
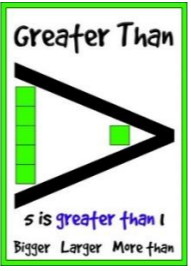




NORTHSIDE Maths Curriculum Overview

Respect, Pride, Inclusion, Challenge, Creativity, Resilience

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting	Knowledge							
	<p>Two Year Old Nursery: Develop counting-like behaviour, such as making sounds, pointing or saying some numbers in sequence.</p> <p>Combine objects like stacking blocks and cups.</p> <p>Count in everyday contexts, sometimes skipping numbers – '1-2-3-5'.</p> <p>Three Year Old Nursery: Recite numbers past 5 using 1:1 correspondence</p>	<p>Count beyond 10 and verbally beyond 20 with 1:1 correspondence</p> <p>Counting objects, actions and sounds</p>	<p>Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</p> <p>Count, read and write numbers to 100 in numerals</p> <p>Count in multiples of twos, fives and tens</p>	<p>Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward</p>	<p>Count from 0 in multiples of 4, 8, 50 and 100</p>	<p>Count backwards through zero to include negative numbers</p> <p>Count in multiples of 6, 7, 9, 25 and 1000</p>	<p>Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero</p>	<p>Use negative numbers in context, and calculate intervals across zero</p>
	Skills (including resources)							
	<p>Two Year Old Nursery: React to changes of amount in a group of up to three items.</p> <p>Three Year Old Nursery: Understand the vocabulary of more or less</p> <p>(use various small objects, placing pebbles in Numicon holes, counting cars with the correct number of passengers etc)</p> <p>Use 2 discrete piles of objects to compare</p>	<p>Find one more or less than a group of objects (consecutive numbers)</p> <p>(use various small objects, placing pebbles in Numicon holes, counting cars with the correct number of passengers, 1 more candle on a bday cake, 1 more car etc)</p>	<p>Given a number, identify one more and one less</p> <p>(use Numicon, number lines with jumps, 100 squares etc)</p> <p>Circle multiples of 10, 5 and 2 on the 100 square etc</p> <p>one more-'taking one for a walk'-Numicon staircase) one less use objects to take one away</p>	<p>Find 10 more or less than a given number</p> <p>(use Numicon, number lines with jumps, 100 squares etc)</p> <p>Circle multiples of 10, 5 and 2 on the 100 square etc</p> <p>Add the Numicon 10/Dienes 10 piece to a number and take it away from a number</p>	<p>Find 100 more or less than a given number</p> <p>(use Numicon and Dienes)</p> <p>Circle multiples of 4 and 8 on the 100 square</p> <p>Use Dienes (100 pieces) or place value counters to make groups of 50</p>	<p>Find 1000 more or less than a given number</p> <p>(use negative and positive number lines, place value counters)</p> <p>Use Numicon 6, 7 and 9 pieces</p> <p>Count in Dienes (1000 cubes)</p>	<p>Count forwards or backwards in steps of powers of 10 for any given number up to 1,000 000</p> <p>(use real life example pictures)</p> <p>Use negative and positive number lines</p> <p>(use a Gattegno chart, place value counters or Dienes)</p>	<p>Count in a variety of different units, decimals, fractions, negative numbers, powers of ten.</p> <p>(use a Gattegno chart, negative and positive number lines, place value counters or Dienes)</p>

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Comparing numbers	Knowledge							
	<p>Three Year Old Nursery: Understand the vocabulary of 'more than', 'less' or 'fewer than'.</p>	<p>Understand what equal looks like.</p> <p>Understanding the vocabulary of more than, less than, the same as, fewer than</p>	<p>Use the language of: equal to, more than, less than (fewer), most, least</p>	<p>Order and compare numbers from 0 up to 100;</p>	<p>Order and compare numbers up to 1000</p>	<p>Order and compare numbers beyond 1000</p> <p>Compare numbers with the same number of decimal places up to two decimal places (copied from Fractions)</p>	<p>Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers)</p>	<p>Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers)</p>
	Skills (including resources)							
	<p>Two Year Old Nursery: Compare amounts, saying 'lots', 'more' or 'same'</p> <p>Three Year Old Nursery: Use 2 discrete piles of objects. Who has more? Less?</p>	<p>Compare numbers (less than 10)</p> <p>Use a Numicon staircase and take 1 for a 'walk'</p> <p>Take 1 away and add 1 to a group of objects</p>	<p>(use Numicon balance scales)</p> 	<p>Use Dienes/Numicon to represent each number. Use a 0-100 number line to order them. use <, > and = signs</p>  <p>Use this way of showing more than/less than/equal to rather than crocodiles!</p>	<p>Use Dienes and place value counters to represent each number</p>	<p>Use a place value chart to explore the value of each digit and Dienes to represent each number</p> <p>Use a place value chart with tenths and hundredths and place value counters to represent each number</p>	<p>Use a place value chart to explore the value of each digit and place value counters to represent each number</p>	<p>Use a place value chart to explore the value of each digit and place value counters to represent each number</p>
Identifying, representing and estimating numbers	Knowledge							
	<p>Three Year Old Nursery: Cardinality: Understanding that the last number said means the number of objects when counting small sets of objects</p>		<p>Identify numbers Link the number symbol (numeral) with its cardinal number value objects</p>	<p>Identify numbers using different representations</p>	<p>Identify numbers (up to 1000) using different representations</p>	<p>Identify numbers using different representations</p>	<p>Identify numbers using different representations</p>	<p>Identify numbers using different representations</p>
	Skills							
	<p>Two Year Old Nursery: Compare amounts, saying 'lots', 'more' or 'same'</p> <p>Three Year Old Nursery:</p>	<p>Showing the right numbers of objects to match a given numeral Different small objects and images used for subitising</p>	<p>Represent numbers using beadstrings/Numicon/ Diene and pictorial representations including the number line</p>	<p>Represent and estimate numbers (up to 100) using different representations</p> <p>(beadstrings/Numicon</p>	<p>Represent and estimate numbers (up to 1000) using different representations</p> <p>(Numicon/Dienes/ place value counters, including number lines)</p>	<p>Represent and estimate numbers using different representations</p> <p>(Numicon/Dienes/ place value counters giant foam place value counters)</p>	<p>Represent numbers (including decimals) using different representations</p> <p>Estimate numbers on a partially labelled number line,</p>	<p>Represent numbers (including decimals) using different representations/ images</p> <p>Estimate numbers on a partially labelled number line</p>

