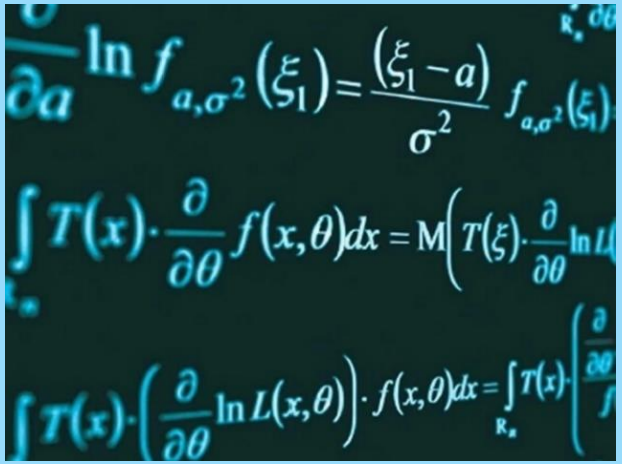
Curriculum Skills and Progression
Mathematics: 2021 to 2022



Horsford C of E VA Primary School

Nebula
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The Mathematics Curriculum and Christian Distinctiveness

at Horsford CofE VA Primary School

At Horsford C of E Primary School, we ensure that the teaching of our Mathematics curriculum embodies our Christian Distinctiveness and reinforces our School Values of: Courage, Compassion and Responsibility. We ensure that through a varied and thorough curriculum that all children have the opportunity to study the world around them and ask questions and challenge preconceived ideas. Within our maths curriculum, we inspire children to become excited by numbers, their patterns and the role they play in our everyday lives. We teach the children to show courage in the face of mathematical challenges and compassion as they work together, helping one another to grabble with new ideas. We encourage the children to be responsible learners, taking ownership over their learning, challenging themselves and enabling them to do their best. Through our school Bible story of 'The Good Samaritan', we further reinforce the idea that everyone is included at our school, regardless of their own life story and how different that might look to our own. We teach the children to work together and to support each other in their mathematical endeavours.

'Spirituality is the bitter-sweet yearning for beauty, truth, love and wonder beyond ourselves. It is a longing we pursue together and a treasure we glimpse in ourselves and one another and seek beyond us into eternity. It is life in all its fullness.'

COVID 19 Recovery

Specific content has been missed, leading to gaps in learning and stalled sequencing of journeys. As we follow the White Rose Schemes of learning, it is easy to identify the missed learning from the previous year. This is being addressed by adding in recap lessons which allows the teacher to cover missed key objectives, in order for the children to progress through the new content. These lessons can be easily be weaved into the sequence of learning, where necessary. 'Catch up' interventions are taking place for some individuals who require additional support on these objectives.

Children still have a huge appetite for maths and lockdown has not affected their attitudes however they are quite simply, 'behind'.

Please refer to previous Curriculum Skills and Progression Maps to ensure that units of lost learning are covered.

The new Ready-to Progress criteria statements are indicated in purple

Lockdown 2 - Spring 2021

Reception- White Rose Maths has been implemented. Maths lessons were delivered in school and children completing home learning received these each day as well as a maths challenge to complete and send through to school for feedback.

Key Stage One- Live sessions were taught daily. Some elements of White Rose Maths have been used to support teaching.

Key Stage Two- White Rose Maths has been implemented across KS2. Children were able to access online video lessons and work sheets via their Teams accounts. Live lessons were given daily by class teacher. Good uptake of learning across years 3-4.

