Leamington Hastings C of E Academy
Mathematics Curriculum and progression

Areas of Maths taught in the EYFS													
Number					Measures						Geometry		Statistics
Place Value and counting	Addition	Subtraction	Odd and even numbers	Doubles and halves	Length and Height	Weight	Capacity	Temperature	Time	Money	Shape and patterns	Position and direction	

Areas of Maths taught in KS1													
Number						Measures						Geometry		Statistics
Place Value and counting	Addition	Subtraction	Multiplication including odd and even	Division Including odd and even	Fractions	Length and Height	Weight	Capacity	Temperature	Time	Money	Shape and patterns	Position and direction	

At Leamington Hastings C of E Academy we share the belief set out in the Early Years Foundation Stage and National Curriculum that mathematics is essential to everyday life. At Leamington Hastings, our curriculum is based on a maths mastery approach using Whiterose Maths, where children learn a maths strand in depth for a period of time before moving onto the next unit of work. All children in Reception and Key Stage 1 take part in a daily maths lesson and a daily fluency session. Nursery children take part in small group maths sessions. The curriculum throughout the school is designed so that knowledge and skills build upon each other through small steps, both year on year and within year groups. Most children within a year group will move through the curriculum at broadly the same pace, with children who grasp concepts quickly being challenged through rich and sophisticated problems. Those children who are not sufficiently fluent with number knowledge will experience additional fluency practice provided by their class teacher before moving on. Spoken language is extremely important in the learning of maths. The children will experience lessons including high quality spoken vocabulary in order to develop their mathematical understanding and to support them in developing problem solving and reasoning skills. Children in all year groups will discuss mathematical concepts and develop their reasoning skills through high quality discussion as a class, in groups, in pairs and individually. Children will be assisted in making their thinking clear to themselves and others. Classroom discussions will be used to probe children's thinking and to remedy any misconceptions that may occur.

Aims

Throughout every strand of the maths curriculum children will:

- have the opportunity for frequent and varied practise to build and apply their understanding throughout the unit, including the use of conceptual and procedural variation.
- use a range of concrete manipulatives to build understanding e.g. numicon, tens frames, counters or real life objects.
- use concrete manipulatives to explore mathematical concepts before moving onto pictorial and abstract representations.
- become fluent through varied and frequent practice so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- solve increasingly complex problems by applying their mathematics to a variety of routine and nonroutine problems, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

At mastery level, children understand a taught mathematical concept, idea or technique if they can…

· describe it in their own words

· explain it to someone else

· represent it in a variety of ways (e.g. using concrete materials, pictures and symbols – the concrete, pictorial and abstract approach)

· make up their own examples

· see connections between facts or ideas

· make use of known facts in various ways, including in new situations

Children will also apply their knowledge of maths throughout other subjects in the curriculum, such as science and design and technology, where they will demonstrate age appropriate skills. By creating a rich and exciting mathematical curriculum, we aim to create budding mathematicians, who have deep understanding of number and a desire to tackle a range of problems.

*This document should be read in conjunction with the Academy calculation policy, the fluency progression grid and the mathematical vocabulary progression grid

	Nursery Rising 3s	**Nursery Pre-School**	**Reception**	**Year 1**	**Year 2**
Representations to use throughout the year group	Introduce sets using concrete representations when	Introduce part whole models using concrete representations.	Part whole models as concrete and pictorial representations.	Part whole models as concrete, pictorial and abstract representations.	Part whole models as concrete, pictorial and abstract representations.

	sorting items into categories. Begin to count out objects into a fives or tens frame. Number line counting forwards in 1s to 5. Introduce part whole models using concrete representations.	Introduce tens frames using concrete representations. Introduce number lines containing numbers, counting forwards and backwards in 1s to 10. Odd one out.	Understand the terms part and whole. Tens frames as concrete and pictorial representations. Begin to build bar models using cubes as concrete representations. Number lines containing numbers counting forwards and backwards in 1s to 20 with intervals marked, using both number lines with numbers and blank number lines. Odd one out. True / false.	Understand the terms part and whole. Tens frames as concrete, pictorial and abstract representations. Bar models as concrete, pictorial and abstract representations. Number lines containing numbers counting forwards and backwards in 1s, 2s, 5s and 10s with intervals marked, using both number lines with numbers and blank number lines. Place value charts using concreate objects and pictorial representations. When using to add and subject, numbers do not bridge the tens. Arrays to represent multiplication and division using concrete and pictorial representations. Odd one out. True / false.	Understand the terms part and whole. Tens frames as concrete, pictorial and abstract representations. Bar models as concrete, pictorial and abstract representations. Number lines containing numbers counting forwards and backwards in 1s, 2s, 5s and 10s with intervals marked and unmarked, using mainly blank number lines. Place value charts using concreate objects and pictorial representations. When using to add and subtract, numbers bridge the tens. Arrays to represent multiplication and division using concrete and pictorial representations, including remainders. Odd one out. True / false.