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

<p>Say one number for each item in order: 1,2,3,4,5.</p> <p>Show 'finger numbers' up to 5</p> <p>Quickly recognising up to 3 objects without having to count them (subitising)</p> <p>Linking numerals and amounts up to 5. Counting objects/images in different contexts. images with opportunities for counting, books etc.</p>	Dice patterns up to 3, dominoes etc		Dienes/bundles of straws) including the number line			Numicon/Dienes/ Place value counters to represent numbers, Place value charts, Gattegno charts Images of numbers/objects to estimate	Numicon/Dienes/ Place value counters to represent numbers, Place value charts, Gattegno charts
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	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Reading and writing numbers	Knowledge							
	Three Year Old Nursery: Know that we can make numerals from marks	Understand that the numerals 1 to 10 represent amounts.	Know that 2 digits represent numbers above 9	Know that 3 numerals represent hundred numbers	Know that 4 digits represent thousand numbers	Know that over time, the numeral system changed to include the concept of zero and place value.	Know that numbers are formed in bases of ten.	Know that numbers are formed in bases of ten and repeated in HTOs.
	Skills (including resources)							
	<p>Three Year Old Nursery: Experiment with mark making and making symbols</p> <p>Begin to write some numerals</p> <p>Use chalk, whiteboards and pens, foam, sand</p>	<p>Linking numerals to amounts (up to 5)</p> <p>Writing numerals up to 10</p> <p>Use chalk, whiteboards and pens, foam, sand Number formation rhyme posters Number formation road tracks with cars</p>	<p>Read and write numbers from 1 to 20 in numerals and words.</p> <p>Use number lines containing numerals and words to refer to</p> <p>'Teen' and 'ty' posters to sort numbers</p>	<p>Read and write numbers to at least 100 in numerals and in words</p> <p>100 square to look at patterns between numbers</p> <p>'Teen' and 'ty' posters to sort numbers</p>	<p>Read and write numbers up to 1000 in numerals and in words</p> <p>and 12-hour and 24-hour clocks (copied from Measurement)</p> <p>Tell and write the time from an analogue clock, including using Roman numerals from I to XII (refer to Roman numeral clock surround poster)</p>	<p>Read Roman numerals to 100 (I to C)</p> <p>Poster of key Roman numerals</p>	<p>Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit</p> <p>(appears also in Comparing Numbers)</p> <p>Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</p> <p>Use a place value chart to explore the value of each digit and place value counters to represent each number</p> <p>Poster of key Roman numerals</p>	<p>Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit</p> <p>(appears also in Understanding Place Value)</p> <p>Use a place value chart to explore the value of each digit and place value counters to represent each number</p>

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Understanding place value and rounding	Knowledge							
	<p>Three Year Old Nursery: Say one number for each item in order: 1,2,3,4,5.</p>	<p>Link the number symbol (numeral) with its cardinal number value.</p>	<p>To start to understand that teen numbers and numbers beyond 20 are made up of tens and ones.</p>	<p>Recognise the place value of each digit in a two-digit number (tens, ones)</p>	<p>Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</p>	<p>Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</p>	<p>Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers)</p> <p>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (copied from Fractions)</p>	<p>Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers)</p> <p>Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1 000 where the answers are up to three decimal places (copied from Fractions)</p>
	Skills (including resources)							
<p>Counting objects, plastic/wooden numerals Giant outdoor beadstring etc</p>	<p>Images and counting objects, dice patterns etc matched to numerals</p>	<p>Giant Dienes, Dienes, Numicon, beadstrings, bundles of straws in tens and ones etc</p>	<p>Place value chart of tens and ones</p>	<p>Place value chart of hundreds, tens and ones</p>	<p>Round any number to the nearest 10, 100 or 1 000</p> <p>Round decimals with one decimal place to the nearest whole number (copied from Fractions)</p> <p>Place value chart of thousands, hundreds, tens and ones</p> <p>Use different number lines to show which boundary each number is closest to</p>	<p>Round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000</p> <p>Round decimals with two decimal places to the nearest whole number and to one decimal place (copied from Fractions)</p> <p>Place value chart of tenths, hundredths and thousandths Use different number lines to show which boundary each number is closest to Underline important digits</p> <p>Use a blank number line</p>	<p>Round any whole number to a required degree of accuracy</p> <p>Solve problems which require answers to be rounded to specified degrees of accuracy (copied from Fractions)</p> <p>Use a place value chart to explore the value of each digit and place value counters to represent each number, draw arrows to show moving to the right or left Underline important digits and use a blank number line if necessary</p>	

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Problem solving	Skills								
	<p>Three Year Old Nursery: Solve real world mathematical problems with numbers up to 5</p>	Solve real world mathematical problems with numbers up to 10	Use place value and number facts to solve problems	Use place value and number facts to solve problems	Solve number problems and practical problems involving this place value knowledge.	Solve number and practical problems that involve all of the above and with increasingly large positive numbers	Solve number problems and practical problems that involve all of the above place value knowledge	Solve number and practical problems that involve all of the above place value knowledge	
Number bonds	Knowledge								
	<p>Two Year Old Nursery: Combine objects like stacking blocks and cups.</p> <p>Three Year Old Nursery: To understand that if we have 2 piles of objects we can find out how many we have altogether by counting all of them</p>	Recall number bonds automatically up to 10	Recall number bonds automatically up to 10	Recall and use addition and subtraction facts to 20 fluently.					
	Skills								
		<p>Understand that numbers to, for example 5, can be made in different ways eg 4+ 1, 3+2</p> <p>Before moving onto larger numbers</p> <p>Numberblock characters, multilink to find different ways to make numbers, part/whole models made with objects eg 5 bean bags split between 2 hoops.</p>	<p>Represent and use number bonds and related subtraction facts within 20</p> <p>Use fingers to find no bonds to 10</p> <p>Use different combinations of Numicon laid over a base of Numicon (up to 20)</p> <p>Use beadstrings</p>	<p>Use addition and subtraction facts to 20 fluently and derive and use related facts up to 100</p> <p>Use different combinations of Numicon laid over a base of Numicon (up to 20)</p> <p>Use beadstrings</p>					

