Nourishing the fitrah of each unique child

Mathematics Policy

"*And We have made everything in pairs, two and two.*"

(Surah Az Zuhruf 43:32)

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Mathematics Policy

Mathematics is a subject that fosters skills needed for all areas of the curriculum. It involves practical problem solving, data retrieval, number handling and real-life problems to calculate and solve. It encourages lateral and layered thinking, and enables children to think of ways to overcome problems.

At Unique Academy, we would like all of our pupils to love and enjoy Mathematics. This policy encourages a coherent approach to teaching and managing the subject discipline of Mathematics within our school.

Intent

Our intent for mathematics is to ensure that all pupils:

- Become fluent in the fundamentals of mathematics; including through varied and frequent practice with increasingly complex problems over time, 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.
- Can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Implementation

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas.

Our programmes of study follow National Curriculum guidelines and are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop confidence, fluency, mathematical reasoning and competence in solving increasingly complex problems.

Mathematics is taught discretely on a daily basis for 1 hour for each year group depending on their timetable; however, cross curricular links are made to Mathematics wherever possible, and this is indicated in the teachers' medium term and short-term plan.

Mathematics will be taught using a range of visual and practical work to enable pupils to visualise Mathematics, conceptually understand it and be able to articulate and represent their reasoning.

Pupils will also be encouraged to apply their mathematical knowledge to science and other subject disciplines. Mastery and love of mathematics is something that we want all pupils to acquire throughout their school lives and beyond.

We use White Rose Maths as a framework for teaching because of its Concrete, Pictorial, and Abstract Approach, which is crucial in supporting pupils build mental images, and thoroughly understanding complex concepts by spotting patterns and making links with previous learning.

The curriculum is divided into small steps that provide progression through a topic in a sequentially logical way, building upon prior knowledge. Whole school progression and consistency in mathematics are gradually yet consistently built in.

Merged groups have differentiated work to do independently.

Flashback activities are carried out daily at the start of the lesson as retrieval practice and consolidation.

At Unique Academy, teachers use slides with pictorials and representations such as bar models, diagrams, number lines, and whole-part models, which they personalise including the star words. Teaching techniques include 'Turn and Talk', 'Cold Call', and class investigations.

Impact

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged by being offered more complex reasoning questions before any acceleration through new content.

Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

Planning And Assessment

The programmes of study for Mathematics are set year-by-year for key stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage, if appropriate.

Teachers can access long and medium-term plans and tailor their lessons according to their cohort.

Lessons are delivered through visually enriched slides with shared learning and independent work.

Pupils are given termly attainment targets which are achieved through the daily lessons and interventions (if required).

Attainment Targets

Formative assessments are conducted in-lesson daily.

Summative assessments are held at the end of each term and will provide recorded data to analyse.

Judgments for each attainment target are refined into the following grade boundaries:

Below (Below national expectations: 0% - 30%)

Borderline (Below national expectations: 30%-49%)

Just within (At national expectations: 50%-59%)

Within (At national expectations: 60%-80%)

Greater Depth (Above national expectations: 80%-94%)

Above (Above national expectations: 95%-100%)

Strategies To Ensure Progress

Progress is monitored by assessment, and our high expectations mean we constantly strive for excellent progress for all children. Children who are falling behind will be supported through morning intervention groups.
The Headteacher works with the Mathematics leader and class teachers to offer advice on specific children who are falling behind.

Parents are be given the opportunity to attend a our curriculum information afternoon which will advise them on how to support their child's Mathematical development at home.

See our separate **'Calculation'** policy and '**Mathematics Progression Map'**, which details our whole school approach to calculation to ensure coherent steps of progression for each year group.

Cross-Curricular Mathematics

Mathematics is a subject that lends itself to cross-curricular teaching, and we include mathematical resources, problems and theories in a range of other subjects' teaching: for example, collecting data in science sessions, and exploring shapes when designing structures in art and DT themed sessions.

