 Compare and order unit fractions, and fractions with the same denominators Solve problems that involve all of the above		

Year 5 knowledge

Compare and order fractions whose denominators are all multiples of the same number

Identify, name and write equivalent fractions of a given fraction

Recognise mixed numbers and improper fractions and convert from one to the other Add and subtract fractions with the same denominator and denominators that are multiples of the same number

Multiply proper fractions and mixed numbers by whole numbers Read and write decimal numbers as fractions

Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents

Round decimals with two decimal places to the nearest whole number and to one decimal place

Read, write, order and compare numbers with up to three decimal places

Solve problems involving number up to three decimal places

Recognise and understand the per cent symbol, writing percentages as a fraction with denominator 100, and as a decimal

Solve problems which require knowing percentage and decimal equivalents of 1 2 , 1 4 , 1 5 , 2 5 , 4 5

Unit 3- Fractions

- Add and subtract fractions with the same denominator
- Recognise and write decimal equivalent fractions 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 numbers by 10 and 100, identifying the value of 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

- Order a set of mixed numbers
- Use number lines to link mixed numbers and improper fractions
- Use multiplication facts to convert a mixed number to an improper fraction
- Use division to convert an improper fraction to a mixed number
- Add two fractions with the same denominator
- Subtract two fractions with the same denominator
- Subtract a fraction from a whole

Year 3 prior learning

Note: There is not a Position and Direction strand in the Y3 curriculum.

Order and arrange combinations of mathematical objects in patterns and sequences

Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)

Year 5 knowledge

Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.

	Unit 4 – Position and Direction	• Describe positions on a 2D grid as coordinates in the first quadrant • Describe movements between positions as translations of a given unit to the left / right and up / down • Plot specified points and draw sides to complete a given polygon	• Describe position using coordinates in the first quadrant • Plot positions using coordinates in the first quadrant • Use coordinates to plot specified points and draw sides to complete a given polygon • Describe the translation of a point in the first quadrant using left/ right and up/down • Move a point in the first quadrant as a translation using left/right and up/down • Describe the translation of a simple shape in the first quadrant using left/right and up/down • Move simple shapes in the first quadrant as translations using left/right and up/down
Spring 1	Unit 1 – Number and Place Value	• Find 1000 more or less than a given number • Recognise the place value of each digit in a four-digit number (Thousand, hundreds, tens and ones) • Order and compare numbers beyond 1000 • Count backwards through zero to include negative numbers • Order and compare number beyond 1000 • Solve Number and practical problems that involve all of the above and with increasingly large positive numbers •	• Find 10 or 100 more or less than a given four-digit number • Find 1000 more or less than a given four-digit number (initially using concrete resources) • Count backwards from 20 to negative 20, using a number line and real-life representations to support • Explore a thousand, using tens and hundreds knowledge and apply this to work out how many hundreds there are in other four-digit multiples of 100 • Partition four-digit multiples of 100 into hundreds parts • Recognise the place value of four-digit numbers and partition four-digit numbers into thousands, hundreds, tens and ones (using a place value chart and concrete resources)

	Unit 2 – Addition/ Subtraction	• Add numbers with up to 4 digits using the formal written methods of columnar addition where appropriate • Estimate and use inverse operations to check answers to a calculation • Solve addition two-step problems in contexts, deciding which operations and methods to use and why. • Subtract numbers with up to 4 digits using the formal written methods of columnar addition where appropriate • Estimate and use inverse operations to check answers to a calculation • Solve subtraction two-step problems in contexts, deciding which operations and methods to use and why.	• Choose efficient addition and subtraction strategies using formal or mental methods • Estimate answers using rounding • Use inverse operations to check answers
	Unit 3 – Fractions	• Add and subtract fractions with the same denominator • Recognise and write decimal equivalent fractions 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 numbers by 10 and 100, identifying the value of 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	• Partition and combine mixed numbers • Add two improper fractions with the same denominators • Add a proper fraction to a mixed number with the same denominators • Add two mixed numbers with the same denominators • Subtract two improper fractions with the same denominators • Subtract a proper fraction from a mixed number with the same denominators • Subtract two mixed numbers with the same denominators • Calculate fractions of a quantity • Apply calculating fractions of quantities knowledge to more challenging contexts
	Year 3 prior learning Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/ capacity (l/ml) Year 5 knowledge Convert between different units of metric measure Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres		

	Estimate volume [for example, using 1cm ³ blocks to build cuboids (including cubes)] and capacity [for example, using water] Use all four operations to solve problems involving measure using decimal notation, including scaling		
	Unit 4- Measurement	• Convert between different units of measure • Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • Find the area of rectilinear shapes by counting squares • Convert between different units of measure • Estimate, compare and calculate different measures	• Measure and kilometres and metres • Convert between kilometres and metres • Calculate length and perimeter on a grid • Calculate length and perimeter of a rectangle • Calculate length and perimeter of a rectilinear shape • Find missing lengths in rectilinear shapes • Calculate the area of rectilinear shapes by counting squares • Convert between litres and millilitres • Convert between kilograms and grams
	Year 3 prior learning Add and subtract amounts of money to give change, using both £ and p in practical contexts Year 5 knowledge Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.		
	Unit 5 – Money	• Estimate, compare and calculate different money in pounds and pence	• Calculate totals in pounds and pence • Ordering totals in pounds and pence and use > < = • Estimate amounts • Round amounts • Calculate using the 4 operations
Spring 2	Unit 1 – Number and Place Value	• Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value • Solve Number and practical problems that involve all of the above and with increasingly large positive numbers	• Read Roman numerals up to 20 • Read Roman numerals up to 50 • Read Roman numerals up to 100 • Order Roman numerals up to 100