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mental calculation- addition and subtraction	Knowledge							
			To experiment practically with the concept of commutativity without explicitly teaching the word 'commutative'	Know that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot				
	Skills (including resources)							
	<p>To be exposed to the symbols of +, - and =</p> <p>To emphasise the parts within a whole</p> <p>To understand that numbers (up to 10) can be made up of different combinations of numbers</p> <p>Use multilink, Numberblock characters, Numicon, tens frames with different coloured counters etc</p>	<p>Add and subtract one-digit and two-digit numbers to 20, including zero</p> <p>Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods)</p> <p>Use beadstrings, small objects, tens frames and Numicon for addition.</p> <p>Overlap Numicon for subtraction, use beadstrings to remove beads, tens frames-removing objects</p>	<p>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <ul style="list-style-type: none"> * a two-digit number and ones * a two-digit number and tens * two two-digit numbers <p>adding three one-digit numbers</p> <p>Use Numicon and Dienes on top of place value charts to reinforce the place value of each digit and understand which digits are changing.</p> <p>Use Numicon to show the same total each time when adding (proving commutativity –Use small numbers to understand the concept)</p>	<p>Add and subtract numbers mentally, including:</p> <ul style="list-style-type: none"> * a three-digit number and ones * a three-digit number and tens * a three-digit number and hundreds <p>Use Dienes or giant place value counters to add ones/ tens/hundreds to reinforce which digit is changing each time.</p>	<p>Add and subtract numbers mentally</p> <p>Use Dienes or giant place value counters to add ones/tens/hundreds to reinforce which digit is changing each time.</p>	<p>Add and subtract numbers mentally with increasingly large numbers</p> <p>Children will need lots of practise first with concrete equipment e.g. adding and subtracting with place value counters on a place value chart to reinforce place value before they can calculate mentally.</p> <p>If asking them to calculate mentally, choose numbers without any exchange needed</p>	<p>Perform mental calculations, including with mixed operations and large numbers</p> <p>Use their knowledge of the order of operations to carry out calculations involving the four operations</p> <p>Children will need lots of practise first with concrete equipment e.g. adding with place value counters on a place value chart to reinforce place value before they can calculate mentally</p> <p>Refer to BODMAS poster</p>	

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Written methods- addition and subtraction	Knowledge							
		To be exposed to the symbols of +, - and =	Read and write mathematical statements involving addition (+), subtraction (-) and equals (=) signs					
	Skills (including resources)							
	Use informal language such as 'and' for + and understand = using the word 'makes' Use practical counting equipment and different contexts to illustrate each symbol.	Interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs	Add numbers with up to 2 digits using the formal written method of column addition Subtract 2 digit numbers from 2 digit numbers (using drawings) Use jottings to show the exchange	Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction Use place value counters/ Dienes on place value charts	Add and subtract numbers with up to 4 digits using the formal written methods of column addition and subtraction where appropriate Use place value counters/ Dienes on place value charts	Add and subtract whole numbers with more than 4 digits, including using formal written methods (column addition and subtraction) Use place value counters/ Dienes on place value charts Solve column method problems by playing the BEAM game 'Guessing Game'	Add and subtract decimal numbers (up to 2 decimal places) using column addition and subtraction Use place value counters on place value charts	
Inverse operations, estimating and checking answers	Knowledge							
		Estimate in real life classroom situations	Continue to estimate in real life classroom situations	Recognise the inverse relationship between addition and subtraction				
	Skills (including resources)							
	Answer questions eg How many children are in the role play corner? Roughly how many pencils are in the pot?	Answer questions eg Do we have enough whiteboard pens for everyone? How many are there?	Use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. Use small numbers and Numicon to see the connection e.g. 5 - 3 = 2 2 + 3 = 5 Children can check their answers using objects.	Estimate the answer to a calculation and use inverse operations to check answers Children can check their answers using Dienes/place value counters on place value charts	Estimate and use inverse operations to check answers to a calculation Children can check their answers using Dienes/place value counters on place value charts	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy Use number lines if needed to help with rounding	Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. Use number lines if needed to help with rounding	

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Problem solving-addition and subtraction	Skills							
	<p>Three Year Old Nursery: To start to solve real world mathematical problems with numbers up to 5 in practical contexts</p> <p>Small world contexts, role play corner etc</p>	<p>Solve real world mathematical problems with numbers up to 10.</p> <p>Small world contexts such as space ships- There are 5 aliens. 3 are inside the spaceship. How many are outside?</p>	<p>Solve one-step problems that involve addition and subtraction, using concrete objects (such as counting objects, Numicon) and pictorial representations, and missing number problems such as $7 = \square - 9$</p> <p>Concrete objects, Numicon, Balance scales with Numicon to find missing number</p>	<p>Solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> * using concrete objects (Numicon, Dienes) and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods <p><i>Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</i> (copied from Measurement)</p> <p>Use coins, real life measures</p>	<p>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction</p> <p>Adding, subtracting housepoints on charts</p>	<p>Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why</p> <p>Calculating costs for travel etc</p>	<p>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p> <p>Comparing wage prices</p>	<p>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p> <p>Solve problems involving addition, subtraction, multiplication and division</p> <p>Comparing house prices</p>