We aim to create mathematically rich classroom environments (through manipulatives, wall displays, tabletop displays, and free flow provision) so that there is an opportunity for Maths learning at all times.

Resources including ICT

Resources are maintained, logged and organised by the school administrator. Resources can be checked regularly to ensure they are appropriate, clean and in a good state of repair.

At Unique Academy, we encourage the use of ICT resources such as computers as well as cameras to help further children's enjoyment of Mathematics, engage their interest and enhance their understanding of intended learning objectives.

Special Educational Needs and Disability (SEND)

Planning and differentiation will be used to ensure that all children are included in Mathematics teaching. Quality provision is made for all children, no matter what their barriers to learning or special educational needs and disabilities (SEND).

Equal opportunities

We have a positive and welcoming attitude towards all members of the community, and we are careful to avoid stereotyping when organising activities and selecting materials. The teaching and learning in Mathematics are in line with the school's statement of equal opportunities.

Whole School Curriculum Map

Nursery

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn Term	Comparison 1 More than, fewer than, same		Shape, space and measure 1 Explore and build with shapes and objects		Pattern 1 Explore repeats		Counting 1 Hear and say number names		Counting 2 Begin to order number names		I see 1, 2, 3	Pattern 2 Join in with repeats
Spring Term	Shape, space and measure 2 Explore position and space		Subitising 2 Show me 1, 2, 3	Counting 3 Move and label 1, 2, 3	Shape, space and measure 3 Explore position and routes	Pattern 3 Explore own first patterns	Counting 4 Take and give 1, 2, 3		Shape, space and measure 4 Match, talk, push and pull		Subitising 3 Talk abou t dots	Comparison 2 Compare and sort collections
Summer Term	Pattern 4 Lead on own repeats		Shape, space and measure 5 Start to puzzle		Pattern 5 making patterns together		Subitising 4 Make games and actions	Counting 5 Show me 5	Pattern 6 My own pattern	Counting 6 Stop at 1,2,3,4, 5	Comparison 3 match, sort, compare	

Reception

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn Term	Getting to know you		Match, Sort and Compare		Talk about Measures and Patterns		It's me 1, 2, 3		Circles and Triangles	1, 2, 3, 4, 5		Shapes with 4 sides
Spring Term	Alive in 5		Mass and Capacity	Growing 6, 7, 8		Length, height and time		Building 9 and 10			Explore 3-d shapes	
Summer Term	To 20 and beyond		How many now?	Manipulate, compose and decompose		Sharing and grouping		Visualise, build and map			Make connections	Consolidation

Year 1 /2

	Week1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn Term	Number Place Value (within 20)			Number Addition and Subtraction (within 20)			Number Place Value (within 100)				Geometry Shape	
Spring Term	Number Addition and Subtraction (Within 100)				Number Multiplication and Division				Measurement Length and Height		Statistics	Consolidation
Summer Term	Measurement Money		Number Fractions			Measurement Time			Measurement Mass, Capacity and Temperature		Geometry Position and Direction	Consolidation

Year 3 /4

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn Term	Number Place Value				Number Addition and Subtraction				Number Multiplication and Division A			Measurement Area
Spring Term	Number Multiplication and Division B			Measurement Length and Perimeter		Number Fractions A			Measurement Mass and Capacity		Number Fractions B	
Summer Term	Measurement Time		Number Decimals			Measurement Money		Geometry Shape		Geometry Position and Direction	Statistics	

Year 5 /6

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn Term	Number Place Value			Number Addition and Subtraction	Number Multiplication and division A		Number Fractions A				Number Multiplication and Division B	
Spring Term	Number Multiplication and Division B continued	Number Fraction B		Number Decimals A		Measurement Area, perimeter and volume		Number Decimal B			Number Fractions, Decimals and Percentages	
Summer Term	Ratio	Algebra		Geometry Shape			Geometry Position and Direction		Statistics		Measurements Converting Units	