	Unit 2 – Multiplication Division	- Recall multiplication facts for tables up to 12x12 - Use place value, known and derived facts to multiply mentally, including multiplying by 0 and 1; multiplying together 3 numbers - Recognise and use factor pairs and commutatively in mental calculations - Multiply two-digit and three-digit numbers by a one-digit number using formal written layout - Solve problems involving multiplying and adding, including 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 - Recall division facts for tables up to 12x12 - Use place value, known and derived facts to divide mentally, including dividing by 1 - Recognise and use factor pairs and commutatively in mental calculations	- Recall multiplication and division facts up to 12×12 - Multiply whole numbers by 10 and 100 - Divide whole numbers by 10 and 100 - Use the inverse when multiplying and dividing by 10 and 100 - Divide by 1 and the number itself - Use mental methods to multiply three numbers - Apply the commutative property of multiplication and rearrange a multiplication equation to show the related division equations - Use and apply the distributive property of multiplication - Multiply a three-digit number by a one-digit number using short multiplication
	Unit 3 - Fractions	- Recognise and show, using diagrams, families or common equivalent fractions - Count up and down in hundredths; recognise that hundredths arise when dividing objects by a hundred and dividing tenths by ten - Solve problems involving increasingly harder fractions to divide quantities, including non-unit fractions where the answer is a whole number	- Count up and down in hundredths - Recognise tenths and Count up and down in hundredths hundredths and the link between them - Recognise and write tenths as decimals - Recognise and write hundredths as decimals Make complements of 1 using tenths or hundredths
	Unit 4 – Time	- 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	- Calculate and solve problems for time in hours, minutes and seconds - Calculate and solve problems involving from hours to minutes, minutes to seconds; years to months; weeks to days - Read, write and convert time from analogue to digital (12 hour clock)
	Year 3 prior learning		

	Interpret and present data using bar charts, pictograms and tables Solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables		
	Year 5 knowledge Solve comparison, sum and difference problems using information presented in a line graph Complete, read and interpret information in tables, including timetables		
	Unit 5 – Statistics	- Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs - Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs - Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	- Interpret charts - Explore time graphs (line graphs) - Read information from a time graph (line graph) - Create a time graph (line graph) to represent continuous data - Solve comparison, sum and difference problems using bar charts - Solve comparison, sum and difference problems using pictograms - Solve comparison, sum and difference problems using tables
Summer 1	Unit 1 – Number and Place Value	- Find 1000 more or less than a given number - Recognise the place value of each digit in a four-digit number (Thousand, hundreds, tens and ones) - Order and compare numbers beyond 1000 - Identify, represent and estimate numbers using different representations - Round any number to the nearest 10, 100 or 1000 - Solve Number and practical problems that involve all of the above and with increasingly large positive numbers	- Partition four-digit numbers in non-standard ways - Read and write four-digit numbers in numerals and words - Find the smallest and largest number you can make with four digits - Compare four-digit numbers using $<$ $>$ $=$ - Order numbers with four digits (initially with concrete resources) - Identify and place a missing four-digit number on a number line which has demarcated intervals - Represent any given four-digit number using different resources, e.g. place value cards, base ten or part-whole
	Unit 2 – Division	- Recall division facts for tables up to 12×12 - Use place value, known and derived facts to divide mentally, including dividing by 1 - Recognise and use factor pairs and commutatively in mental calculations	- Recall multiplication and division facts up to 12×12 - Divide a three-digit number by a one-digit number using partitioning with and without remainders

			• Divide a three-digits number by a one-digit number using short division with and without exchanging • Solve division problems involving a two-digit number divided by a one-digit number, interpreting the remainder according to the context • Solve correspondence problems • Identify all factors by using systematic recording
	Unit 3 - Fractions	• Recognise and show, using diagrams, families or common equivalent fractions • Count up and down in hundredths; recognise that hundredths arise when dividing objects by a hundred and dividing tenths by ten • Solve problems involving increasingly harder fractions to divide quantities, including non-unit fractions where the answer is a whole number	• Divide one-digit numbers by 10 • Divide two-digit numbers by 10 • Divide one-digit numbers by 100 • Divide two-digit numbers by 100 • Recognise and write decimal equivalents of $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$
	Unit 4 – Shape	• Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • Identify acute and obtuse angles and compare and order angles up to two right angles by size • Identify lines of symmetry in 2D shapes presented in different orientations • Complete a simple symmetric figure with respect to a specific line of symmetry	• Explore lines of symmetry including those in different orientations through paper folding and drawing symmetric patterns • Identify lines of symmetry in 2D shapes in different orientations • Reflect a shape in a line of symmetry • Complete 2D shapes and patterns using knowledge of symmetry
Summer 2	Unit 1 – Number and Place Value	• Find 1000 more or less than a given number • Recognise the place value of each digit in a four-digit number (Thousand, hundreds, tens and ones) • Order and compare numbers beyond 1000 • Identify, represent and estimate numbers using different representations • Round any number to the nearest 10, 100 or 1000 • Solve Number and practical problems that involve all of the above and with increasingly large positive numbers	• Divide 1000 into 2, 4, 5 and 10 equal parts • Read scales in multiples of 1000 divided into 2, 4, 5 and 10 equal parts • Use a number line to identify the pair of multiples of 1000 and 100 any given four-digit number or symbol sits between • Round any given four-digit number to the nearest 1000 without a number line • Round a four-digit number to the nearest 100 (initially with a number line) • Round a four-digit number to the nearest 10