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication and division facts	Knowledge							
		<p>Arrange objects in groups of 2</p> <p>To understand what a pair means</p>	<p>Count in multiples of twos, fives and tens (copied from Number and Place Value)</p>	<p>Recall multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</p>	<p>Count from 0 in multiples of 4, 8, 50 and 100 (copied from Number and Place Value)</p> <p>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</p>	<p>Count in multiples of 6, 7, 9, 25 and 1 000 (copied from Number and Place Value)</p> <p>Recall multiplication and division facts for multiplication tables up to 12×12</p>	<p>Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 (copied from Number and Place Value)</p>	<p>Count on in decimal steps</p>
	Skills (including resources)							
	<p>Shoes, socks, small objects 'Simon Sock' book</p> <p>Sort objects into groups of 2, 5 or 10.</p> <p>Use different contexts to sort objects into groups</p> <p>eg Put 2 sweets in each party bag</p> <p>Share or group objects practically for different contexts</p>	<p>Twos: Count pairs of shoes, pairs of socks, Numicon, images of bike wheels, eyes etc</p> <p>Fives: images of fingers, Numicon, beads in groups of 5.</p> <p>Tens: Numicon, crab legs, Dienes- ten pieces, beadstrings-sections of 10</p>	<p>Use multiplication facts for the 2, 5 and 10 multiplication tables.</p> <p>See year 1 resource list for multiplication facts of 2/5/10 plus use Cuisinaire number rods for division, Numicon laid onto a Numicon number track</p> <p>Odd and even numbers: Sort Numicon into piles, Look at the visual differences of Numicon-odd and even numbers, refer to door numbers</p>	<p>Use multiplication and division facts for the 3, 4 and 8 multiplication tables</p> <p>Use a number line to count in jumps, then counting stick, cover some multiples</p> <p>Use Numicon, loop card games, Bingo and pairs games to practise</p>	<p>Use multiplication and division facts for the multiplication tables up to 12×12</p> <p>6s and 7s: Use a number line to count in jumps, then counting stick, cover some multiples, use Numicon</p> <p>9s: Use the 9 times table finger trick 25s and 1000s: Use Dienes</p> <p>Use Numicon, loop card games, Bingo and pairs games to practise, 100 squares with multiples highlighted, cuisnaire on number rod numberlines.</p>	<p>Recall all multiplication and division facts fluently at speed up to 12×12</p> <p>Use Dienes to demonstrate</p> <p>Gattegno chart</p>	<p>Recall all multiplication and division facts fluently at speed up to 12×12</p> <p>Decimal numberlines with circled numbers</p> <p>Numicon to represent decimals (scaled down whole numbers)</p>	

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mental calculation	Knowledge							
				Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot				
	Skills							
				Use Numicon to prove this e.g. lay out 5 x 4 pieces and 4 x 5 pieces end to end in 2 rows to show that they both total 20	<p>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 (appears also in written methods)</p> <p>TO x O Use grid method using Numicon</p>	<p>Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers</p> <p>Recognise and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers)</p> <p>Use Numicon to see which numbers fit into a number e.g. 1,2,3,4,6,12 fit into the number 12 Make Numicon sandwiches!</p>	<p>Multiply and divide numbers mentally drawing upon known facts</p> <p>Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</p> <p>Use a place value chart and draw arrows</p>	<p>Perform mental calculations, including with mixed operations and large numbers</p> <p>Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8) (copied from Fractions)</p> <p>Posters with key facts eg $\frac{1}{2} = 0.5$, $\frac{1}{10} = 0.1$ and $\frac{1}{100} = 0.01$</p>

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Written calculation-Multiplication and Division	Skills (including resources)							
		<p>Begin to count in groups of 2 etc on a number line.</p>	<p>Arranging objects/looking at pictorial representations of groups –multiplication as repeated addition and grouping and sharing objects for division to solve simple practical problems.</p> <p>Making arrays practically with the support of the teacher.</p> <p>Jottings of arrays-multiplication</p> <p>Jottings for division-sharing or grouping</p>	<p>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs</p> <p>To multiply 10, 5, 2 and 3 by numbers up to 12 using jottings</p> <p>To divide using 10,5,2 and 3 using jottings</p>	<p>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 (appears also in Mental Methods)</p> <p>Use grid method with Numicon or drawings of arrays on giant grids</p>	<p>Teach the informal method of grid method with Numicon/Dienes to see where each total comes from <u>before using column methods.</u></p> <p>Multiply two-digit and three-digit numbers by a one-digit number using formal written layout</p> <p>Use the partitioning method for division and link to the informal method of chunking (2 and 3 digits by 1 digit). Then show how this links to short division.</p> <p>(see Year 4 calculation policy for examples)</p>	<p>Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers</p> <p>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</p> <p>(If children are unsure, revisit chunking first before moving onto the formal method of short division to reinforce place value)</p> <p>Use place value counters to demonstrate short division</p> <p>Use Numicon on a Numicon number track to show remainders</p>	<p>Divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context</p> <p>Use written division methods in cases where the answer has up to two decimal places (copied from Fractions (including decimals))</p>

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Properties of numbers: Multiples, factors, primes, square and cubed numbers	Knowledge							
						<p>Recognise factor pairs and commutativity in mental calculations (repeated)</p>	<p>Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</p> <p>Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</p> <p>Establish whether a number up to 100 is prime and recall prime numbers up to 19</p> <p>Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)</p>	<p>Identify common factors, common multiples and prime numbers</p>
	Skills (including resources)							
						<p>Use factor pairs and commutativity in mental calculations (repeated)</p> <p>Use Numicon to see which numbers fit into a number e.g. 1,2,3,4,6,12 fit into the number 12 Make Numicon sandwiches!</p>	<p>Identify common factors of 2 numbers</p> <p>Make lists of all factors and circle common factors</p> <p>Use Numicon to find prime numbers and sort numbers</p> <p>Use factor trees to find prime factors</p> <p>Use Numicon to find prime numbers</p> <p>Square numbers: use gridded paper to draw them</p> <p>Cube numbers: Use multilink to make them</p>	<p>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination (copied from Fractions)</p> <p>Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm³) and cubic metres (m³), and extending to other units such as mm³ and km³ (copied from Measures)</p> <p>Use Numicon to find prime numbers</p>

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Order of operations	Skills							
								Use their knowledge of the order of operations to carry out calculations involving the four operations
inverse operations, checking answers and	Knowledge							
	Skills (including resources)							
					<p>Estimate the answer to a calculation and use inverse operations to check answers (copied from Addition and Subtraction)</p> <p>Use concrete resources to check answers</p>	<p>Estimate and use inverse operations to check answers to a calculation (copied from Addition and Subtraction)</p> <p>Use concrete resources to check answers</p>	<p>Estimate and use inverse operations to check answers to a calculation (copied from Addition and Subtraction)</p>	<p>Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy</p>