				Always / sometimes / never.	Always / sometimes / never.
Manipulatives to be used throughout the year group	Counters Large numbers (tiles, numeral representations) Washing lines with numerals Balance scales Set rings Numicon Multilink cubes Objects for sorting, making comparisons, making patterns and counting e.g. fruit, jewels and feathers Simple number lines Five and tens frames Dice Subitising cards to 3 Coins for role play scenarios Jugs, cups and containers of different sizes 2D and 3D shapes for construction and making arrangements	Numerals to 10 Washing lines with numerals Counters Subitising cards to 6 Dice Balance scales Set rings Numicon Multilink cubes Objects for sorting, making comparisons, making patterns and counting e.g. fruit, jewels and feathers Number lines to 10 Five and tens frames Coins for role play scenarios Jugs, cups and containers of different sizes 2D and 3D shapes for construction and making arrangements Representations of circles, triangles and squares Representations of part whole models.	Numerals to 20 Washing lines with numerals Counters Subitising cards Irregular pictorial arrangements Dice Balance scales Set rings Numicon Multilink cubes Objects for sorting, making comparisons, making patterns and counting e.g. fruit, jewels and feathers Number lines to 20 Tens frames Coins for role play scenarios (all UK coins) Jugs, cups and containers of different sizes Representations of rectangles, squares, circles, triangles, cuboids, cubes, pyramids and spheres. Representations of part whole models. Sand timers Clocks Rulers	Numeral cards Counters Dice – regular, money and place value Balance scales Weighing scales Set rings Numicon Multilink cubes Base 10 100 squares Objects to create mathematical arrangements e.g. arrays and patterns Abacus to represent tens and ones Bundles of straws to represent tens and ones Place value grids / charts Number lines (containing numbers, marks and blank) Tens frames UK coins and notes Jugs, cups and containers of different sizes, some with scales marked Representations of part whole models. Representations of bar models Timers Clocks	Numeral cards Counters Dice – regular, money and place value Balance scales Weighing scales Set rings Numicon Multilink cubes Base 10 Place value cards Objects to create mathematical arrangements e.g. arrays and patterns Abacus to represent tens and ones Bundles of straws to represent tens and ones Place value grids / charts Number lines (containing numbers, marks and blank) Tens frames 100 squares UK coins and notes Jugs, cups and containers of different sizes, some with scales marked Representations of part whole models. Representations of bar models Timers

				Rulers Meter sticks Thermometers Weights – grams and kilograms Representations of rectangles, squares, circles, triangles, hexagons, kites, ovals, spheres, cones, cylinders, pyramids, cubes and cuboids	Clocks Rulers Meter sticks Thermometers Weights – grams and kilograms Representations of rectangles, squares, quadrilaterals, circles, triangles, pentagons, hexagons, octogens, kites, ovals, semicircles, spheres, cones, cylinders, pyramids (both square based and tetrahedrons), prisms (e.g. triangular and hexagonal) cubes and cuboids Shape nets Right angle checkers
Place Value	Knowledge and skills:				
	Creates and experiments with symbols and marks to represent ideas of a number.	Begins to represent numbers using fingers, marks on paper or pictures that they can interpret or explain.	Recognises numerals from 0 to 20 in different contexts e.g. number cards, numbers written in the environment, number tracks, number lines and 100 squares.	Read and write numbers from 1 to 20 in numerals and in words.	Read and write numbers to at least 100 in numerals and in words.
	Recognises numerals from 1 to 3.	Recognises numerals from 1 to 6. Explores using their own marks and signs to which they ascribe mathematical symbols.	Write numerals to 20.	Read and write numbers to 100 in numerals	