			Round any given four-digit number to the nearest 10, 100 and/or 1000
	Unit 2 – Fractions	- Add and subtract fractions with the same denominator - Recognise and write decimal equivalent fractions 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 numbers by 10 and 100, identifying the value of 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	- Compare decimals with one decimal place - Compare decimals with two decimal places - Order a set of decimals with one decimal place - Order a set of decimals with two decimal places - Round decimals with one decimal place to the nearest whole number
	Unit 3 – Time	- 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	- Revisit the number of minutes in an hour and seconds in a minute. - Revisit the concept of year, month, week and day - Converting between different units of time. - Practice converting between analogue and digital times using a.m. and p.m. to read and understand a 12 hour format - Read, write and convert time between analogue and digital (24 hour clocks)
	Unit 4 – Addition & Subtraction	- Add and Subtract numbers with up to 4 digits using the formal written methods of columnar addition 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.	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why

Year 5

Maths Objectives Overview

<https://www.ncetm.org.uk/classroom-resources/cp-year-5-curriculum-map/>

<https://whiterosemaths.com/resources/primary>

Term	Mathematical Strand	Focus Objective (2014 National Curriculum)	Teachable Steps (Stages of Learning)
		Pupils should be taught to:	WALT:
	Year 4 prior learning Count in multiples of 6, 7, 9, 25 and 1000 Find 1000 more or less than a given number Count backwards through 0 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 Round any number to the nearest 10, 100 or 1000 Solve number and practical problems that involve all of the above 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 0 and place value Year 6 knowledge Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit Round any whole number to a required degree of accuracy Use negative numbers in context, and calculate intervals across 0 Solve number and practical problems that involve all of the above		
Autumn 1	Unit 1 – Number and Place Value	Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit	- Explore 1000, 10 000 and 100 000 and the relationships between these (linked to HTO learning) - Represent and combine five- and six-digit multiples of 1000 (initially, using concrete resources) - Represent and combine five and six-digit numbers (initially, using concrete resources) - Identify the value of each digit and partition and recombine five- and six-digit multiples of 1000 in standard ways - Identify the value of each digit and partition and recombine five- and six-digit multiples of 1000 in non-standard ways

			Identify the value of each digit and partition and recombine five- and six-digit numbers in standard ways
	Year 4 prior learning 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 Year 6 knowledge Perform mental calculations, including with mixed operations and large numbers Use their knowledge of the order of operations to carry out calculations involving the four operations Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Solve problems involving addition, subtraction, multiplication and division Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy		
	Unit 2 – Addition/ Subtraction	• Add whole numbers with more than 4 digits including formal written methods (columnar addition and subtraction) • Subtract whole numbers with more than 4 digits including formal written methods (columnar addition and subtraction)	• Use column addition with two 5- or 6-digit numbers with no regrouping • Use column addition with two 5- or 6-digit numbers with regrouping • Use column addition with two numbers with different numbers of digits • Use column subtraction with two 5- or 6-digit numbers with no exchanging • Use column subtraction with two 5- or 6-digit numbers with exchanging Use column subtraction with two numbers with different numbers of digits
	Year 4 prior learning Recognise and show, using diagrams, families of common equivalent fractions Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten Solve problems involving fractions to calculate and divide quantities, including non-unit fractions where the answer is a whole number Add and subtract fractions with the same denominator Recognise and write decimal equivalents of any number of tenths or hundredths Recognise and write decimal equivalents to 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 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 Year 6 knowledge Use common factors to simplify fractions; use common multiples to express fractions in the same denomination Compare and order fractions, including fractions > 1 Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions		

	Multiply simple pairs of proper fractions, writing the answer in its simplest form Divide proper fractions by whole numbers Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places Multiply one-digit numbers with up to two decimal places by whole numbers Use written division methods in cases where the answer has up to two decimal places Solve problems which require answers to be rounded to specified degrees of accuracy Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.		
	Unit 3 - Fractions	• Compare and order fractions whose denominators are all multiples of the same number • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number	• Identify and write equivalent fractions • Find non-unit fractions of quantities • Use multiplication facts to convert a mixed number to an improper fraction • Use division to convert an improper fraction to a mixed number • Count up and down in a given fraction and identify missing terms in the sequence • Compare fractions less than 1 • Order fractions less than 1 Compare fractions greater than 1
	Year 4 prior learning Convert between different units of measure [for example, kilometre to metre; hour to minute] Estimate, compare and calculate different measures Year 6 knowledge Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3]		
	Unit 4- Measurement	• Convert between different units of metric measure • Understand and use equivalences between metric units and common imperial units such as inches, pounds and pints	• Convert between km and m using decimal notation and selecting the most appropriate unit • Convert from mm to m using decimal notation and selecting the most appropriate unit • Convert between kg and g using decimal notation • Convert from l to ml using decimal notation • Convert between metric units and common imperial units

