Stamford Green Primary School & Nursery



Mathematics Compendium

"The enchanting charms of this sublime science, mathematics, reveal only to those who have the courage to go deeply into it."

Carl Frederick Gauss

What is the vision for mathematics at Stamford Green?

- Children see themselves as mathematicians, enjoying the challenges of a rich subject, wanting to know more and understand more.
- Children develop a deep understanding of skills and concepts and use these accurately.
- Children are fluent and agile in accurately applying their skills to solve mathematical problems.
- Children relish investigations. They apply concepts they know, seek out patterns, think abstractly, work systematically, are flexible and creative in their strategies, and are persistent in solving challenging problems.
- Children are well-prepared for their future learning through strong foundations and deep mathematical understanding. In addition, they are well-equipped with life skills such as analysis, problem-solving and reasoning.

Our mathematics curriculum is brought to life by our seven commitments:

HAPPINESS

Our rich and exciting curriculum allows the children to have the confidence to enjoy maths. During lessons, all children are expected and encouraged to get involved and approach their maths learning with a can-do attitude. They get this by adopting a growth mindset from an early age. Understanding that mistakes are part of the learning journey and that making mistakes and learning from these makes us better learners; better mathematicians. As such, the children feel positive about maths as the learning environment and everybody in it has a positive growth mindset.

INSPIRING

Through our engaging curriculum, we aim to inspire our children to see the beauty of maths. The way that maths is interconnected through all areas of everyday life, enriching the conversations that all adults should be having with children to make relevant how mathematicians have made and still do make a difference in the world. Through allowing the children to experience a range of different mathematical problems, they will have the confidence to tackle these whilst developing their ability to choose and apply specific strategies in order to approach and solve problems.

LEARNING

Our curriculum has been designed to progressive so that it builds upon and develops children's skills and knowledge so that it can be applied in a variety of different situations. This will be accessed through the use of the maths mastery approach which seeks to develop a deep understanding of maths where a child can use their knowledge of a concept to solve unfamiliar word problems and undertake complex reasoning, using precise mathematical vocabulary. Our maths offer consists of discrete arithmetic teaching sessions as well as arithmetic practise sessions, alongside daily maths lessons that take the whole group of children on a particular learning journey together. Once per week, there will be dedicated problem-solving session with a whole school focus on a particular problem-solving strategy. Before school each day, every child has the opportunity to be immersed in maths by taking part in our 'Early Bird' maths sessions, where children practise retrieval of key concepts and knowledge from learning that has taken place previously. Daily maths lessons will introduce children to new concepts using small steps which build upon one another, making links and 'sniffing out patterns' along the way. Teachers will use 'Fathoms' as a vehicle for deepening the children's knowledge and understanding. These Fathoms should allow for both practise and problem solving at every stage, built in to the structure of the maths lesson so everyone gets to access everything they need. Teachers use Times Tables Rock Stars and My Maths as tools to support the learning at school through home learning. They aim to broadly match home learning tasks to content being taught in maths lessons and, in the case of TTRS, are targeted according to the needs of the children.

TOGETHERNESS

The maths mastery approach enables all pupils to go on the journey of maths mastery together. Using an 'I do, we do, you do' teaching strategy enables children to use teacher modelling in order to practise maths concepts with the support of their classmates. The children value each other's contributions because they are all working on the same thing at the same time. Nobody is left behind because the children understand that everyone sees concepts in different ways and this helps each and every child to further develop their understanding.

VALUES

Our school's 22 values all play an important role in maths learning. Part of being a mathematician requires all learners to foster the values of resilience, effort, self-belief and patience. Having a growth mindset equips the children to continue working on a problem by approaching it in a different way, when another doesn't work. In this way, children will demonstrate independence when working in maths.

AMBITION

Adopting a growth mindset approach to maths mastery allows the children to see themselves as mathematicians. We want the children to strive to be successful and as a result, lessons are planned in a way that gives the children confidence. Where gaps in a child's learning arise, timely interventions allow children to keep up, not catch up. As a school, we are ambitious for our teachers and teaching assessments by investing in their Continuing Professional Development. Providing effective, regular CPD for our staff will ensure that there is a consistent approach to teaching and supporting our children with their maths learning.

ACHIEVEMENT

In order to be successful in all maths lessons, the children will receive immediate feedback through live marking. This means that all learners get what they need to make progress. We have high expectations of the children's achievements and as such strive for the number of our children to achieve the expected standard to be above Surrey and National data at the end of Key Stage 1 and 2. This will also be in line with the same data for Reading and Writing. It is the expectation that all children are fluent with their times tables facts by the end of Year 4, so that they are well-prepared for their Multiplication Tables Check in the summer term.

What are the aims of the national curriculum for mathematics?

The national curriculum for mathematics aims 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

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

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 through being offered rich and sophisticated problems 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.

By the end of Year 6 at Stamford Green, our children will...

Behaviours	Our children will demonstrate positive behaviours during maths lessons. They will feel confident to support or challenge each other when discussing or using mathematical concepts as well as be able to choose from a range of strategies to help them approach a maths problem.
A ttitudes	Through our progressive curriculum which promotes a growth mindset approach to learning, children will show a positive attitude towards their maths learning. They will develop their values of resilience and self-belief when understanding that making mistakes is part of the learning process. Children will support the thinking that maths isn't always about finding 'the correct answer', but about how they arrived at that answer and understanding why it is correct.
S kills	Our detailed curriculum, with learning broken down into small steps, will allow children to add, subtract, multiply and divide. They will be confident and fluent in their recall of number facts including times tables. Through effective modelling of precise mathematical vocabulary by the teacher, children will be able to articulate succinct reasoning as well as demonstrate effective recording methods which show working out. Discretely taught problem-solving lessons will directly teach specific problem-solving strategies which will equip our children to choose the most efficient method in their learning beyond Key Stage 2.
K nowledge	Our carefully considered sequence of learning will make explicit links to previous learning, allowing for retrieval practise as well as the opportunity to notice how concepts build on those they have learned before. The children will use the correct mathematical vocabulary when explaining their reasoning, as modelled by the teacher. Children will be expected to 'say it again better' or use sentence stems to frame their reasoning, incorporating this precise mathematical language used correctly.
Experiences	We aim to give the children a wide range of experiences which allow them to explore and investigate mathematics. They will use specifically chosen manipulatives and visual representations in order to scaffold the rich discussion

	around the mathematical concepts they are modelling. The children will be able to experience the awe and wonder maths can provide through open-ended problems to solve. Events planned to promote the learning and fluency of times tables facts will raise the profile of maths and motivate the children to develop automaticity in this skill.
Technology	We use technology as a tool to provide instant feedback about the children's learning. At home, online tasks are set by the class teachers in order to practise the learning that is happening in school. We prepare our Year 4 children for the Multiplication Tables Check by providing regular practice using simulation software so the children are familiar with the style and layout of the test before they complete the actual check in June. We use a wide range of manipulatives to support the children's mathematical learning, including digital manipulatives where appropriate.
S ustained	It is our aim that the children leave Stamford Green with a sustained interest in mathematics, having embedded basic mathematical concepts during their time with us. We want the children to transfer to secondary school with the same positive attitude fostered throughout their time at Stamford Green because we feel it's vital that they continue to see themselves as mathematicians. With all of this in place, we believe the children will be equipped with the best possible foundations in mathematics which will help them in their future life choices and careers.

British Values and Spiritual, Moral, Social and Cultural Learning in Maths

British Values: Within maths, children are encouraged to consider the views of others, particularly when problem solving. Children work within boundaries to make safe choices during practical activities and behave appropriately, allowing all children the opportunity to work effectively. In maths, children are taught to take turns, share equipment and reviews each other's ideas respectfully. Maths involves working collaboratively to solve problems, offer solutions and help others.

Spiritual: Each maths lesson ensures that the children develop the knowledge, skills, understanding, qualities and attitudes they need to foster their own understanding of the subject. Maths supports spiritual development by engaging children with depth of thinking and problem solving.

Moral: Practical work in maths requires children to co-operate with others and help others where necessary to achieve as a group of pair. These opportunities require children to be selfless and explain mathematical concepts in detail to others. Maths supports moral development by encouraging children to look, discuss and evaluate a range of social and moral issues found in the world.

Social: Social development in enhances in maths lessons are children are provided with opportunities to work individually, with a partner or in a larger group. Maths supports social development by requiring verbal reasoning. Children have opportunities to discuss their learning with their peers and staff.

Cultural: Children acquire a respect for their own culture and that other others, an interest in others' ways of doing things and curiosity about differences. During maths, children are able to share how they carry out calculations and listen to the opinions of others. Maths supports the cultural development of a child by exposing them to a range of different approaches to solving problems and reasoning skills.

The maths curriculum map

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Counting and Comparing Use the	Number Investigating, recognising and	Number Place value (within 10)	Number Place value	Number Place value	Number Place value	Number Place value	Number Place value
Autumn 1	counting sequence as part of songs and games. (Numbers 0-5)	using numbers 0 - 5	Number	Number Addition and subtraction	Number Addition and subtraction	Number Addition and subtraction	Number Addition and subtraction Number	Number Addition, subtraction, multiplication and division
	Counting and Comparing Develop fast	Number Investigating, recognising and	Addition and subtraction (within 10)			Mensurement	Multiplication and division A	Number
nn 2	recognition of objects without having to count (subitising) and	using numbers 0 – 10			Number Multiplication	Area Number Multiplication	Number Fractions A	Fractions A
Autor	react to changes in the amount of chiects in a		Geometry Shape	Geometry Shape	and division A	and division A		Number Fractions B
	group of the same amount (numbers 0 to 3)		Consolidation			Consolidation		Measurement Converting units
	Exploring Number and Pattern Knowing cardinal	Number 'more than' and 'less than'	Number Place value (within 20)	Measurement Money	Number Multiplication and division B	Number Multiplication and division B	Number Multiplication and division B	Number Ratio
Spring 1	principle (last number reached tells you the total)	Number Parts and wholes		Number Multiplication	Measurement Length and	Measurement Length and	Number Fractions B	Algebra
		- addition and subtraction	Number Addition and subtraction (within 20)	and division	perimeter	Number Fractions	Number Decimals and	Number Decimals
	Exploring Number and Pattern Linking numerals	Number Representations including 10 frames	Number Place value (within 50)		Number Fractions A		percentages	Number Fractions, decimals and percentages
Spring 2	to amounts, children represent numbers in	Number Parts and wholes – addition and subtraction to 8	Measurement Length and height	Measurement Length and height	Measurement Mass and	Number Decimals A	Measurement Perimeter and area	Measurement Area perimeter and volume
	different ways.	including doubles.	Measurement Mass and volume	Measurement Mass, capacity and temperature	capacity		Startistics	Statistics
	Problem Solving Solving real- world problems with numbers up	Number 'one more' and 'one less'	Number Multiplication and division	Number Fractions	Number Fractions B	Number Decimals B	Geometry Shape	Geometry Shape
er 1	to 5 using a range of	Number Investigating,			Measurement Money	Measurement Money		
Summ	resources.	recognising and using teen numbers.	Number Fractions	Measurement Time			Geometry Position and direction	Geometry Position and direction
		Money	Geometry Position and direction		Measurement Time	Measurement Time	Number Decimals	Consolidation and themed projects.
	Problem Solving Recording numbers to 5,	Number Number order Clocks	Number Place value (within 100)	Statistics	Geometry	Consolidation Geometry	beamas	Preparation and transition to Key Stage 3
ier 2	children can find the odd one out and give a	Number Sharing	Measurement Money	Number Position and	Shape	Shape	Number Negative	
Summ	reason.		Measurement	direction	Statistics	Statistics	numbers Measurement	4
		Number Thinking about	lime	Consolidation	1	Geometry Position and	Converting units	
		tens and ones	Consolidation		Consolidation	direction	Measurement Volume]

Long Term Plan: Early Years Foundation Stage

Milestones – By the end of the EYFS, children at the expected level of development will...

