

Mathematics

Curriculum Overview

Masefield Primary School

Statement of Intent for Mathematics

At Masefield, we recognise the fascination and excitement that the subject of Mathematics has to offer. We believe that Mathematics is a subject to practically experience, not simply learn, and we engage children in the subject by linking mathematical concepts with their own daily life experiences. We aim to develop a passion for Mathematics, so that pupils are motivated to use their knowledge to make changes to the world and society they live in.

We believe that all pupils can achieve excellence in mathematics and so we deliver the requirements of the National Curriculum through our teaching for mastery approach. This way of teaching mathematics means that our teachers design lessons in a coherent and well organised way to make the learning inclusive and accessible to all. Time is valued and so fewer topics are taught in greater depth. Every child is individual and has their own creative way of thinking. We value and encourage reasoning and justification as mathematical structures are discovered, allowing pupils the chance to practice use of precise vocabulary to explain their thoughts. We help our pupils see the mathematical structures using a concrete, pictorial and abstract approach. As children develop in confidence, we encourage pupils to think flexibly to develop new and innovative ways to solve problems, drawing on their experiences from not just the Mathematics curriculum, but from personal and wider cross-curricular experiences.

At Masefield, we value quick recall of basic facts so as not to overload the working memory. Time is dedicated to learning key facts, meaning pupils can work more efficiently when working on challenging activities that deepen understanding. The language of mathematics is international and its importance is universally recognised. In our schools, our pupils learn technical vocabulary early as we value a common language when engaging in discussion and reflection of mathematics concepts.

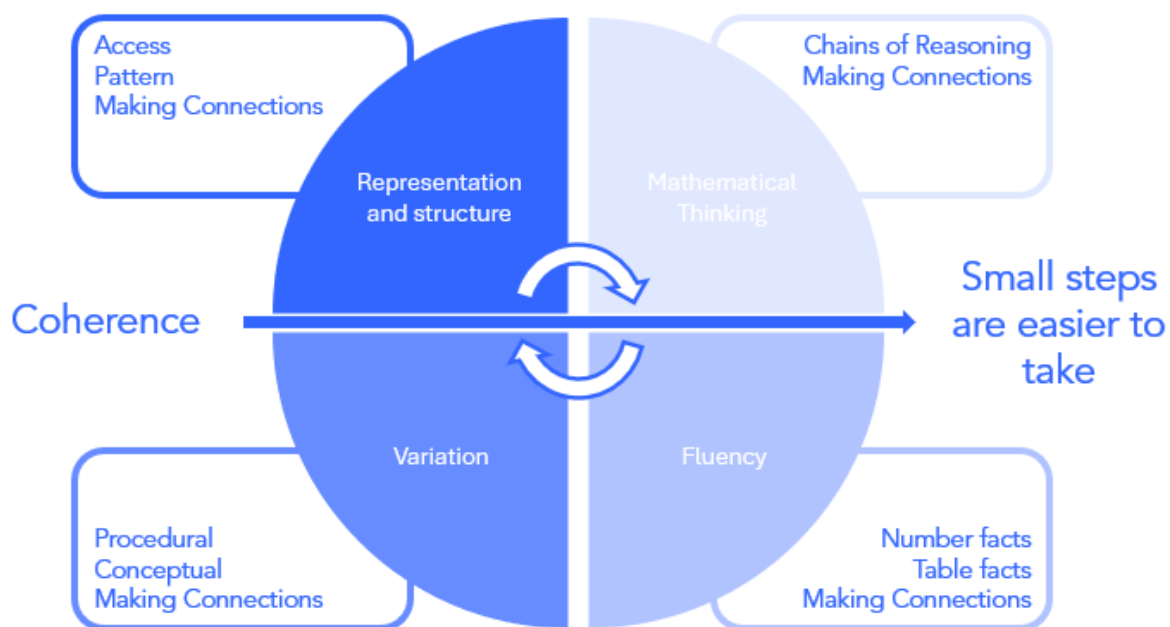
The school's long term plan for Mathematics sets out the content of teaching within in each year group. This is supported by the White Rose Education calculation policy which provides an overview of the different models and images that can support the teaching of different concepts. Short term planning details how this content is developed over a series of lessons within the unit of work. The organisation of the Mathematics curriculum provides structured opportunities for pupils to:

- Develop an ability to recall basic skills, including number bonds and times tables, and apply knowledge rapidly and accurately.
- Develop an ability to explain and justify thinking when solving problems and facing mathematical challenges.
- Develop their use of correct technical mathematical vocabulary and recognise its importance as a language for communication and thinking.
- Experience an excitement of discovery through teaching and learning of mathematical concepts, leading to a fascination of the subject
- Develop resilience alongside a positive and reflective attitude towards Maths
- Develop the ability to be competent, confident and flexible in using mathematical knowledge, concepts and skills.

The school calculation policy and Mathematics procedure document are used in conjunction with this policy.

Teaching and Learning in Mathematics

In addition to the conscious structure and design of the Maths curriculum, great consideration has been paid to the design of the implementation of the curriculum in the classroom. Teaching delivery will vary according to the activities being undertaken but will follow the principles set out in the Teaching and Learning Policy. A teaching for mastery approach is adopted across all year groups to ensure effective delivery of the intended curriculum.



Underpinning Masefield's Teaching for Mastery approach is a belief that all pupils can achieve in Maths. The approach rejects the idea that a large proportion of people 'just can't do maths'. All pupils are encouraged by the belief that by working hard at maths they can succeed. If pupils fail to grasp a concept or procedure, this is quickly identified and early intervention ensures the pupil is ready to move forward with the whole class in the next lesson.

When lessons are designed, the new mathematics to be taught, the key points, the difficult points and a carefully sequenced journey through the lesson is planned for. Key facts such as multiplication tables and addition facts within 10 are learnt to automaticity to avoid cognitive overload in the working memory and thus enables pupils to focus on new concepts.

The National Centre of Excellence in Teaching of Mathematics (NCETM) has developed Five Big Ideas of Mastery. They are as follows:

Coherence

Lessons are broken down into small connected steps that gradually unfold the concept, providing access for all children and leading to a generalisation of the concept and the ability to apply the concept to a range of contexts.

Representation and Structure

Representations used in lessons expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representation.

Mathematical Thinking

If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student: thought about, reasoned with and discussed with others.

Fluency

Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics.

Variation

Variation is twofold. It is firstly about how the teacher represents the concept being taught, often in more than one way, to draw attention to critical aspects, and to develop deep and holistic understanding. It is also about the sequencing of the episodes, activities and exercises used within a lesson and follow up practice, paying attention to what is kept the same and what changes, to connect the mathematics and draw attention to mathematical relationships and structure.

Knowing More and Remembering More in Mathematics

At Masefield, we recognise the importance of retrieval practice in making learning more efficient. Retrieval practice allows our teachers to identify and address gaps in knowledge and check for misunderstandings, whilst simultaneously allowing children to make and strengthen connections between their knowledge and providing firmer foundations for future learning. In Mathematics, all teachers follow these agreed procedures to support the consolidation of prior learning and the incremental development of new learning:

The beginning of every unit

In order to assess prior knowledge, the teacher will present the children with the previous years' LbQ question set for that topic where applicable.

This low stakes quiz allows children the opportunity to recall and strengthen relevant prior knowledge which then can be built upon over the upcoming lessons. This also allows teachers the opportunity to identify and address any gaps in prior knowledge or misconceptions so that they can accurately adapt their teaching to ensure that children build a strong knowledge of the required content.

The beginning of every lesson

At the beginning of every lesson, the teacher will refer back to the previous lessons within the sequence of learning by presenting children with a Flashback 4 Challenge. This provides children the opportunity to recall prior knowledge and make connections between this and the new learning in the current lesson.

The end of each unit

At the end of each unit, the teacher will present the children with the LbQ question set for that unit. This is a low stakes quiz which will assess the children's knowledge of the required content in each unit.

This allows children yet another opportunity to recall and strengthen their learning from this unit. It also provides teachers with a clear picture of children's understanding, which will inform their summative assessments for the unit. This allows the teacher another opportunity to address gaps in knowledge or misconceptions.

Morning Maths

Through Morning Maths, the teacher will present the children with the LbQ question sets for all the units taught so far that year. These are low stakes quizzes will assess the children's knowledge of the required content in each unit.

This allows children multiple further opportunities to recall and strengthen their learning from previous units. It also provides teachers with a clear picture of children's understanding and how their knowledge and skills are developing incrementally. It allows them multiple further opportunities to address gaps in knowledge or misconceptions.