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Problem solving	Knowledge							
							Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	
	Skills (including resources)							
			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	Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts Using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	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	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	Solve problems involving addition, subtraction, 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 addition, subtraction, multiplication and division

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting in fractional steps	Knowledge							
				Pupils should count in fractions up to 10, starting from any number and using the 1/2 and 2/4 equivalence on the number line (Non Statutory Guidance)	Count up and down in tenths	Count up and down in hundredths	Counting in fractional steps to recognise mixed numbers and improper fractions	Counting in fractional steps to recognise mixed numbers and improper fractions
	Skills (including resources)							
				Use images of 1/2 shapes to support understanding. Showing that these are the same as 2/4 using plastic fraction pieces	Use number lines with tenths	Use number lines with hundredths	Use blank number lines to count in steps of mixed numbers and improper fractions	Use blank number lines to count in steps of mixed numbers and improper fractions
Recognising fractions	Knowledge							
	Three Year Old Nursery: To understand the concept of sharing through practical tasks. Separating objects into equal and unequal groups.	Explore how quantities can be distributed fairly/equally.	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, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity	Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators	Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten	Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (appears also in Equivalence)	
	Skills (including resources)							
	Rainbow Fish book Sharing scales from the fish.	Twinderella book Objects split between 2 people/2 different piles. Exploring which numbers can/can't be easily halved.	Use fraction pieces, cut up fruit, cut up shapes, piles of counting objects etc Use jottings to draw a quarter-see jottings poster for year 1	See jottings poster for year 2 Use concrete counting objects at first eg Multilink to find fractions. Find fractions of shapes by drawing and cutting parts	(Use multilink/counting objects) (show for example 3/2 using 3 halves of an apple)	(cut up a blank hundred square) Show using a number line		

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Comparing fractions	Skills (including resources)							
						<p>Compare numbers with the same number of decimal places up to two decimal places Use place value counters and a place value chart</p>	<p>Read, write, order and compare numbers with up to three decimal places Use place value counters and a place value chart</p>	<p>Identify the value of each digit in numbers given to three decimal places Use place value counters and a place value chart</p>
Rounding including decimals	Skills (including resources)							
						<p>Round decimals with one decimal place to the nearest whole number Use blank number lines</p>	<p>Round decimals with two decimal places to the nearest whole number and to one decimal place Use blank number lines</p>	<p>Solve problems which require answers to be rounded to specified degrees of accuracy</p>

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Equivalence (including fractions, decimals and percentages)	Knowledge							
							<p>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 as a decimal fraction</p> <p>Show percentages using a blank 100 square grid</p>	<p>Recall equivalent fractions, decimals and percentages including in different contexts</p> <p>Use images of fractions and percentages (on blank 100 square grids) to show equivalence visually</p>
	Skills (including resources)							
		Combining halves and quarters as parts of a whole	<p>Write simple fractions e.g. $1/2$ of 6 = 3 and recognise the equivalence of $2/4$ and $1/2$.</p> <p>Use fraction pieces to show equivalence eg $1/2 = 2/4$</p>	<p>Recognise and show, using diagrams, equivalent fractions with small denominators</p> <p>Show equivalent fractions visually using shapes of the same size broken into different numbers of parts</p>	<p>Recognise and show, families of common equivalent fractions</p> <p>Recognise and write decimal equivalents of any number of tenths or hundredths</p> <p>Recognise and write decimal equivalents to $1/4$; $1/2$; $3/4$</p> <p>Using diagrams, (using plastic fraction pieces)</p> <p>Write fractions on a 0-1 decimal number line</p>	<p>Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</p> <p>Read and write decimal numbers as fractions (e.g. $0.71 = 71/100$)</p> <p>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</p> <p>Show using a blank 100 square grid shaded in</p> <p>Show a number line with tenths and hundredths and how thousandths relate</p>	<p>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination</p> <p>Associate a fraction with division and calculate decimal equivalents (e.g. 0.375) for a simple fraction (e.g. $3/8$)</p> <p>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</p>	

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition and subtraction of fractions	Skills (including resources)							
					<p>Add and subtract fractions with the same denominator within one whole (e.g. $5/7 + 1/7 = 6/7$)</p> <p>Use Lego/Duplo/Megablocks to show fractions being added and subtracted</p>	<p>Add and subtract fractions with the same denominator</p> <p>Use Lego/Duplo/Megablocks to show fractions being added and subtracted</p>	<p>Add and subtract fractions with the same denominator and multiples of the same number</p> <p>Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $2/5 + 4/5 = 6/5 = 11/5$)</p> <p>Use Lego/Duplo/Megablocks to show fractions being added and subtracted</p> <p>Use drawings to show mixed numbers</p>	<p>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</p> <p>Use Lego/Duplo/Megablocks to show fractions being added and subtracted</p> <p>Use drawings to show mixed numbers</p>

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication and division of fractions	Skills (including resources)							
						<p>Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths</p>	<p>Multiply proper fractions and mixed numbers by whole numbers</p> <p>supported by materials (such as Lego/Duplo/Megablocks) and diagrams</p>	<p>Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $1/4 \times 1/2 = 1/8$) (Paper folding)</p> <p>Multiply one-digit numbers with up to two decimal places by whole numbers Divide proper fractions by whole numbers (e.g. $1/3 \div 2 = 1/6$) (Paper folding)</p> <p>Multiply one-digit numbers with up to two decimal places by whole numbers (Show using Numicon)</p> <p>Multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places (Use a place value chart and draw arrows)</p> <p>Identify the value of each digit to three decimal places (use place value counters) and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places</p> <p>Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction</p>

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

								<p>(e.g. 3/8)</p> <p>Use written division methods in cases where the answer has up to two decimal places</p> <p>Use drawings to show mixed numbers</p>
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RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

Problem solving	Skills							
					Solve problems that involve all of the fraction knowledge and skills above	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 Solve simple measure and money problems involving fractions and decimals to two decimal places.	Solve problems involving numbers up to three decimal places Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25.	Solve percentage, fraction and decimal problems
SUGGESTED RESOURCES							Use multilink where the denominator is 5 or less to demonstrate eg 4/5 of a quantity	Use BEAM and Nrich games
Ratio and proportion	Skills							
								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 the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