	Begins to match the numerals 1 to 3 to concrete objects.	Recognises some numerals of personal significance.	Selects the correct numeral to represent numbers to 20 when counting objects or looking at pictorial arrangements.		
	Selects the correct numeral to represent 1 to 3 when counting objects or looking at pictorial arrangements.	Selects the correct numeral to represent 1 to 6 when counting objects or looking at pictorial arrangements.			
	Recites some number names in sequence e.g. 1, 2, 3.	Recites numbers in order to 10.	Order numbers from 1 to 20 both forwards and backwards.	Order numbers from 0 up to 50, including non-consecutive numbers.	Order numbers from 0 up to 100, including non-consecutive numbers.
				Begin to recognise place value in numbers to and beyond 20 using concrete objects and pictorial representations (10s and 1s).	Recognise the place value of each digit in any two-digit number (10s and 1s) and partition and construct numbers.
					Understand 0 as a placeholder.
					Partition 2 digit numbers in different ways e.g. 42 = 40 + 2, 30 + 12, 20 + 22, 10 + 12.
	Begin to recognise more as getting bigger and less as getting smaller.	Begin to learn that numbers are composed of smaller numbers through practical exploration.	Find 1 more and less than a number to 10.	Given any number to 100, identify 1 more and 1 less.	Find 10 more and less than a number to 100.
		Begins to recognise that each counting number is one more than the one before.			Find more and less than a number to 100, counting in multiples of 10. E.g. 20 less than 80, 30 more than 45.
	Begin to make comparisons between quantities e.g. that group has a lot.	Begin to use the language of lots, more and less than to compare two sets of objects.	Consistently uses the language of the same as, more/greater than and less/fewer than to	Consistently use the language of: equal to, more than, less than and fewer when comparing groups of objects to 20.	Compare 2 digit numbers to 100 and use <, > and = signs in a range of contexts, including

		Compares 2 groups of objects, saying when they have the same number.	compare two sets of objects to 10.	Compares numbers supported by concrete and pictorial representations, using the <, > and = signs.	concrete, pictorial and abstract representations.
		Find the numbers 1 to 6 on a printed number line.	Begin to identify and represent numbers using objects and pictorial representations including the number line, representing numbers to 10 and then 20.	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 when comparing numbers to 20.	Identify, represent and estimate numbers using different representations, including the number line when comparing number to 100.
Counting	Knowledge and skills:				
	Realises not only objects but anything can be counted e.g. claps, steps or jumps.				
	Selects a small number of objects from a group when asked to e.g. can you pass me 1, can you pass me two.				
	Counts up to 3 objects using 1 to 1 correspondence, saying a number name for each item, knowing that the last number reached when counting a set of objects tells you how many there are in total (cardinality).	Counts out up to 6 objects from a larger group using 1 to 1 correspondence, knowing that the last number reached when counting a set of objects tells you how many there are in total (cardinality).	Count objects from 1 to 20 reliably using 1 to 1 correspondence, saying the number name after counting to support understanding that the last number indicates the total number of the group.	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number (in 1s).	
			Counts forwards and backwards in 1s to 20 and beyond.		

		Counts up to 6 objects which cannot be moved, including irregular arrangements.	Counts a pictorial arrangement of up to 20 objects.	Count, read and write numbers to 100 in numerals.	
		Estimates how many objects they can see and checks by counting them, to 6 objects.	Children estimate a number of objects and check quantities by counting up to 20.		
	Subitise numbers of up to 3 objects without having to count them.	Subitise numbers to 6 arranged in a dice face arrangement, without having to count them.	Subitise small quantities in both familiar and unfamiliar patterns e.g. dice face moved to random arrangements.		
			Conceptually subitise larger numbers by subitising smaller groups within the number e.g. sees 6 raisins on a plate as 3 and 3		
			Subitise up to 5 and then 10 using the arrangements of a fives and tens frame, along with numicon tiles.		
	Begin to show numbers to 3 in different ways using fingers.	Begin to show numbers to 6 in different ways using fingers.	Show number from 1 to 10 using fingers in different ways, without needing to count them.		
	Recites some number names in sequence e.g. 1, 2, 3.	Recites numbers in order to 10.	Recites numbers in order to 20 and beyond, forwards and backwards.	Count forwards in multiples of 2s, 5s and 10s independently.	Count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward.
				Use ordinal numbers from 1^{st} to 10^{th} .	Solve problems involving the use of ordinal numbers.

Number bonds	Separate and recombine a group of 3 objects in different ways using concrete resources.	Separates and recombines a group of up to 6 objects in different ways, using concrete resources, beginning to recognise that the total stays the same.	Understand the composition of number bond families of 2, 3, 4 and 5 before progressing further.	Recall and use addition and subtraction facts to 10 fluently.	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.
		Solve real life problems using numbers to 6 e.g. do we have enough chairs for everyone in the group?	Automatically recall number bonds to 5, including addition and subtraction facts, without reference to concrete, pictorial representations or number rhymes.	Represent and use number bonds families within 10 to solve problems.	Represent and use number bonds families within 20 to solve problems.
			Have a deep understanding of number bond families to 10, using concrete and pictorial representations.		
			Mentally recall some number bonds to 10, including addition and subtraction facts.		
Addition	Knowledge and skills:				
			Read, write and interpret mathematical statements involving addition (+) and equals (=) signs.	Read, write and interpret mathematical statements involving addition (+) and equals (=) signs, including the = signs in different positions such as 12 = 7 + 5.	Add numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and 1s a two-digit number and 10s 2 two-digit numbers adding 3 one-digit numbers.
	Knows that a group of things changes in quantity when something is added.	Finds the total number of items in two small groups by counting all of them.	Add 2 single digit numbers, counting on to find the answer using quantities.	Add one-digit and two-digit numbers up to a total of 20, including the effect of adding 0.	