Teaching and Learning Delivery Model: Building Knowledge through Challenge

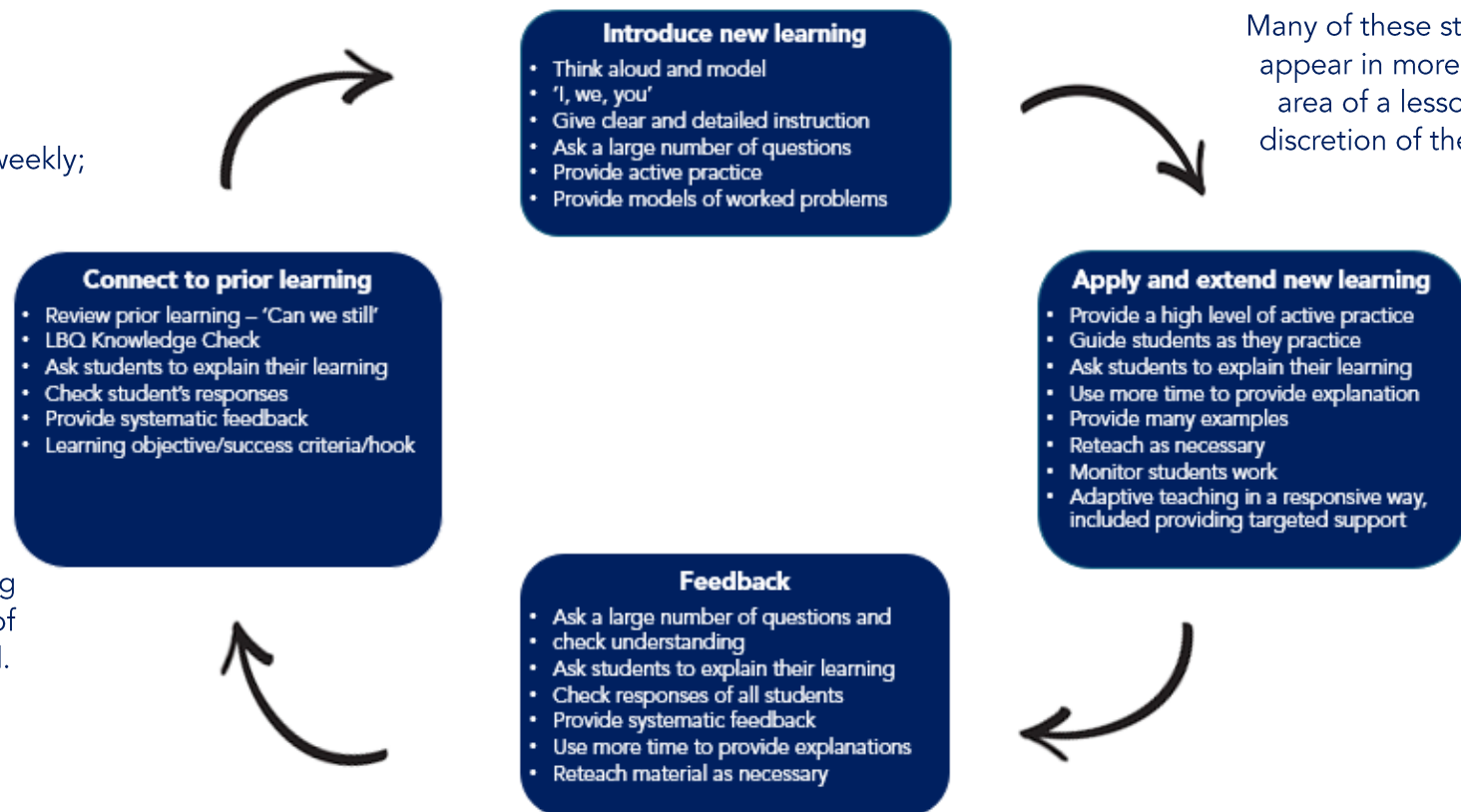


Teachers	Lessons	Learning Opportunities
<ul style="list-style-type: none"> ✓ Have high expectations for all groups of children ✓ Have strong subject knowledge ✓ Promote independence ✓ Promote confidence ✓ Offer praise and encouragement ✓ Are enthusiastic and positive about learning ✓ Model good learning ✓ Offer high quality conversation and talk 	<ul style="list-style-type: none"> ✓ Have a distinct knowledge base ✓ Are purposeful ✓ Are memorable ✓ Are active ✓ Are engaging ✓ Are focussed ✓ See children and teachers working as a learning team 	<ul style="list-style-type: none"> ✓ Increase knowledge ✓ Develop basic skills ✓ Meet children's individual learning needs ✓ Broaden and extend experiences ✓ Offer an opportunity to try new things ✓ Are cross curricular if appropriate ✓ Offer first hand experiences through trips or visitors

There shall be no bad books!

- Vocabulary lesson;
- Regular foundation lessons – weekly;
- New page for each lesson;
- Marking grid for Seesaw work.

Each lesson may not be a complete cycle of the learning sequence but over a period of time all areas will be covered.



Many of these steps would appear in more than one area of a lesson at the discretion of the teacher.

Adaptive Teaching

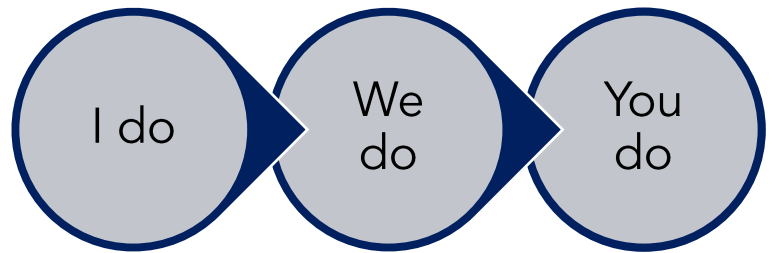


“We are what we repeatedly do. Excellence, then, is not an act, but a habit.”

What is Adaptive Teaching and why do we do it?

With adaptive teaching, all pupils are given one explicit instructional goal. They all access the same ambitious curriculum. The teacher teaches to the top and scaffolds pupils who need support to reach that level. When not needed, the teacher removes scaffolds or fades them out.

This approach promotes high achievement for all and doesn't cap opportunities or aspirations.



Explicit Instruction

Adaptive practice:
Pre-teach or TA support during modelling.

Shared Instruction

Check:
Use this section to check pupils' understanding. Can they do it with the structure in place?

Independent Practice

Reflect and Respond:
Allow students who have successfully completed the 'We Do' to move on independently. Group together those who are still struggling and complete work with adult support.

Before the lesson...

Lower ability pupils	Pupils with a low reading age	SEND pupils	EAL pupils
Do they need a pre-teach? Can they complete this when they arrive?	Do they need a keyword and definition list? Are they having 1:1 reading – could this be part of a foundation subject lesson or reading lesson?	What resources will they need to support them in successfully completing the task (task sheet, checklists, mind maps etc.)? Communicate with TA beforehand to co-ordinate effective support.	Do they need translated resources? Laptops?

During the lesson...

CHECK REFLECT RESPOND	ENOUGH CORRECT	Practise, consolidate, move on
	NOT ENOUGH CORRECT	Re-explain, more questioning, further chunking, modelling, further scaffolding, check your question then re-check for understanding.
Further support...	Refer to Adaptive Teaching booklet, mini-whiteboards, LBO, targeted support, additional practice, modelling (I do, we do, you do), breakdown content (chunking).	



SEND – Adaptive Teaching Strategies to support and scaffold

- Adjust the level of challenge – e.g provide sentence stems and question prompts to support thinking, allow children to present their work in different ways (mind maps, collaborative work).
- Clarify/simplify a task or provide numbered steps with visual representations (objects, pictures, signs, photos).
- Use bold essential content from curriculum document.
- Re-explain a concept or explain it in a different way.
- Give additional (or revisit) examples.
- Use peer tutoring/collaborative learning (everyone must participate – give them roles).
- Provide additional scaffolds - e.g – pre-teach vocabulary, 'I do, we do, you', chunk learning into smaller chunks and break learning down into key knowledge, provide worked examples, provide sentence starters for writing, use media (photographs, film) and hands on resources, where possible.
- Set clear targets/expectations.
- Provide prompts/sentence stems – e.g provide/develop with children steps to success for children to work from, question prompts to support with thinking and reduce cognitive overload.
- Improve accessibility (e.g. proximity to speaker, visibility of whiteboard, read a text to the pupil) – e.g – child-friendly texts/media, where possible. When researching, use child appropriate websites.
- Consider pace - (extra time for responses to questions, contributing to class discussions and to complete activities).
- Provide vocabulary with visual images – e.g - explicitly teach vocabulary at the beginning of a unit alongside a picture of the key word, use photographs to represent the word when using it during the unit.
- Check understanding and reinforcing as needed through repetition, rephrasing, explaining and demonstration – e.g use of mini-plenaries to check understanding (quick quizzes).
- Have alternative ways to record learning, e.g. oral, photographic, video, highlighting text, mind maps, etc. – e.g give children a variety of ways to record their work (recording themselves, use of technology, mind maps), allow children to be creative in the ways that they present their work – they do not all have to be the same.
- Pre-teach vocabulary, key content etc.



More Able – Adaptive Teaching Strategies to stretch and challenge

- Identify and account for prior knowledge – a child who has extensive prior knowledge could be asked to present some of the knowledge they have to the class; explain something they understand easily to a child who doesn't 'get it' so quickly – e.g – peer modelling, a more able child could present interesting facts that they already know to the children, more able children given more challenging enquiry based questions to extend their learning.
- Build on interests to extend - read widely around a subject outside of lesson time by providing them with information about suitable material, e.g. give them suitable higher-level texts to read – e.g – Use of History Pupil Leaders to develop love of History, questions to research for home learning, projects to complete for home learning.
- Depth of content - consider what you can add to create depth, e.g. digging into an area more deeply, going laterally with a concept, or asking pupils to use more complex terminology to describe abstract ideas.
- Use questioning techniques to boost thinking – ask open-ended questions which require higher-order thinking - e.g – How.....Why.....What does this source tell us?
- Consider learner roles – ensure they are appropriately challenged through the role they are given so they can make an effective contribution; argue in favour of a viewpoint that is different to their own, e.g. argue the opposite position to that which they actually hold, during a class debate, take on a more supportive 'tutor' role during group work.
- Mastery - more intensive teaching, tutoring, peer-assisted learning, small group discussions, or additional homework. e.g - analyse and interpret sources (questions – what's this? What can we say for certain? What can we infer? Does this new source strengthen, amend or completely change our thinking? What doesn't the source tell us?
- Adapted success criteria/choice of task – offer a choice of tasks with a different level of challenge.
- Feedback – framing feedback so pupils must take responsibility for improving their own learning – e.g extend more able learners through open-ended questions when providing feedback.