ELG Number

- Have a deep understanding of number to 10, including the composition of each number;
- Subitise (recognise quantities without counting) up to 5;
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts

ELG: Numerical patterns

- Have a deep understanding of number to 10, including the composition of each number;
- Subitise (recognise quantities without counting) up to 5;
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts

According to the Early Years Statutory Framework, children in Nursery and Reception should be taught:

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically.

Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built.

In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes

The new vocabulary the Reception children will use will include:					
	Tier 1	Tier 2	Tier 3		
Place Value	same, more/less, lots	count on/back, number, subitise, order, forwards, backwards, numerals, one more/less, equal to, more/less than, represent, value, digit	partition sort		
Addition and subtraction		number bonds, part, whole	number sentence equals		
Multiplication and division		double, equal/lly, odd/even	twice as many		
Measurement	little, tall, bigger/smaller	longest/tallest days of the week money	calendar months of the year measure		
Geometry	high/low	sides, corners, above/below/behind, top/middle/bottom, over/under, curved, flat, on, into, next to, repeat, pattern	faces, pyramids, between, around, through, beneath		

In Nursery, the 2 -3 year-old children will be taught:				
Counting and Comparing				
Learning Focus	Key skills			
Showing enjoyment when number rhymes are sung to them.	 Recognise and join in with counting songs and games using actions and voice 			
Using actions showing recognition of the rhythm of counting.	Moves in time to countingShow finger numbers up to 3			
	Exploring Number and Pattern			
Learning Focus	Key skills			
Building a tower or creating lines with objects.	 Show finger numbers up to 3 			
Matching one object with another during play.	Complete an inset puzzle			
Problem Solving				
Learning Focus	Key skills			
Organises sets of natural or everyday objects in a group.	Recognises difference and changes in amounts			
Uses number names in play.	Begin to subitise to 5 in familiar scenarios (dice, numicon etc)			

In Nursery, the 3-4 year-old children will be taught:			
Counting and Comparing			
Learning Focus	Key skills		
Using the counting sequence in playful contexts.	 Verbally count forwards and backwards up to 5 Use the language more /less /the same/lots 		
Developing fast recognition of up to 3 objects without having to count (subitising)	 React to changes of amount in a group up to 3. Use the language bigger/little/smaller/high/low/tall/heavy 		

Exploring numbers and patterns				
Learning Focus	Key skills			
Knowing cardinal principle (last number reached tells you the total)	 Show finger numbers up to 5 Find the 'odd one out' in a range of contexts. 			
Linking numerals to amounts and representing numbers in different ways.	 Complete a jigsaw puzzle Read the labels to match the amount when tidying up. Subitise for up to 3 objects 			
	Problem Solving			
Learning Focus	Key skills			
Solving real-world problems with numbers up to 5.	Find 1 more/1 lessBuilding with a range of resources			
Recording numbers	 Begin to subitise to 5 in familiar scenarios (dice, numicon etc) Find the odd one out and give a reason Recognise and write numerals 0-5 			

In Reception the children will be taught:				
Becoming friends with numbers				
Learning Focus	Key skills			
Investigating, recognising, playing with and using numbers 1 – 5	 Count and represent amounts to 5 using concrete resources and pictures Recognise and write numerals to 5 Begin to subitise to 5 in familiar scenarios (dice, numicon etc) Verbally count to 10 forwards and backwards 			
Investigating, recognising, playing with and using numbers 0 – 10	 Count and represent amounts 0 – 10 using concrete resources and pictures Recognise and write numerals 0 – 10 Subitise confidently to 5 in a range of contexts Verbally count to 20 forwards and backwards 			

	Parts and wholes
Learning Focus	Key skills
Understanding 'More than' and 'Less than'	Compare quantities up to 10 in different contexts
Thinking about Addition and Subtraction concepts.	 Recognise parts and whole for numbers to 5. Begin to use the symbols +, - and = to represent calculations Begin to recognise that there are number facts that never change Verbally count to 30 forwards and backwards Count forwards and backwards from any number to 10
Exploring different representations	 Represent the parts and whole for addition and subtraction using a range of concrete resources and drawings
Knowing about Addition and Subtraction to 8, including doubles.	 Automatically recall number bonds to 5 (addition and subtraction facts) Subitise up to 10 using a ten frame to support thinking Verbally count to 30 forwards and backwards starting from any number
	Exploring numbers and patterns
Learning Focus	Key skills
'One More' and 'One Less'	 Count and represent amounts 10 – 20 using concrete resources and pictures
Investigating, recognising and playing with teen numbers.	 Recognise and write the numerals 0 – 20
Number patterns and number order.	 Explore numerical patterns in the number system including odds and evens and doubles Automatically recall some number bonds to 10 including doubles facts
Sharing	 Investigate the ways in which quantities can be distributed equally
Understanding Place value – tens and	 Verbally count forwards and backwards to 50 Begin to recognise the value of the digits in 2-digit numbers Count in 10s to 100

Long Term Plan: Year 1

Milestones – By the end of Year 1, children will demonstrate...

- Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens
- Identify one more and one less
- Identify and represent numbers using objects and pictorial representations, including the number line
- Use the language of: equal to, more than, less than (fewer), most, least
- Read and write numbers from 1 to 20 in numerals and words.
- Work with numbers up to 20 using addition and subtraction
- Children should begin to solve simple word problems
- Identify halves and quarters
- They need to use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money
- Begin to tell the time o'clock and half past
- Children should develop their ability to recognise, describe, draw, compare and sort different shapes (2D and 3D) and use the related vocabulary
- Know the days of the week and months of the year

According to the National Curriculum, children in Year 1 and Year 2 should be taught:

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of Year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

The new vocabu	lary the Year 1 children	will use will include:	
	Tier 1	Tier 2	Tier 3
Place Value	same, more/less, lots count on/back, number, subitise, order, forwards/backwards, numerals, one more/less than, equal to, more/greater than, represent, value, digit	sort, partition, ones, tens, most/least, symbols, exchange, multiples, fewer	count in steps, compare, representation
Addition and subtraction	number bonds, part, whole	number sentence, add/addition/+, subtraction/subtract/ difference between, equals, fact family, problems, 2-digit number	sum, problem
Multiplication and division	double, equal/lly, odd/even,	multiplication, division, arrays, twice as many, column, row, multiples, repeated addition, sharing, grouping	multiplication tables
Fractions		half, quarter, whole, equal parts	three quarters, third, equivalent fractions
Measurement	little tall bigger smaller	equal parts shorter/longer, biggest/smallest, weight/mass, heavy(er)/light(er), wid(er)/narrow(er), balanced, length, height, centimetre (cm), non-standard units, longest/tallest/shortestr uler, volume, capacity, volume, month, year, time, analogue, o'clock, half past, second/hour/minutes, before/after, first/next, then/now, today/yesterday/ tomorrow, morning/afternoon, evening/night, chronological order, days of the week, calendar, months of the year, money, coins, notes,	equivalent tractions standard units, kilogram (kg), gram (g), litres (l), millilitres (ml), change

		pounds (f) , pence (p).	
		half/half full, empty.	
		measure	
Geometry	high/low, sides, corners, above/below/behin d, top/middle/bottom, over/under, curved, flat, on, into, next to, repeat, pattern	halt/halt full, empty, <u>measure</u> 2d shapes, rectangle, square, circle, triangle, pentagon, properties, sorting diagram, 3d shapes, cuboids, cubes, cone, spheres, pyramids, cylinders, faces, position, in front of, beside, inside/outside of, grids, near/far second (2 nd), third (3 rd) fourth (4 th), direction forwards/backwards, whole turn, half turn, quarter turn, clockwise, movement, up/down, left/right, between	pentagon, hexagon, line of symmetry, polygon, prism, clockwise, ordinal
		left/right, between, around, through, beneath	

In Year 1, the children will be taught:				
Number and Place Value				
Focus	Progression of skills			
Count	to and across 100, forwards and backwards, starting at 0, 1 or any given number.			
read 8 write	In multiples of 2, 5 and 10			
numerals	0 – 100			
read and write words	0 – 20			
	one more or one less than a given number			
identify	numbers using objects and pictorial represen number lines	tations including on		
represent	numbers in different ways - including using ob representations and number lines	ojects and pictorial		
use the language	equal to, more than, less than, fewer, most, le	east		
	Number – addition and subtraction			
Focus	Progression of skills			
Read, write and interpret	statements using the signs + (addition) – (subt	raction) = (equals)		
Represent & use number facts	number bonds and related subtraction facts	within 20		
Add and subtract	1-digit and 2-digit numbers to 20, including ze	ero.		
Solve problems	one-step problems with addition and subtraction using concrete			
	missing number problems			
Skill: Add 1-digit num	bers within 10			
	$ \begin{array}{c} $	 When adding numbers to 10, children can explore both aggregation and augmentation. The part-whole model, discrete and continuous bar model, number shapes and ten frame support aggregation. The combination bar model, ten frame, bead string and number track all support augmentation. 		





Number – multiplication and division		
Focus	Progression of skills	
solve	one-step multiplication and division problems	with teacher support
	concrete objects	
USE	pictorial representations	
	arrays	
Skill: Solve 1-step pro	blems involving multiplication	
	f(x) = 0	Children represent multiplication as repeated addition in many different ways. In Year 1, children use concrete and pictorial representations to solve problems. They are not expected to record multiplication formally. In Year 2, children are introduced to the multiplication symbol.



Number – fractions	
Focus	Progression of skills
Recognise, find and	half as one of two equal parts of an object, shape or quantity
name	quarter as one of four equal parts of an object, shape or quantity.

Measurement		
Focus	Progression of skills	
Compare, describe	lengths and heights	
and solve practical	mass/weight	
problems for	capacity and volume	
	time	
Measure and begin	Lengths, heights, mass/weight, capacity, volume, time (hours, minutes	
Recognise and know	All denominations of British coins and notes	
values		
Chronologically sequence events	 For example by using: before, after, next, first today, yesterday, tomorrow morning, afternoon, evening, night 	
Recognise and use	language related to dates	
Tell the time	 to the hour and half hour draw hands on an analogue clock to show the hour and half hour 	
draw hands on an analogue clock to show the hour an		
	Geometry	
Focus	Progression of skills	
recognise and	common 2-D shapes	
name	common 3-D shapes	
	position	
describe	direction	
	movement	

		Year 1			
	Maths areas of focus	Arithmetic teaching and practise focus (Fluency Bee)		Problem solving	
	Number Place value (within 10)	Block 1 Perceptual subitising		Problem Solving Strategies lesson <u>Thinking about Keeping Track</u> <u>Gob-stoppers</u> MCTAP	
umn 1	Number Addition and subtraction (within 10)	Block 2 Conceptual subitising		Two Dice NRICH	ing Track
Aut		Block 3 Composition to 5	Stage 1	MCfAP Eggs in Baskets NRICH	Keep
		Block 4 Comparison to 5		The Garden NZ Maths	
		1 more (within 5 Block 6		Thinking about working strategies lesson <u>Strawberry Mik</u>	Allo
mn 2		Tiess (within 5) Block 1		NZ Maths <u>Button Up</u> NRich	stematic
Autu	Geometry Shape Consolidation	Composition of 6 and 7		Cars in Garages NZ Maths Pick a Pair	rking Sys
		Block 2 Composition of 8 and 9	2	MCfAP Christmas Tree MCfAP	Ŵ
	Number Place value (within 20)	Block 3	Stage	Problem Solving Strategies lesson Looking for patterns	
		Composition of 10		Repeating Patterns NRICH	atterns
Spring 1		Block 4 Composition to 10		NZ Maths Cube Bricks and Daisy Chains	ng for p
	Number Addition and	Block 1 Introduction to addition and subtraction		Colourful Jerseys NZ Maths	Looki
	Number	Block 2 1 more (within 10)		<u>Street Sequences</u> NRICH Choose street numbers appropriate to Y1	
	Place value (within 50)	Block 3 1 less (within 10)	ige 3		
oring 2	Measurement Length and height	Block 4 Add and subtract with 0	Stc		-
s	Measurement Mass and volume	Block 5 Odd and even numbers			
		Block 6 Doubles to 10			
	Number Multiplication and division	Block 7 Add 2 Block 8			-
ler 1		Subtract 2 Block 9 Final facts			
Summ	Number Fractions Geometry Position and direction	Block 1 Ten and a bit (11-15)	tage 4		
	Number	Block 2 Ten and a bit (16-20)	S		
	Place value (within 100)	Block 3			
mer 2	Measurement Money	Comparison to 20			
Sum	Measurement Time	Block 1 Count in 10s Block 2	e 5		-
	Consolidation	Count in 5s Block 3 Count in 2s	Stag		-

Long Term Plan: Year 2

Milestones – By the end of Year 2, children will demonstrate...