New vocabulary is indicated in italics

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Number: Number and Place Value

KEY SKILLS		
Reception	**Year 1**	**Year 2**
Counting		
Recites numbers from 0 to 10 (and beyond) and back from 10 to 0.	count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number **Count within 100, forwards and backwards, starting with any number.**	
Counts out up to 10 objects from a larger group Matches the numeral with a group of items to show how many there are **ELG Numerical Pattern- Verbally count beyond 20, recognising the pattern of the counting system**	count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens **Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers**	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward
Understand the 'one more than/ one less than' relationship between consecutive numbers	given a number, identify one more and one less	
Comparing numbers		
Uses number names and symbols when comparing numbers, showing an interest in large numbers Estimates the number of things, showing understanding of relative size **ELG Numerical Patterns- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity**	use the language of: equal to, more than, less than (fewer), most, least	compare and order numbers from 0 up to 100; use <, > and = signs
Identifying, representing and estimating numbers		
Increasingly confident at putting numerals in order 0 to 10 (ordinality) Subitises numbers to four, then five. **ELG Number- Subitise (recognise quantities without counting) up to 5** **ELG Numerical Pattern- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.**	identify and represent numbers using objects and pictorial representations including the number line **Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =**	identify, represent and estimate numbers using different representations, including the number line **Reason about the location of any two digit number in the linear number system, including identifying the previous and next multiple of 10.**

Reading and writing numbers (including Roman 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
Understanding Place Value		
		recognise the place value of each digit in a two-digit number (tens, ones) **Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and nonstandard partitioning**
Problem Solving		
		use place value and number facts to solve problems
Greater depth	**Greater depth**	**Greater depth**
Estimate a number of objects and check quantities by counting up to 20. Solve practical problems that involve combining groups of 2, 5 or 10.	Count reliably well beyond 100. Count on and back in 3's from any given number to beyond 100. Say the number that is ten more or ten less than a number to 100. Know the signs < and >.	Reason with numbers showing an understanding of place value.
Key vocabulary	**Key vocabulary**	**Key vocabulary**
Zero, none, number, one, two, three….to twenty and beyond, count, count on, count back, is the same as, more, less, pattern, digit, the same number as, more, larger, bigger, greater, fewer, smaller, less, fewest, smallest, least, most, the same as, biggest, largest, greatest, greater than, less than, the same, one more, one less, compare, order, size, first, second, third…twentieth, last, before, after, next, between, halfway between, guess, estimate, nearly, close, about the same as, just over, just under, too many, too few, fewest, enough, not enough, *smaller, smallest, subitise, pattern, dice, five frame, ten frame, numerals, arrangements, odd and even, double.*	Numeral, twenty one, twenty two…one hundred, forwards, backwards, equal to, equivalent to, most, least, many, multiple of, half way between, above, below, roughly, *greater, lesser, pair, units, ones, tens, ten more/less, figure (s), in order, a different order.*	Two hundred….one thousand, threes, fours, tally, sequence, continue, predict, rule, >greater than, <less than, hundreds, one digit, two digit, three digit number, place, place value, stands for, represents, exchange, twenty first, twenty second…exact, exactly, *numbers to one hundred, partition, recombine, hundred more/less.*

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Number: Number and Place Value

KEY SKILLS			
Year 3	**Year 4**	**Year 5**	**Year 6**
Counting			
	count backwards through zero to include negative numbers	interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	use negative numbers in context, and calculate intervals across zero
count from 0 in multiples of 4, 8, 50 and 100; **Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three digit multiples of 10.**	count in multiples of 6, 7, 9, 25 and 1000 **Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100.**	count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 **Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.**	**Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).**
find 10 or 100 more or less than a given number	find 1000 more or less than a given number		
Comparing numbers			
compare and order numbers up to 1000	order and compare numbers beyond 1000 compare numbers with the same number of decimal places up to two decimal places	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers)	read, write, order and compare numbers up to 10 000000 and determine the value of each digit (appears also in Reading and Writing Numbers)
Identifying, representing and estimating numbers			
identify, represent and estimate numbers using different representations **Reason about the location of any threedigit number in the linear number system, including identifying the previous and next multiple of 100 and 10.**	identify, represent and estimate numbers using different representations **Reason about the location of any four digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each.**	**Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.**	**Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.**