								<p>percentages for comparison</p> <p>Solve problems involving similar shapes where the scale factor is known or can be found (Use gridded paper to work out scales)</p> <p>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p>
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Skills

Measurement Comparing and estimating	<p>Two Year Old Nursery: Compare sizes, weights etc. using gesture and language - 'bigger/little/smaller', 'high/low', 'tall', 'heavy'.</p> <p>Three Year Old Nursery: Make comparisons between objects relating to size, length, weight and capacity</p>	Compare length, weight and capacity.	<p>Compare, describe and solve practical problems- (outdoor measuring of plants, each other, objects) for:</p> <ul style="list-style-type: none"> * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half] * mass/weight [e.g. heavy/light, heavier than, lighter than] (Balance scales) * capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter] (Scientific measuring cups, jugs, bottles etc) <p>time [e.g. quicker, slower, earlier, later] (Visual timetables, clocks set at different times)</p> <p>Sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</p>	Compare and order lengths, mass, volume/capacity and record the results using >, < and = Compare and sequence intervals of time slower, earlier, later]	Compare durations of events, for example to calculate the time taken by particular events or tasks Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Telling the Time)	Estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring)	Calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm ²) and square metres (m ²) and estimate the area of irregular shapes (also included in measuring) Estimate volume (e.g. using 1 cm ³ blocks to build cubes and cuboids) and capacity (e.g. using water)	Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm ³) and cubic metres (m ³), and extending to other units such as mm ³ and km ³ .
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RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

SUGGESTED RESOURCES	Three Year Old Nursery: Compare size, length, weight and capacity in everyday circumstances	Model comparative language using 'than' and encourage children to use this vocabulary. For example: "This is heavier than that." Ask children to make and test predictions. "What if we pour the jugful into the teapot? Which holds more?"	Daily routine visual timetable, calendars etc	practical problems- outdoor measuring of plants, each other, objects visual timetables, clocks set at different times	Stop watches, clocks Stop watches, clocks, use visual daily timetables to show morning/AM etc	Plastic coins and purses with different amounts in Compare measures in different contexts	Use giant gridded paper Use Dienes one pieces. Stick together with Blutac. Use containers of different kinds and sizes and measuring jugs to see how accurate they are	Show Dienes one pieces for them to compare against	
	Knowledge								
Measuring and calculating		To understand that you can use money to pay for things	Recognise and know the value of different denominations of coins and notes	recognise and use symbols for pounds (£) and pence (p)				Recognise that shapes with the same areas can have different perimeters and vice versa	
		Money and money role play used in indoor/outdoor provision	Plastic money, large coins on display with Numicon and Dienes blutaced to them to show the value.	Show different price tags Money role play				Show shapes cut out of gridded paper	
	Skills								
	Three Year Old Nursery: Make comparisons between objects relating to size, length, weight and capacity.	Compare length, weight and capacity.	Measure and begin to record the following: * lengths and heights * mass/weight * capacity and volume * time (hours, minutes, seconds)	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. Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels	Add and subtract amounts of money to give change, using both £ and p in practical contexts Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) Measure the perimeter of simple 2-D shapes.	Estimate, compare and calculate different measures, including money in pounds and pence (appears also in Comparing) Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. (Use rulers, 2D shapes)	Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling. Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate (appears also in Converting)	

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

SUGGESTED RESOURCES	Use words such as heavy, light, long, short, longer, shorter etc. Balance scales Child friendly tape measures, Different types of containers Egg timers Non-standard measurements eg feet, bricks, hands.	Use words such as heavy, light, long, short, longer, shorter etc. Balance scales Child friendly tape measures, Different types of containers Egg timers Non-standard measurements eg feet, bricks, hands.	Rulers, tape measures, metre sticks Weighing scales, balances Jugs and different types of containers Stopwatches, clocks, egg timers of different lengths	Plastic coins Rulers, tape measures, metre sticks, trundle wheels Weighing scales, balances Jugs and different types of containers Stopwatches, clocks, watches, egg timers of different lengths	Plastic coins Rulers, tape measures, metre sticks Weighing scales, balances Jugs and different types of containers Rulers, 2D shapes	Rulers, tape measures, metre sticks Weighing scales, balances Jugs and different types of containers Stopwatches, clocks, egg timers of different lengths	Rulers, metres, tape measures, outdoor playground areas/ shapes	Rulers, metres, tape measures, outdoor playground areas/ shapes
Area and volume	Skills							
						Find the area of rectilinear shapes by counting squares	calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm ²) and square metres (m ²) and estimate the area of irregular shapes recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) (copied from Multiplication and Division)	calculate the area of parallelograms and triangles 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 [e.g. mm ³ and km ³]. recognise when it is possible to use formulae for area and volume of shapes
SUGGESTED RESOURCES						Large squared paper	Squared paper for square numbers and multilink cubes for cubed numbers	Rulers, cubes and cuboids of different sizes
Telling the time	Knowledge							
	Three Year Old Nursery: Use vocabulary referring to different times of the day Count the number of days until key events on a calendar	Be familiar with and describe how clock faces are laid out. Refer to key times of their school day on a clock face.	Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. Recognise and use language relating to dates, including days of the week, weeks, months and years	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.	Tell and write the time from an analogue clock, including using 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 a.m./p.m., morning,	Read, write and convert time between analogue and digital 12 and 24-hour clocks. (appears also in Converting)		