- Count in steps of 2, 3, 5 from 0, in tens from any number forwards and backwards, in halves and quarters up to 10 as well as in multiples of twos, fives and tens
- Read and write numbers to 100 in numerals and compare these using <, > and =.
- Identify and represent numbers using objects and pictorial representations, including the number line
- Work with numbers up to 100 using addition and subtraction
- Children should develop the ability to solve simple word problems using knowledge of place value and number facts as well as 1-step problems involving multiplication and division (by sharing and grouping)
- Recall and use multiplication and corresponding division facts for the 2, 5 and 10 times tables.
- Multiply and divide using a range of representations including arrays and repeated addition/subtraction.
- Recognise, find, name and write the following fractions (1/3,1/4, 2/4, 3/4) of a length, shape, set of objects or quantity.
- They need to use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, temperature, time and money
- Continue to learn to tell the time to 5-minute intervals.
- Children should develop their ability to recognise, describe, draw, compare and sort different shapes (2D and 3D) and use the related vocabulary including, number of sides, vertices, faces, edges and lines of symmetry.
- Know the number of minutes in an hour and hours in a day.

According to the National Curriculum, children in Year 1 and Year 2 should be taught:

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of Year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

The new vocabulary the Year 2 children will use will include:			
	Tier 1	Tier 2	Tier 3
Place Value	same, more/less, lots, count on/back, number, subitise, order, forwards/backwards, numerals, one more/less than, equal to, more/greater than, represent, value, sort, partition, ones, tens, most/least, symbols, exchange, multiples, fewer	count in steps, count in multiples, place value, estimate, compare (<, >, =), placeholder, hundreds, representation	ascending, descending, thousands
Addition and subtraction	number bonds, part, whole, number sentence, add/addition/+, subtraction/subtract/ difference between, equals, fact family, problems, 2-digit number	sum, plus, 3-digit number, commutative, inverse, missing number problem, altogether, total take away/minus	column addition/ subtraction, estimate
Multiplication and division	double, equal/lly, odd/even, multiplication, division, arrays, twice as many, column, row, multiples, repeated addition, sharing, grouping	multiplication (times) tables, commutative, x and ÷	derived facts
Fractions	half, quarter, whole, equal parts	three quarters, third, two quarters, equivalent fractions, unit/non unit fractions, numerator, denominator	tenths
Measurement	little/tall, bigger/smaller/short er/longer, biggest/smallest, weight/mass, heavy(er)/light(er), wid(er)/narrow(er), balanced, length, height, centimetre (cm), non-standard units, longest/tallest/	standard units, estimate, order, record results, kilogram (kg), gram (g), half as, temperature, Celsius, quarter full, three quarters full, litres (I) millilitres (ml), intervals of time, quarter to/past, duration, m/cm, I/ml, degrees (°), sequence	millimetres (mm), kilometres (km), a.m/p.m, digital, quicker/slower earlier/later

Coometra	shortest, ruler, volume, capacity, volume, month, year, time, analogue, o'clock, half past, second/hour/minute s, before/after, first/next, then/now, today/yesterday/to morrow, morning/afternoon, evening/night, chronological order, days of the week, calendar, months of the year, money, coins, notes, pounds (£), pence (p), half/half full, empty, measure	analogue, digital, value, change	
Geometry	2d shapes, rectangle, square, circle, triangle, pentagon, properties, sorting diagram, 3d shapes, cuboids, cubes, cone, spheres, pyramids, cylinders, faces, position, in front of, beside, inside/outside of, grids, near/far second (2 nd), third (3 rd) fourth (4 th), direction forwards/backwards, whole turn, half turn, quarter turn, three- quarter turn, clockwise, movement, up/down, left/right, between, around, through, beneath	pentagon, hexagon, line of symmetry, polygon, quadrilateral, cylinder, edges, vertex/vertices, prism, faces, anti-clockwise, straight line, rotation (turn), arrange, sequences, right angle (turn)	heptagon, octagon, right angle, horizontal, vertical, ordinal
Statistics		pictograms, tally chart, block diagram, category, sorting, totalling, comparing, tables	bar chart

In Year 2, the children will be taught:		
Number and Place Value		
Focus	Progression of skills	
	in steps of 2, 3, 5 from 0 forwards and backwards	
count	in tens from any number forwards and backwards	
	in halves and quarters up to 10	
recognise place	of each digit in a 2-digit number (tens and ones)	
value		
identify and estimate	numbers using different representations including number lines	
compare and order	numbers up to 100	
	Using the signs < > and =	
read and write		
words and	0 – 100	
numerals		
solve problems	using place value and number facts	







	Number – multiplication and division	
Focus	Progression of skills	
	multiplication and division facts for 2x, 5x, 10x	tables
	odd and even numbers	
	within the multiplication tables	
	using x (multiplication) ÷ (division) and = signs	to record
multiply and divide	using:	
	 arrays repeated addition 	
	 repeated addition mental methods 	
	 multiplication and division facts 	
	multiplication of two number can be done in	any order
snow	(commutative) but division of one number by	another cannot
Skill: 2 times table		
		Encourage daily
	0 2 4 6 8 10 12 14 16 18 20 22 24	counting in multiples both
	- mmmmm -m-m-m-	This can be supported
		using a number line or a
		hundred square. Look for
		patterns in the two times
		manipulatives to support.
1 ② 3 ④ 5		
11 (2) 13 (14) 15 21 (22) 23 (24) 25		Notice how all the
31 3 33 35		numbers are even and there is a pattern in the
41 🕢 43 🕢 45		ones. Use different
		models to develop
0 1 2 3 4	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	fluency.
Skill: 5 times table		
		Encourage daily
		counting in multiples both
		torwards and backwards.
an an	Mr Mr	using a number line or a
		hundred square. Look for
(ets) (ets) (ets) (ets)	is)(eis)(eis)	patterns in the five times
		Table, Using concrete
1 2 3 4 5 11 12 13 14 11		
21 22 23 24		Notice the pattern in the
31 32 33 34 33		ones as well as
		nigniigniing the odd, even odd even pattern
0 1 2 3 4	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	oven panen.

Skill: 10 times table	
$\begin{array}{c} \hline \\ 0 & 0 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 0 \\ \hline \\$	Encourage daily counting in multiples both forwards and backwards. This can be supported using a number line or a hundred square. Look for patterns in the ten times table, using concrete manipulatives to support. Notice the pattern in the digits - the ones are always 0, and the tens increase by 1 ten each time.
Skill: Solve 1-step problems involving multiplication	
$ \begin{array}{c} \end{array} \end{array} $ $ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} $ $ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} $ $ \begin{array}{c} \end{array} $ \\ \begin{array}{c} \end{array} $ \begin{array}{c} \end{array} $ \\ \begin{array}{c} \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\	Children represent multiplication as repeated addition in many different ways. In Year 1, children use concrete and pictorial representations to solve problems. They are not expected to record multiplication formally. In Year 2, children are introduced to the multiplication symbol.
Skill: Solve 1-step problems involving division (sharing)	
20 1 ? ? ? ? ? There are 20 apples altogether.	Children solve problems by sharing amounts into equal groups. In Year 1, children use concrete and pictorial representations to solve
They are shared equally between 5 bags. How many apples are in each bag? $20 \div 5 = 4$	problems. They are not expected to record division formally. In Year 2, children are introduced to the division symbol.

Skill: Solve 1-step problems involving division (grouping)	
	Children solve problems by grouping and counting the number of groups. Grouping encourages children to count in multiples and links to repeated
There are 20 apples altogether. They are put in bags of 5. How many bags are there?	line.
$20 \div 5 = 4$	They can use concrete representations in fixed groups such as number shapes which helps to show the link between multiplication and division.

Number – fractions		
Focus	Progression of skills	
recognise, find, name and write	1_3^{-1} , 1_4^{-1} , 2_4^{-1} , 3_4^{-1} of a length, shape, set of objects or quantity	
write	simple fractions of number e.g. $\frac{1}{2}$ of 6 = 3	
recognise	equivalence of $^2/_4$ and $^1/_2$	
Measurement		
Focus	Progression of skills	
choose and use	 appropriate standard units to estimate and measure to the nearest appropriate unit: lengths and heights (m, cm with rulers and tape measures) mass/weight (Kg, g with scales) capacity and volume (Litres, ml with measuring vessels Temperature (°C with thermometers) 	
compare and order	lengths, heights, mass/weight and volume and record using > < and =	
recognise	symbols for £ and p	
combine	amounts (coins/notes) to make a particular value different combinations of coins that equal the same amount of money	
solve problems	in a practical context involving addition and subtraction of money of the same unit, including giving change.	
compare & sequence	intervals of time	
tell and write the	to five minutes (including quarter past/quarter to the hour)	
time	draw the hands on an analogue clock to show these times	
know	the number of minutes in an hour	
KIIOW	the number of hours in a day	

Geometry	
Focus	Progression of skills
Identify and	2-D shapesnumber of sidesline symmetry in a vertical line
describe the properties of	 3-D shapes number of edges number of vertices number of faces
identify	2-D shapes on the surface of 3-D shapes and everyday objects
order and arrange	mathematical objects in patterns and sequences
Use mathematical vocabulary to describe	 position, direction and movement movement in a straight line rotation as a turn rotation in terms of right-angle turns clockwise and anticlockwise
	Statistics
Focus	Progression of skills
interpret and construct	simple pictograms tally charts block diagrams
	by counting the number of objects in each category
ask and answer questions	by sorting categories by quantity about totalling and comparing categorical data

	Year 2			
	Maths areas of focus	Arithmetic teaching and practise focus (Fluency Bee)		Problem solving
utumn 1	Number Place value	Block 1 6 and 7		Problem Solving Strategies Lesson Thinking about Keeping Track
		Block 2 8 and 9		Spot the Shapes 1 MCfAP
		Block 3		Ladybirds in the Garden NRICH
		Block 4	-	At the Toy Shop
A	Number	Comparison to 10 Block 5	gge	MCtAP Heads and Feet
	Addition and	Addition and subtraction	S1	NRICH
	subtraction	Block 6		A sauare of circles NZ Maths
				Problem Solving Strategies Lesson <u>Thinking about working systematically</u>
		Block 7 Comparison to 20		Jack and the Beanstalk MCfAP
mn 2		Block 1 1 more (within 20)		Circles and Oblongs NZ Maths
Autu	Geometry Shape	Block 2 1 less (within 20)		<u>Triangle Animals</u> NRich
		Block 3		Biscuit Decorations NRich
		Make connections		Card Sharp MCfAP
	Measurement			Problem Solving Strategies Lesson
	Money	Block 4 Odd and even	ge 2	<u>Next Domino</u>
	Number		Stag	NRICH Multiple Madness
l Gui	Multiplication and division	Block 5 Doubles to 20		Hamilton Trust
Spri				NZ Maths
		Block 6 Near doubles		Missing Middles NRICH
		Block 7 Add 2		Street Sequences NRICH
		Block 8		Choose street numbers appropriate to Y2 Problem Solving Strategies Lesson
	Measurement	Subtract 2		
2	Length and height	Block 1 Add through 10	Stage 3	
oring	Measurement			
Å	Mass, capacity and temperature	Block 2 Subtract through 10		
		Diante 2		
		Bonds to 20		
	Number Fractions	Block 1	age 4	Problem Solving Strategies Lesson
		How many?		
1er 1		Block 2 Comparison to 100	~~	
L L L	*Measurement	Bingle 1		
S	lime	Introduction to multiplication and division		
Summer 2	*Statistics	Block 2 The 2 times-table		Problem Solving Strategies Lesson
	*Geometry		ge 5	
	rosition and direction	Block 3 The 10 times-table	sta	
	Consolidation			
	*Time built in for NC	Block 4		
	tests earlier this term.	The 5 times-table		

Milestones – By the end of Year 3, children will demonstrate...