Reading and writing numbers (including Roman Numerals)			
read and write numbers up to 1000 in numerals and in words	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 (appears also in Comparing Numbers)	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Understanding Place Value)
tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks (copied from Measurement)		read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	
Understanding Place Value			
recognise the place value of each digit in a three-digit number (hundreds, tens, ones) **Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.**	recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) **Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and nonstandard partitioning**	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers) recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (copied from Fractions) **Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and nonstandard partitioning**	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers)
	find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths (copied from Fractions)		identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places (copied from Fractions) **Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and nonstandard partitioning**
Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts	**Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.**	**Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts.**	**Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.**

Rounding			
	round any number to the nearest 10, 100 or 1 000	round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000	round any whole number to a required degree of accuracy
	round decimals with one decimal place to the nearest whole number (copied from Fractions)	round decimals with two decimal places to the nearest whole number and to one decimal place (copied from Fractions)	solve problems which require answers to be rounded to specified degrees of accuracy (copied from Fractions)
Problem Solving			
solve number problems and practical problems involving these ideas.	solve number and practical problems that involve all of the above and with increasingly large positive numbers	solve number problems and practical problems that involve all of the above	solve number and practical problems that involve all of the above
Greater depth	**Greater depth**	**Greater depth**	**Greater depth**
Recognise the value of each digit in a four digit number and the value of a tenth. Begin to have an understanding about negative numbers, recognising they are smaller than 0.	Round any number to 100, 000 to the nearest 10, 100, 1000 or 10, 000. Use tenths, hundredths and thousands when comparing values.	Have a concept of numbers well beyond 1, 000, 000 and their relative association to distances to planets, historical data and geographical aspects. Use rounding as a strategy for quickly assessing what approximate answers ought to be, before calculating. Link working across 0 for positive and negative numbers to work time between BC and AD in history.	Use the symbols =, ≠, ≤, ≥ correctly.
Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key vocabulary**
Count in fours, eighths, fifties….hundreds, factor of, relationship, roman numerals, one hundred more, one hundred less, approximate, approximately, round, nearest, round to the nearest ten/ hundred, round up, round down, *numbers to one thousand*	Ten thousand, hundred thousand, million, count in sixes, sevens, nines, twenty five, next, consecutive, integer, positive, negative, above/below zero, minus, negative numbers, one thousand more, one thousand less, thousand, *tenth, hundredth, decimal (places), count through zero, Roman numerals I to C*	Factor pair, greater than or equal to, less than or equal to, formula, divisibility, square number, prime number, ascending/ descending order, ten thousand, *powers of 10*	Factorise, prime factor, digit total, *numbers to ten million*

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Number: Addition and Subtraction

KEY SKILLS		
Reception	**Year 1**	**Year 2**
Number bonds		
Begins to conceptually subitise larger numbers by subitising smaller groups within the number (e.g. 6 is 3 and 3) **ELG Number- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.**	represent and use number bonds and related subtraction facts within 20 **Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers**	recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 **Add and subtract across 10**.
Mental Calculation		
Shows awareness that numbers are made up (composed) of smaller numbers, exploring partitioning in different ways with a wide range of objects In practical activities, adds one and subtracts one with numbers to 10 **ELG Number -Have a deep understanding of number to 10, including the composition of each number**	add and subtract one-digit and two-digit numbers to 20, including zero **Develop fluency in addition and subtraction facts within 10.**	*add and subtract numbers using concrete objects, pictorial representations, and mentally, including: * a two-digit number and ones * a two-digit number and tens * two two-digit numbers adding three one-digit numbers **Secure fluency in addition and subtraction facts within 10, through continued practice**
	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods) **Read, write and interpret equations containing addition ( ), subtraction ( ) and equals ( ) symbols, and relate additive expressions and equations to real-life contexts.**	show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot **Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more…?".**
Written Methods		
Begins to explore and work out mathematical problems, using signs and strategies of their own choice, including (where appropriate) standard numerals, tallies and + or -.	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation)	**Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two digit number.**

		Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two digit numbers.
Inverse operations, estimating and checking answers		
		recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
Problem Solving		
	solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9	solve problems with addition and subtraction: *using concrete objects and pictorial representations, including those involving numbers, quantities and measures *applying their increasing knowledge of mental and written methods
		solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change (copied from Measurement)
Greater depth	**Greater depth**	**Greater depth**
Solve practical problems that involve combining groups of 2, 5 or 10, or sharing into equal groups.	Apply knowledge of number to solve a one-step problem involving addition and subtraction. Add and subtract one digit and two digit numbers to 50, including 0.	Use reasoning about numbers and relationships to solve more complex problems and explain their thinking. Solve unfamiliar word problems that involve more than one step.
Key vocabulary	**Key vocabulary**	**Key vocabulary**
Add, plus, more, and, make, sum, total, altogether, double, one more… take away, subtract, minus, one less, half, halve, difference between, *number track, equals, is the same (including =), how many more to make…? How many more is…than?, How many more is…?, subitise, arrangements, pattern, five frame, ten frame, parts, number bonds, partitioning, composition, double.*	Addition, near double, half, halve, subtract, equals, is the same as, number bonds/ pairs, missing number, *inverse, difference between, how many fewer is…than…? How much less is…?, number line, part whole model, partitioning, odd and even.*	Ten more, ten less, facts, *concrete, pictorial, abstract, difference, mental, written.*

Number: Addition and Subtraction

KEY SKILLS			
Year 3	**Year 4**	**Year 5**	**Year 6**
Mental Calculation			
add and subtract numbers mentally, including: * a three-digit number and ones * a three-digit number and tens * a three-digit number and hundreds		add and subtract numbers mentally with increasingly large numbers	perform mental calculations, including with mixed operations and large numbers
Secure fluency in addition and subtraction facts that bridge 10, through continued practice.			use their knowledge of the order of operations to carry out calculations involving the four operations
Written Methods			
add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction **Add and subtract up to three-digit numbers using columnar methods.**	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)	
Inverse operations, estimating and checking answers			
estimate the answer to a calculation and use inverse operations to check answers **Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction.**	estimate and use inverse operations to check answers to a calculation	use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.
Calculate complements to 100.			**Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships**

			(multiplicative relationships restricted to multiplication by a whole number). Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.
Problem Solving			
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 multi-step problems in contexts, deciding which operations and methods to use and why	solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Solve problems involving addition, subtraction, multiplication and division
Greater depth	**Greater depth**	**Greater depth**	**Greater depth**
Add and subtract numbers with any number of digits using formal written methods.	Use tenths, hundreds and thousandths when solving addition and subtraction problems. Solve multi-step problems involving more than one of the operations.	Calculate number problems algebraically for example 2x-3=5.	
Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key vocabulary**
Tens boundary, hundreds boundary, complex, operations, *column addition/subtraction*	Inverse	Ones boundary, tenths boundary, *efficient written method*	*Order of operations*

Number: Multiplication and Division

KEY SKILLS		
Reception	**Year 1**	**Year 2**
Multiplication and division facts		
ELG Number- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. **ELG Numerical Pattern- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.**	count in multiples of twos, fives and tens (copied from Number and Place Value)	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward (copied from Number and Place Value)
		recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
Mental Calculation		
		show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
Written Calculation		
		calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs **Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.** **Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).**

Problem Solving		
	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
Greater depth	**Greater depth**	**Greater depth**
Solve problems involving halving, doubling and sharing.	Apply knowledge of number to solve a one step problem involving simple multiplication and division.	Recall and use multiplication and division facts for 2, 5 and 10, and make deductions outside known multiplication facts. Solve unfamiliar word problems that involve more than one step.
Key vocabulary	**Key vocabulary**	**Key vocabulary**
Sharing, doubling, halving, number patterns, *odd, even, double, half, share, share equally, group in pairs, equal groups of, divide.*	Multiplication, multiply, multiplied by, multiple, division, dividing, grouping, array, *once twice, three times, five times, count in tens (forwards from/ backwards from), how many times?, lots of, groups of, multiple of, times, multiply by, repeated addition, array, row, column, group in twos, threes etc, divided by, left, left over.*	Groups of, times, once, twice, three times…ten times, repeated addition, divide, divided by, divided into, share, share equally, left over, one each, two each…group in pairs, threes…equal groups of, row, column, multiplication table, fact.