	Year 4 prior learning Recall multiplication and division facts up to 12×12 Use place value, known and derived facts to multiply and divide mentally, including multiplying together three numbers Recognise and use factor pairs and commutativity in mental calculations Multiply two- and three-digit numbers by a one-digit number using formal written layout 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 Year 6 knowledge Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication Divide numbers up to 4 digits by a two-digit number using the formal written method of long division, and interpret remainders according to the context Divide numbers up to 4 digits by a two-digit number using the formal written method of short division, interpreting remainders according to the context Perform mental calculations, including with mixed operations and large numbers Identify common factors, common multiples and prime numbers Use their knowledge of the order of operations to carry out calculations involving the four operations Solve problems involving addition, subtraction, multiplication and division Estimate to check answers to calculations and determine an appropriate degree of accuracy	Autumn 2 Unit 1 – Multiplication - Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers - Solve problems involving multiplication and division where larger numbers are used by decomposing them into their factors - Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers - Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	- Identify multiples of a number - Identify all factors of a number - Use scaling to identify factors and multiples of larger numbers - Identify common factors and common multiples of two numbers - Express a given number, including multiples of 10 or 100, as a product of three factors - Identify and recall prime numbers up to 19 by identifying which numbers have exactly two factors - Identify all prime numbers up to 100 Express a given number as Multiply numbers up to 4 digits by the product of prime factors
	Unit 2 – Number and Place Value	- Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit - Solve number problems and practical problems that involve all of the above	- Identify (and place) midpoints of five- and six digit multiples of 1000 on a number line - Identify and place any five- or six-digit multiple of 1000 on a partially completed number line - Identify any five- or six-digit number on a number line

			- Estimate the position of five- and six-digit multiples of 1000 on a partially completed number line - Estimate the position of five- and six digit numbers on a partially completed number line - Compare five- and six-digit multiples of 1000 using the and = symbols Compare any five- and six-digit numbers using the and = symbols - Compare any five- and six-digit numbers using the and = symbols - Order a set of five- and six-digit multiples of 1000 - Order a set of any five- and six-digit numbers
	Unit 3 - Addition / Subtraction	- Add numbers mentally with increasingly large numbers - Subtract numbers mentally with increasingly large numbers	- Solve missing number equations - Solve equations that involve balancing - Calculate complements of 10 000 and 100 000 - Add and subtract 4-, 5- and 6-digit multiples of 1000 using a range of mental strategies - Add and subtract numbers with up to 6-digits using a range of mental strategies - Redistribute to add by transforming calculations with 5- and 6-digit numbers
	Unit4- Fractions	- Add and subtract fractions with the same denominator and multiples of the same number - Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	- Add 2 fractions with the same denominator - Add fractions, within 1, with different denominators - Add 3 or more fractions, where denominators are multiples of the same number - Add fractions, with the same denominators, where the sum is greater than 1 - Add two improper fractions with the same denominators - Add a proper fraction to a mixed number with the same denominators - Add two mixed numbers with the same denominators - Subtract fractions with different denominators

			• Subtract a proper fraction from a mixed number with the same denominators • Subtract a proper fraction from a mixed number where one denominator is a multiple of another • Subtract a proper fraction from a mixed number when breaking the whole • Subtract two mixed numbers • Multiply a unit fraction by an integer • Multiply a non-unit fraction by an integer • Multiply a mixed number by an integer
	Unit 5 – Multiplication /Division	• Establish whether a number up to 100 is prime and recall prime numbers up to 19 • Multiply numbers up to 4-digits by one or two-digit number using a formal written method, including long multiplication for two-digit numbers • Divide numbers mentally drawing upon known facts • Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)	• Multiply any whole number with up to four digits by any one-digit number using a formal written method • Use long multiplication to multiply a 2-digit number by a 2-digit number • Use long multiplication to multiply a 3-digit number by a 2-digit number • Use long multiplication to multiply a 4-digit number by a 2-digit number • Fluently recall multiplication table facts and corresponding division facts • Mentally calculate using known facts • Multiply by 10, 100 and 1000 • Divide by 10, 100 and 1000
	Year 4 prior learning Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes Identify acute and obtuse angles and compare and order angles up to two right angles by size Identify lines of symmetry in 2-D shapes presented in different orientations Complete a simple symmetric figure with respect to a specific line of symmetry Year 6 knowledge Draw 2-D shapes using given dimensions and angles Recognise, describe and build simple 3-D shapes, including making nets Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles		
	Unit 6– Geometry	• Know angles are measured in degrees: estimates and compare acute, obtuse and reflex angles	• Recognise that angles are measured in degrees

		• Draw given angles, and measure them in degrees ($^{\circ}$) •	• Explore and Identify reflex angles • Estimate acute, obtuse and reflex angles • Measure acute angles with a protractor • Compare acute, obtuse and reflex angles • Measure reflex angles with a protractor • Measure obtuse angles with a protractor • Use a protractor to draw obtuse angles • Use a protractor to draw acute angles
Spring 1	Unit 1 – Number and Place Value	• Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero	• Explore positive and negative numbers practically • Count on and back through zero in ones and then counting in steps of different sizes • Identify the value of marked positions and place numbers on a marked, partially completed number line • Estimate a position marked on a number line (partially completed) • Compare and order negative numbers on a number line • Calculate across zero, working out differences and negative numbers using a number line • Identify the previous and next multiple of 10 000 and 100 000 to a given number
	Unit 2 – Fractions	• Read and write decimal numbers as fractions • Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	• Represent thousandths and explore their relationship with hundredths and tenths • Represent numbers with up to three decimal places in different ways • Recognise the place value of each digit in numbers with up to 2 decimal places • Compose and decompose numbers with up to 2 decimal places using standard partitioning • Compose and decompose numbers with up to 3 decimal places using nonstandard partitioning • Compare decimals with up to 3 decimal places