- Children in Year 3 develop fluency in using the four operations for whole numbers. They learn written methods to structure their calculations as well as becoming increasingly accurate with their mathematical reasoning.
- Count from 0 in multiples of 4, 8, 50 and 100
- Find 10 or 100 more or less than a given number
- Count, read, write and order numbers to 1000 both in numerals and in words
- Add and subtract numbers mentally and using written methods up to 3 digits
- Recall and use multiplication and corresponding division facts for the 3, 4 and 8 times tables
- Write and calculate multiplication and division statements using known tables, beginning with mental methods and progressing to written methods.
- Count up and down in tenths
- Recognise, find and write fractions of a set of objects or a number, including unit fractions and non-unit fractions and begin to add and subtract fractions with the same denominator within 1 whole.
- They need to use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, temperature, time and money (giving change in £ and pence).
- Tell the time from an analogue clock using Roman numerals from I to XII and 12/24-hour clocks.
- Know number of seconds in a minute and number of days in each moth, year and leap year.
- Recognise angles as a description of a turn and identify right angles in shapes. Know whether angles are greater than or smaller than a right angle.

According to the National Curriculum, children should be taught:

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

The new vocabulary the Year 3 children will use will include:					
	Tier 1	Tier 2	Tier 3		
Place Value	count in steps, count in multiples, place value, estimate, compare (<, >, =), placeholder, hundreds, representation	ascending, descending, 10/100 more, 10/100 less, thousands, identify, flexible partitioning	negative numbers 1000 more/less, round		
Addition and subtraction	sum, plus, 3-digit number, commutative, inverse, missing number problem, altogether, total take away/minus	column addition/subtraction estimate	4-digit number, operations, written methods		
Multiplication and division	multiplication (times) tables, commutative, x and ÷	derived facts, positive integer scaling problems, correspondence problems	factor, product, divisor, remainders		
Fractions/Decimals /Percentages	three quarters, third, two quarters, equivalent fractions, unit/non unit fractions, numerator, denominator	tenths	decimal, equivalence, hundredths, integer		
Measurement	standard units, estimate, order, record results, kilogram (kg), gram (g), half as, temperature, Celsius, quarter full, three quarters full, litres (I) millilitres (mI), intervals of time, quarter to/past, duration, m/cm, I/mI, degrees (°), sequence, analogue, digital, value, change	millimetre (mm), kilometre (km), Roman numerals, 12- hour clock, 24-hour clock, a.m/p.m, noon, midnight, leap year, digital	convert, rectilinear figure		

Geometry	pentagon, hexagon,	heptagon, octagon,	trapezium, rhombus,
	line of symmetry,	orientations, angles,	geometric shapes,
	polygon,	acute/obtuse/right	grid, regular/irregular
	quadrilateral,	angles, greater/less	(polygons), ordinal
	cylinder, edges,	than a right angle,	
	vertex/vertices, prism,	horizontal/vertical	
	faces, anti-clockwise,	lines, perpendicular	
	straight line, rotation	lines, parallel lines,	
	(turn), arrange,	ordinal	
	sequences,		
	right angle (turn)		
Statistics	pictograms, tally	bar chart, one/two-	interpret
	chart, block diagram,	step problem	
	category, sorting,		
	totalling, comparing,		
	tables		

In Year 3, the children will be taught:							
Number and Place Value							
Focus	Progression of skills						
count	from 0 in multiples of 4, 8, 50 & 100						
recognise	the place value of each digit in a three-digit and ones)	t number (hundreds, tens					
Identify, represent and estimate	numbers using different representations						
find	10 or 100 more or less than a given number						
compare and order	numbers up to 1000						
read and write	numbers up to 100 in numerals and words						
solve	number problems and practical problems						
	Number – addition and subtraction						
Focus	Progression of skills						
	two 2-digit numbers (answers could exceed	100)					
Mentally add and	a three-digit number and ones						
subtract	a three-digit number and tens						
	a three-digit number and hundreds						
Use written methods	e written methods to add and subtract numbers with up to 3 digits (column addi- and subtraction)						
estimate	the answer to a calculation						
check answers	s using inverse operations						
	involving missing numbers						
solve problems	using place value						
solve problems	using more complex addition and subtraction						
	using number facts						
Skill: Add 1-digit and 2-	digit numbers to 100	1					
	$\begin{array}{c} + + + + + + + + + + + + + + + + + + +$	When adding single digits to a two-digit number, children should be encouraged to count on from the larger number.					
? 	$38 40 43$ $38 + 5 = 43$ $11 38 + 5 = 43$ $11 12 3 4 5 6 7 8 9 10 \\ 11 12 13 14 15 16 17 18 19 20 \\ 21 22 23 24 25 25 27 28 23 50 \\ 13 22 33 33 35 56 57 33 39 40 \\ 41 42 43 44 45 46 47 48 45 50 \\ 15 12 25 54 45 56 67 58 69 60 \\ 16 26 36 46 65 66 67 68 69 70 \\ 17 12 73 74 75 76 77 78 79 80 \\ 18 28 38 48 65 66 67 68 69 70 \\ 19 22 33 44 55 66 67 78 89 90 \\ 19 22 33 44 55 66 67 78 89 90 \\ 19 22 33 44 56 66 77 78 79 80 \\ 19 22 33 44 65 66 67 78 89 90 \\ 19 22 33 44 55 66 77 78 79 80 \\ 19 22 33 44 56 66 77 78 79 80 \\ 19 22 33 44 56 66 77 78 79 80 \\ 19 22 33 44 56 66 77 78 79 80 \\ 19 22 33 44 56 66 77 78 79 80 \\ 19 22 33 44 56 66 77 78 79 80 \\ 19 22 33 44 56 66 77 78 79 80 \\ 19 22 33 44 56 66 77 78 79 80 90 \\ 10 22 33 44 56 66 77 78 79 80 90 10} \\ 10 10 10 10 10 10 10 10$	They should also apply their knowledge of number bonds to add more efficiently e.g. 8 + 5 = 13 so 38 + 5 = 43. Hundred squares and straws can support children to find the number bond to 10.					




Number – multiplication and division		
Focus	Progression of skills	
recall and use	multiplication and division facts for the 3x, 4x & 8x multiplication tables	
write and calculate	mathematical statements for multiplication and division using tables that they know	
	mathematical statements for two-digit numbers multiplied by one- digit numbers	
Use	mental strategies progressing to written methods	
	missing number problems using multiplication and division	
solve problems including	positive integer scaling problems	
	correspondence problems in which 'n' objects are connected to 'm' objects	
Skill: 3 times table		

Encourage daily counting in multiples both forwards and backwards. This can be supported using a number line or a hundred square. Look for patterns in the three times table, using concrete manipulatives to support.

Notice the odd, even, odd, even pattern using number shapes to support. Highlight the pattern in the ones using a hundred square.







Number – fractions		
Focus	Progression of skills	
count	up and down in tenths	
recognise	that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10	
recognise, find and write	fractions of a discrete set of objects (unit and non-unit fractions with small denominators).	
recognise and use	fractions as numbers (unit and non-unit fractions with small denominators)	
recognise and show	equivalent fractions with small denominators, using diagrams	
add and subtract	fractions with the same denominator within one whole	
compare and order	unit fractions	
	fractions with the same denominator	
solve problems	that involve all of the above	

Measurement		
Focus	Progression of skills	
measure, compare,	lengths (m/cm/mm)	
add and subtract	mass (kg/g)	
	volume/capacity (I/mI)	
measure	the perimeter of simple 2-D shapes	
add and subtract	amounts of money to give change, using \pounds & p in practical contexts.	
T U U U	from an analogue clock	
I ell and write the	using roman numerals I to XII	
	using 12 hour and 24 hour clocks.	
estimate and read	time with increasing accuracy to the nearest minute	
record and compare	time, in terms of minutes, seconds and hours	
•	the number of seconds in a minute	
know	number of days in a month	
	number of days in a year or leap year.	
compare	durations of events	
	Geometry	
Focus	Progression of skills	
draw or make	2-D and 3-D shapes using modelling materials	
	3-D shapes in different orientations and describe them.	
	angles as:	
recognise	a property of shape	
	d description of turn.	
	four right angles make a complete turn	
	right angles	
identify	whether angles are greater or less than a right angle	
	Statistics	
Focus	Progression of skills	
interpret and present data	using bar charts, pictograms, tables	
solve	one-step and two-step questions using information presented in scaled bar charts, pictograms and tables.	