Number: Multiplication and Division

KEY SKILLS			
Year 3	**Year 4**	**Year 5**	**Year 6**
Multiplication and division facts			
count from 0 in multiples of 4, 8, 50 and 100 (copied from Number and Place Value)	*count in multiples of 6, 7, 9, 25 and 1 000* (copied from Number and Place Value)	*count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000* (copied from Number and Place Value)	
recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables **Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.**	recall multiplication and division facts for multiplication tables up to 12 × 12 **Recall multiplication and division facts up to 12x12, and recognise products in multiplication tables as multiples of the corresponding number.**	**Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.**	
Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division	**Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.**	**Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.**	**For year 6, MD ready-toprogress criteria are combined with AS readyto-progress criteria (please see above)**
Mental Calculation			
write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (appears also in Written Methods)	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	multiply and divide numbers mentally drawing upon known facts	perform mental calculations, including with mixed operations and large numbers
	recognise and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers)	multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	*associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$)* (copied from Fractions)

Written Calculation			
write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (appears also in Mental Methods)	multiply two-digit and three-digit numbers by a one-digit number using formal written layout	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	multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
		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	divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
	Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context.		*use written division methods in cases where the answer has up to two decimal places* (copied from Fractions (including decimals))
Properties of numbers: Multiples, factors, primes, square and cube numbers			
	recognise and use factor pairs and commutativity in mental calculations (repeated)	identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.	identify common factors, common multiples and prime numbers
		know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	*use common factors to simplify fractions; use common multiples to express fractions in the same denomination* (copied from Fractions)
		establish whether a number up to 100 is prime and recall prime numbers up to 19	
	Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. **Understand and apply the distributive property of multiplication**	**Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.**	

		Multiply any whole number with up to 4 digits by any one-digit number using a formal written method. **Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.**	
		recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	*calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3* (copied from Measures)
Order of operations			
			use their knowledge of the order of operations to carry out calculations involving the four operations
Inverse operations, estimating and checking answers			
estimate the answer to a calculation and use inverse operations to check answers (copied from Addition and Subtraction)	*estimate and use inverse operations to check answers to a calculation* (copied from Addition and Subtraction)		use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy
Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).	**Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100)**	**Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).**	
Problem Solving			
solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	solve problems involving addition, subtraction, multiplication and division
		solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	

		solve problems involving multiplication and division, inc. scaling by simple fractions and problems involving simple rates	*solve problems involving similar shapes where the scale factor is known or can be found* (copied from Ratio and Proportion)
Greater depth	**Greater depth**	**Greater depth**	**Greater depth**
Know all multiplication facts up to 12x12 and be able to instantaneously answer questions such as how many 7's in 42. Multiply and divide any two digit number by a single digit number and have an understanding of remainder.	Solve multi-step problems involving more than one of the operations. Rapidly recall answer when multiplying and diving a whole or decimal number by 10.	Divide whole numbers (up to 4 digits) by 2 digit numbers using preferred method. Recognise the symbol for square root and work out square roots for numbers up to 100.	Multiply all integers (using efficient written methods) including mixed numbers and negative numbers. Move beyond squared and cubed numbers to calculate problems such as X x 10n where n is positive.
Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key vocabulary**
Factor, product, remainder, *multiples of four, eight, fifty and one hundred, scale up*	Inverse, square, squared, cube, cubed, *multiplication facts (up to 12 x 12), division facts, derive*	*Factor pairs, composite numbers, prime numbers, prime factors, cubed number, formal written method*	*Order of operations, common factors, common multiples*

Number: Fractions (including decimals and percentages)