Progression of Skills and Knowledge

To ensure there is progression whilst exploring the same topic, we have set out the specific set of skills and knowledge which should be taught in mathematics over the 7 years at Unique Academy Primary School. These skill and knowledge progressions are used when planning to break down the learning, within each year group, into small steps which represent mini stepping stones. They give teachers a step-by-step guide for the order in which the content of the subject should be taught. This ensures that children develop the specific skills needed, in a logical order, to achieve the overall goal. It also ensures that, as topics are recalled at the start of each lesson - Flashback 4 - the specific skills and knowledge focused upon are a clear development of the pupils' prior learning.

Research has shown that when learning can be related to real life, it gives it meaning and purpose, and therefore, it is remembered. As a result, we utilise visual slides containing real-life word problems, manipulatives, and images teaching the concept of 'mathematics is everywhere'. The slides are designed to hook children into the topic, to reignite interest part way through, and to celebrate learning.

Our curriculum is inclusive, and we ensure it is accessible for those with disabilities or special educational needs.

Maths	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place value: Counting	More than, fewer than, same Hear and say number names Begin to order number names Ordering numbers Hear and say number Hear some number names	Counting to 20 and beyond Match, sort and compare Match objects Match pictures and objects Identify a set Sort objects to a type Explore sorting techniques Create sorting rules	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count numbers to 100 in numerals: count in multiples of 2 5 and 10s	Count in steps of 2, 3 and 5 from 0, and in 10s from and number, forward and backward.	Count from 0 in multiples of 4, 8, 50 and 100. Find 10 or 100 more or less than a given number	Count in multiples of 6, 7, 9, 25 and 1000. Count backwards through zero to include negative numbers	Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 Count forwards and backwards with positive and negative whole numbers, including through zero	Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit

	Join in saying some number names Model saying number names in order Practise saying number names in order Join in stable order counting forwards Join in stable order counting backwards.	Compare amounts						
Place Value: represent	I see 1, 2, 3 Show me 1, 2, 3 Show me 5 More than, fewer than, same Collect objects to compare amounts Make simple comparisons of amounts Look for collections of large and small amounts	How many now? Find 4 and 5 Subitise 4 and 5 Represent 4 and 5 1 more 1 less Composition of 4 and 5 Composition of 1-5 Find 9 and 10 Compare numbers to 10	Identify and represent numbers using objects and pictorial representations. Read and write numbers to 100 in numerals Read any write numbers from to 20 in words and numerals	Read and write numbers to at least 100 in numerals and in words. Identify, represent and estimate numbers using different representations, including the number line	Identify, represent and estimate numbers using different representations Read and write numbers up to 1000 in numerals and words	Identify, represent and estimate numbers using different representations Read Roman numerals to 100 (I to C) and know that, overtime, the numeral system changed include the concept of zero and place value	Read, write (order and compare) numbers to at least 1,000,000 and determine the value of each digit. Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	Read, write (order and compare) numbers to at least 10,000,000 and determine the value of each digit.

	Compare and talk about large and small amounts Make large and small collections Make collections the same	Represent 9 and 10 Conceptual subitising to 10 1 more 1 less Composition to 10 Bonds to 10 (2 parts) Make arrangements of 10 Bonds to 10 (3 parts) Explore even and odd Explore up to 20						
Place Value: Use PV and compare	Take and give 1, 2, 3 Match, sort, compare Copy fingers to show 1 Copy fingers to show 2 Copy fingers to show 3	How many now? Visualise, build and map	Given a number, identify 1 more and 1 less	Recognise the place value of each digit in a two-digit number (tens and ones) Compare and order numbers from 0 up to 100; use <> and = signs	Recognise the place value of each digit in a three-digit number (hundreds, tens and ones) Compare and order numbers up to 1000	Find 1000 more or less than a given number. Recognise the place value of each digit in a four digit number (thousands, hundreds, tens and ones)	Order and compare numbers to at least 1,000,000 and determine the value of each digit.	Order and compare numbers to at least 10,000,000 and determine the value of each digit.