		Year 3			
	Maths areas of focus	Arithmetic Practice (Speedy Maths) "indicates new content			Problem solving
	Number Place value		Know 2x, 5x 10x tables and related division facts at speed.	Know doubles and halves to 20.	Problem Solving Strategies Lesson Thinking about Keeping Track
mn 1		*Know 3x table at speed	Add 1-digit to 2 digit numbers Subtract 1-digit from 2-digit numbers	Add tens to 2-digit numbers Subtract tens from 2-digit numbers.	Roly Poly MCfAP
		*Know 10 more than 3- digit numbers	Know 3x table at speed Know addition and subtraction facts to 20.	Know 2x, 5x 10x tables and related division facts at speed.	One of Thirty-Six NRICH
Autu	Number Addition and	*Know 10 less than 3-digit numbers.	Know 3x table at speed Double and half numbers to 20 at speed.	Know 2x, 5x 10x tables and related division facts at speed.	What do you need? NRICH
	sobraction	*Know 4x table at speed	Know 10 more than 3-digit numbers Know 10 less than 3-digit numbers	Know addition and subtraction facts to 20. 2x, 5x, 10x tables including division facts.	Odds and Evens MCfAP
		*Add two tens at speed	Know 4x table at speed Know 3x table at speed	Add and subtract 2-digit to 1-digit at speed	Four Colours NRICH
			Add two tens at speed Know 3x and 4x tables at speed	Know 10 more and 10 less than 3 digit numbers	Problem Solving Strategies Lesson Thinking about working systematically
		*Know 6x table at speed	Add two tens at speed Know pairs of numbers to 30 and 40.	Add and subtract tens from 2-digit numbers.	Card Tricks MCfAP
mn 2	Number Multiplication	*Add 1-digit to 3-digit numbers	Know 3x, 4x and 6x table at speed Add two tens at speed.	Know division facts for 2x, 5x, 10x tables at speed.	A savare of circles NZ Maths
Autu	and Division A	*Subtract 1-digit from 3- digit numbers	Know 3x and 6x tables at speed. Add two tens at speed.		School Fair Necklaces NRich
		*Know mixed tables 2/3/4/5/6/10 at speed.	Add 1-digit to 3-digit numbers Subtract 1-digit from 3-digit numbers		King Amold MCfAP
		*Subtract two tens at speed.	Know mixed 2x, 3x, 4x, 5x, 6x, 10x tables at speed.	Add two tens at speed Know division facts for 2x, 5x, 10x tables.	<u>Teddy Town</u> NRich
	Number Multiplication		Know 2x, 3x, 4x, 5x, 6x, 10x tables at speed Add and subtract two tens at speed.	Know 10 more and 10 less than 3-digit numbers.	Problem Solving Strategies Lesson Thinking about looking for pottlems
	and Division B	*Know ÷ facts relating to 6x table at speed			Toothpick Squares NZ Maths
1 01		*Mentally add pairs of 2- digit numbers at speed	Know division facts relating to the 6x table at speed	Know 2x, 3x, 4x, 5x, 6x, 10x tables at speed.	Domino Sets NRICH
Sprin	Measurement Length and		Mentally add pairs of 2-digit numbers Subtract 1-digit from 2-digit at speed	Double/half numbers to 20. Know +/- facts to 20. Know ÷ facts for 6x table	Reversing Numbers NZ Maths
	perimeter	*Know ÷ facts relating to 4x table at speed.	Mentally add pairs of 2-digit numbers		Cannon Balls NZ Maths
		*Mentally subtract pairs of 2-digit numbers.	Know pairs of numbers to 20		L Shaped Models PNS
	Number Fractions A		Mentally subtract pairs of 2-digit numbers Add 1-digit to 3-digit numbers	Know 2x, 3x, 4x, 5x, 6x , 10x tables Know division facts for 4x, 2x, 5x, 10x	Problem Solving Strategies Lesson
		*Know ÷ facts relating to 3x table at speed.	Mentally add and subtract pairs of 2-digit numbers.		
ng 2		*Know pairs of numbers to 100	Know division facts relating to 3x table Mentally + and - pairs of 2-digit numbers.	Know 2x, 3x, 4x, 5x, 6x, 10x tables.	
Spri	Measurement Mass and		Know pairs of numbers to 100 Know division facts for 3x, 4x, 6x tables		
	capacity	*Know ÷ facts for mixed tables at speed (2/3/4/5/4/10)	Know pairs of numbers to 100. Double and half numbers to 20 at speed.	Mentally add and subtract pairs of 2-digit numbers.	
			Mentally + and - pairs of 2-digit numbers + and - 1-digit and 3-digit numbers	Know 2x, 3x, 4x, 5x, 6x, 10x tables and division facts.	
	Number Fractions B		Know 2x, 3x, 4x, 5x, 6x, 10x tables and division facts.	Know pairs of numbers to 100	Problem Solving Strategies Lesson
		*To multiply any number by 10 at speed.	Know 2x, 3x, 4x, 5x, 6x, 10x tables and division facts.	Know pairs of numbers to 100.	
ner 1	Measurement Money	*To ÷ numbers ending in zero by 10 at speed.	Know 2x, 3x, 4x, 5x, 6x, 10x tables and division facts.	To multiply any number by 10 at speed.	
Sumr		*Add tens to 3-digit numbers at speed	To ÷ numbers ending in zero by 10 at speed, Know pairs of numbers to 100.	Know 2x, 3x, 4x, 5x, 6x, 10x tables and division facts.	
	Measurement Time	*Subtract tens from 3- digit numbers at speed	Add tens to 3-digit numbers at speed To x and ÷ numbers by 10 at speed.	Know 2x, 3x, 4x, 5x, 6x, 10x tables and division facts.	
		*To say 100 more than numbers to 3-digit.	Subtract tens from 3-digit numbers. Know pairs of numbers to 100.	Know 2x, 3x, 4x, 5x, 6x, 10x tables and division facts at speed	
		*To say 100 less than numbers to 3-digit	To say 100 more than numbers to 3-digit. Know pairs of numbers to 20.	Know 2x, 3x, 4x, 5x, 6x, 10x tables and division facts.	Problem Solving Strategies Lesson
	Geometry Shape	*To add hundreds to 3- digit numbers at speed.	To say 100 more/less than numbers to 3- digit. To x and ÷ any number by 10	Know 2x, 3x, 4x, 5x, 6x, 10x tables and division facts. Know pairs of tens to 100.	
ler 2		*To - hundreds from 3- digit numbers at speed	To say 100 more/less than numbers to 3- digit. Know pairs of numbers to 100.	To add hundreds to 3-digit numbers at speed Know 2x, 3x, 4x, 5x, 6x, 10x tables and ÷ facts.	
Summ	Statistics		To +/ -hundreds and 3-digit numbers and Add tens to 3-digit numbers at speed.	Know 2x, 3x, 4x, 5x, 6x, 10x tables and division facts.	
Ĩ		*Double and half tens at speed	Know 2x, 3x, 4x, 5x, 6x, 10x tables and ÷ facts. Add 1's to 3-digit numbers at speed.	Mentally add and subtract pairs of 2-digit numbers	
	Consolidation		Know 2x, 3x, 4x, 5x, 6x, 10x tables and division facts. +/- pairs of 2-digit numbers.	Double and half tens at speed.	

Long Term Plan: Year 4

Milestones – By the end of Year 4, children will demonstrate...

By the end of Year 4 children have memorised the multiplication tables up to and including the 12x table and use these with precision and confidence. They develop fluency in using formal written methods for addition and subtraction and develop formal written methods for multiplication and division.

- Compare and order numbers beyond 1000 and find 1000 more and less than any number
- Round any number to the nearest 10, 100 or 1000
- Count from 0 in multiples of 6, 7, 9, 25 and 1000
- Recognise Roman numerals I to C
- Recall and use multiplication and division facts for tables up to 12 x 12
- Add and subtract 4-digit number using an efficient written method (column)
- Multiply and divide 2 and 3-digit numbers by 1-digit numbers using a written format
- Count up and down in hundredths
- Recognise and write fractions and decimals of any number of tenths or hundredths
- Recognise and write decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{3}{4}$
- Convert hours to minutes, minutes to seconds, years to months and weeks to days
- Solve 2-step problems involving the 4 operations and written methods where possible
- Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
- Understand angles as the measurement of a turn. Compare acute and obtuse angles with right angles.
- Find the area of rectilinear shapes by counting squares
- Round decimals with one decimal place to the nearest whole number

According to the National Curriculum, children should be taught:

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication tables and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

The new vocabulary	the Year 4 children will u	use will include:	
	Tier 1	Tier 2	Tier 3
Place Value	ascending, descending, 10/100 more, 10/100 less, thousands, identify, flexible partitioning	negative numbers, 1000 more/less, round	ten thousands, one hundred thousands, one million
Addition and subtraction	column addition/subtraction estimate	4-digit number, operations, written methods	
Multiplication and division	derived facts, positive integer scaling problems, correspondence problems	factor pairs, short multiplication, factor product, divisor, remainders	common factors, dividend, quotient
Fractions/Decimals /Percentages	tenths	decimal, decimal places, decimal point, equivalence, hundredths, integer, convert, proper/improper fractions, mixed numbers	thousandths, per cent (%)
Measurement	millimetre (mm), kilometre (km), Roman numerals, 12- hour clock, 24-hour clock, a.m/p.m, noon, midnight, leap year, digital	rectilinear figure, area, perimeter, convert, decimal notation	
Geometry	heptagon, octagon, orientations, angles, acute/obtuse/right angles, greater/less than a right angle, horizontal/vertical lines, perpendicular lines, parallel lines, ordinal	isosceles, equilateral, scalene, trapezium, rhombus, parallelogram, geometric shapes, co-ordinates, first quadrant, grid, translation, plot, x/y axis, regular/irregular polygon	reflex angles
Statistics	bar chart, one/two- step problem	time graph, discrete/continuous data, interpret	timetable, line graph

In Year 4, the children will be taught:		
Number and Place Value		
Focus	Progression of skills	
count	in multiples of 6, 7, 9, 25 and 1000	
Coom	backwards through zero to include negative numbers	
find	1000 more or less than a given number	
raaaniaa	the place value of each digit in a four-digit number (thousands,	
	hundreds, tens, and ones)	
order and compare	numbers beyond 1000	
identify, represent	numbers using different representations	
and estimate		
round	any number to the nearest 10, 100 or 1000	
solvo	number and practical problems that involve all of the above and	
SOIVE	with increasingly large positive numbers	
road	roman numerals to 100 (I to C) and know that over time, the numeral	
ledu	system changed to include the concept of zero and place value.	

Number – addition and subtraction			
Focus	Progression of skills		
add and subtract	numbers with up to 4 digits using the written methods of columnar addition and subtraction where appropriate		
check answers	by estimating by using inverse operations		
solve	two-step problems involving addition and subtraction in contexts, deciding which operations and methods to use and explaining why		
Skill: Add numbers w	ith up to four digits	-	
1,378 (2,148 (2,148 (2,148)	$\frac{2,138}{2,138}, 1,378}, \frac{1}{3}, \frac{3}{7}, \frac{1}{8}}{3,5,2,6}, \frac{2,138}{3,5,2,6}, 2,13$	Base 10 and place value counters are the most effective manipulatives when adding numbers with up to 4 digits. Ensure children write out their calculation alongside any concrete resources so they can see the links to the written column method. Plain counters on a place value grid can also be used to support learning.	



Number – multiplication and division			
Focus	Progression of skills		
recall	multiplication and division facts for multiplication tables up to 12 × 12 at speed		
use	 place value, known and derived facts to multiply and divide mentally including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers 		
recognise	and use factor pairs and commutativity in mental calculations		
use formal written layout	to multiply two-digit and three-digit numbers by a one-digit number		
solve problems	 involving multiplying and adding including: using the distributive law to multiply two-digit numbers by one digit integer scaling problems harder correspondence problems such as n objects are connected to m objects. 		

Skill: 6 times table	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Encourage daily counting in multiples, supported by a number line or a hundred square. Look for patterns in the six times table, using manipulatives to support. Make links to the 3 times table, seeing how each multiple is double the threes.
0 6 12 18 24 30 36 42 48 54 60 66 72	group of five multiples. Highlight that all the multiples are even using number shapes to support.
Skill: 9 times table	
9 18 27 36 45 54 63 72 81 90 1 22 33 34 55 66 7 8 99 10 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 20 28 29 30 31 32 33 34 45 63 72 81 90 51 52 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 60 82 83 84 85 86 87 88 89 69 91 92 93 94 95 96 97 98 69 100	Encourage daily counting in multiples both forwards and backwards. This can be supported using a number line or a hundred square. Look for patterns in the nine times table, using concrete manipulatives to support.
	Notice the pattern in the tens and ones using the hundred square to support as well as noting the odd, even pattern within the multiples.









Number – fractions including decimals		
Focus Progression of skills		
count	up and down in hundredths	
rocognico	families of common equivalent fractions and show these using diagrams	
recognise	that hundredths arise when dividing an object by one hundred and dividing tenths by ten	
recognise and	decimal equivalents of any number of tenths or hundredths	
write	decimal equivalents to one quarter, one half and three quarters	
add and subtract	subtract fractions with the same denominator	
find	the effect of dividing a one-digit or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths	
round	decimals with one decimal place to the nearest whole number	
compare	numbers with the same number of decimal places up to two decimal places	
solve problems	 involving: increasingly harder fractions to calculate quantities; fractions to divide quantities including non-unit fractions where the answer is a whole number 	
	decimals to two decimal places	

Measurement		
Focus	Progression of skills	
convert	between different units of measure [for example, kilometre to metre; hour to minute]	
measure and calculate	the perimeter of a rectilinear figure (including squares) in centimetres and metres	
find	the area of rectilinear shapes by counting squares	
estimate, compare and calculate	different measures, including money in pounds and pence	
read, write and convert	time between analogue and digital 12- and 24-hour clocks	
Solve problems	involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	
	Geometry – properties of shape	
Focus	Progression of skills	
compare and classify	geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	
idontify	acute and obtuse angles	
ideniiy	lines of symmetry in 2-D shapes presented in different orientations	
compare and order	angles up to two right angles by size	
complete	a simple symmetric figure with respect to a specific line of symmetry.	