			Order decimals with up to 3 decimal places
	Unit 3 – Measurement	- Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres - Calculate and compare the area of squares and rectangles including standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes	- Calculate perimeter in squares and then standard units of measure mm, cm ,m - Calculate perimeter of rectilinear shapes - Calculate the perimeter of polygons - Calculate area of rectangles - Calculate the area of compound shapes - Calculate missing lengths of shapes for area and perimeter Estimate area
	Unit 4- Measurement	- Estimate volume and capacity - Solve problems involving converting between units of time - Use all four operations to solve problems involving measure using decimal notation, including scaling	- Measure volume using cubes - Estimate, compare and order volumes using cubes - Estimate, compare and order capacity - Use all four operations to solve problems involving measure using decimal notation, including scaling
Spring 2	Unit 1 – Number and Place Value	- Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000	- Count forwards and backwards in steps of 1000 up to 1 000 000 (initially, from any multiple of 1000 and then from any given number) - Count forwards and backwards in steps of 10 000 up to 1 000 000 (initially, from any multiple of 10 000 and then from any given number) - Count forwards and backwards in steps of 100 000 up to 1 000 000 (initially, from a multiple of 100 000 and then from any given number) - Count forwards and backwards in changing steps of any power of 10 up to 1 000 000 (initially, from any multiple of 1000 and then from any given number) - Recognise and describe linear sequences and find the term-to-term rule, including fractions and decimals (e.g. terms going up in halves from 3) - Round to the nearest 10, 100 , 1000 - Round to the nearest 10000 and 100000

	Unit 2 – Multiplication Division	• Multiply numbers mentally drawing upon known facts • Multiply numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • Divide whole numbers and those involving decimals by 10, 100 and 1000 •	• Fluently recall multiplication table facts and corresponding division facts • Mentally calculate using known facts • Use and apply the divisibility rules • Use short division to divide a number with up to 4 digits by a one-digit number, with and without remainders • Interpret the remainder appropriate to the context • Multiply decimals by 10, 100 and 1000 • Divide by 10, 100 and 1000
	Unit 3 – Fractions	• Round decimals with two decimal places to the nearest whole number and to one decimal place • Read, write, order and compare numbers with up to three decimal places	• Round decimals to the nearest whole number • Round decimals to one decimal place • Divide 1 into 2, 4, 5 and 10 equal parts • Read scales and number lines marked in units of 1 with 2, 4, 5 and 10 equal parts • Recall decimal fraction equivalents for $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{10}$ and for multiples of these proper fractions Read and write decimal numbers with up to 3 decimal places as fractions Read and write decimal numbers with up to 3 decimal places as fractions
	Unit 4 – Addition /Subtraction	• Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy •	• Round to estimate and approximate • Use the inverse operation to check workings and solve problems
	Unit 5 - Geometry	• Use the properties of rectangles to deduce related facts and find missing lengths and angles • Identify regular and irregular polygons • Identify 3-D shapes, including cubes and other cuboids, from 2-D representations • Distinguish between regular and irregular polygons based on reasoning about equal sides and angles • Use the properties of rectangles to deduce related facts and find missing lengths and angles	• Use the properties of rectangles to deduce related facts and find missing lengths and angles • Identify regular and irregular polygons • Identify 3-D shapes, including cubes and other cuboids, from 2-D representations • Distinguish between regular and irregular polygons based on reasoning about equal sides and angles

		- Identify 3-D shapes, including cubes and other cuboids, from 2-D representations	- Use the properties of rectangles to deduce related facts and find missing lengths and angles
Summer 1	Unit 1 – Number and Place Value	- Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 - Solve number problems and practical problems that involve all of the above	- Round five- and six-digit multiples of 1000 to the nearest multiple of 10 000 and 100 000 - Round any six-digit number to the nearest multiple of 10, 100, 1000, 10 000 and 100 000 - Round any five-digit number to the nearest multiple of 10, 100, 1000 and 10 000
	Unit 2 – Addition and subtraction	- Solve addition multi-step problems in contexts, deciding which operations and methods to use and why - Solve subtraction multi-step problems in contexts, deciding which operations and methods to use and why	Use addition and subtraction to solve multi-step problems
	Year 4 prior learning Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs Year 6 knowledge Interpret and construct pie charts and line graphs and use these to solve problems Calculate and interpret the mean as an average		
	Unit 3 - Statistics	- Complete, read and interpret information in tables, including timetables - Solve comparison, sum and difference problems using information presented in a line graph	- Solve comparison, sum and difference problems using a line graph - Complete, read and interpret information in tables - Complete, read and interpret information in two-way tables - Complete, read and interpret information in timetables
	Unit 4– Geometry	Identify angles at a point and one whole turn (total 360°), angles at a point on a straight line and half a turn (total 180°) and other multiples of 90°	- Use a protractor to draw reflex angles - Calculate missing angles on a straight line - Calculate missing angles about a point - Use the properties of rectangles to deduce related facts and find missing lengths and angles
Summer 2	Unit 1 – Number and Place Value	Read Roman numerals to 1000 (M) and recognise years written in Roman numerals	- Read and write Roman numerals to 500 - Read and write Roman numerals to 1000 - Recognise years in Roman numerals