			Add 2 single digit numbers to 10, using the number line.	Use base 10 materials to add numbers to 20, recognising that 10 ones need to be swapped for a block of 10	Use base 10 materials to add numbers as above, recognising that 10 ones need to be swapped for a block of 10
				Solve one-step problems that involve addition using concrete objects and pictorial representations.	Solve problems with addition using concrete, pictorial and abstract representations, including those involving numbers, quantities and measures, applying their increasing knowledge of mental and written methods.
					Solve two – step word problems (GD).
			Begin to understand that addition of 2 numbers is commutative.	Understand that addition of 2 numbers is commutative.	Demonstrate that addition of numbers is commutative by providing own examples.
			Begin to solve missing number problems using concrete objects to 10 e.g. knowing that 2 + ? = 5 by overlaying numicon.	Solve missing number problems using concreate objects and pictorial representations.	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
				Apply knowledge of number bonds to reason about numbers and relationships, explaining their thinking e.g. 2 + 8 = 3 + ?	Use reasoning about numbers and relationships to solve more complex problems and explain their thinking (e.g. 29 + 17 = 15 + 4 + ? 38 + 15 = ? + 6

<table>
<tr><td rowspan="7">Subtraction</td><td colspan="4">Knowledge and skills:</td></tr>
<tr><td colspan="2"></td><td>Read, write and interpret mathematical statements involving subtraction (−) and equals (=) signs.</td><td>Read, write and interpret mathematical statements involving subtraction (−) and equals (=) signs, including the = signs in different positions such as 12 = 16 - 4.</td><td rowspan="3">Subtract numbers using concrete objects, pictorial representations, and mentally, including:
a two-digit number and 1s
a two-digit number and 10s
2 two-digit numbers.</td></tr>
<tr><td rowspan="2">Knows that a group of things changes in quantity when something is taken away.</td><td rowspan="2">Counts out a small set of objects before and after something has been taken away.</td><td>Subtract 2 single digit numbers, counting back to find the answer using quantities.</td><td rowspan="2">Subtract one-digit and two-digit numbers from 20, including the effect of subtracting 0.</td></tr>
<tr><td>Subtract a single digit number from 10, using the number line.</td></tr>
<tr><td colspan="3" rowspan="2"></td><td>Use base 10 materials to subtract numbers from 20, recognising that a 10 needs to be swapped for 10 ones when bridging the 10</td><td>Use base 10 materials to subtract numbers as above, recognising that a 10 needs to be swapped for 10 ones when bridging the 10</td></tr>
<tr><td>Develop an understanding of ‘find the difference’.</td><td>Solve problems involving difference.</td></tr>
<tr><td colspan="3"></td><td rowspan="2">Solve one-step problems that involve subtraction using concrete objects and pictorial representations.</td><td>Solve problems with subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures, applying their increasing knowledge of mental and written methods.</td></tr>
<tr><td colspan="3"></td><td>Solve two – step word problems (GD).</td></tr>
</table>

			Begin to understand that subtraction is not commutative.	Understand that subtraction is not commutative.	Demonstrate that subtraction of numbers is not commutative by providing own examples.
			Begin to solve missing number problems using concrete objects from 10 e.g. knowing that 5 - ? = 2 by overlaying numicon.	Solve missing number problems using concreate objects and pictorial representations.	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
				Apply knowledge of number bonds to reason about numbers and relationships, explaining their thinking e.g. 8 - 3 = 7 - ?	Use reasoning about numbers and relationships to solve more complex problems and explain their thinking (e.g. 32 - 17 = 15 - 4 - ? 38 - 15 = ? - 6
Multiplication	Knowledge and skills:				
		Begin to understand the term double as having the same again with a small amount of objects (1, 2 or 3).	Mentally recall doubles to 10 (e.g. up to double 5)	Mentally recall doubles to 10 and use this to solve problems using concrete objects and pictorial representations.	Mentally recall doubles to 20 and use this to solve problems.
			Solve problems involving doubles using concrete objects to 10.		
				Count forwards in multiples of 2s, 5s and 10s.	Count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward.
				Use arrays to represent repeated addition questions, counting in 2s 5s and 10s.	Calculate mathematical statements for multiplication within the 2, 5 and 10 multiplication tables and write them using the

			multiplication (×) and equals (=) signs.
		Make connections between arrays, number patterns and counting in 2s 5s and 10s.	Recall and use multiplication and facts for the 2, 5 and 10 multiplication tables.
			Connect the tens multiplication tables to place value and the 5s to counting on a clock face.
			Begin to calculate multiplication facts beyond 2, 5 and 10.
			Explain why a number is not a known multiplication fact e.g. 16 is not a multiple of 5 as it does not end in a 0 or 5.
			Show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot.
		Solve one-step problems involving multiplication by calculating the answer using concrete objects, pictorial representations and arrays.	Solve problems involving multiplication using materials, arrays, repeated addition, mental methods, and multiplication facts, including problems in contexts.
			Use multiplication facts to make deductions outside known multiplication facts, e.g.