	Show 1 finger when seeing 1 item in stories Show 2 or 3 fingers when seeing 2 or 3 in stories Show 1, 2, 3 on fingers when asked					Compare and order numbers beyond 1000		
Place value: Problems and rounding	Subitising Talk about dots	Subitising	Manipulate, compose and decompose Make connections	Use place value and number facts to solve problems	Solve number problems and practical problems involving these ideas	Round any number to the nearest 10, 100 or 1000. Solve number and practical problems that involve all of the above with increasingly large positive numbers	Interpret negative numbers in context. Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000. Solve number problems and practical problems that involve all of the above	Round any whole number to a required degree of accuracy. Use negative numbers in context, and calculate intervals across zero. Solve number problems that involve all of the above.
Addition and subtraction: Recall, represent, Use	Explore repeats Listen to repeats in songs and stories Start to join in songs with repeats	Verbal counting beyond 20 Verbal counting patterns Number bonds	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.	Estimate the answer to a calculation and use inverse operations to check answers	Estimate and use inverse operations to check answers to a calculation.	Use rounding to check answers to calculations and determine in the context of a problem levels of accuracy	Perform mental calculations, including with mixed operations and large numbers

	Clap along to songs Make line patters with own sequences Choose blocks to build roads and towers. Make actions to represent numbers Notice number symbols as labels Label amounts as 1 and not 1 Label amounts as 1, 2 or 3	How many did I add? Take away How many did I take away?	Represent and use number bonds and related subtraction facts within 20.	Show that the addition of two numbers can be done in any order (Commutative) and subtraction of one number from another cannot occur. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.				Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy Add and subtract numbers mentally with increasingly large numbers Inverse opearations and missing numbers Reason from known facts
Addition and Subtraction : Calculations	Choose a group to count Take out 2 from a group Take out 3 from a group Give others 2 items	1 more 1 less	Add and subtract one-digit and two-digit numbers to 20, including zero	Add and subtract numbers using concrete objects, pictorial representatio ns and mentally, including:	Add and subtract numbers mentally, including: a 3-digit number and ones a 3-digit number and 10s	Add and subtract numbers with up to four digits using formal written methods of columnar addition and subtraction where appropriate.	Add and subtract whole numbers with more than 4 digits including using formal written methods (columnar addition and subtraction)	Perform mental calculations, including with mixed operations and large numbers use their knowledge of the order of operations to carry out calculations involving the four operations.

	Give others 3 items Count 3 objects with one-to-one correspondence			a two-digit number and ones a two-digit number and 10s two 2-digit numbers adding three one-digit numbers	a three-digit number and hundreds. Add and subtract numbers with up to three digits using formal written methods of columnar addition and subtraction		Add and subtract numbers mentally with increasingly large numbers	
Addition and Subtraction : Solving Problems	Become familiar with dot patterns Say when there is 1 dot Say when there are 2 dots Recognise 1 and 2 in different arrangements Say when there are 3 dots Look for collections of large and small amounts	1 more 1 less	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems such as 7 = _ - 9	Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving number quantities and measures, applying their increasing knowledge of mental and written methods	Solve problems, including missing number problems, using the number facts, place value and more complex addition and subtraction	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division and a combination of these including understanding the meaning of the equals sign	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Multiplication and Division: Recall, Represent, Use	Notice patterns and arrange things in patterns	Sharing and grouping Explore sharing Explore grouping Even and odd sharing Play with and build doubles Double to 10 (find a double) Doubles to 10 (make a double)	Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers, show that multiplication of two numbers can be done in any order (commutative) , and division of one number by another cannot	Recall and use multiplication and division facts for the three, four, and eight multiplication tables Multiples of 10 Reasoning about multiplication	Recall multiplication and division facts for multiplication tables up to 12 x 12 use place value known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers recognise and use factor pairs and commutativity Mental calculation Multiply by 10 Multiply by 100 Divide by 10 Divide by 100	Identify multiples and factors, Including finding all factor pairs of a number and common factors of 2 numbers know and use vocabulary of prime numbers, prime factors and composite(non-prime) numbers, establish whether a number up to 100 is prime and recall prime numbers up to 19 recognise and use square numbers and cube numbers the notation for squared and cubed.	Identify common factors, common multiples and prime numbers use estimation to check to answers to calculations and determine, in the context of a problem. an appropriate degree of accuracy.
Multiplication and Division: calculation	Patterns	Double to 8 (find a double Double to 8 (make a double) Combine 2 groups	Solve one-step problems involving multiplication and division,	Calculate mathematical statements for multiplication and division within multiplication	Write and calculate mathematical statements for	Multiply two-digit and three-digit numbers	Multiply numbers up to four digits by a one or two-digit number using a formal written	Multiply multi-digit numbers up to four digits by a two digit whole number using the formal written method of long