	Unit 2 – Fractions	- Solve problems involving number up to three decimal places - Recognise the percent symbol (%) and understand that percent relates to ‘number as parts per hundred’, and write percentages as a fraction with denominator hundred, and as a decimal fraction	- Recognise the per cent symbol and explore percentages with concrete and pictorial representations as parts per 100 - Write percentages as a fraction with 100 as a denominator and then as a decimal - Recognise simple equivalent fractions, decimals and percentages
	Unit 3 – Multiplication and Division	- Solve problems involving multiplication and division and a combination of these, including understanding the meaning of the equals sign - Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	- Solve problems involving multiplication and division and a combination of these, including understanding the meaning of the equals sign - Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates
	Year 4 prior learning Describe positions on a 2-D grid as coordinates in the first quadrant Describe movements between positions as translations of a given unit to the left/ right and up/down Plot specified points and draw sides to complete a given polygon		
	Year 6 knowledge Describe positions on the full coordinate grid (all 4 quadrants) Draw and translate simple shapes on the coordinate plane, and reflect them in the axes		
	Unit 4 – Position and Direction	Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language and know that the shape has not changed	- Translate a shape on a grid - Describe the translation of a shape in the first quadrant - Translate a shape in the first quadrant and state the coordinates of the translated shape - Reflect a shape in the first quadrant in a line parallel to the axes - Reflect a shape in the first quadrant in a line parallel to the axes and describe the reflection using coordinates - Explain how negative numbers are used on a coordinate grid - use their knowledge of positive and negative numbers to interpret graphs

	Unit 5– Fractions	Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25	- Write percentages as a fraction with 100 as a denominator and then as a decimal - Recognise simple equivalent fractions, decimals and percentages
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Year 6

Maths Objectives Overview

<https://whiterosemaths.com/resources?year=year-6-new>

<https://www.ncetm.org.uk/classroom-resources/cp-year-6-curriculum-map/>

Term	Mathematical Strand	Focus Objective (2014 National Curriculum)	Teachable Steps (Stages of Learning)
		Pupils should be taught to:	WALT:
	Year 5 prior learning Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 Solve number problems and practical problems that involve all of the above Read Roman numerals to 1000 (M) and recognise years written in Roman numerals		
Autumn	Unit 1 Number and place value	- Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit <i>Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</i> - Use negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	- Understand the relationship of 1 000 000 to other powers of 10 (non-adjacent powers of 10) - Count forwards and backwards in steps of powers of 10 with numbers up to 10 000 000 - Read and write seven-digit numbers

		• Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 Solve number problems and practical problems that involve all of the above • Solve practical problems that involve all of the above • <i>Read Roman numerals to 1000 (M) and recognise years written in Roman numerals</i> • Recall and use addition and subtraction facts for 1	• Represent any given seven-digit number in different ways • Identify the value of each digit in a seven-digit number • Partition numbers with seven-digits (in standard ways) according to each digit value and recombine numbers • Compare seven-digit multiples of 1000 using $< > =$ • Compare seven-digit numbers using and $=$ • Order a set of seven-digit multiples of 1000 • Order a set of any given seven-digit numbers • Partition numbers with seven digits in non-standard ways and recombine • Identify midpoints of seven-digit multiples of 1 000 000 a number line • Identify and place any seven-digit multiple of 1000 on a number line • Identify and place any seven-digit number on marked, but not labelled, number lines with different scales • Estimate and position seven-digit multiples of 1000 on unmarked, partially completed number lines • Estimate and position any seven-digit number on an unmarked, partially completed number lin • Divide powers of 10 up to 10 000 000 into 2, 4, 5 and 10 equal parts • Read scales with powers of 10 intervals divided into 2, 4, 5 and 10 equal parts • Identify the pairs of multiples of 1 000 000 and 100 000 that any given seven-digit number sits between • Round any seven-digit number to the nearest 1 000 000 • Round any seven-digit number to the nearest 100 000 • Round any given number, up to 10 000 000, to any given degree of accuracy
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			- Count forwards and backwards in any given step through zero - Calculate intervals across zero, using horizontal and vertical number line to support - Divide smaller powers of 10, from 1 hundredth to 1, into 2, 4, 5 and 10 equal parts?
	Year 5 prior learning Add and subtract whole numbers with more than four digits Add and subtract numbers mentally with increasingly large numbers Use rounding to check answers to calculations and determine Solve addition and subtraction multi-step problems in contexts		
Autumn	Unit 2 – addition and subtraction	- Add whole numbers and decimals using formal written methods (columnar addition and subtraction) - Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). - Select a mental strategy appropriate for the numbers in the calculation. - Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. - Perform mental calculations, including with mixed operations and large numbers	- Use efficient mental methods including estimating answers - Use known facts to answer similar calculations for addition and subtraction - Check workings using inverse operation
	Year 5 prior learning Identify multiples and factors, including finding all factor pairs of a number Know and use the vocabulary of prime numbers, prime factors and composite numbers Establish whether a number up to 100 is prime and recall prime numbers up to 19 Multiply numbers up to four digits by a one- or two-digit number using a formal written method Multiply and divide numbers mentally, drawing upon known facts Divide numbers up to four digits by a one-digit number using the formal written method of short division and interpret remainders appropriately Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 Recognise and use square numbers and cube numbers Solve problems involving multiplication and division, using knowledge of factors and multiples, squares and cubes Solve problems involving addition, subtraction, multiplication and division, including scaling by simple fractions		
	Unit 3- multiplication & division	- Multiply multi-digit numbers up to four digits by a two-digit whole number using the formal written method of long multiplication - Divide numbers up to four digits by a two-digit whole number using the formal written method of long division, and interpret	- Multiply numbers with up to four digits by two-digit numbers using long multiplication - Divide a three-digit number by a two-digit number using long division, without remainders

		remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context • use written division methods in cases where the answer has up to two decimal places • Multiply one-digit numbers with up to 2 decimal places by whole numbers. • Perform mental calculations, including with mixed operations and large numbers • Identify common factors, common multiples and prime numbers • Use their knowledge of the order of operations to carry out calculations involving the four operations • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy • Solve problems involving addition, subtraction, multiplication and division • Revise all times tables.	• Divide a four-digit number by a two-digit number using long division, without remainders • Divide a four-digit number by a two-digit number using long division, with remainders • Express remainders as a whole number, fraction and decimal • Round and interpret remainders • Use short division to divide four-digit numbers by two-digit numbers, without remainders • Use short division to divide four-digit numbers by two-digit numbers, with remainders • Use short division to give a decimal answer • Express remainders as a whole number, fraction and decimal • Round and interpret remainders according to their context • Divide using factors • Use efficient mental methods including estimating answers • Use known facts to answer similar calculations for multiplication and division • Identify common multiples • Identify common factors • Identify prime and composite numbers to 100 • Identify prime factors • Explore the order of operations BODMAS • Apply BODMAS to calculations with more than one operation and no brackets • Apply BODMAS to calculations with brackets and more than one operation and indices • Estimate and approximate answers using rounding • Check workings using inverse operation
Year 5 prior learning Compare and order fractions whose denominators are all multiples of the same number Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number Add and subtract fractions with the same denominator and denominators that are multiples of the same number			

	Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams Read and write decimal numbers as fractions Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents Round decimals with two decimal places to the nearest whole number and to one decimal place Read, write, order and compare numbers with up to three decimal places Solve problems involving number up to three decimal places Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal Solve problems which require knowing percentage and decimal equivalents and those fractions with a denominator of a multiple of 10 or 25		
	Unit 4- Fractions, Decimals and Percentages	• Use common factors to simplify fractions; use common multiples to express fractions in the same denomination • Compare and order fractions, including fractions > 1 • Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • Multiply simple pairs of proper fractions, writing the answer in its simplest form • Divide proper fractions by whole numbers • Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375 and $\frac{3}{8}$) • Identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to 3 decimal places • Solve problems which require answers to be rounded to specified degrees of accuracy • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts • solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison	• Simplify fractions by using the highest common factor • Compare fractions where the denominators are not multiples of the same number • Order fractions where the denominators are not multiples of the same number • Compare and order fractions by finding a common numerator • Compare and order fractions by using reasoning • Compare and order fractions selecting the most efficient method • Identify and place fractions on a number line • Add fractions where the denominators are multiples of the same number • Add fractions where the denominators are not multiples of the same number • Add mixed numbers selecting the most appropriate method • Subtract fractions where the denominators are multiples of the same number • Subtract fractions where the denominators are not multiples of the same number • Subtract mixed numbers selecting the most appropriate method • Multiply a pair of unit fractions and non-unit fractions • Divide a fraction by a whole number where the numerator is a multiple of the integer divisor • Divide a fraction by a whole number where the numerator is not a multiple of the integer divisor

			• Multiply a one-digit number with 1 and 2 decimal places by an integer using short multiplication • Divide a one-digit number with 1 or 2 decimal place by an integer using short division. • Find fractions of amounts • Find the whole from the given part (fraction) • Convert a decimal to a fraction • Convert fractions to decimals • Associate a fraction with division to calculate • Understand the relationship of 1 to tenths, hundredths and thousandths • Identify the value of each digit, in words and numbers, in numbers with up to 3 decimal places • Partition and compose in standard ways and non- standard ways • Multiply and divide numbers with up to 3 decimal places by 10, 100 and 1000 • Convert fractions to percentages using equivalent fractions with a denominator of 100 when needed • Identify equivalent fractions, decimals and percentages • Compare and order fractions, decimals and percentages • Use equivalent fractions to calculate percentages of amounts • Calculate percentages of amounts
	Year 5 prior learning Identify 3-D shapes, including cubes and other cuboids, from 2-D representations Distinguish between regular and irregular polygons based on reasoning about equal sides and angles		

	Unit 5- geometry -2 D & 3D shape 2d shape 3 d shape	• Compare and classify geometric shapes based on their properties and sizes. • Recognise, describe and build simple 3-D shapes, including making nets • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius	• Name all 2D shapes and describe properties and classify using all KS2 vocabulary such as: regular, irregular, quadrilateral, parallel, perpendicular, angles, sides, curved, straight, types of angles, convex, concave, Could list shapes? Circle, semi circle, isosceles triangle, equilateral triangle, scalene triangle, square, rectangle. kite, inverted kite, trapezium, parallelogram, rhombus, regular and irregular pentagon, regular and irregular hexagon, regular and irregular heptagon, regular and irregular octagon, regular and irregular nonagon, regular and irregular decagon. • Identify 3 D shapes and describe properties (sphere, hemi sphere. octahedron, dodecahedron Prisms including: cylinder, triangular prism, cube, cuboid, pentagonal prism, hexagonal prism. Pyramids including: cone, tetrahedron, square based pyramid, pentagonal based pyramid. • Identify 3D shapes from their nets • Draw the nets of 3D shapes accurately • Name the parts of a circle • Calculate the radius and diameter of a circle using given information
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Spring			
	Year 5 prior learning Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Draw given angles, and measure them in degrees (°) Identify angles at a point and one whole turn (total 360°); angles at a point on a straight line (total 180°); other multiples of 90° Use the properties of rectangles to deduce related facts and find missing lengths and angles		