				know that multiples of 5 have one digit of zero or 5 and use this to reason that 18 x 5 cannot be 92 because it does not end in a 5 or a 0 (GD).
				Recognise and use the inverse relationship between multiplication and division and use this to check calculations and solve missing number problems.
				Use reasoning about numbers and relationships to solve more complex problems and explain their thinking (e.g. 6 x 10 = ? x 5 ? x 2 = 8 x 5 (GD).
Division	Knowledge and skills:			
		Begin to understand the term half as sharing 2 or 4 objects into 2 equal groups in discussions with concrete objects led by an adult.	Mentally recall halves from 10 (e.g. half of 10 is 5 and below) Share objects equally into two groups, using numbers to 10.	Mentally recall halves from 10 and use this to solve problems, using concrete objects and pictorial representations.	Mentally recall halves from 20 and use this to solve problems.
					Calculate mathematical statements for division within the 2, 5 and 10 multiplication tables and write them using the division (÷) and equals (=) signs.
					Recall and use and division facts for the 2, 5

				and 10 multiplication tables.
		Solve practical problems that involve sharing into equal groups.	Use arrays practically to represent division questions in 2s 5s and 10s.	Begin to calculate division facts beyond 2, 5 and 10 (outside known facts).
			Solve one-step problems involving division, by calculating the answer using concrete objects, pictorial representations and arrays.	Solve problems involving division, using objects, arrays, repeated addition, mental methods, groupings, sharing and division facts, including problems in context.
			Solve problems involving grouping and sharing.	Explain why a number is not a known division fact e.g. 16 cannot be shared equally into 5 as it does not end in a 0 or 5.
				Recognise and use the inverse relationship between multiplication and division and use this to check calculations and solve missing number problems.
				Use reasoning about numbers and relationships to solve more complex problems and explain their thinking (e.g. 10 ÷ 2 = 50 ÷ ? ? ÷ 10 = 8 ÷ 2 (GD).
Fractions	Knowledge and skills:			
		Recognise, find and name a half as 1 of 2 equal parts of a quantity.	Recognise, find and name a half and quarter as equal	Recognise, find, name and write

			Solve problems involving halving from 10 using concrete objects.	parts of an object, shape or quantity.	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, for example $\frac{1}{2}$ of 6 = 3.
				Combine halves and quarters as parts of a whole.	Recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.
					Connect unit fractions to equal sharing and grouping.
					Count in halves and quarters up to 10.
					Find and compare fractions of amounts e.g. ¼ of £20 = £5 and ½ of £8 = £4, so ¼ of £20 > than ½ of £8; which is greater 1/3 of 18 or 2/4 of 12? (GD).
Odd and even	Knowledge and skills:				
			Recognise odd and even numbers to 10.	Recognise odd and even numbers mentally, knowing that numbers that end in 2, 4, 6, 8 or 0 and numbers that end in a 1, 3, 5, 7 or 9 are odd.	Recognise odd and even numbers mentally and use these facts to solve reasoning problems e.g. sometimes / always / never statements such as multiples of 10 are always odd.
Money	Knowledge and skills:				
	Handles coins in role play scenarios.	Begins to use everyday language to talk about money e.g. money and coin.	Uses everyday language to talk about money e.g. pennies, paying, change	Recognise and know the value of different denominations of coins and notes.	Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a

				Describe the properties of each coin and note e.g. bronze, gold, silver and round.	particular value, recording pounds and pence separately.
		Begins to count out the correct number of pennies to pay for an object up to 5p e.g. selects 2 pennies for an object that costs 2p in role play.	Select the correct number of pennies to pay for an object up to 10, and then 20 in role play e.g. selects 8 pennies for an object that costs 8p.	Use coins to represent small amounts of money e.g. 15p as 10p + 5p or £4 as 4 £1 coins.	
				Find more than one way to represent an amount of money (e.g. show 4 different ways to make 20p) (GD).	Find different combinations of coins that equal the same amounts of money (e.g. 50p).
					Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.
					Apply knowledge of coins by solving problems such as representing amounts using the least amount of coins or finding different ways to spend £1.
Measures – length / height	Knowledge and skills:				
	Begin to compare the length or height of 2 items using everyday language in discussions with an adult e.g. I'm stretching the	Experiments with length and height e.g. stretching the playdough to make it longer or cutting pieces of string.	Makes predictions and then tests them out in activities involving length and height e.g. how many blocks to make the tower taller than the	Measure and begin to record lengths and heights using standard and nonstandard units e.g. cubes, rulers and meter sticks.	Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); to