What is Learning by Questions?

Pupils' use iPads and progress at their own pace and level through high quality Question Sets and receive immediate automatic feedback as they answer. Teachers receive live analysis and results are saved to support assessment and planning. Data is stored automatically to support lesson planning.

Why do we use it?

Learning by Questions (LbQ) is fully embedded into Masefield's curriculum journey. This evidence based and award winning teaching & learning tool has been fundamental in the significantly above average results at Masefield over the last few years. All teachers and pupils have accounts that allow access to all resources.

What support do I get?

- Tracked classes set up in the first week of the academic year.
- Every member of staff (teachers and TAs) will receive regular CPD on LbQ, including meeting updates, 1:1 CPD, in class coaching and observations.
- Question Sets are ready made for all subjects, including every foundation subject unit from Year 1 to Year 6.

Using LbQ in Maths

- 3 tasks completed daily as morning maths - LbQ tasks that start with 'practise'. Basic skills and previous learning only.
- Used as a teaching and learning tool – not assessment.
- Intervention screen should be used regularly to assess pupils understanding and address misconceptions immediately.
- Green button (play) should be used regularly to involve and engage all learners in the lesson.
- Pupils should not get an incorrect answer more than 3 times. The teacher or TA should intervene before this or the pupil must ask for support.
- LbQ to be used as part of the deeper learning within lessons.
- An application of the learning within the lesson must be shown in maths book (usually reasoning and problem solving).

Using LbQ in Reading

- Used for intervention sessions.
- Used as part of reading in foundation subjects.



Using LbQ in Science

- Vocabulary question set to be completed before Science Unit.
- Previous topic (if appropriate) to be completed before Science Unit (e.g Year 4 Light question set to be completed before teaching of Year 6 Light topic).
- Investigation question set available to support teaching of fair testing.
- Knowledge Review question set to be used at end of topic – or once teaching sequence completed.

Using LbQ in Foundation Subjects

- Question Sets to be completed at the end of learning and during knowledge days.
- Refer to Knowledge Day Overview document for Question Set Record.

Nursery – Long Term Plan

EYFS: Nursery 1

Level 1 and 2 words. Focus teaching on activities which develop the key vocabulary as taken from ELKAN's Linguistic Concepts. Introduce the words using the word aware strategy.

EYFS: Nursery 2

Level 3 and 4 words. Focus teaching on activities which develop the key vocabulary as taken from ELKAN's Linguistic Concepts. Be mindful to revisit and embed the Level 1 and 2 words which were taught in N1.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Quality and Colour: like, colour, blue, green, red, same as, too, black, white, yellow.</p>	<p>Texture and Sound and Movement: hard, soft, noisy, quiet/quietly, fast, slow, cold, dry, loud, soft, moving, quick, still.</p>	<p>Size: heavy, small, little, empty, fat, full, long, small, biggest.</p>	<p>Quantity and Number: a bit, all, a lot, some, one two, another, many, no more, as much as, three, four, five, first, next.</p>	<p>Shape and Space (prepositions): dot, spot, line, round, by, inside, off, out, over, to, through, under, circle, flat, square, round, away, behind, bottom, forward, in front of, near, next to, outside, straight.</p>	<p>Time: again, now, after, soon, today.</p>
	<p>Quality and Colour: different, new, very, colour, orange, pink, purple, dark, light, darker, lighter.</p>	<p>Texture and Sound and Movement: furry, rough, smooth, warm, jerky, smooth, high, low.</p>	<p>Size: large, light, short, tall, thin, bigger, fattest, heaviest, longest, smallest, deep, narrow, shallow, thick, wide, fatter, heavier, longer, smaller, largest, lightest, shortest, tallest, thinnest.</p>	<p>Quantity and number: about, both, every, few, half, most, only, other, second, third, last.</p>	<p>Shape & Space (prepositions): cross, triangle, backwards, beside, between, far, front, high, low, middle, side, together, towards, above, across, against, below, facing, row, corner, curved, diamond, oval, rectangle, slant/slope, straight.</p>	<p>Time: always, before, later, yesterday</p>

Reception – Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn Term	Getting to Know You		Match, sort and compare		Talk about measure and patterns		It's me 1, 2, 3		Circle and Triangle	1, 2, 3, 4, 5		Shapes with 4 sides
Mastering Number Focus:	<i>Pupils will start to see that all numbers can be made of 1s and recognise quantities with number.</i>											
Fact Focus:	<i>Recognising Numbers and Number Songs</i>											
Spring Term	Alive in 5		Mass and Capacity	Growing 6, 7 and 8		Length, Height and Time		Building 9 and 10		Explore 3D Shapes		
Mastering Number Focus:	<i>Pupils will start to subitise within 5 and continue to verbally count to 20.</i>											
Fact Focus:	<i>Add 2 to a single digit number</i>						<i>Add 0 to a single digit number</i>				<i>Add 10 to a single digit number</i>	
Summer Term	To 20 and beyond		How many now?	Manipulate, compose and decompose		Sharing and grouping		Visualise, build and map		Make Connections/ Consolidation		
Mastering Number Focus:	<i>Pupils will explore the composition of numbers within 10.</i>											
Fact Focus:	<i>Doubles up to 10</i>				<i>Doubles up to 20</i>				<i>Bonds to 10</i>			

Year One – Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn Term	Place Value within 10					Addition and Subtraction within 10					Shape	Cons.
Mastering Number Focus:	<i>Pupils will have an opportunity to consolidate the Early Learning Goals and continue to explore the composition of numbers within 10, and the position of these numbers in the linear number system.</i>											
Fact Focus:	Recap EYFS Facts					Add 1 to a single digit					Add 0 to a single digit	
Spring Term	Place Value within 20			Addition and Subtraction within 20			Place Value within 50		Length and Height		Mass and Volume	
Mastering Number Focus:	<i>Pupils will continue to explore the composition of numbers within 10 and explore addition and subtraction structures and the related language (without the use of symbols).</i>											
Fact Focus:	Add 2 to a single digit						Add 0 to a single digit				Add 10 to a single digit	
Summer Term	Multiplication and Division			Fractions		Position and Direction	Place Value within 100		Money	Time		Cons.
Mastering Number Focus:	<i>Pupils will explore the composition of numbers within 20 and their position in the linear number system. They will connect addition and subtraction expressions and equations to 'number stories'.</i>											
Fact Focus:	Doubles up to 10					Doubles up to 20				Bonds to 10		

Year Two – Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn Term	Place Value				Addition and Subtraction					Shape		
Mastering Number Focus:	Pupils will have an opportunity to consolidate their understanding and recall of number bonds within 10; they will recap the composition of the numbers 11-20 and reason about their position within the linear number system.											
Fact Focus:	Recap EYFS facts					Review and consolidate: Add 0 to a single digit			Review and consolidate: Add 1 to a single digit			
Spring Term	Money	Multiplication and Division					Length and Height		Mass, Capacity and Temperature			
Mastering Number Focus:	Pupils will have an opportunity to use their knowledge of the composition of numbers within 10 to calculate within 20; they will explore the links between the numbers in the linear number system within 10 to numbers within 100, focusing on multiples of 10 and the midpoint of 50.											
Fact Focus:	Add 2 to a single digit					Near doubles						
Summer Term	Fractions			Time			Statistics		Position and Direction		Consolidation	
Mastering Number Focus:	Pupils will have further opportunities to use their knowledge of the composition of numbers within 10 to calculate within 20 and to reason about equations and inequalities.											
	Bridge and compensating									Review and consolidate		

Year Three – Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn Term	Place Value			Addition and Subtraction				Multiplication and Division A				
Mastering Number Focus:	<p><i>Pupils will have further opportunities to use their knowledge of the composition of numbers within 10 to calculate within 20 and to reason about equations and inequalities. Consolidation from Y2 Mastering Number.</i></p>											
Spring Term	Multiplication and Division B			Length and Perimeter			Fractions A			Mass and Capacity		
Summer Term	Fractions B		Money		Time			Shape		Statistics		

Year Four – Long Term Plan

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

Year Five – Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn Term	Place Value			Addition and Subtraction		Multiplication and Division A			Fractions A			
Spring Term	Multiplication and Division B			Fractions B		Decimals and Percentages			Perimeter and Area		Statistics	
Summer Term	Shape			Position and Direction		Decimals	Shape	Negative Numbers	Converting Units		Volume	

Year Six – Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn Term	Place Value		Addition, Subtraction, Multiplication and Division					Fractions A		Fractions B		Converting Units
Spring Term	Ratio		Algebra		Decimals		Fractions, Decimals and Percentages		Area, Perimeter and Volume		Statistics	
Summer Term	Shape			Position and Direction		Themed projects, consolidation and problem solving						