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

				(appears also in Converting)	afternoon, noon and midnight (appears also in Comparing and Estimating)			
	Three Year Old Nursery: Use vocabulary like 'morning', 'afternoon', 'evening' and 'night-time', 'earlier', 'later', 'too late', 'too soon', 'in a minute'.	Large teaching clocks Classroom clocks referred to during the school day Blank clocks with numbers that can be arranged	Blank clocks Student clocks and teacher demo clock Velcro calendar Displays with vocab	Blank clocks, student clocks and teacher demo clock	Blank clocks, student clocks and teacher demo clock, Roman numeral clock surround poster Student clocks and teacher demo clock Displays with vocab	Refer to online digital clock displays and show on ipads, computers etc, Refer to classroom clock poster Calendars to refer to		
	Skills							
	Three Year Old Nursery: Begin to describe a sequence of events, real or fictional, using words such as first, then...				Record and compare time in terms of seconds, minutes, hours and o'clock	solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Converting)	Solve problems involving converting between units of time	
SUGGESTED RESOURCES					Clocks, stopwatches, etc	TV and film guides calendars	TV and film guides calendars	
	Knowledge							
	Three Year Old Nursery: Talk about the days of the week, what day yesterday was and what day tomorrow is.	Recall the days of the week and discuss events using the words 'yesterday' and 'tomorrow' etc	Recall the number of days in a week	Know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time)	Know the number of seconds in a minute and the number of days in each month, year and leap year			
	Velcro calendars Vocab on display	Velcro calendars Vocab on display			Calendar displayed to refer to Poster of rhyme about months of the year			
Converting Measurements	Skills							
						Convert between different units of measure (e.g. kilometre to metre; hour to minute)	Convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram	Use, read, write and convert between standard units, converting measurements of length, mass, volume and time

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

						<p>Read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting)</p> <p>Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Telling the Time)</p>	<p>and kilogram; litre and millilitre)</p> <p>Understand and use equivalences between metric units and common imperial units such as inches, pounds and pints.</p>	<p>from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places</p> <p>Convert between miles and kilometres.</p>
SUGGESTED RESOURCES						<p>Metre stick to refer to</p> <p>Real life examples of km being used</p> <p>Analogue and digital clocks</p>	<p>Containers of different capacities, metre sticks, rulers, real life examples of km being used</p> <p>Jug with pints, ruler with inches, weighing scales with pounds and see above</p>	<p>Real life examples of miles and kms</p> <p>Containers of different capacities, metre sticks, rulers, real life examples of km being used</p>
Geometry: Properties of Shape	Knowledge							
	<p>Three Year Old Nursery: 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'.</p>	<p>Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</p>	<p>Recognise and name common 2-D and 3-D shapes, including: (see below).</p>					<p>Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.</p>
	<p>Three Year Old Nursery: Encourage children to play freely with blocks, shapes, shape puzzles and shape-sorters.</p>		<p>* 2-D shapes [e.g. rectangles (including squares), circles and triangles]</p> <p>* 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].</p> <p>Shape names on display</p>					<p>Poster of circle vocab</p>
Skills								
<p>Two Year Old Nursery: Complete inset puzzles.</p>			<p>Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</p> <p>Identify and describe the properties of 3-D shapes, including the number of</p>			<p>Identify lines of symmetry in 2-D shapes presented in different orientations</p>	<p>Identify 3-D shapes, including cubes and other cuboids, from 2-D representations</p>	<p>Recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing)</p>

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

				edges, vertices and faces identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]				
SUGGESTED				mirror, folding paper shapes vocab on display 2D and 3D shapes Vocab on display		2D shapes cut out of paper	Various 3D shapes	Fold up nets, 3D shapes
Drawing and constructing	Knowledge							
		Understand that a shape can have other shapes within it (just as a number can)						
	Skills							
	Three Year Old Nursery: Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. Combine shapes to make new ones - an arch, a bigger triangle etc.	Select, rotate and manipulate shapes in order to develop spatial reasoning skills			Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	Complete a simple symmetric figure with respect to a specific line of symmetry	Draw given angles, and measure them in degrees (°)	Draw 2-D shapes using given dimensions and angles Recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties)
SUGGESTED RESOURCES	Construction materials, den making materials, different materials outside and inside, Pattern blocks, interlocking shapes, match blocks to silhouettes, shapes that fit in different containers- tidy up time- can it fit in there?	pattern and building sets, including pattern blocks, tangrams, building blocks and magnetic construction tiles, as well as found materials.			3d shapes and images of them from different angles, Cocktail sticks/straws and plasticine to make 3D shapes, polydron	mirrors	protractors giant and online protractors to demonstrate	protractors, rulers and 2d shapes on display 3d shapes, polydron, nets that fold open, Real life 3d shapes that can be opened up
Comparing and classifying	Knowledge							
	Skills							
				compare and sort common 2-D and 3-D shapes and everyday objects		compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	use the properties of rectangles to deduce related facts and find missing lengths and angles	compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

								distinguish between regular and irregular polygons based on reasoning about equal sides and angles	
SUGGESTED RESOURCES				2-D and 3-D shapes and everyday objects sorting hoops, vocab on display		2d shapes including different quadrilaterals, vocab on display, sorting hoops	Rectangles with missing info, vocab on display Regular and irregular polygons vocab on display	sorting hoops, shapes	
Angles	Knowledge								
					<p>Recognise angles as a property of shape or a description of a turn</p> <p>identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle</p> <p>identify horizontal and vertical lines and pairs of perpendicular and parallel lines</p>	Identify acute and obtuse angles and compare and order angles up to two right angles by size	<p>know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</p> <p>identify:</p> <ul style="list-style-type: none"> * angles at a point and one whole turn (total 360°) * angles at a point on a straight line and 1/2 a turn (total 180°) * other multiples of 90° 	<p>Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles</p> <p>recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles</p>	
					<p>refer to angles in real life- eg door opening, corner of whiteboards etc</p> <p>Right angle checkers</p> <p>vocab on display</p>	<p>vocab on display</p> <p>pieces of card with different angles which can be rotated and lined up to compare</p>	<p>protractors, giant and online protractors</p>	<p>protractors, giant and online protractors</p>	
Geometry: Position and direction	Skills								
	Knowledge								
	<p>Three Year Old Nursery:</p> <p>Understand position through words alone</p> <p>Describe a familiar route.</p> <p>Discuss routes and locations, using words</p>	Use positional language, describe routes and locations	Describe position, direction and movement, including half, quarter and three-quarter turns.	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		<p>Describe positions on a 2-D grid as coordinates in the first quadrant</p> <p>Describe movements between positions as translations of a given</p>	<p>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</p>	Describe positions on the full coordinate grid (all four quadrants)	