	playdough to make it longer.		chair, which ribbon is longer?		the nearest appropriate unit, using rulers.
			Begin to measure length and height using nonstandard units e.g. cubes or hands.		
		Orders 2 items by length or height.	Order 3 or more items by length and height.	Read scales marked in 1s.	Read scales in divisions of ones, twos, fives or tens (GD including between scales when not all numbers are given).
		Begins to use everyday language related to size such as tall or long.	Uses everyday language to talk about size such as long, short, tall or shortest.	Compare, describe and solve practical problems for: lengths and heights [for example, long/short, longer/shorter, tall/short, double/half].	Compare and order lengths and record the results using >, < and =.
					Compare measures including simple multiples such as 'half as high', 'twice as wide'.
				Apply year group knowledge of addition, subtraction, doubles, halves, multiplication and division to solve measure problems.	Apply year group knowledge of addition, subtraction, doubles, halves, multiplication and division to solve measure problems.
Measures - capacity	Knowledge and skills:				
	Begin to compare the capacity of 2 items using everyday language in discussions with an adult e.g. I'm going to see which cup holds more water for the bear.	Experiments with capacity e.g. experimenting with how many cups of water it takes to fill the bucket.	Makes predictions and then tests them out in activities involving capacity e.g. how many cups of water will it take to fill the jug?	Measure and begin to record capacity and volume using standard and nonstandard units e.g. cups, litres and millilitres.	Choose and use appropriate standard units to estimate and measure capacity (litres/ml) to the nearest appropriate unit, using measuring vessels.
			Begin to measure capacity using		

			nonstandard units e.g. cup or jugful.		
		Orders 2 items by capacity.	Order 3 or more items by capacity.	Read scales marked in 1s.	Read scales in divisions of ones, twos, fives or tens (GD including between scales when not all numbers are given).
		Begin to use everyday language to talk about capacity such as full and empty.	Uses everyday language to talk about capacity such as full, nearly full, nearly empty, empty.	Compare, describe and solve practical problems for capacity and volume [for example, full/empty, more than, less than, half, half full, quarter].	Compare and order volume/capacity and record the results using >, < and =.
					Compare measures including simple multiples such as 'half as high', 'twice as wide'.
				Apply year group knowledge of addition, subtraction, doubles, halves, multiplication and division to solve measure problems.	Apply year group knowledge of addition, subtraction, doubles, halves, multiplication and division to solve measure problems.
Measures - weight	Knowledge and skills:				
	Begin to compare the weight of 2 everyday items using everyday language in discussions with an adult e.g. this birthday present is heavier.	Experiments with weight e.g. putting blocks in a balancing scale in a role play scenario.	Makes predictions and then tests them out in activities involving weight e.g. how many cubes will it take to balance the weighing scales holding the parcel in the shop role play?	Measure and begin to record the following: mass/weight using standard and nonstandard units such as cubes, kilograms and grams.	Choose and use appropriate standard units to estimate and measure mass (kg/g); to the nearest appropriate unit using scales.
			Begin to measure weight using nonstandard units e.g. cubes.		

		Orders 2 items by weight.	Order 3 or more items by weight.	Read scales marked in 1s.	Read scales in divisions of ones, twos, fives or tens (GD including between scales when not all numbers are given).
		Begins to use everyday language related to weight such as heavy, heavier, lighter and light.	Uses everyday language to talk about weight such as heavy, heavier, heaviest, light, lighter and lightest.	Compare, describe and solve practical problems for mass/weight [for example, heavy/light, heavier than, lighter than] using standard and nonstandard units.	Compare and order mass and record the results using >, < and =.
					Compare measures including simple multiples such as 'half as high', 'twice as wide'.
				Apply year group knowledge of addition, subtraction, doubles, halves, multiplication and division to solve measure problems.	Apply year group knowledge of addition, subtraction, doubles, halves, multiplication and division to solve measure problems.
Measures – temperature	Knowledge:				
				Understand that a thermometer can be used to measure temperature.	Choose and use appropriate standard units to estimate and measure temperature (°C) to the nearest appropriate unit using thermometers.
				Read scales marked in 1s.	Read scales in divisions of ones, twos, fives or tens (GD including between scales when not all numbers are given).
					Compare and order temperature and record