			by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	tables and write them using the multiplication division and equals signs	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	numbers by a one-digit number using formal written layout	method including long multiplication for two-digit numbers multiply and divide numbers mentally drawing upon known facts divide numbers up to four digits by a one-digit number using formal written method of short division and interpret remainders appropriately for the context multiply and divide whole numbers and those involving	multiplication divide numbers up to four digits by a two-digit whole numbers, using the formal written method of long division and interpret remainders as whole number remainders, fractions or by rounding as appropriate for the context divide numbers up to four digits by a two-digit number using the formal written method of short division
Multiplication and Division: Solve Problems	Patterns	Conceptual subitising	Solve one step problems involving multiplication and division by calculating the answer using concrete objects, pictorial	Solve problems involving multiplication and division using	Solve problems including missing number problems, involving multiplication and division, including positive integer	Solve problems involving multiplying and adding, including using the distributive law to multiply 2 digit numbers by 1 digit, integer	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes solve problems	Solve problems involving addition subtraction multiplication and division

			representation s and arrays with the support of the teacher	materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	scaling problems and corresponden ce problems in which n objects are connected to m objects	scaling problems and harder correspondenc e problems such as n objects are connected tom objects	involving multiplication and division, including scaling by simple fraction and problems involving simple rates	
Multiplicati on and Division: Combined Operations	Patterns	"Groups of" and "sharing"	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representation s and arrays with the support of the teacher	Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	Factor pairs Inverse to check answers	Recognise and use factor pairs and commutativity in mental calculations Inverse to check answers	Solve problems involving addition subtraction multiplication and division and a combination of these, including understanding the meaning of the equals sign	Use their knowledge of the order of operations to carry out calculations involving the four operations

Fractions: Recognise and Write	(Understanding halves and quarters of whole objects and quantities. The curriculum emphasizes making connections between physical objects and their fractional parts.)	(Understanding halves and quarters of whole objects and quantities. The curriculum emphasizes making connections between physical objects and their fractional parts.)	Recognise find and name a half as one of two equal parts of an object shape or quantity recognise find an name a quarter as one of four equal parts of an object shape or quantity	Recognise find name and write fractions 1/3, ¼, 2/4 and 3/4 of a length shape set of objects or quantity.	Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one digit numbers in or quantities by 10 recognise find and write fractions of a discrete set of objects: unit fractions and non unit fractions with small denominators recognise and use fractions as numbers: unit fractions and non unit fractions with small denominators	Count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10	Idenitfy name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements>1 as mixed number for example	Add and subtract fractions with different denominators and mixed numbers, and to multiply and divide fractions.