Curriculum Coverage by Topic

Place Value

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Count	Focus: Quantity and number (N2 Spr 2) Focus: Quantity and number (N1 Sp 2) N1 Autumn: Count in everyday contexts, sometimes skipping numbers – ‘1-2-3-5’ N1 Autumn: Begin to count to 3 N1 Summer Recognises when an object is removed from a group of 3 items.		count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number count numbers to 100 in numerals; count in multiples of twos, fives and tens	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward	count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number	count in multiples of 6, 7, 9, 25 and 1000 count backwards through zero to include negative numbers	count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 count forwards and backwards with positive and negative whole numbers, including through zero		
			Autumn 1 Spring 1 Spring 3 Summer 4	Autumn 1	Autumn 1 Autumn 3	Autumn 1 Autumn 4	Autumn 1 Summer 4		
Represent	N1 Autumn: Recognises numerals around the environment Represents numbers with their fingers. N1 Spring: Develop fast recognition of up to 3 objects without having to count them individually Show finger numbers up to 3 N1 Summer: Say one number for each item in order: 1,2,3 Begins to recognise groups have a total.		identify and represent numbers using objects and pictorial representations read and write numbers to 100 in numerals read and write numbers from 1 to 20 in numerals and words	read and write numbers to at least 100 in numerals and in words identify, represent and estimate numbers using different representations, including the number line	identify, represent and estimate numbers using different representations read and write numbers up to 1000 in numerals and in words	identify, represent and estimate numbers using different representations read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value	read, write, (order and compare) numbers to at least 1 000 000 and determine the value of each digit read Roman numerals to 1000 (M) and recognise years written in Roman numerals		
			Autumn 1 Spring 1 Spring 3 Summer 4	Autumn 1	Autumn 1	Autumn 1	Autumn 1		

Place Value

		Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Use and Compare				<p>given a number, identify one more and one less</p>	<p>recognise the place value of each digit in a two-digit number (tens, ones)</p> <p>compare and order numbers from 0 up to 100; use and = signs</p>	<p>recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</p> <p>compare and order numbers up to 1000</p>	<p>find 1000 more or less than a given number</p> <p>recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</p> <p>order and compare numbers beyond 1000</p>	<p>(read, write) order and compare numbers to at least 1 000 000 and determine the value of each digit</p>	<p>(read, write), order and compare numbers up to 10 000 000 and determine the value of each digit</p>
				<p>Autumn 1 Spring 1 Spring 3 Summer 4</p>	<p>Autumn 1</p>	<p>Autumn 1</p>	<p>Autumn 1</p>	<p>Autumn 1</p>	<p>Autumn 1</p>
Problems and rounding					<p>use place value and number facts to solve problems</p>	<p>solve number problems and practical problems involving these ideas</p>	<p>round any number to the nearest 10, 100 or 1000</p> <p>solve number and practical problems that involve all of the above and with increasingly large positive numbers</p>	<p>interpret negative numbers in context</p> <p>round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000</p> <p>solve number problems and practical problems that involve all of the above</p>	<p>round any whole number to a required degree of accuracy</p> <p>use negative numbers in context, and calculate intervals across zero</p> <p>solve number and practical problems that involve all of the above</p>
					<p>Autumn 1</p>	<p>Autumn 1</p>	<p>Autumn 1</p>	<p>Autumn 1</p>	<p>Autumn 1</p>

Addition and Subtraction

		Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Calculations				add and subtract one-digit and two-digit numbers to 20, including zero	add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> a two-digit number and ones a two-digit number and tens two two-digit numbers adding three one-digit numbers 	add and subtract numbers mentally, including: <ul style="list-style-type: none"> a three-digit number and ones a three-digit number and tens a three-digit number and hundreds add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	perform mental calculations, including with mixed operations and large numbers
				Autumn 2 Spring 2	Autumn 2	Autumn 2	Autumn 2	Autumn 2	Autumn 2
Problems			solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$	solve problems with addition and subtraction: <ul style="list-style-type: none"> using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods 	solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction		solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	solve addition and subtraction multistep problems in contexts, deciding which operations and methods to use and why	
				Autumn 2 Spring 2	Autumn 2	Autumn 2	Autumn 2	Autumn 2	Autumn 2

Multiplication and Division

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recall and Use				<p>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</p> <p>show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</p>	<p>recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</p>	<p>recall multiplication and division facts for multiplication tables up to 12×12</p> <p>use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers</p> <p>recognise and use factor pairs and commutativity in mental calculations</p>	<p>identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</p> <p>know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers</p> <p>establish whether a number up to 100 is prime and recall prime numbers up to 19</p> <p>recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)</p>	<p>identify common factors, common multiples and prime numbers</p> <p>use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</p>
				Spring 2	Autumn 3 Spring 1	Autumn 4 Spring 1	Autumn 3	Autumn 2

Multiplication and Division

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Calculations				calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	multiply two-digit and three-digit numbers by a one-digit number using formal written layout	<p>multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers</p> <p>multiply and divide numbers mentally drawing upon known facts</p> <p>divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context</p> <p>multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</p>	<p>calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs</p> <p>divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context</p> <p>divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context</p> <p>perform mental calculations, including with mixed operations and large numbers</p>
				Spring 2	Autumn 3 Spring 1	Spring 1	Autumn 3 Spring 1	Autumn 2

Multiplication and Division

		Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Problems				solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	<p>solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes</p> <p>solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</p>	solve problems involving addition, subtraction, multiplication and division
				Summer 1	Spring 2	Spring 1	Spring 1	Autumn 3 Spring 1	Autumn 2
Combined								solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	use their knowledge of the order of operations to carry out calculations involving the four operation
								Spring 1	Autumn 2

Fractions

		Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recognise and Write				<p>recognise, find and name a half as one of two equal parts of an object, shape or quantity</p> <p>recognise, find and name a quarter as one of four equal parts of an object, shape or quantity</p>	<p>recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity</p>	<p>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</p> <p>recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</p> <p>recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators</p>	<p>count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten</p>	<p>identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</p> <p>recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}$]</p>	
				Summer 2	Summer 1	Spring 3	Spring 4 Summer 1	Autumn 4	
Compare				<p>recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$</p>	<p>recognise and show, using diagrams, equivalent fractions with small denominators</p> <p>compare and order unit fractions, and fractions with the same denominators</p>	<p>recognise and show, using diagrams, families of common equivalent fractions</p>	<p>recognise and show, using diagrams, families of common equivalent fractions</p>	<p>compare and order fractions whose denominators are all multiples of the same number</p>	<p>use common factors to simplify fractions; use common multiples to express fractions in the same denomination</p> <p>compare and order fractions, including fractions > 1</p>
					Summer 1	Spring 3	Spring 3	Autumn 4	Autumn 3

Fractions

		Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Calculations					write simple fractions for example, $1/2$ of 6 = 3	add and subtract fractions with the same denominator within one whole [for example, $5/7 + 1/7 = 6/7$]	add and subtract fractions with the same denominator	add and subtract fractions with the same denominator and denominators that are multiples of the same number multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $1/4 \times 1/2 = 1/8$] divide proper fractions by whole numbers [for example, $1/3 \div 2 = 1/6$]
					Summer 1	Summer 1	Spring 3	Autumn 4 Spring 2	Autumn 3 Autumn 4
Solve Problems						solve problems that involve all of the above	solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number		
						Spring 3 Summer 1	Spring 3		

Decimals

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recognise and Write						<p>recognise and write decimal equivalents of any number of tenths or hundredths</p> <p>recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$</p> <p>round decimals with one decimal place to the nearest whole number</p> <p>compare numbers with the same number of decimal places up to two decimal places</p>	<p>read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$]</p> <p>recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</p> <p>round decimals with two decimal places to the nearest whole number and to one decimal place</p> <p>read, write, order and compare numbers with up to three decimal places</p>	<p>identify the value of each digit in numbers given to three decimal places</p>
						Spring 4 Summer 1	Spring 3 Summer 3	Spring 3

Fractions, Decimals and Percentages

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					<p>solve simple measure and money problems involving fractions and decimals to two decimal places</p>	<p>recognise the percent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal</p> <p>solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25</p>	<p>associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$]</p> <p>recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</p>
					<p>Spring 3 Spring 4 Summer 1</p>	<p>Spring 3</p>	<p>Spring 3 Spring 4</p>

Ratio and Proportion

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
							<p>solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</p> <p>solve problems involving the calculation/use of percentages for comparison</p> <p>solve problems involving similar shapes where the scale factor is known or can be found</p> <p>solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</p>
							Spring 1

Algebra

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<p>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$</p>	<p>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems</p>	<p>solve problems, including missing number problems</p>			<p>use simple formulae</p> <p>generate and describe linear number sequences</p> <p>express missing number problems algebraically</p> <p>find pairs of numbers that satisfy an equation with two unknowns</p> <p>enumerate possibilities of combinations of two variables</p>
		<p>Note – although formal algebraic notation is not introduced until Y6, algebraic thinking starts much earlier as exemplified by the ‘missing number’ objectives from Y1/2/3</p>					<p style="text-align: center;">Spring 2</p>