					the results using >, < and =.
					Compare measures including simple multiples such as 'half as high', 'twice as wide'.
Statistics	Knowledge and skills:				
	Begin to categorise objects e.g. putting all the teddies together.	Categorise objects according to properties such as shape, size or colour e.g. putting all the red squares in a set	Categorise objects using the part whole model.	Construct simple tally charts, pictograms and block graphs couniting in 1s.	Construct and interpret simple pictograms, tally charts, block diagrams and tables, including counting in ratios of 2s, 5s and 10s.
				Read scales marked in 1s.	Record, interpret, collate, organise and compare information for example using many to one correspondence in pictograms and block graphs with simple ratios of 2, 5 and 10.
		Knows that numbers identify how many objects are in a set to 5.	Identify how many are in each set by counting to 10.	Answer simple questions by counting the number of objects in each category.	Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.
		Compares 2 small groups of objects in simple ways, e.g. saying when they have the same number or when one set has more.	Uses the language of more, fewer and the same as / equal to when comparing groups of objects and quantities.	Answer questions involving totally categorical data.	Ask-and-answer questions about totalling and comparing categorical data.
					Interpret data by asking and answering simple questions by counting the number of objects in

					each category, sorting the categories by quantity, totalling and comparing categorical data including finding the difference.
Shape	Knowledge and skills:				
	Selects shapes appropriately in play scenarios e.g. when making simple constructions choosing a flat surface for building on top of, or a triangular prism for a roof	Shows an interest in shape by sustained construction activity or talking about shapes or arrangements.	Uses familiar objects and common shapes to create and recreate patterns and build models of increasing complexity, describing shapes as they build e.g. we need a straight edge or this has a sharp corner.		
		Combine shapes to make new shapes e.g. shapes to make an arch or interlocking shapes to make larger arrangements.	Select, rotate and manipulate shapes in order to develop spatial reasoning skills.		
		Shows an interest in shapes in the environment e.g. that is the same shape as the ball.			
	Makes arrangements and objects using both 2D and 3D shapes.	Constructs using both 2D and 3D shapes.	Names shapes that have been used to construct objects and pictures (see below)		
			Recognise and name common 2D shapes – rectangles (including squares), circles and triangles.	Recognise and name common 2-D shapes - rectangles (including squares), circles, triangles, hexagons, kite and ovals.	Recognise and name the 2D shapes – rectangles (including squares), circles, triangles, pentagons, hexagons,

			Recognise that shapes can be combined to make new shapes e.g. two triangles combined to make a square.		octagons, kite, semi-circle and oval. Understand and use the term quadrilaterals.
			Begin to find 2D shapes within 3D shapes through printing or shadow play.	Begin to identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid].	Identify 2-D shapes on the surface of 3-D shapes, [for example, a cube has 12 square faces and a square base pyramid has one square and 4 triangles].
			Begin to recognise and name common 3-D shapes - cuboids (including cubes), pyramids and spheres.	Recognise and name common 3-D shapes - cuboids (including cubes), pyramids, spheres, cones and cylinders.	Recognise and name 3D shapes – cuboids (including cubes), pyramids (both square based and tetrahedrons), spheres, cones, cylinders and prisms (e.g. hexagonal and triangular).
			Selects a particular named shape from the 2D and 3D representations listed above.		
				Recognise shapes of different orientations and sizes.	Know and explain that rectangles, triangles, cuboids and pyramids are not always similar to each other.
		Begins to understand that everyday objects can be shapes.	Make links between everyday objects and the 2D and 3D shapes listed above using concrete resources.	Make links between shapes and everyday objects, using the 2D and 3D shapes listed above.	Make links between shapes and everyday objects, using the 2D and 3D shapes listed above, also including different representations of

					rectangles, triangles, cuboids and pyramids.
				Read and write names for the 2D and 3D shapes above, making spelling choices appropriate for the year group.	Read and write names for the 2D and 3D shapes above, making spelling choices appropriate for the year group.
	Shows an awareness of similarities of shapes in the environment e.g. recognises that all the balls are the same shape (without naming them as a sphere).	Begin to talk about the shape properties of everyday objects e.g. rolls or long.	Talk about properties of 2D shapes such as sides, curved and straight.	Begin to describe the properties of the 2D shapes listed above including vertices, and number and description of sides.	Identify and describe the properties of 2-D shapes, including the number and description of sides and vertices. Understand and use the terms regular and irregular shapes.
			Talk about properties of shapes 3D shape, using the terms roll, slide and faces.	Begin to describe the properties of the 3D shapes listed above including vertices, edges, and faces.	Identify and describe the properties of 3-D shapes, including the number of edges, vertices and shape and numbers of faces.
				Identify line symmetry in a vertical line.	Identify line symmetry in a vertical and horizontal line.
				Compare and sort common 2-D and 3-D shapes and everyday objects on the basis of their properties, given categories to use.	Compare and sort common 2-D and 3-D shapes and everyday objects on the basis of their properties, composing own categories.
			Begin to use a ruler to draw lines in continuous provision.	Draw lines using a straight edge with a ruler.	Draw 2D shapes using a straight edge with a ruler.
				Begin to compare shapes to find simple similarities and differences e.g. a	Describe similarities and differences of 2-D and 3-D shapes, using their