Fractions: Compare			Recognise, find and name a half as one of two equal parts of an object, shape or quantity	Recognise the equivalence of 2/4 and ½ 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 and show using diagrams, equivalent fractions with small denominators compare and order unit fractions, and fractions with the same denominators Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators Compare and order unit fractions, and fractions with the same denominators	Recognise and show using diagrams, families of common equivalent fractions	Compare and order fractions whose denominators are all multiples of the same number	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination nomination fractions compare and under order fractions, including fractions>1
Fractions: Calculations			Find and name a half as one of two equal parts of an object, shape or quantity	Find, name and write fractions 1/3 , 1/4 , 2/4 and 3/4 of a length,	Solve problems that involve all of the above	Solve problems involving increasingly hard fractions to calculate quantities, and	Multiply proper fractions and mixed numbers by whole numbers,	Multiply proper fractions by whole numbers

				shape, set of objects or quantity		fractions to divide quantities, including non unit fractions where the answer is a whole number	supported by materials and diagrams	Multiply simple pairs of proper fractions, writing the answer in its simplest form Divide proper fractions by whole numbers
Decimals: Recognise and write					Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing 1-digit numbers or quantities by 10	Recognise and write decimal equivalents of any number of tenths or hundredths recognise and write decimal equivalent to 1/4, ½, 3/4	Read and write decimal numbers as fractions for example 0.71 = 71/100 recognise and use thousandths and relate them to tenths hundredths and decimal equivalents.	Identify the value of each digit in numbers given to three decimal places Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction
Decimals: Compare						Round decimals with one decimal place to the nearest whole number compare numbers with the same number of decimal places up to two decimal places	Round decimals with two decimal places to the nearest whole number and to one decimal place read, write, order and compare numbers with up to three decimal places	

						Compare numbers with the same number of decimal places up to 2 decimal places		
Decimals: Calculations and Problems						Find the effect of dividing a one or two-digit number by 10 and 100 identifying the value of the digits in the answers as ones, tenths, and hundredths Count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10	Solve problems involving numbers up to three decimal places	Multiply and divide numbers by 10, 100, and 1000, giving answers up to three decimal places Multiply 1-digit numbers with up to two decimal places by whole numbers use written division methods in cases where the answer has up to two decimal places solve problems which require answers to be specific degrees of accuracy rounded to Solve addition and subtraction multi-step problems in contexts,

								deciding which operations and methods to use and why
Fractions, Decimals and Percentages						Solve simple measure and money problems involving fractions and decimals to two decimal places	Recognise the percent symbol and understand that percent relates to numbers of parts per hundred and write percentages as a fraction with the denominator 100 and as a decimal Solve problems which require knowing percentage and decimal equivalents of ½, 1/4 , 1/5, 2/5, 4/5 and those fractions with the numerator of a multiple of 10 or 25 Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction recall and use equivalence is between simple fractions decimals and percentages including in different contexts Use common factors to simplify fractions; use common multiples to express fractions in the same denomination

Ratio and Proportion								Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts Solve problems involving the calculation of percentages and the use of percentages for comparison solve problems involving similar shapes where the scale factor is known or can be found Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples
Algebra								Use simple formulae generate and describe linear number sequences

								express missing number problems algebraically Find pairs of numbers that satisfy an equation with two unknowns enumerate possibilities of combinations of two variables
Using Measure	Exploration of simple shape, space and measure	Length, height and time Explore length Compare length Explore height Compare height Talk about measure and patterns Compare size Compare mass Compare capacity Explore simple patterns Copy and continue simple patterns	Compare, describe and solve practical problems for : lengths and height mass/weight capacity and volume time measure and begin to record the following: lengths and height mass/ weight capacity /volume time (hours, minutes, seconds)	Choose and use appropriate standard units to estimate and measure length/ height in any direction mass temperature capacity to the nearest appropriate unit using rulers scales thermometers and measuring vessels compare and order Length,	Measure, compare, add and subtract lengths (m/cm/mm); mass (kg,g); volume/capacity (l/ml)	Convert between different units of measure estimate compare and calculate different measures	Convert between different units of metric measure understand and use approximate equivalence is between metric units an common imperial units such as inches pounds and pints use all four operations to solve problems involving measure using decimal notation including scaling	Solve problems involving the calculation and conversion of units of measure using decimal notation up to three decimal places where appropriate use, read, write and convert between standard units converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit and viceversa using decimal notations up to three decimal places