Geometry – position and direction			
Focus	Progression of skills		
describe	positions on a 2-D grid as coordinates in the first quadrant movements between positions as translations of a given unit to the left/right and up/down		
plot	specified points and draw sides to complete a given polygon.		
	Statistics		
Focus	Progression of skills		
interpret and present	discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.		
solve problems	using information presented in bar charts, pictograms, tables and other graphs which involve: • comparison • sum • difference		

	Year 4				
	Maths areas of focus	Arithmetic Practice (Speedy Maths) *indicates new content			Problem solving
	Number Place value		Know 2/3/4/5/6/10x tables and related ÷ facts at speed. Add pairs of tens at speed.	Know 10/100 more/less than 3-digit numbers. Add pairs of 2-digit numbers +/- 1-digit and 3-digit numbers.	Problem Solving Strategies Lesson Thinking about Keeping Track
			Know 2/3/4/5/6/10x tables and related ÷ facts at speed. Know pairs of numbers to 100.	Add 1-digit to 3-digit numbers Know 100 more than any number.	Liahthouses MCfAP
u mun		*Know 9x table at speed	Add and subtract pairs of 1-digit and 2-digit numbers Know doubles and halves of tens	+/- 1-digit numbers and 3-digit numbers. Know pairs of numbers to 100.	Straw Squares MCfAP
Aut		*Know pairs of tens to 90	Know 9x tables at speed and related ÷ facts for 2x, 3x, 4x, 5x, 6x, 10x at speed.	Add hundreds to 3-digit numbers at speed. Know doubles and halves of tens.	Sitting Round the Party Tables NRICH
	Number Addition and	*Know 7x table at speed	Know 2/34/5/6/10x tables and related ÷ facts at speed. Know 9x table at speed.	x and ÷ any number by 10, Know pairs of tens to 90, +/- tens with 3-digit numbers	Zios and Zepts NRICH
	subtraction		Know 7x/9x table at speed. +/- pairs of 2-digit numbers at speed.	Know halves and doubles of numbers to 20. Know number bonds to 20.	A thousand seconds NZ Maths
		*Know 8x table at speed	Add and subtract hundreds and 3-digit numbers. Know pairs of numbers to 100.	Know 2/3/4/5/6/10x tables and related ÷ facts at speed. Divide any number by 10.	Problem Solving Strategies Lesson <u>Thinking about working</u> systematically
	Measurement Area	*Give change from £1 at speed	Know 2/3/4/5/6/10x tables and related ÷ facts at speed. Know 8x table at speed.	Add and subtract tens with 3-digit numbers at speed. Know pairs of tens to 90.	Three in a Line NZ Maths
umn 2	Number Multiplication and division	*Know 11x table at speed	Know $2/3/4/5/6/10x$ tables and related \div facts at speed. Give change from £1 at speed.	Know 7x, 8x, 9x table at speed. +/- pairs of 2-digit numbers at speed.	Super Darts NZ Maths
Aut	*	*Know pairs of numbers to 90	Know 7/8/9/11x tables and 2/3/4/5/6/10x tables and related ÷ facts at speed.	Know number bonds to 20 and related facts at speed.	Three Monkeys MCfAP
		*Know 12x table at speed	Give change from £1 at speed Know pairs of numbers to 90.		Five Coins NRich
	Consolidation		+/- pairs of 2-digit numbers at speed. Know pairs of numbers to 100.		Half Time NRich
	Number Multiplication	*Continue simple number patterns	Know 2/3/4/5/6/10x tables and related ÷ facts at speed.	Give change from £1 at speed.	Problem Solving Strategies Lesson Thinking about looking for patterns
	ana aivision B	*Know all tables mixed at speed.	Continue simple number patterns Know pairs of numbers to 90.	Add and subtract pairs of 2-digit numbers at speed.	Jo's Table NZ Maths
ing 1		*Know simple equivalent fractions	Know all tables mixed at speed. Know pairs of numbers to 100.	Continue simple number patterns	Unravelling Sequences NRICH
Spi	Measurement Length and perimeter	*Know pairs of tens to 180	Know simple equivalent fractions +/- pairs of 2-digit numbers at speed.	Know simple equivalent fractions. Know all tables mixed at speed.	Amv's Dominos NRICH
		*Convert cm to m and vice versa	Know pairs of numbers to 100 and pairs of tens to 180.	Know all tables and ÷ facts for 2x, 3x, 4x, 5x, 6x, 10x at speed. Continue simple patterns.	Trianaular Numbers NZ Maths
	Number Fractions		Know all tables mixed at speed. Convert cm to m and vice versa	Continue simple number patterns	NZ Maths
		*Know division facts for 9x table at speed.	Add and subtract pairs of 2-digit numbers at speed. Know pairs of tens to 180.		Lesson
		*Use tables facts to work out related x at speed.	Know simple equivalent fractions Know pairs of numbers to 90.		
ing 2		*Know division facts for 7x table at speed.	Convert cm to m and vice versa Continue simple number patterns	Use tables facts to work out related x at speed. Know pairs of tens to 180.	
Spri	Number Decimals A	*Convert cm to mm and vice versa	Continue simple number patterns Know pairs of numbers to 100.		
		*Know division facts for 8x table at speed.	Know simple equivalent fractions Give change from £1 at speed	Use tables facts to work out related x at speed. Convert cm to mm and vice versa.	
			+/- pairs of 2-digit numbers at speed. Know pairs of tens to 180.	Use tables facts to work out related x at speed. Convert cm to mm and vice versa.	
	Number Decimals B		Know all tables to 12 x 12 at speed. Add three 1-digit numbers at speed.	Use tables facts to work out related x at speed.	Problem Solving Strategies Lesson
		*Know division facts for 11x table at speed.	Know pairs of numbers to 100. Give change from £1 at speed	Know pairs of tens to 180 Add three 1-digit numbers at speed.	
mer 1	Measurement Money		Add and subtract pairs of 2-digit numbers at speed. Convert cm to mm and vice versa.	Use tables facts to work out related x at speed.	
Sum		*Add three tens at speed.	Know pairs of numbers to 90 Add 3 1-digit numbers at speed	Continue simple number patterns	
	Measurement Time	*Know division facts for 12x table at speed.	Add and subtract pairs of 2-digit numbers at speed.	Know pairs of tens to 180 Add three tens at speed.	
			Give change from £1 at speed	Use tables facts to work out related x at speed.	Brohlers Coluins Strategies
	Consolidation		Add and subtract pairs of 2-digit numbers at speed. Add three tens at speed.	Convert cm to mm and vice versa Continue simple number patterns	Lesson
~	Shape	*Know all tables to 12x12 and ÷ facts at speed.	Know pairs of numbers to 100. Add 3 1-digit numbers at speed.	Use tables facts to work out related x at speed.	
mer	Statistic -		Know all tables to 12x12 including division facts at speed. Know pairs of tens to 180.	Add and subtract pairs of 2-digit numbers at speed. Know pairs of numbers to 90.	
Sum	Significs	*Use tables to work out related x and ÷ at speed.	Know all tables to 12x12 including division facts at speed.	Know pairs of numbers to 100. Give change from £1 at speed	
	Position and direction		Know all tables to 12x12 including division facts at speed.	+/-pairs of 2-digit numbers at speed. Use tables facts to work out related x at speed.	
			Know all tables to 12x12 including division facts at speed. Add three tens at speed.		

Milestones – By the end of Year 5, children will demonstrate...

By the end of Year 5 children are fluent in using written methods for all four operations. They make decisions about how to approach problems and work with whole and decimal numbers.

- Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit count forwards or backwards in steps of powers of 10 for any given number up to 1.000,000
- Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.
- Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000
- Read Roman numerals to ,1000 (M) and recognise years written in Roman numerals
- Add and subtract whole numbers with more than 4 digits, using formal written methods
- Solve addition and subtraction multi-step problems in context (such as length, money, mass and volume) deciding which operations and methods to use and why. They will use knowledge of factors, multiple, squares, cubes and scaling by simple fractions.
- Identify multiples and factors, including factor pairs of a number and common factors of two numbers
- Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.
- Establish whether a number to 100 is prime and recall prime numbers to 19.
- Multiply numbers up to 4-digits by a 1 or 2-digit number using a formal written method (long multiplication for 2-digit numbers)
- Divide numbers up to 4-digits by a 1-digit number using a formal written method (short division) interpreting remainders appropriately for the context.
- Recognise and use square and cube numbers and their respective notation (² and ³)
- Compare, order, add and subtract fractions whose denominators are all multiples of the same number
- Recognise mixed numbers and improper fractions and convert from one to the other
- Calculate and compare area using standard units (cm² and m²)
- Know that angles are measured in degrees. Estimate and compare acute, obtuse and reflex angles.
- 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.

According to the National Curriculum, children should be taught:

The principal focus of mathematics teaching in upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

The new vocabulary the Year 5 children will use will include:				
	Tier 1	Tier 2	Tier 3	
Place Value	negative numbers, 1000 more/less, round	ten thousands, one hundred thousands, powers of, one million	millions, ten millions	
Addition and subtraction	4-digit number, operations, written methods			
Multiplication and division	factor pairs, short multiplication, factor product, divisor, remainders	prime numbers, prime factors, composite numbers, square numbers (²), cube numbers (³), short division, common factors, long multiplication, division bracket	long division, multi-digit number	
Fractions/Decimals /Percentages	decimal, decimal places, decimal point, equivalence, hundredths, integer, convert, proper/improper fractions, mixed numbers	thousandths, per cent %, complements, proportions	percentages	
Measurement	rectilinear figure, area, perimeter, convert, decimal notation			
Geometry	isosceles, equilateral, scalene, trapezium, rhombus, parallelogram, geometric shapes, co-ordinates, first quadrant, grid, translation, plot, x/y axis, regular/irregular polygon	translation, reflection, square (cm ² /m ²), volume (cm ³ /m ³), metric/imperial units, inches (in), pounds (lb), pints (pt), reflex angles, angles on a straight line, angles around a point, missing angles, protractor, diagonals	radius, diameter, circumference	
Statistics	time graph, discrete/continuous data, interpret	timetable, comparison problems, sum problems, difference problems, line graph	pie chart, mean, average, data set	

In Year 5, the children will be taught:				
Number and Place Value				
Focus	Progression of skills			
count	in steps of powers of 10 for any given number forwards or backwards	up to at least 1 000 000		
	forwards and backwards with positive and ne including through zero	gative whole numbers		
round	any number to (up to 1 000 000) to the nearest 10, 100, 1000, 10 000, 100 000			
read, write, compare and order	numbers up to at least 1 000 000 determining digit	the place value of each		
interpret	negative numbers in context			
read	roman numerals to 1000 (M) and recognise ye	ears written in roman		
solve problems	using all of the above (number and practical	problems)		
	Number – addition and subtraction			
Focus	Progression of skills			
	whole numbers with more than four digits			
add and subtract	using columnar addition and subtraction where appropriate (written method)			
	using mental methods with increasingly large	numbers		
use rounding	to check answers			
	to determine levels of accuracy in the contex	t of a problem		
solve problems	multi-step addition and subtraction problems in context			
	decide which operations and methods to use and why			
Skill: Add numbers wi	th more than four digits			
?	? 104,328 61,731 61,731 61,731 ?	Place value counters or plain counters on a place value grid are the most effective concrete resources when adding numbers with more than 4 digits.		
HTh TTh	104,328 + 61,731 = 166,059 Th H T O $1 0 4 3 2 8$ $+ 6 1 7 3 1$ $1 6 6 0 5 9$ 1	At this stage, children should be encouraged to work in the abstract, using the column method to add larger numbers efficiently.		



	Number – multiplication and division		
Focus	Progression of skills		
identify	multiples and factors all factor pairs for a number all common factors for two numbers		
knowand use the vocabulary of prime numbers, prime factors and composite (non-prime numbers)all prime numbers to 19how to establish whether a number up to 100 is prime			
multiply	numbers up to 4-digits by 1-digit or 2-digit numbers using a formal written method including long multiplication for 2-digit numbers Mentally by drawing upon known facts		
divide	numbers up to 4-digits by a one-digit numbe method (short division) interpret remainders appropriately for the co	r using formal written	
multiply and divide	whole numbers and decimals by 10, 100, 100	0	
Skill: Multiply 4-digit numbers by 1-digit numbers When multiplying 4- on numbers, place value counters are the best manipulative to use of support children in the understanding of the formal written method. 1,826 × 3 = 5,478 Immediate Immediate		When multiplying 4- digit numbers, place value counters are the best manipulative to use to support children in their understanding of the formal written method. If children are multiplying larger numbers and struggling with their times tables, encourage the use of multiplication grids so children can focus on the use of the written method.	
20 30- 1- 22 × 31 =	$\frac{2}{100000000000000000000000000000000000$	 When multiplying a multi- digit number by 2-digits, use the area model to help children understand the size of the numbers they are using. This links to finding the area of a rectangle by finding the space covered by the Base 10. The grid method matches the area model as an initial written method before moving on to the formal written multiplication method. 	