				cuboid is just like a cube but has some longer sides. An oval is like a squashed circle.	properties (e.g. that two different 2-D shapes both have only one line of symmetry; that a cube and a cuboid have the same number of edges, faces and vertices, but different dimensions).
Patterns	Knowledge and skills:				
	Notice patterns on objects e.g. stripes, gingham, polka dots etc.	Create and recreate a simple pattern using concrete objects of at least 3 objects e.g. Stick, leaf, stone	Recognise, continue, copy, create and describe increasingly complex patterns, using concrete objects and numbers.	Order and arrange combinations of mathematical objects in concrete and pictorial patterns and sequences, including reasoning tasks such as explain what the 10th shape in this pattern would be.	Applies knowledge of patterns by solving problems such as spot the mistake in the pattern, make corrections or creating a pattern in a circular fashion or a pattern with a fixed number of spaces.
	Start to arrange objects in simple repeating patterns e.g. stick, leaf, stick, leaf	Notice and correct an error in a simple repeating pattern e.g. stick, leaf, stick, leaf, stick, stick, leaf			
Position and direction	Knowledge and skills:				
	Responds to every language to describe position e.g. can you put that in the box, put the apple on the plate or run under the bridge.	Uses additional simple positional language such as behind, on top of or in front of, including describing routes and locations.	Uses everyday language to talk about distance using near, far and close.	Use the language of position and direction including left, right, top, middle, bottom, on top of, in front of, above, between, around, near, close, far, up, down, forwards, backwards, inside and outside.	Knows the difference between left and right.
			Can describe relative position such as behind, next to, in front of, on top of, under and over, inside and outside.		
	Predicts, moves and rotates objects to fit the space or create the shape they would like	Uses spatial reasoning to turn and flip items to make them fit and create models e.g. fitting		Recognise the difference between movements in a straight line and turns.	Describe position, direction and movement, including whole, half, quarter turns and three

	e.g. when completing a jigsaw, building a road track	shapes into an outline or using shapes to create an image.		Describe position, direction and movement, including whole, half, and quarter turns.	quarter turns, recognising that a quarter turn is the same as a right angle.
				Begin to understand the terms clockwise and anticlockwise, making connections with movements on a clock face.	Understand the language clock wise and anticlockwise, making turns in both of these directions and use these to describe positions.
					Use the concept and language of angles to describe turns by applying rotations, including in practical contexts e.g. pupils give each other directions or program robots using instructions given in right angles.
Time	Knowledge and skills:				
	Anticipates some time-based events e.g. mealtimes, home time, story time.				
	Understands some vocabulary related to time in context e.g. it will be home time *soon*, we will go out to play *later*, line up *first* in the line, drink your milk *then* put the carton in the bin and wash your hands *before* you eat your snack.	Begins to use everyday language related to time such as today, yesterday, tomorrow, daytime and night time.	Recognise and use language relating to days of the week, including yesterday, today, tomorrow, morning, afternoon and night.	Recognise and use language relating to dates, including days of the week, weeks, months and years, hours and minutes.	Know the number of minutes in an hour and the number of hours in a day.

		Counts down to forthcoming events by the number of days.	Orders and sequences familiar events such as main events from a story or 4 events from throughout the day.	Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening].	Compare and sequence intervals of time.
		Can order 2 or 3 familiar events.			
			Measures short periods of time in simple ways e.g. using a sand timer to measure until it is someone else's turn.	Measure and begin to record hours, minutes and seconds.	Tell and write the time (using an analogue clock) to (EX) quarter past and quarter to the hour or (GD) five minutes intervals, using an analogue clock face to show these times.
			Explores the layout of a clock face by placing the numerals 1 to 12 in the correct order.	Tell the time to the hour and half past the hour (using an analogue clock) and draw the hands on an analogue clock face to show these times.	
				Compare, describe and solve practical problems for: time [for example, quicker, slower, earlier, later].	Calculate intervals of time e.g. ½ hour later / earlier, 45 minutes later.
				Begin to calculate simple time intervals e.g. 1 hour later or 1 hour earlier.	