		Create simple patterns		mass, volume/ capacity and record the results using > <and = Convert between different units of measure				convert between miles and kilometres
Measurement: Money		Understand and practice identifying and counting coins.	Recognise and know the value of different denominations of coins and notes	Recognise and use the symbols for pounds (£) and pence (p) combine amounts to make a particular value find different combinations of coins that equal the same amount of money solve simple problems in a practical context involving addition and subtraction of money of the same unit	Add and subtract amounts of money to give change using both pounds and pence in practical context	Estimate, compare, and calculate different measures, including money in pounds and pence	Use all four operations to solve problems involving measure for example money Add decimals with the same number of decimal places using the formal written method	More complex money word problems Add decimals with the same number of decimal places using the formal written method

				including giving change				
Measurement: Time	Recognise numbers	Talk about time Order and sequence time	Sequence events in chronological order using language for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening recognise and use language relating to dates, including days of the week, weeks, months and years tell time to the hour and half past the hour and draw hands on the clock face to show these times	Compare and sequence intervals of time tell and write the time to five minutes, including quarter past/to the hour and draw the hands on the clockface 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 too XII and 12 hour and 24 hour clocks estimate and read time with increasing accuracy to the nearest minute; record and in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm ,morning, afternoon, noon and midnight	Read write and convert time between analogue and digital 12 and 24 hour clocks solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days	Solve problems involving converting between units of time	Use read write and convert between standard units converting measurements of time from a smaller unit of measure to a larger unit and viceversa

					Know the number of seconds in a minute and the number of days in each month, year and leap year compare durations of events for example to calculate the time taken by a particular event or task			
Measurement: Perimeter, Area, Volume	Explain simple pattern arrangements Make road and bridges with intent Choose blocks to copy simple creations Make simple line patterns with objects Make simple pattern arrangements	Shapes with 4 sides Identify and name shapes with 4 sides Combine shapes with 4 sides Shapes in the environment Match, talk, push and pull Match simple shapes Push some shapes and blocks together	Measure the perimeter of simple 2-D shapes	Find the area of rectilinear shapes by counting squares Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	Measure the perimeter of simple 2D shapes	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres find the area of rectilinear shapes by counting squares	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres calculate and compare the area of rectangles including squares and including using standard units and estimate the area of irregular shapes estimate volume, for example, using one centimetre cubed blocks to	Recognise that shapes with the same area can have different perimeters and viceversa recognise when it is possible to use formulae for area and volume of shapes calculate the area of parallelograms and triangles calculate, estimate and compare volume of cubes and cuboids using standard units including cubic

	Show an interest in patterns and shapes.						build cuboids including cubes and capacity for example using water	centimetres and cubic metres and extending to other units
Geometry: 2D shapes	Select shapes for a space Recognise when 2 objects are the same shape Explore and describe shapes and objects Sort shapes and objects into simple categories	Shapes with 4 sides Identify and name shapes with 4 sides Combine shapes with 4 sides Shapes in the environment Circles and triangles Identify and name circles and triangles Compare circles and triangles Shapes in the environment Describe position Manipulate, compose and decompose Select shapes for a purpose Rotate shapes Manipulate shapes Explain shape arrangements Compose shapes	Recognise an name, 2D shapes for example rectangles (including squares), circles and triangles	Identify and describe the properties of 2D shapes, including the number of sides and line of symmetry in a vertical line identify 2D shapes on the surface of 3D shapes)for example a circle on acylinder and a triangle on a pyramid) compare and sort common 2D shapes and everyday objects	Draw 2D shapes Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and size identify lines of symmetry in 2D shapes presented on different orientations	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles use the properties of rectangles to juice related facts and find missing lengths and angles	Draw 2D shapes using given dimensions and angles compare and classify geometric shapes based on their properties and sizes illustrate and name parts of circles including radius and diameter and circumference and know that the diameter is twice the radius