Number – fractions, decimals and percentages			
Focus	Progression of skills		
compare and order	fractions whose denominators are all multiples of the same number		
identify, name and write	equivalent fractions of a given fraction represented visually including tenths and hundredths		
recognise	mixed numbers and improper fractions and convert from one to the other		
write	mathematical statements >1 as a mixed number e.g. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{2}{5}$		
	fractions with the same denominator		
	fractions where the denominators are multiples of the same number		
multiply	proper fractions and mixed numbers by whole numbers supported by materials and diagrams		
read and write	decimal numbers as fractions		
recognise and use	thousandths and relate them to tenths, hundredths and decimal equivalents		
round	numbers with 2 decimal places to the nearest whole number, and to 1 decimal place		
read, write, order and compare	numbers with up to 3 decimal places		
recognise	the per cent symbol (%)		
understand	that per cent relates to the number of parts per hundred		
write	percentages as a fraction with denominator 100		
wille	percentages as a decimal		
	involving numbers up to 3 decimal places		
solve problems	Requiring knowledge of decimal and percentage equivalents of $1/2$,		
	$\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.		

Measurement			
Focus	Progression of skills		
convert	between different units of measurement (e.g. km and m; cm and m; g and kg; litre and ml)		
understand and use	approximate equivalences between metric and common imperial units (inches, pounds, pints, miles)		
measure and calculate	the perimeter of composite rectilinear shapes in cm and m		
calculate and compare	area of rectangles (including squares) using cm ² and m ²		
estimate	area of irregular shapes volume and capacity		
Solve problems	 involving: converting between units of time using all four operations and involving measure (length, mass, volume, money, time) using decimal notation, including scaling 		
	Geometry		
Focus	Progression of skills		
identify	3-D shapes, including cubes and cuboids from 2-D representations angles at a point and one whole turn (360°) angles at a point on a straight line and ½ a turn (180°)		
know	angles are measured in degrees		
estimate and compare	acute, obtuse and reflex angles		
draw	given angles and measure them in degrees		
deduce	related facts from properties of rectangles finding missing lengths and angles		
distinguish	between regular and irregular polygons based on reasoning about equal sides and angles		
identify, describe and represent	 position of a shape following a reflection or translation: using appropriate language including coordinates in the first quadrant knowing that the shape has not changed. 		
	Statistics		
Focus	Progression of skills		
solve problems	comparison, sum and difference problems using information presented in a line graph		
complete, read and interpret	information in tables, including timetables		

	Year 5					
	Maths areas of focus	Arithmetic Practice (Speedy Maths) *indicates new content			Problem solving	
in 1	Number Place Value		Know all tables to 12x12 including facts at speed. Convert cm to m.	division	Know pairs of numbers to 100 Add and subtract pairs of 2-digit numbers.	Problem Solving Strategies Lesson Thinking about Keeping Track
			Know all tables to 12x12 including facts at speed.	division	Add and subtract pairs of 2-digit numbers at speed. Know pairs of numbers to 100.	Area and Perimeter NRICH
			Add and subtract pairs of 2-digit numbers at		Use tables to work out related x and ÷ at	Make 5 Numbers MCfAP
Autor	Number Addition and		Give change from £1 at speed Know pairs of tens to 180 Add and subtract pairs of 2-digit numbers at		Add three tens at speed.	Half Time NRICH
	subtraction	*Know pairs of			Use tables to work out related x and ÷ at	Spot the Shapes 2
	Number	*Convert m to km and	umbers to 180. speed. Continue simple number p Convert m to km and Know all tables to 12x12 including		speed. Know pairs of numbers to 180.	Peter's String
	and division	vice versa	facts at speed. Know pairs of numbers to 90. Convert m to km and vice versa		Convert cm to m and vice versa Use tables to work out related x and ÷ at	Problem Solving Strategies Lesson
		Convert Lite of and	Know pairs of numbers to 100. +/- pairs of 2-digit numbers at speed. Give		speed.	<u>Ihinking about working</u> systematically Three Digits
		vice versa	change from £1 at speed. Add three tens at speed.		simple number patterns.	MCfAP
mn 2	Number Fractions A	*Know pairs of hundreds to 1000.	Know all tables to 12x12 including facts at speed. Know pairs of num	division abers to 180.	Convert cm to mm and vice versa Convert L to ml and vice versa	Make 37 NRich
Autu		*Add 2-digit to 3-digit	+/- pairs of 2-digit numbers at spe pairs of hundreds to 1000 and pai	ed. Know rs of	Know all tables to 12x12 including ÷ facts at speed. Convert on to m and vice versa	Sticks Investigation Twinkl
			numbers to 180. Know all tables to 12x12 including	division	Use tables to work out related x and ÷ at	Darts
		+/- pairs of 2-digit numb	facts at speed. ers at speed. Add three tens at	Know pairs	speed. Add 2-digit to 3-digit numbers. of numbers to 90 and pairs of hundreds to	Button Up Some More
	Number	speed. Convert L to mile	and vice versa.	1000. Use to	ables to work out related x and ÷ at speed.	Problem Solving Strategies
	Multiplication and division B	Add 2-digit to 3-digit nu	mbers	cm to mm	and vice versa	<u>Thinking about looking for</u> <u>patterns</u> Times Tables Shifts
		Add and subtract pairs Convert cm to m and v	ot 2-algit numbers at speed. ice versa.	git numbers at speed. Know all tables to 12x12 including division facts at speed rsa. Know pairs of numbers to 180.		NRICH
ing 1		Know all tables to 12x12 Convert L to ml and vic	? including ÷ facts at speed. e versa	Subtract 2- related x a	related x and ÷ at speed.	
Spr	Number Fractions B	Convert m to km and vice versa. Know pairs of hundreds to 1000. Continue simple number patterns.		Subtract 2- at speed.	dig from 3-dig numbers. Give change from $\pounds1$	Window Frames NRICH
	+/- pairs of 2-digit number +/- 2-digit and 3-digit num		ers at speed. umbers at speed.	Convert m vice versa.	to km and vice versa. Convert L to ml and Add p to £&p.	NRICH
	Number Decimals and	Know pairs of numbers to 180. Use tables to work out related x and \div at speed. Add p to £&p.		+/-2-digit o £. Add thre	and 3-digit numbers at speed. Subtract p from e tens at speed.	Sara's Table NZ Maths
	percentages	+/- pairs of 2-digit numbers at speed. +/- 2-dig and 3 numbers at speed. Continue simple number pattern		Know all ta Convert L t	bles to 12x12 including division facts at speed. o ml and vice versa. Subtract p from £&p.	Problem Solving Strategies Lesson
		+/- pairs of 2-digit numb Add and subtract p from	ers at speed. m £&p	Convert m	to km and vice versa	
g 2	Measures Perimeter	Know all tables to 12x12 including division facts at speed. +/- p from £&p. Know pairs of numbers to 100.		Convert L t related x a	o ml and vice versa Use tables to work out nd ÷ at speed.	
Sprin	and area	Give change from £1 a	t speed. Convert cm to mm and of numbers to 180	Add and su Continue si	ubtract 2-dig and 3-dig numbers at speed.	
	Statistics	+/- pairs of 2-digit numb	pers at speed. +/- p from £&p.	Know all tables to 12x12 including division facts at speed. Know pairs of numbers to 90		
		Know pairs of numbers to 90 Convert L to mI and vice versa		Add three	tens at speed.	
	Geometry	Know all tables to 12x12	e versa 2 including ÷ facts at speed.	+/- 2-dig ar	+/- 2-dig and 3-dig numbers at speed. Add three tens at	
	+/- pairs of 2-digit number		l vice versa pers at speed.	speed. Cor Know all ta	nvert L to ml and vice versa. bles to 12x12 including division facts at speed.	
=		Convert m to km and vi +/- 2-digit and 3-digit m	ice versa umbers at speed. Continue simple	+ and - p fr Know all ta	om £&p bles to 12x12 including division facts at speed.	
mme	Geometry	number patterns. Know number bonds to 1000 (tens). +/- pairs of 2-digit numbers at speed. Know pairs of		Know pairs of numbers to 100. Convert L to ml and vice versa.		
Su	Position and direction	numbers to 180. +/- p free Know pairs of numbers t	om £&p. to 100. +/- pairs of 2-diait numbers	+/- 2-digit o	and 3-digit numbers at speed. to km and vice versa.	
	Number	at speed. Give change from £1 at	tspeed	Know all tables to 12x12 including division facts at speed		
	Decimals	Know number bonds to	1000 (tens).	Know pairs	of numbers to 90.	Problem Solving Strategies
		Continue simple number	er patterns.	Convert m	to km and vice versa. +/- p from £&p	Lesson
	Number	Convert L to ml and vic	e versa	Add three	tens at speed.	
ner 2	Negative	Know all tables to 12x12 Convert cm to m and v	? including division facts at speed. ice versa	+/- 3-digit o speed. Add	and 1-digit numbers. Give change from £1 at a three 1-digit numbers at speed.	
Sum	Measurement Converting	Know pairs of numbers t Add and subtract 2-dia	to 180. it and 3-digit numbers at speed.	Add and su	ubtract p from £&p	
	units	+/- pairs of 2-digit numb	ers at speed. Convert m to km	+/- 2-digit o	and 3-digit numbers at speed. bles to 12x12 including division facts at speed	
	Measurement Volume	Know all tables to 12x12	2 including division facts at speed.	Add and su	ubtract 2-digit and 3-digit numbers at speed.	
		to on the more bonds to		risk and structures		1

Long Term Plan: Year 6

Milestones – By the end of Year 6, children will demonstrate...

Children in Year 6 apply their mathematical skills and knowledge to solve increasingly complex problems. They explain their thinking and move fluently between contexts seeking patterns, testing conjectures and approaching confidently from different angles.

- Use negative numbers in context, and calculate intervals across zero
- Round any whole number to a required degree of accuracy
- Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
- Multiply 1-digit numbers with up to two decimal places by whole numbers
- Perform mental calculations, including with mixed operations with large numbers
- Divide numbers up to 4 digits by a two-digit number using the written method of short division where appropriate, interpreting remainders according to the context
- Use knowledge of the order of operations to carry out calculations involving the four operations
- Use knowledge of order of operations to carry out calculations involving all four operations
- Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- Multiply simple pairs of proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$]
- Associate a fraction with division and calculate decimal fraction equivalents for example, 0.375 for a simple fraction for example, $\frac{3}{8}$
- Express missing number problems algebraically
- Find pairs of numbers that satisfy number sentences involving two unknowns

According to the National Curriculum, children should be taught:

The principal focus of mathematics teaching in upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

The new vocabulary the Year 6 children will use will include:				
	Tier 1	Tier 2	Tier 3	
Place Value	ten thousands, one hundred thousands, powers of, one million	millions, ten millions		
Multiplication and division	prime numbers, prime factors, composite numbers, square numbers (²), cube numbers (³), short division, common factors, long multiplication, division bracket	multi-digit number, long division	order of operations, dividend, quotient,	
Fractions/Decimals /Percentages	thousandths, per cent %, complements, proportions		highest common factor, lowest common multiple, lowest common denominator	
Ratio and proportion		relative size, missing values, integer multiplication, percentages, scale factor, unequal sharing and grouping	proportion, notation, enlarge, enlargement	
Algebra		formulae, linear number, algebraically, equation, unknowns, combinations, variables	rule, term, substitute, generalise	
Geometry	translation, reflection, square (cm ² /m ²), volume (cm ³ /m ³), metric/imperial units, inches (in), pounds (lb), pints (pt), reflex angles, angles on a straight line, angles around a point, missing angles, protractor, diagonals	radius, diameter, circumference, vertically opposite, four quadrants, co-ordinate plane	dimensions, isometric, concentric, vertically opposite angles	
Statistics	timetable, comparison problems, sum problems, difference problems, line graph	pie chart, mean, average, data set	sectors, frequency, category	

In Year 6, the children will be taught:					
	Number and Place Value				
Focus	Progression of skills				
read, write, order and compare	numbers up to 10 000 000 and determine the value of each digit.				
round	any whole number to a required degree of accuracy				
Use	negative numbers in context including calculating intervals across zero				
solve	number and practical problems that involve all of the above.				
Number – addition, subtraction, multiplication and division					
Focus	Progression of skills				
multiply	multi-digit numbers up to 4 digits by a 2-digit whole number using the written method of long multiplication.				
	numbers up to 4 digits by a two-digit whole number using the written method of long division				
divide	interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.				
	numbers up to 4 digits by a two-digit number using the written method of short division where appropriate, interpreting remainders according to the context				
mentally calculate	including with mixed operations and large numbers				
identify	common factors, common multiples and prime numbers				
Use	knowledge of the order of operations to carry out calculations involving the four operations				
	Using addition and subtraction in multi-step problems in contexts				
solve problems	deciding which operations and methods to use and why				







Number – fractions, decimals and percentages			
Focus	Progression of skills		
	common factors to simplify fractions		
036	common multiples to express fractions in the same denomination		
compare and order	fractions, including fractions > 1		
add and subtract	fractions with different denominators and mixed numbers, using the concept of equivalent fractions		
	simple pairs of proper fractions, writing the answer in its simplest form		
multiply	one-digit numbers with up to two decimal places by whole numbers		
	proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$]		
divide	using written division methods in cases where the answer has up to two decimal places		
associate	a fraction with division and calculate decimal fraction equivalents for example, 0.375 for a simple fraction for example, $3/_8$		
identify	the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places		
solve problems	which require answers to be rounded to specified degrees of accuracy		
recall and use	equivalences between simple fractions, decimals and percentages, including in different contexts.		