Using Measures

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<p>compare, describe and solve practical problems for:</p> <ul style="list-style-type: none"> lengths and heights mass/weight capacity and volume time <p>measure and begin to record the following:</p> <ul style="list-style-type: none"> lengths and heights mass/weight capacity and volume time (hours, minutes, seconds) 	<p>choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</p> <p>compare and order lengths, mass, volume/capacity and record the results using >, < and =</p>	<p>measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</p>	<p>convert between different units of measure [for example, kilometre to metre; hour to minute]</p> <p>estimate, compare and calculate different measures</p>	<p>convert between different units of metric measure</p> <p>understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</p> <p>use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling</p>	<p>solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 d.p. where appropriate</p> <p>use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 d.p.</p> <p>convert between miles and kilometres</p>
		Spring 4 Spring 5	Spring 3 Spring 4	Spring 2 Spring 4	Spring 2 Summer 3	Spring 4 Summer 5 Summer 6	Autumn 5

Money

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		recognise and know the value of different denominations of coins and notes	<p>recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</p> <p>find different combinations of coins that equal the same amounts of money</p> <p>solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</p>	add and subtract amounts of money to give change, using both £ and p in practical contexts	estimate, compare and calculate different measures, including money in pounds and pence	use all four operations to solve problems involving measure [for example, money]	
		Summer 5	Spring 1	Summer 2	Summer 2	Summer 3	

Time

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Focus: Time (N2 Sum 2) Focus: Time (N1 Sum 2)</p> <p>N1: Spring Shows an interest in what happens next using the pattern of everyday routines. Begin to anticipate times of the day such as home time.</p>		<p>sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</p> <p>recognise and use language relating to dates, including days of the week, weeks, months and years</p> <p>tell the time to the hour and half past the hour and draw the hands on a clock face to show these times</p>	<p>compare and sequence intervals of time</p> <p>tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times</p> <p>know the number of minutes in an hour and the number of hours in a day</p>	<p>tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</p> <p>estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight</p> <p>know the number of seconds in a minute and the number of days in each month, year and leap year</p> <p>compare durations of events [for example to calculate the time taken by particular events or tasks]</p>	<p>read, write and convert time between analogue and digital 12- and 24-hour clocks</p> <p>solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days</p>	<p>solve problems involving converting between units of time</p>	<p>use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa</p> <p><i>Note – In the WRM schemes, time conversions are covered in Y5; the Y6 block concentrates on metric units.</i></p>
		Summer 6	Summer 2	Summer 3	Summer 3	Summer 5	Autumn 5

Perimeter, Area and Volume

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				measure the perimeter of simple 2-D shapes	measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres find the area of rectilinear shapes by counting squares	measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres calculate and compare the area of rectangles (including squares) and including using standard units, square centimetres (cm ²) and square metres (m ²) and estimate the area of irregular shapes estimate volume [for example, using blocks to build cuboids] and capacity [for example, using water]	recognise that shapes with the same areas can have different perimeters and vice versa recognise when it is possible to use formulae for area and volume of shapes calculate the area of parallelograms and triangles calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm ³) and cubic metres (m ³), and extending to other units
				Spring 2	Autumn 3 Spring 2	Spring 4 Summer 6	Spring 5

Geometry

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
2D Shapes	<p>Focus: Quality & Colour (N2 Aut 1) Focus: Texture & Sound & Movement (N2 Aut 2) Focus: Size (N2 Spr 1) Focus: Shape & Space (prepositions) (N2 Sum 1) Focus: Quality & Colour (N1 Aut 1) Focus: Texture & Sound & Movement (N1 Aut 2) Focus: Size (N1 Spr 1) Focus: Shape & Space (prepositions) (N1 Sum 1)</p> <p>N1 Autumn Complete inset puzzles. Recognise that two objects have the same shape Compare sizes, weights etc. using gesture and language - 'bigger/little/smaller', 'high/low', 'tall', 'heavy' N1 Spring: Responds to some spatial and positional language</p>			<p>identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</p> <p>identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</p> <p>compare and sort common 2-D shapes and everyday objects</p>		<p>draw 2-D shapes</p>	<p>compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</p> <p>identify lines of symmetry in 2-D shapes presented in different orientations</p>	<p>distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</p> <p>use the properties of rectangles to deduce related facts and find missing lengths and angles</p>	<p>draw 2-D shapes using given dimensions and angles</p> <p>compare and classify geometric shapes based on their properties and sizes</p> <p>illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</p>
			Autumn 3	Autumn 3	Summer 4	Summer 4	Summer 1	Summer 1	

Geometry

		Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
3D Shapes				recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]	recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] compare and sort common 3-D shapes and everyday objects	make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them		identify 3-D shapes, including cubes and other cuboids, from 2-D representations	recognise, describe and build simple 3-D shapes, including making nets
				Autumn 3	Autumn 3	Summer 4		Summer 1	Summer 1
Angles and Lines					recognise angles as a property of shape or a description of a turn identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle identify horizontal and vertical lines and pairs of perpendicular and parallel lines	recognise angles as a property of shape or a description of a turn identify acute and obtuse angles and compare and order angles up to two right angles by size identify lines of symmetry in 2-D shapes presented in different orientations complete a simple symmetric figure with respect to a specific line of symmetry		know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles draw given angles, and measure them in degrees identify: <ul style="list-style-type: none"> angles at a point and one whole turn (total 360°) angles at a point on a straight line and half a turn (total 180°) other multiples of 90° 	find unknown angles in any triangles, quadrilaterals, and regular polygons recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find
						Summer 4	Summer 4	Summer 1	Summer 1

Geometry

		Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Position and Direction			<p>describe position, direction and movement, including whole, half, quarter and three-quarter turns</p>	<p>order and arrange combinations of mathematical objects in patterns and sequences</p> <p>use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise)</p>		<p>describe positions on a 2-D grid as coordinates in the first quadrant</p> <p>describe movements between positions as translations of a given unit to the left/right and up/down</p> <p>plot specified points and draw sides to complete a given polygon</p>	<p>identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed</p>	<p>describe positions on the full coordinate grid (all four quadrants)</p> <p>draw and translate simple shapes on the coordinate plane, and reflect them in the axes</p>	<p>describe position, direction and movement, including whole, half, quarter and three-quarter turns</p>
		Summer 3	Summer 4		Summer 6	Summer 2	Summer 2	Summer 3	

Statistics

		Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Present and interpret data					interpret and construct simple pictograms, tally charts, block diagrams and simple tables	interpret and present data using bar charts, pictograms and tables	interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	complete, read and interpret information in tables, including timetables	interpret and construct pie charts and line graphs and use these to solve problems
					Summer 3	Summer 5	Summer 5	Spring 5	Spring 6
Position and Direction					ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity ask and answer questions about totalling and comparing categorical data	solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables	solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	solve comparison, sum and difference problems using information presented in a line graph	calculate and interpret the mean as an average
					Summer 3	Summer 5	Summer 5	Spring 5	Spring 6

Mathematics Procedures

There is a clear structure for the teaching of Maths at Masefield Primary School. The following materials provide detail behind each element of the structure that is followed in each year group.

These materials will support teachers and teaching assistants in maintaining consistency of the approach. The explicit nature of the materials also ensure that the teaching of Maths can be clearly monitored by leaders.

The following resources detail how Maths is taught in the following areas:

- Early Years Foundation Stage
- Key Stage One
- Key Stage Two

Early Years Foundation Stage

In the Early Years Foundation Stage (EYFS), children experience learning of mathematical concepts through various means, including and not limiting to, whole group and small group adult-led sessions, focus task adult-led sessions, access to mathematical challenges in indoor and outdoor continuous provision, and within the context of other subjects.

In Nursery, Maths teaching focuses on the teaching of mathematical language using the linguistic concepts document (appendix A), so children have a good foundation of vocabulary before beginning Reception.

In Reception, teachers plan using the White Rose Maths Long Term overview.

The weekly overview has been added to the EYFS curriculum overview document.

Teachers use additional suitable resources (such as Master the Curriculum) to plan for discrete daily Maths sessions. 'Master the Curriculum' offers a daily breakdown of the White Rose blocks within the Reception scheme. Pupils in Reception also have a 10 minute Mastering Number* session (four times a week) that supports the development of number sense.

Pupils must have a practical hands on experience of Maths in the early years, and overuse of PowerPoints should be avoided.

*The Mastering Number Programme is provided by the NCETM (National Centre for Excellence in the Teaching of Mathematics). The project aims to secure firm foundations in the development of good number sense for all children from Reception through to Year 1 and Year 2. The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number.

Key Stage One and Two

In KS1 and KS2, teachers plan using the White Rose Maths Hub Version 3 plans. Teachers plan for individual lessons following the sequence of small steps providing in this scheme. As noted later in this document, a small step may mean one lesson, part of a lesson, or a series of lessons. Teachers can support lesson design with materials from other places, including NCETM, LBQ, Primary Maths Hub and DfE guidance.

Flashback 4 slides are PowerPoints created by White Rose that support retrieval practice. Daily slides consist of four questions that connect to learning from the previous lesson, the previous week, a previous topic and a topic from the previous year.

LBQ (Learning by Questions) is a live real-time app that uses continuous formative assessment and pupil feedback.

Primary Maths Hub is dedicated to providing outstanding resources to support the teaching, learning and practise of maths, both in school and at home!

Year 1

Morning Maths (Monday - Thursday 8.40am – 8.50am)

Children will start Autumn term with a focus on number formation.

Once ready, pupils will complete Flashback 4 Maths with the teacher during registration time. There is no expectation for pupils to record, but pupils may discuss ideas with a partner before feeding back to the teacher.