		Decompose shapes Copy 2-D shape pictures Find 2-D shapes within 3-D shapes						
Geometry: 3D shapes	(Explore objects hands-on and in books, finding similarities)	Explore 3-D shapes Select, rotate and manipulate shapes to develop spatial reasoning skills. Recognise and name 3-D shapes Find 2 -D shapes within 3 -D shapes Use 3 -D shapes for tasks 3-D shapes in the environment Identify more complex patterns Patterns n the environment	Recognise and name common 3D shapes for example cuboids, including cubes, pyramids and spheres	Recognise and name common 3D shapes for example cuboids, including cubes, pyramids and spheres Compare and sort common 3D shapes and everyday objects	Make 3D shapes using modelling materials recognise 3D shapes in different orientations and describe them	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	Identify 3D shapes, including cubes and other cuboids from 2D representations	Recognise, describe and build simple 3D shapes, including making nets
Geometry: Angles and lines	Patterns (creating horizontal and vertical lines and patterns in their construction play when arranging patterns)	Visualise, build and map Identify units of repeating patterns Crate own pattern rules Explore won pattern rules	Explore vertical lines of symmetry. *Encounter the concept and images of*	Identify and describe the properties of 2-D shapes, including the	Recognise angles as a property of shape or a description of a turn	Identify acute and obtuse angles and compare and order angles up to two right angles by size	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	Find unknown angles in any triangles, quadrilaterals and regular polygons

		Replicate and build scenes and constructions Visualise from different positions Describe positions Give instructions to build Explore mapping Represent maps with models Create own maps from familiar places Create own maps and plans from story situations	*symmetrical pictures and what "symmetrical" means.*	number of sides, and line symmetry in a vertical line	Identify right angles, recognise that two right angles make half a turn; three right angles make 3/4 of a turn and four a complete turn Identify whether angles are greater than or less than a right angle Identify horizontal and vertical lines and pairs of perpendicular and parallel lines	Identify lines of symmetry in 2D shapes represented in different orientations Complete a simple symmetrical figure with respect to a specific line of symmetry	Draw given angles, and measure them in degrees Identify: angles at a point and one whole turn angles at a point on a straight line and half a turn other multiples of 90 degrees	Recognise angles where they meet at a point, on a straight line or are vertically opposite and find missing angles
Geometry: Position and Direction	Explore shape resources Explore more complex inset jigsaw Talk about simple positions Move into simple positions	Make simple arrangements Talk about arrangements Follow simple routes outside Follow toys around a simple route	Describe position, direction, and movement, including whole, half, quarter and three-quarters turns	Order and arrange combinations of mathematical objects in patterns and sequences use mathematical vocabulary to	Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	Describe positions on a 2D grid as coordinates in the first quadrant describe movements	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	Describe positions on the full coordinate grid all 4 quadrants draw and translate simple shapes on the coordinate plane, and reflect them in the axes

	Move through positions Follow simple small-world routes	Explore position and routes Explore shape resources Explore more complex inset jigsaw Talk about simple positions Move into simple positions Move through positions Follow simple small-world routes		describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns clockwise and anticlockwise		between positions as translations of a given unit to the left/ right and up/ down Plot specified points and draw sides to give to complete a given polygon Identify lines of symmetry in 2-D shapes presented in different orientations		
Statistics: Present and interpret			As merged class Year 1 explores tally charts and pictograms	Interpret and construct simple pictograms, tally charts, block diagrams and simple tables	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

Statistics: Solve Problems			As merged class Year 1 explores tally charts and pictograms and starts asking simple questions	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	Solve one-step and two-step questions (for example, How many more? How many fewer?) using the information presented in scaled bar chart and pick to grams 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