Ratio and proportion								
Focus	Progression of skills							
solve problems	involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison involving similar shapes where the scale factor is known or can be found involving unequal sharing and grouping using knowledge of fractions and multiples.							
	Algebra							
Focus	Progression of skills							
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							
	Measurement							
Focus	Progression of skills							
solve problems	involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate							
	between standard units							
use, read, write and convert	converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa							
	using decimal notation to up to three decimal places							
convert	between miles and kilometres							
recognise	that shapes with the same areas can have different perimeters and vice versa							
	when it is possible to use formulae for area and volume of shapes							
calculate	the area of parallelograms and triangles							
Calculate, estimate and compare	volume of cubes and cuboids using standard units, including cubic centimetres (cm ³) and cubic metres (m ³), and extending to other units for example, mm ³ and km ³							
Geometry								
----------------------------------	---	--	--	--	--	--	--	--
Focus	Progression of skills							
draw	2-D shapes using given dimensions and angles							
recognise, describe and build	simple 3-D shapes, including making nets							
compare and classify	geometric shapes based on their properties and sizes							
find	unknown angles in any triangles, quadrilaterals, and regular polygons							
illustrate and name	parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius							
recognise	angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.							
describe	positions on the full coordinate grid (all four quadrants)							
draw and translate	simple shapes on the coordinate plane, and reflect them in the axes							
Statistics								
Focus	Progression of skills							
interpret and construct	e charts and line graphs and use these to solve problems							
Calculate & interpret	Calculate & the mean as an average							

		Year 6 *Y6 team may alter the order of what is taught in the Spring/Summer terms due to preparation for their NCTs.								
	Maths areas of focus	Arithmetic Practice (Speedy Maths) *indicates new content								
Autumn 1	Number Place value	+/- 2-digit numbers from hundreds at speed. Calculate x and ÷ using tables at speed.		Know of speed.	II tables to 12 x 12 including division facts at	Problem Solving Strategies Lesson Thinking about Keeping Track				
		Convert ml to L and vice versa X and ÷ using tables facts at speed.		Know p Add ar	airs of numbers to 90 Id subtract pairs of 2-digit numbers	Finding Fifteen NRICH				
	Number Addition,	*Know common equivalent FDP.	+/- pairs of 2-digit numbers at speed Know pairs of numbers to 100.	d.	Know all tables to 12x12 including ÷facts at speed. Convert cm to mm and vice versa.	All Square MCfAP				
	subtraction, multiplication and division	*Know square numbers to 12 ²	Give change from £1 at speed. +/- £&p. Know common equivalent FD		Convert cm to m and vice versa. Know pairs of numbers to 90. Know all tables to 12x12 including ÷ facts at speed.	Reach 100 NRICH				
	(FDP =	*Know square roots to √144 (ie for tables)	Know all tables to 12x12 including ÷ at speed. Know square numbers to	facts Know common equivalent FDP. 12 ² Know pairs of numbers to 100 and 180.		Albert Square MCfAP				
	Decimals and Percentages)	+/- pairs of 2-digit numbers at speed. Convert m to km and vice versa. Know pairs of numbers to 90.		Know of number	common equivalent FDP. +/- 2-digit and 3-digit rs at speed. Continue simple number patterns.	My Son is Naughty NZ Maths				
		+/- pairs of 2-digit numbers at speed. +/- p from £&p Know square roots to √144 (ie for tables)		Use tak Know r	les to work out related x and ÷ at speed. umber bonds to 1000 (tens)	Problem Solving Strategies Lesson Thinking about being systematic				
	Number Fractions A	Know pairs of numbers to 100. Use tables to work out related x and ÷ at speed. Know square numbers to 12 ² Convert cm to mm and vice versa		Conve numbe	t m to km and vice versa. +/- 2-digit and 3-digit rs at speed. Continue simple number patterns.	Darts NZ Maths				
mn 2		Know all tables to 12x12 including + facts at speed. Convert L to ml and vice versa.		Conve Know p	t cm to m and vice versa. +/-p from £&p airs of numbers to 180.	Bus Routes MCfAP				
Autu	Number Fractions B	Know all tables to 12x Convert m to km and	12 including ÷ facts at speed. vice versa.	Use tab 2-dig ni	les to work out related x and ÷ at speed. +/- pairs of mbers at speed. Know common equivalent FDP.	5 on the clock NRich				
		+/- pairs of 2-digit num 12x12 including divisio	nbers at speed. Know all tables to n facts at speed.	s at speed. Know all tables to Know square numbers to 12 ² - Know pairs of num tables to 12 ² - Know pairs of num tables at speed.		Join the Dots Twinkl				
	Measurement Converting units	Give change from £1 a including ÷ facts at spe patterns. +/- 2-digit and	it speed. Know all tables to 12x12 ed. Continue simple number 1 3-digit numbers at speed.	Know c (ie for to speed.	ommon equivalent FDP. Know square roots to $\sqrt{144}$ ables). Use tables to work out related x and \div at	<u>Coded 100 Square</u> NRich				
	Number Ratio	Know pairs of numbers to 90. Know common equivalent FDP.		Conver 1000 (†	t L to ml and vice versa. Know number bonds to ens). Convert cm to m and vice versa	Problem Solving Strategies Lesson Thinking about looking for patterns				
		+/- pairs of 2-dig numbers at speed. Use tables to work out related x and ÷ at speed. Convert cm to mm and vice versa		Conver +/- 2-di	t m to km and vice versa. Add three tens at speed. git and 3-dig numbers at speed. +/- p from £&p.	Sticky Trianales NRICH				
1°	Number Algebra	Know all tables to 12x12 including ÷ facts at speed. Know square numbers and square roots to 12 ^{2.}		Know o Know p	ommon equivalent FDP. vairs of numbers to 180.	Tables without Tens NRICH				
Sprin		+/- pairs of 2-digit numbers at speed. Know pairs of numbers to 100. Convert m to km and vice versa.		Know a Use tak	II tables to 12x12 including ÷ facts at speed. les to work out related x and ÷ at speed.	Holes NRICH				
	Number Decimals	+/- pairs of 2-digit numbers at speed. Use tables to work out related x and ÷ at speed.		+/- 2-di numbe	git and 3-digit numbers at speed. Continue simple r patterns. Convert m to km and vice versa.	The Candle Problem PNS				
		Know pairs of numbers to 100. Know all tables to 12x12 including division facts at speed.			airs of numbers to 180. quare numbers and square roots to 122.	Xavi's T-shirt NRICH				
	Number Fractions,	Know pairs of numbers to 90. Know common equivalent FDP. +/- p from £&p.		Know r numbe	umber bonds to 1000 (tens). +/- 2-digit and 3-digit rs at speed. Convert cm to mm and vice versa	Problem Solving Strategies Lesson				
	percentages	Add and subtract pairs of 2-digit numbers at speed. Use tables to work out related x and ÷ at speed.		Give cl Conve	nange from £1 at speed t I to ml and vice versa					
1g 2*	Measurement Area,	+/- pairs of 2-digit numbers at speed. Know square numbers and square roots to 12 ²⁻ Continue simple number patterns.			I tables to 12x12 including ÷ facts at speed. +/- 2- d 3-digit numbers at speed.					
Spri	and volume	Use tables to work out related x and ÷ at speed. Know all tables to 12x12 including ÷facts at speed.		Know o +/- pai						
	Statistics	Add and subtract pairs of 2-digit numbers at speed. Know all tables to 12x12 including division facts at speed.		Know p Conve	airs of numbers to 180. t cm to m and vice versa					
		Know common equive Use tables to work out	alent FDP. related x and ÷ at speed.	+/- 2-digit and 3-digit numbers at speed. Continue simple number patterns. +/- pairs of 2-digit numbers at speed.						
	Geometry Shape	Know pairs of numbers to 100. Know common equivalent FDP.		Conve Use tak	t m to km and vice versa les to work out related x and ÷ at speed.	Problem Solving Strategies Lesson				
		+/- pairs of 2-digit num out related x and ÷ at	nbers at speed. Use tables to work speed. Know pairs of numbers to 90	Know s Conve	quare numbers and square roots to 12 ² t m to km and vice versa					
er 1*		Know common equive Continue simple numb	Know common equivalent FDP. Continue simple number patterns.		git and 3-digit numbers at speed. II tables to 12x12 including ÷ facts at speed.					
Summ	Geometry Position and direction	Add and subtract pair Know square numbers	rs of 2-digit numbers at speed. ; and square roots to 12 ^{2.}	Add ar Contin	ed subtract 2-digit and 3-digit numbers at speed. Je simple number patterns.					
	Themed projects,	Know pairs of numbers to 100 and 180 Know square numbers and square roots to 12 ²		Know	II tables to 12x12 including division facts at speed.					
	and problem solving.			Conve	t m to km and vice versa					
	-	Add and subtract pairs of 2-digit numbers at speed.		Contin	ue simple number patterns	Problem Solving Strategies Lesson				
Summer 2*		Know pairs of numbers to 90. Know common equivalent FDP.		Add ar	ad subtract 2-digit and 3-digit numbers at speed.					
		Add and subtract pairs of 2-digit numbers at speed. Know all tables to 12x12 including division facts at speed.		Know p	airs of numbers to 180.					
		Know pairs of numbers to 100.		Conve	t L to ml and vice versa					
		Add and subtract pairs of 2-digit numbers at speed.		Contin	ue simple number patterns					
		Know all tables to 12x	12 including division facts at speed.	Contin	ue simple number patterns					

Problem solving – whole school overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	×	≥		7		
Year 2	g	all a	for IS			
Year 3	 	atic	err	u g ng c	Ų	Q
Year 4	oin	/or	att att	suc wir tin	TB	IB
Year 5	<u>ee</u>	v /ste	p b	a di ≠ <i< td=""><td></td><td></td></i<>		
Year 6	Г. V	s)		0		

Progression in reasoning skills

Describing

I can describe what I did.

Explaining

I can offer some reasons for what I did.

Convincing

I am confident that my reasoning is correct (*even if it's not!) and I can try to convince you that I'm right.

Justifying

I can use words like 'therefore', 'that means that', 'that leads to' to justify a correct logical argument with a complete chain of reasoning.

Proving

I can make a watertight argument that is mathematically sound.

Progression in reasoning skills should also show a refined use of precise mathematical vocabulary relevant to the year group the child is in.