In the Summer term, pupils will complete Flashback 4 individually. This may be completed in a jotter or on a whiteboard. *It is important the teacher quickly reviews the Flashback 4 answers and assesses any areas of weakness. As a result, the teacher may review a method during the daily maths lesson to close any gaps in knowledge.*

Mastering Number/Fluency Bee

This is a whole class adult led session for all pupils. Weekly plans and resources are saved in the Maths folder on the school resource drive.

Fluency Bee forms part of the weekly enrichment in KS1 along with Numbots. Children have a paper workbook and online resources to support their understanding of number sense.

Number Fact focus

The long term plan maps out the number facts to be focused on each half term. These are practised ad hoc, with the aim that pupils can recall the facts in less than 3 seconds.

Daily Maths lesson

The lesson objective is taken from the White Rose Maths block and small steps. The teacher uses the slideshow to guide teaching, which should include many hands on practical experiences for the youngest pupils. Slides may be amended, hidden or deleted as required. Pupils record learning in their individual Maths books, or an adult records their learning on Seesaw.

Children will complete digging deeper teacher led in groups in the autumn term. This will become more independent once children are ready.

Year 2

Morning Maths (Monday-Thursday 8.40am – 8.50am)

Each morning, pupils will complete Fluency in 5 individually. This may be completed in a jotter or on a whiteboard. If pupils complete the Fluency in 5 before the given time is up, they can access the daily LBO set on the iPad. The tasks set should be fluency based. Any LBO task beginning with 'Practise' is a fluency task. *It is important the teacher quickly reviews the Fluency in 5 answers and assesses any areas of weakness. As a result, the teacher may review a method during the daily maths lesson to close any gaps in knowledge.*

Mastering Number/Fluency Bee

This is a whole class adult led session for all pupils. Weekly plans and resources are saved in the Maths folder on the school resource drive.

Fluency Bee forms part of the weekly enrichment in KS1 along with Numbots. Children have a paper workbook and online resources to support their understanding of number sense.

Arithmetic session

To support children's development of arithmetical proficiency, children complete a daily 'Fluency in 5'. This is low stakes and will focus on number bonds, simple addition and subtraction facts, and times tables.

Number Fact focus

The long term plan maps out the number facts to be focused on each half term. These are practised ad hoc, with the aim that pupils can recall the facts in less than 3 seconds.

Daily Maths lesson

The lesson objective is taken from the White Rose Maths block and small steps. The teacher uses the slideshow to guide teaching, which should include many hands on practical experiences for the youngest pupils. Slides may be amended, hidden or deleted as required. Pupils record learning in their individual Maths books, on Seesaw when able to do so independently, or an adult can record their learning on Seesaw.

Year 3

Mastering Number/Fluency Bee

During Autumn 1 (possibly Autumn 2), pupils may revisit concepts from the Year 2 Mastering Number & Fluency Bee programme. This is a whole class teacher led session for all pupils. Weekly plans and resources are saved in the Maths folder on the school resource drive. The Year 2 teacher will advise the Year 3 teacher of the areas to focus on.

Morning Maths (Monday-Thursday 8.40am – 9.00am)

Each morning, pupils will complete three LBO fluency question sets. These questions set will focus on times tables, number facts, simple addition and subtraction facts AND/OR retrieval from previous learning. The tasks set should be fluency based. Any LBO task beginning with 'Practise' is a fluency task.

Arithmetic session

To support children's development of arithmetical proficiency, once each week there will be an arithmetic session. This is low stakes and will focus on the four operations. No marking grid is necessary (handwrite - LO: Arithmetic) and should be recorded as the next piece of work in the pupil Maths books.

Number Fact focus

The long-term plan maps out the number facts to be focused on each half term. These are practised ad hoc, with the aim that pupils can recall the facts in less than 3 seconds.

Daily Maths lesson

The lesson objective is taken from the White Rose Maths block and small steps. To start, pupils' complete Flashback 4 independent to recap previous learning. *It is important the teacher quickly reviews the Flashback 4 answers and assesses any areas of weakness. As a result, the teacher may review a method during the daily maths lesson to close any gaps in knowledge.* As soon as pupils complete the Flashback 4, they should access an LBO set on the iPad.

The teacher uses the slideshow to guide teaching, which should include many hands-on practical experiences so children understand the structure of the maths. Slides may be amended, hidden or deleted as required. Pupils record learning in their individual Maths books, or on Seesaw.

Year 4 – Year 6

Morning Maths (daily 8.40am – 9.00am)

Each morning, pupils will complete three LBQ fluency question sets. These questions set will focus on times tables, number facts, simple addition and subtraction facts OR/AND retrieval from previous learning. The tasks set should be fluency based. Any LBQ task beginning with 'Practise' is a fluency task.

Arithmetic session

To support children's development of arithmetical proficiency, once each week there will be an arithmetic session. This is low stakes and will focus on the four operations. No marking grid is necessary (handwrite - LO: Arithmetic) and should be recorded as the next piece of work in the pupil Maths books.

Number Fact focus

The long-term plan maps out the number facts to be focused on each half term. These are practised ad hoc, with the aim that pupils can recall the facts in less than 3 seconds.

Daily Maths lesson

The lesson objective is taken from the White Rose Maths block and small steps. To start, pupils' complete Flashback 4 independent to recap previous learning. *It is important the teacher quickly reviews the Flashback 4 answers and assesses any areas of weakness. As a result, the teacher may review a method during the daily maths lesson to close any gaps in knowledge.* As soon as pupils complete the Flashback 4, they should access an LBQ set on the iPad.

The teacher uses the slideshow to guide teaching, which should include many hands-on practical experiences so children understand the structure of the maths. Slides may be amended, hidden or deleted as required. Pupils record learning in their individual Maths books, or on Seesaw.

[Before teaching a new block](#)

CPD Library

Teachers must be prepared to teach a new block by watching the White Rose Maths CPD video.

Log in at www.whiterosemaths.com -> My account -> My Resources

Choose your block. Select 'Topic based CPD' video link. Once watched 'Mark as Complete'.

Length and height

Spring Term

Scheme of learning

Reasoning and problem solving questions

End of block assessment (version A)

Topic based CPD - New for 2022/23

Note and Guidance

Teaching notes and guidance are given for each small step in the 'download' file – free resource.

Step 1 Add and subtract 1s, 10s, 100s and 1,000s



Year 4 | Autumn term | Block 2 – Addition and subtraction | Step 1

Add and subtract 1s, 10s, 100s and 1,000s



Notes and guidance

In Year 3, children explored adding and subtracting 1s, 10s and 100s to/from any 3-digit number, including using a mental strategy when crossing a multiple of 10 or 100

In this small step, children recap this learning and extend their understanding to dealing with 4-digit numbers and adding and subtracting multiples of 1,000. The focus is on mental rather than written strategies, which are covered later in the block.

It is important to explore the effect of either adding or subtracting a multiple of 1, 10, 100 or 1,000 by discussing which columns always, sometimes and never change. For example, when adding a multiple of 100, the ones and tens never change, the hundreds always change and the thousands sometimes change, depending on the need to make an exchange.

Things to look out for

- Children may identify the incorrect place value column, particularly if they are using plain counters in a place value chart, for example $3,469 - 300 = 469$ or $3,439$
- Confusion may arise with zero as a placeholder.
- Children may find crossing the next or previous multiple challenging.

Key questions

- If you know $2 + 4 = 6$, what else do you know?
- How will you partition ____? Why?
- Will the value in the ones/tens/hundreds/thousands column increase or decrease? By how much?
- Which place value columns have changed/stayed the same? Why?
- What is the inverse of subtracting 300?

Possible sentence stems

- The next/previous multiple of 10/100/1,000 is ____
- I can partition ____ into ____ and ____ because ...
- The value of the ____ column will increase/decrease by ____

National Curriculum links

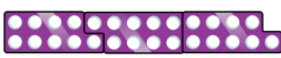

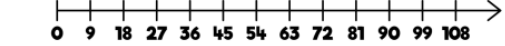
- Add and subtract numbers with up to four digits using the formal written methods of columnar addition and subtraction where appropriate
- Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why

Calculation Policy

The calculation policies are saved in the Maths folder. Calculation strategies used within the White Rose blocks should be kept as they are mapped out progressively so pupils can build on learning. Teachers should familiarise themselves with their year group strategies, and what strategies have been previously taught.