Spring	Unit 1 Geometry Angles and Triangles	• Identify acute, obtuse, right and reflex angles • Draw and measure angles in degrees • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. • Find unknown angles in any triangles, quadrilaterals, and regular polygons • Find unknown angles in any triangles, quadrilaterals, regular polygons. • Draw 2-D shapes using given dimensions and angles	• Measure with a protractor. • Introduce angles. • Calculate angles. • Vertically opposite angles. • Angles in a triangle. • Angles in a triangle – special cases. • Angles in a triangle – missing angles. • Angles in special quadrilaterals. • Angles in regular polygons. • Draw shapes accurately • Recognise angles that meet at a point to calculate missing angles • Recognise angles on a straight line to calculate missing angles • Recognise that vertically opposite angles are equal • Explore the sum of interior angles of a triangle • Explore angles and side lengths of different types of triangle • Solve missing angle problems using the properties of different triangles • Explore the angles of quadrilaterals • Explore the angles of different polygons • Draw 2D shapes accurately on square/grid paper • Draw 2D shapes accurately on plain paper
	Unit 2 – statistics	• <i>Revise all data-bar charts (including those with 2 bars and bar with range of data), tables ,pictograms, continuous and discrete data, graphs in different orientations</i> • <i>Continue to complete and interpret information in a variety of sorting diagrams (including sorting properties of numbers and shapes).</i> • Interpret and construct pie charts and line graphs and use these to solve problems. • <i>Solve comparison, sum and difference problems using information presented in all types of graph.</i> • Calculate and interpret the mean as an average. • Revise range, mode and median.	• Read and interpret line graphs • Construct a line graph • Use a line graph to solve problems • Read and interpret pie charts • Read and interpret pie charts using percentages • Construct a pie chart • Use a pie chart to solve problems • Calculate the mean average of a set of data • Calculate missing data based on a given mean

Year 5 Prior Learning Solve comparison, sum and difference problems using information presented in a line graph Complete, read and interpret information in tables, including timetables		
Unit 3 – measurement Length, mass, capacity volume	- Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. - Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places - Convert between miles and kilometres - Recognise when it is possible to use formulae for area and volume of shapes - Calculate the area of parallelograms and triangles - Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres and cubic metres, and extending to other units.	- Metric measures- reading scales mass, length and capacity. - Read scales and number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts - Convert metric measure up to 3dp for length, mass and capacity. - Calculate with metric measures. - Convert miles and kilometres. - Know Imperial measures for- mass, length and capacity. - Convert metric and imperial measures using conversion charts. - Solve problems converting metric and imperial measures.
Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed		
Unit 4- Geometry position and direction (reflection, symmetry, co-ordinates)	- Draw and translate simple shapes on the coordinate plane, and reflect them in the axes. <i>Identify lines of symmetry in 2 d shapes presented in different orientations</i> <i>Complete a simple symmetric figures with respect to a specific line of symmetry</i> - Describe positions on the full coordinate grid (all four quadrants). - Solve reasoning questions involving co-ordinates including those on blank co-ordinate plane. - Plot specific points to complete a given polygon	- Read and describe position using coordinates in all four quadrants. - Plot coordinates in all four quadrants. - Draw polygons using coordinates from any of the four quadrants. - Use the given coordinates to work out the coordinates of missing vertices of polygons on a blank coordinate plane. - Describe the translation of a shape in any of the four quadrants and record the coordinates. - Translate a polygon in any of the four quadrants and record the coordinates. - Reflect a shape in the y-axis and record the coordinates - Reflect a shape in the x-axis and record the coordinates. - Reflect diagonally. - Reflect using complex grids (not squares or dots)
Unit 5 – measurement	Measure and calculate the area and perimeter of rectilinear shapes and compound shapes.	Shapes – same area.

	area and perimeter	- Recognise that shapes with the same areas can have different perimeters and vice versa. - Calculate the area of parallelograms and triangles - Recognise that shapes with the same areas can have different perimeters and vice versa	- Area and perimeter. - Area of a triangle (1). - Area of a parallelogram. - Volume – counting cubes. - Volume of a cuboid
	Unit 6 – Measurement time	<i>Use, read and write standard units of time</i> <i>Convert between standard units of time</i> <i>Tell and write the time from an analogue clock including using Roman numerals.</i> <i>Solve problems involving converting hours to minutes, minutes to seconds, years to months, weeks to days.</i> <i>Estimate and read time to the nearest minute (analogue, 12 hour and 24 hour)</i> <i>Read write and convert time from analogue, digital and 24 hour clocks</i>	.
	Unit 7– ratio and proportion	- Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts - Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples - Solve problems involving similar shapes where the scale factor is known or can be found	- Explore and use ratio language - Link fractions and ratio - Use ratio notation - Solve problems involving ratio with 1-to-many and many-to-1, and many-to-many - Solve problems with two unknowns - Solve problems with unequal sharing and grouping - Calculate the missing whole or percentage using given facts - Use percentages to make comparisons - Solve problems involving percentages of amounts - Use scale factors - Calculate scale factors - Use scale drawings
	Unit 8-Algebra	- Use simple formulae. - Generate and describe linear number sequences. - Express missing number problems algebraically.	- Find a rule – one step. - Find a rule – two step. - Use an algebraic rule. - Express numbers and symbols algebraically

		- Find pairs of numbers that satisfy an equation with two unknowns. - Enumerate possibilities of combinations of two variables.	- Substitution. - Formulae. - Word problems. - Solve simple one step equations. - Solve two step equations. - Solve equations with more than one x - Solve equations with x on both sides. - Find pairs of values. - Enumerate possibilities
Summer 1	Revision units		
Summer 2		Transition to High School	