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

	like 'in front of' and 'behind'.			of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)		unit to the left/right and up/down		
	Set up obstacle courses, small world scenes with rocks, bridges, trees etc to discuss positions dolls houses with furniture	Set up obstacle courses, small world scenes with rocks, bridges, trees etc to discuss positions dolls houses with furniture Story books including pirate maps etc and journeys	Beebots, use the classroom to face in different directions	Refer to the clock(clockwise etc), use the classroom to face in different directions, Beebots etc		Giant grid and card shapes that can be moved so that chn can physically see the translation	Giant grid and card shapes that can be moved so that chn can physically see the translation Mirrors to show the reflection	Giant grid with 4 quadrants and co-ordinates marked on
Skills								
	Two Year Old Nursery: Climb and squeeze themselves into different types of spaces.			Order and arrange combinations of mathematical objects in patterns and sequences		Plot specified points and draw sides to complete a given polygon		Draw and translate simple shapes on the coordinate plane, and reflect them in the axis.
SUGGESTED RESOURCES				Coloured objects such as counting bears, cotton reels, counters		Giant grid		Giant grid and card shapes that can be moved so that chn can physically see the translation Mirrors to show the reflection
Skills								
Statistics Interpreting data Interpreting, constructing and presenting data				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	Interpret and present data using bar charts, pictograms and tables	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	Complete, read and interpret information in tables, including timetables	Interpret and construct pie charts and line graphs and use these to solve problems

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

SUGGESTED RESOURCES				Items to sort eg counting equipment/coloured counters, coloured pencils in a pencil case etc	bar charts, pictograms and tables	bar charts and time graphs	TV schedules Data shown in different ways Totals of housepoints, sales of items on different days, number of people attending concerts/matches etc	Pie charts and line graphs
Solving problems	Skills							
					Solve one-step and two-step questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	Solve comparison, sum and difference problems using information presented in a line graph	Calculate and interpret the mean as an average
SUGGESTED					Giant wooden pictogram board with multilink so that the children can compare the data easily	bar charts, pictograms, tables and other graphs.	Line graphs	Data showing shoe sizes, ages, etc
Solving problems- Statistics	Skills							
					Solve one-step and two-step questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	Solve comparison, sum and difference problems using information presented in a line graph	Calculate and interpret the mean as an average
SUGGESTED					scaled bar charts and pictograms and tables.	bar charts, pictograms, tables and other graphs.	Line graph	
Algebra	Skills							
	Two Year Old Nursery: Notice patterns and arrange things in patterns. Three Year Old Nursery:	Continue, copy and create repeated patterns	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.		Use the properties of rectangles to deduce related facts and find missing lengths and angles (copied from Geometry: Properties of Shapes)	Express missing number problems algebraically

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

	<p>Notice and correct an error in a repeating pattern</p> <p>Extend and create ABAB patterns-stick, leaf, stick, leaf.</p> <p>Talk about and identify the patterns around them. For example stripes on clothes, designs on rugs and wallpaper. Use informal language like pointy, spotty, blobs etc.</p>		<p>missing number problems such as $7 = \square - 9$ (copied from Addition and Subtraction)</p> <p>Represent and use number bonds and related subtraction facts within 20 (copied from Addition and Subtraction)</p>	<p>missing number problems. (copied from Addition and Subtraction)</p> <p>Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 (copied from Addition and Subtraction)</p>	<p>(copied from Addition and Subtraction)</p> <p>Solve problems, including missing number problems, involving multiplication and division, including integer scaling (copied from Multiplication and Division)</p>			<p>Find pairs of numbers that satisfy number sentences involving two unknowns</p> <p>Enumerate all possibilities of combinations of two variables</p>
SUGGESTED RESOURCES	<p>Blocks, Shapes, everyday objects, patterns from different cultures.</p> <p>Movement and music patterns eg clap, clap, stamp etc</p>		<p>Concrete objects and pictorial representations,</p> <p>Use Numicon to represent each number when solving missing number problems</p> <p>Numicon, beadstrings, multilink cubes</p>	<p>Use Numicon to represent each number when solving missing number problems</p> <p>Numicon, beadstrings, Dienes to show number bonds to 100</p>			<p>Rectangles with missing lengths and angles, birds eye views of buildings with missing information</p>	<p>Numicon, multilink to find patterns</p>
Formimulae	Knowledge							
						<p>Perimeter can be expressed algebraically as $2(a + b)$ where a and b are the dimensions in the same unit. (Copied from NSG measurement)</p>		
						<p>Show physically on an image what this means</p>		
	Skills							
								<p>Use simple formulae</p> <p>recognise when it is possible to use formulae for area and volume of shapes (copied from Measurement)</p>
Sequences	Knowledge							
	Skills							
	<p>Three Year Old Nursery: Talk about the days of the week, what day</p>	<p>Recall the days of the week and discuss events using the words</p>	<p>Sequence events in chronological order using language such as: before and after, next,</p>	<p>Compare and sequence intervals of time (copied from Measurement)</p>				<p>Generate and describe linear number sequences</p>

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

	yesterday was and what day tomorrow is.	'yesterday' and 'tomorrow' etc	<i>first, today, yesterday, tomorrow, morning, afternoon and evening</i> (copied from Measurement)	<i>Order and arrange combinations of mathematical objects in patterns</i> (copied from Geometry: position and direction)				
SUGGESTED RESOURCES	Velcro calendars Vocab on display	Velcro calendars Vocab on display	Everyday timetables, vocab on display and used in their everyday life contexts	Everyday timetables at home and school to show daily routines Lengths of TV shows				Numicon, multilink

UN Rights of the Child

Article 6 (life, survival and development) Every child has the right to be alive, make sure that children survive and develop in the best possible way.

Article 12 (respect for the views of the child) Every child has the right to express their views, feelings and wishes on matters affecting them, and to have their views considered and taken seriously.

Article 13 (freedom of expression) Children have the right to share freely with others what they learn, think and feel, by talking, drawing and writing.

Article 23 (children with a disability) Every child with a disability should enjoy the best possible life in society.

Article 28 (right to an education) Every child has the right to an education.

Article 29 (goals of education) Children's education should help them fully develop their personalities, talents and abilities.