Skill	Year	Representations and models	
Recall and use multiplication and division facts for the 7-times table	4	Hundred square Number shapes	Bead strings Number lines
Recall and use multiplication and division facts for the 9-times table	4	Hundred square Number shapes	Bead strings Number lines
Recall and use multiplication and division facts for the 11-times table	4	Hundred square Base 10	Place value counters Number lines
Recall and use multiplication and division facts for the 12-times table	4	Hundred square Base 10	Place value counters Number lines

Page 16 from the Multiplication and Division calculation policy

Skill: 9 times table	Year: 4										
 <table border="1" data-bbox="448 1218 730 1279"> <tr> <td>9</td> <td>18</td> <td>27</td> <td>36</td> <td>45</td> </tr> <tr> <td>54</td> <td>63</td> <td>72</td> <td>81</td> <td>90</td> </tr> </table>  	9	18	27	36	45	54	63	72	81	90	<p>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.</p>
9	18	27	36	45							
54	63	72	81	90							

Page 24 from the Multiplication and Division calculation policy

Planning preparation

1. Use 'My Resources' to find your year group White Rose Scheme.
2. Download the Flashback 4 for the block (you will need this daily).
3. Download the 'scheme of learning' (you will need this to map out your steps and note things to look out for)
4. Download 'Reasoning and Problem Solving' questions (you will need these to challenge your pupils to dig deeper)
5. Download the 'End of Block assessment B' (you will need this to assess learning at the end of the block)
6. Look at the scheme of learning you have downloaded and scan through the steps. Map out on your Maths block plan the lessons that each small step will take to teach. Some steps may condense into one lesson, some may take one full lesson, and some steps may need a series of lessons.
7. Identify two or three key words that you want children to learn that session and add to your plan. You will need to give pupils a concise definition. *Year 4 pupils and above will create a glossary of definitions in the back of their maths book for their own reference.*

Maths Block Plan – Year 2							
Teacher	Mrs Behan Miss O'Brien	TA	Mrs Humphries Mrs Greenall Mrs Dawson	Block	Addition and Subtraction	Start date	12 th October 2022
Week	Monday	Tuesday	Wednesday	Thursday	Friday		
Week 1	<p>Small step: Fact families</p> <p>Vocabulary: parts, whole, relationship</p> <p>Difficulty points: Chn may understand addition is commutative and think that subtraction calculations can be rearranged in similar way - expose with modelling why this wouldn't work</p>	<p>Small step: Check calculations</p> <p>Vocabulary: inverse, estimate</p> <p>Difficulty points: Chn may think they can replace + with - to use inverse when checking - expose with modelling why this wouldn't work</p>	<p>Small step: Compare number sentences</p> <p>Vocabulary: equal to, greater than, less than, balance</p> <p>Difficulty points: Incorrect use of inequality symbols - watch <u>Numberblocks Blockzilla</u> episode</p>	<p>Small step: <i>Bonds focus</i></p> <p>Vocabulary: parts, whole, addend</p> <p>Difficulty points: Chn may not be able to recall number bonds to numbers WITHIN 10</p>	<p>Small step: Related facts</p> <p>Vocabulary: relationship, part, whole</p> <p>Difficulty points: Chn may struggle with concept of SCALING UP - must use Base 10</p>		
Week 2	<p>Small step: Bonds to 100 (tens)</p> <p>Vocabulary: relationship, addend, difference</p> <p>Difficulty points:</p>	<p>Small step: <i>Add and subtract 1s 10 more and 10 less</i></p> <p>Vocabulary: digit, number (identify difference between words)</p>	<p>Small step: Add and subtract 10s</p> <p>Vocabulary: difference</p> <p>Difficulty points: Chn may have poor understanding of place</p>	<p>Small step: Add 2-digit and 1 digit number - crossing ten</p> <p>Vocabulary: one-digit number, two-digit number (identify difference between words), partition</p>	<p>Small step: Recap: subtraction - crossing 10</p> <p>Vocabulary: difference, method/ strategy</p> <p>Difficulty points:</p>		

Additional step added to practise bonds before looking at connections.

Two smaller steps merged into one as teacher feels pupils are confident with these skills.

The Bigger Picture

Each year group has a long term plan that maps out the blocks (from White Rose), Mastering Number (Year 1 – Year 2) and Number Facts to learn.

The Daily Maths Lesson

	Class RAR (read and respond)	Introduce small step & Key Vocabulary	I Do (New learning)	We Do (Guided Practice)	You Do (INDEPENDENT practice)	Review
Pupil	Completing RAR T or RAR C or LBQ	Repeat words and definition back to teacher Record new vocab as necessary in own glossary (Y4+) to remember.	Actively listening Feeding thoughts back to teacher/ partner as directed. Making connections between new and prior learning.	Think through the steps. Tell the teacher what to do next in worked example. Record own example as modelled by teacher.	Work alone to complete a series of questions that allow me to practise the skill I have just learned.	Think about my learning this lesson and how it applies to more complex problems.
Teacher	RAR T Pre-teach/ intervention for those who misunderstood in previous lesson.	Explicitly teach new vocab definitions using My Turn, Your Turn .	Be concise in instruction. <i>Draw attention to connections between new and previous learning.</i> Lay out learning so pupils make discoveries. <i>Point out common mistakes so pupils don't make them.</i>	Share worked example thinking aloud through the steps. Pupils will tell you the necessary steps to complete question. Assess pupil understanding.	Work with pupils you identified as struggling learners or rapid graspers/ mark pupils work around the room and celebrate success/ re-teach misunderstood concepts.	Choose at least one challenge pupils completed independently and combine learned facts and methods to decide on an efficient strategy to find solution. Typically a 'Digging Deeper' challenge.
TA	Mark RAR Cs on going. Challenge pupils move to LBQ until new learning section	Supporting pupils where required. Observe. Who understands? Who doesn't? Who might need my help?	Observe. Who understands? Who doesn't? Who might need my help? Intervene to scaffold learning, challenge thinking, maintain focus.	Work with pupils who require support/ scaffolding/ further challenge.	Work with pupils you identified as struggling learners or rapid graspers/ mark pupils work around the room and celebrate success/ re-teach misunderstood concepts.	Mark pupils work around the room/ pre-teach prior to next lesson/ provide same day intervention for struggling learners.

RAR: At the beginning of each session, pupils will respond to feedback from the previous lesson if given or complete an LBQ of previous learning. RARs will be indicated by:

RAR T - Pre-teach/ intervention for those who misunderstood in previous lesson.

RAR C – complete a correction from the previous lesson.

Introduce Small Step & Vocabulary: Share the Learning Objective for the lesson. Key vocabulary is to be discussed at the beginning of a lesson to remove barriers in understanding. A teaching slide **must** be included at the beginning of each lesson. It may be appropriate to introduce vocabulary for the week and revisit each day to help pupils revise and revisit or it may be suitable to display two or three words only. It is important teachers clearly define the words for the pupils. Year 4 – Year 6 pupils may keep a record of new vocabulary on a glossary page at the back of their Maths book. The definitions should be given to pupils concisely and in accessible language.

Sit at tables
Write date
Stick in marking grid
RARs

ADD TO THE
NEXT 10

White
Rose
Maths

Key Vocabulary	
total	the whole
addend	a part to be added
efficient	doing something well

I Do (Instruction/ new learning): A question, challenge or activity is given to 'open the mind' about the learning in the session. This may involve a quick recap of a previous skill learned that will be needed in this session, or a problem that allows pupils to share their mathematical thinking.

1) List all the bonds to 10

2) $14 + 1 = \square$

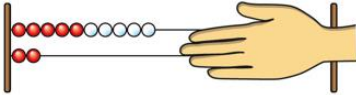
3) $24 + 1 = \square$

4) $34 + 1 = \square$

jotter

Taken from the Reasoning and Problem Solving slides downloaded.

How many beads are covered?



How do you know?

or

Teachers should then adapt slides as necessary, teaching at pace to ensure plenty of time for pupils to practise new learning in the later stages of the lesson. Teaching is interactive, and it may benefit pupils to have access to mini-whiteboards or jotters so they can make notes or jottings if they feel necessary.

During the I Do section of the lesson, teachers should aim to **address potential mistakes** (the scheme points these out, as does the topic CPD video), and consider carefully what they want the children to **notice and think about**.

Children will use sentence stems and generalisations to apply new vocabulary in context – these may be added to your slides; you can find these in the 'free resources' file. Some are embedded throughout the White Rose slides.

E.g. The whole is 5. One part is 3, one part is 2. The whole is 5.

Generalisations summarise new learning concisely. *E.g. If you change the order of the factors, the product stays the same.*

We do (Guided Practice): The teacher will share a worked example of the task pupils will complete independently. They will think aloud as they model clear steps. The teacher will share a partially completed model and pupils will tell the teacher how to complete the question. At this point, pupils are being asked to think about how they will apply known facts and methods to solve the problem/ find the answer. Teachers will assess and identify pupils who do not understand, and give them further intervention as the other pupils move onto the 'I Do' section.

Teachers should obtain resources for the We Do section from:

1. 'Download' button (free resource) on small steps guidance

Step 1 Add and subtract 1s, 10s, 100s and 1,000s

Year 4 | Autumn term | Block 2 - Addition and subtraction | Step 1

Add and subtract 1s, 10s, 100s and 1,000s

Key learning

- Complete the part-whole models and number sentences.
- Amir and Whitney are using number lines to add and subtract.

What do you notice?

Use a place value chart to help you complete the number sentences.

There are 1,286 patients and doctors in a hospital. 300 patients leave after being treated. Another 90 patients arrive. 7 doctors leave. How many patients and doctors are in the hospital now?

Reasoning and problem solving

If I add or subtract a multiple of 10, the only place value columns that might change are the tens and hundreds.

Ron is partially correct. However, the thousands may also change, e.g. $1,983 + 30 = 2,013$

Do you agree with Ron? Explain your reasons.

Rosie is finding the missing number in $_____ - 300 = 2,895$

Rosie has subtracted 300 from the answer rather than using the inverse.

What mistake has Rosie made? 3,195

Work out the missing number.

Here is a number on a place value chart.

Th	H	T	O
2	8	9	2

I am going to add two counters to a column and then remove one counter from a column.

What number could Tiny have now?

multiple possible answers, e.g. 2,892, 3,792, 3,882, 3,891, 1,992

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*Page 2 = Key learning; page 3 – reasoning and problem solving

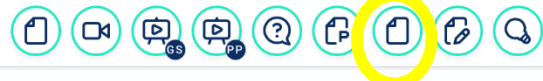
2. Teacher knowledge of questions written on flipchart paper

You do (Independent Practice): By this point, pupils will have the knowledge and skills to complete the given tasks by themselves. Pupils should be given many opportunities to practise their new learning. Tasks should be designed so that pupils thinking is challenged to apply facts and methods they now know, to apply an efficient strategy. Teachers should think carefully about the most efficient strategies pupil could use, and draw attention to these when reviewing. Tasks should challenge children to independently solve a range of fluency, reasoning and problem-solving based activities.

Teachers should obtain resources for the We Do section from:

1. 'Worksheet Display' button (premium resource) on small steps guidance

Step 1 Add and subtract 1s, 10s, 100s and 1,000s



Add and subtract 1s, 10s, 100s and 1,000s

White Rose Maths

1 Dora makes a number on a place value chart.

Thousands	Hundreds	Tens	Ones
1,000, 1,000, 1,000	100, 100, 100, 100	10, 10	1, 1, 1, 1, 1

a) What number has Dora made?
 b) Add 3 ones to Dora's number. What number have you made?
 c) Add 2 tens to Dora's number. What number have you made?
 d) Subtract 2 hundreds from Dora's number. What number have you made?
 e) Add 5 thousands to Dora's number. What number have you made?
 f) Add 3 ones and 2 hundreds to Dora's number. What number have you made?

2 Work out the calculations. Use the place value chart to help you.

1,000s	100s	10s	1s
5	3	7	8

a) $5,378 + 200$
 b) $5,378 + 20$
 c) $5,378 + 2,000$
 d) $5,378 - 6$
 e) $5,378 - 60$
 f) $5,378 - 3,000$
 g) $300 + 5,378$
 h) $5,378 - 300$

3 Work out the calculations.

a) $6,058 + 1$
 $6,058 + 2$
 $6,058 + 3$
 $6,058 + 4$
 $5 + 6,058$
 b) $6,058 + 20$
 $6,058 + 30$
 $6,058 + 40$
 $6,058 + 50$
 $60 + 6,058$

4 Mo is going to add 100 to each number. In which numbers will the 1,000s change?
 2,450 3,928 4,180 5,905 972
 What do you notice?

5 Mr Hall has £1,342 in the bank.
 a) Mr Hall puts in £500 more. How much money does he have in the bank now?
 b) Then he puts in £600 more. How much money does Mr Hall have in the bank now?
 c) Then Mr Hall takes out £60. How much money does he have in the bank now?

6 If I keep taking 10 away from the number 2,562, only the tens will change.
 Is Eva correct?
 How do you know?

2. Primary Maths Hub: User: donea@masefield.bolton.sch.uk Pass: Masefield1!



3. LBQ question set – this may form part of the lesson. It can also be used for pupils to practice or consolidate learning once they have completed 'I Do' work.

Digging Deeper: Pupils in China are challenged with a *Dong Nao Jing* problem. This means *use your head*. Pupils should be challenged with a problem or question that draws in all new learning and that is more complex.

Please review this challenge at the end of the lesson, so pupils are exposed to problem solving methods and strategies, even if they didn't complete it independently. They will still be able to contribute.

These questions may come from the 'worksheet display' on premium resources or the reasoning and problem-solving questions for the block or I see reasoning.

Supporting struggling learners:

Some learners may struggle within a lesson, and the teacher will use formative assessment (with the support of the TA) to identify these pupils and provide same day support.

Note: *If you know your children will struggle with some content, use the DfE guidance ready to progress criteria to see what pre-requisite skills are needed. This is available in the Maths folder on the school system. Where pupils need intervention, these are available in the Maths folder (18 Intervention Resources). The slides to look for correlates with the code in the Ready to Progress criteria box.*

Year 1 conceptual prerequisites	Year 2 ready-to-progress criteria	Future applications
Add and subtract within 10. Know that a multiple of 10 is made up from a number of tens, for example, 50 is 5 tens.	2AS-4 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers.	Add and subtract numbers greater than 100, recognising unitising, for example: $32 \text{ ones} + 23 \text{ ones} = 55 \text{ ones}$ so $32 \text{ tens} + 23 \text{ tens} = 55 \text{ tens}$ $320 + 230 = 550$
Count in multiples of 2, 5 and 10.	2MD-1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.	Use multiplication to represent repeated addition contexts for other group sizes. Memorise multiplication tables.

Children need to be secure here before accessing year group content.

DfE Guidance: Ready to Progress criteria

Some pupils presently do not have the prior knowledge to access the small step taught to the whole class. These pupils are discussed with the class teacher, SENCO and Maths Lead to ensure they are supported effectively to close the gaps between them and their peers. In some cases, a very small number of pupils are taught a separate programme with small steps that are manageable, yet challenging using different resources. The class teacher decides on these in conjunction with the SENCO and Maths Lead. Some 'go-to' resources include My Maths, LBQ, NCETM PowerPoints or use of the Mastering Number programme.

Q&A

Where can I get the White Rose Resources?

Each teacher has their own log in to the White Rose website. All schemes of learning, resources, assessments and the teacher CPD library can be accessed using the log in.

How can I ensure I am teaching the subject correctly?

For each block, a teacher video is available in the **My Account** -> **My Courses** section of the White Rose website. Teachers are advised to watch the video in preparation of the upcoming block as part of their preparation and planning time.

How should I include LBO within my lesson?

LBO is an effective teaching tool that continually moves pupils learning forward. In a Maths lesson LBO can form part of a I Do challenge for Key Stage 2 pupils. Recording and working out can be recorded in Maths books. Please note that LBO forms part of the Maths lesson and not the entirety. LBO tasks will form morning maths work for KS2 pupils. When choosing appropriate tasks teachers can select any task that starts with 'Practise' as all of these tasks are fluency tasks.

How can I plan for struggling learners so they don't rely on adult support?

There are number of ways pupils can be supported:

- Pre-teach the concept. Use the Intervention PowerPoints (Maths > 18 Intervention Resources)
- Plan additional sessions to secure the pre-requisites using the DfE guidance.
- Provide children with additional resources e.g. a list of x2 tables if children will be doubling and halving. This is not to be seen as giving children the answers but a scaffold. Children will no longer use the resource when they are confident and secure.

The same children need help with the 'We Do' section. What should I do?

Talk with the pupil about their struggles and difficulties. Do they lack confidence? Is there a resource you could give them as a scaffold? If children continue to struggle, consider whether they need to be added to your class action plan to have regular intervention.

If you still have concerns, speak to the Maths Lead or SENCO.

The majority of pupils cannot access my 'We Do' task, what should I do?

The Guided Practice session will give the teacher an indication of what the pupils have or have not understood. If a minority of pupils cannot access the Guided Practice task and don't show an understanding, these children will form a group of Struggling Learners and be supported by an adult in this lesson. If the majority fail to understand the concept the teacher must not proceed to Independent Practice, but revisit the teaching input and scaffold the learning. Children may need more examples or different contexts. They may need to explore practically for longer.

There are pupils who will find the small step too easy, what shall I do?

Firstly, do not presume pupils will find the concept easy to understand; yet equally as important do not hinder children's progress by slowing them down.

- If you are confident that the pupils will achieve, you could set them off on the *We Do* challenge whilst delivering the input to other pupils.
- During *We Do* you should keep a closer eye on these pupils and set them off on the *You Do* as soon as they demonstrate an understanding of the concept.

Appendix A

Early Years Maths: Linguistic Concepts

The table below is based on Elklan's Linguistic Concept Levels. The different word lists should not be adhered to rigidly but that the words listed in the first column should be learnt at one level before preceding to the next.

	Basic concepts	→	→	Difficult concepts
SIZE	Big, little, heavy	Empty, fat, full, long, small, biggest	Large, light, short, tall, thin, bigger, fattest, heaviest, longest, smallest	Deep, narrow, shallow, thick, wide, fatter, heavier, longer, smaller, largest, lightest, shortest, tallest, thinnest
SPACE	By, inside, off, out, over, to, through, under	Round, away, behind, bottom, forward, in front of, near, next to, outside, straight	Beside, backwards, back, between, far, front, high, low, middle, side, together, towards,	above, across, against, apart, below, facing, row, sideways, upright
TEXTURE	Hard, soft	Cold, dry, wet, hot	Furry, rough, smooth, warm	
SOUND	Noisy, quiet/ly	Loud/ly, soft/ly		High, low
SHAPE	Dot, spot, line, round	Circle, flat, square	Cross, triangle	Corner, curved, diamond, oval, rectangle, shape, slant/ slope, straight
MOVEMENT	Fast, slow/ly	Moving, quick/ly, still		Jerky, smooth
QUANTITY	A bit, all, a lot, some, more	Another, any, many, no more, as much as	About, both, every, few, half, most, nearly, only, other	Each, enough, equal, fewest, less, much, none, part, plenty, several, unequal, whole.
TIME	Again, now	After, soon, today	Always, before, later, yesterday	Early, late, never, once, sometimes, tomorrow, twice
NUMBER	One, two	Three, four, five, first, next	Number, 1 st , 2 nd , second, third, last	
PERSONAL QUALITIES	Good, happy, naughty, sad	Bad, hungry, nice, pretty, silly	Cross, frightened, kind, thirsty	Clever, excited, pleased, unkind.
QUALITY	like	Same as, too	Different, new, very	Almost, old
COLOUR	Blue, green, red	Black, white, yellow	Colour, orange, pink, purple	Dark/er, light/er, plain, striped