KEY SKILLS		
Reception	**Year 1**	**Year 2**
Counting in fractional steps		
		Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line *(Non Statutory Guidance)*
Recognising fractions		
	recognise, find and name a half as one of two equal parts of an object, shape or quantity	recognise, find, name and write fractions $^{1}/_{3}$, $^{1}/_{4}$, $^{2}/_{4}$ and $^{3}/_{4}$ of a length, shape, set of objects or quantity
	recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	
Equivalence (including fractions, decimals and percentages)		
		write simple fractions e.g. $^{1}/_{2}$ of 6 = 3 and recognise the equivalence of $^{2}/_{4}$ and $^{1}/_{2}$.
Greater depth	**Greater depth**	**Greater depth**
		Find and compare fractions of amounts.
Key vocabulary	**Key vocabulary**	**Key vocabulary**
Parts of a whole, whole, equal, half.	Fraction, equal part, equal grouping, equal sharing, one of two equal parts, one of four equal parts, *two halves, a quarter, two quarters.*	Equivalent fraction, numerator, denominator, two halves, two quarters, three quarters, one third, two thirds, one of three equal parts, *equivalent.*

Nebula
where stars are born

Number: Fractions (including decimals and percentages)

KEY SKILLS			
Year 3	**Year 4**	**Year 5**	**Year 6**
Counting in fractional steps			
count up and down in tenths	count up and down in hundredths		
Recognising fractions			
recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10. **Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.** recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators	recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten **Convert mixed numbers to improper fractions and vice versa.**	recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (appears also in Equivalence) **Find equivalent fractions and understand that they have the same value and the same position in the linear number system.**	**Recognise when fractions can be simplified, and use common factors to simplify fractions**
Comparing fractions			
compare and order unit fractions, and fractions with the same denominators **Reason about the location of any fraction within 1 in the linear number system.**	**Reason about the location of mixed numbers in the linear number system**	compare and order fractions whose denominators are all multiples of the same number **Find non-unit fractions of quantities.**	*compare and order fractions, including fractions >1* **Express fractions in a common denomination and use this to compare fractions that are similar in value.** **Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.**

Comparing decimals			
	compare numbers with the same number of decimal places up to two decimal places	read, write, order and compare numbers with up to three decimal places **Convert between units of measure, including using common decimals and fractions.**	identify the value of each digit in numbers given to three decimal places
Rounding including decimals			
	round decimals with one decimal place to the nearest whole number	round decimals with two decimal places to the nearest whole number and to one decimal place	solve problems which require answers to be rounded to specified degrees of accuracy
Equivalence (including fractions, decimals and percentages)			
recognise and show, using diagrams, equivalent fractions with small denominators	recognise and show, using diagrams, families of common equivalent fractions	identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	use common factors to simplify fractions; use common multiples to express fractions in the same denomination
	recognise and write decimal equivalents of any number of tenths or hundredths	read and write decimal numbers as fractions (e.g. 0.71 = $^{71}/_{100}$) recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^{3}/_{8}$)
	recognise and write decimal equivalents to $^{1}/_{4}$; $^{1}/_{2}$; $^{3}/_{4}$	recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator 100 as a decimal fraction	recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
Addition and Subtraction of fractions			
add and subtract fractions with the same denominator within one whole (e.g. $^{5}/_{7} + ^{1}/_{7} = ^{6}/_{7}$) **Add and subtract fractions with the same denominator, within 1.**	add and subtract fractions with the same denominator **Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers**	add and subtract fractions with the same denominator and multiples of the same number recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $^{2}/_{5} + ^{4}/_{5} = ^{6}/_{5}$ **Recall decimal fraction equivalents for 1/2, ¼, 1/5 and 1/10 , and for multiples of these proper fractions**	add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions

Multiplication and division of fractions			
Find unit fractions of quantities using known division facts (multiplication tables fluency).		multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $^1/_4 \times {}^1/_2 = {}^1/_8$)
			multiply one-digit numbers with up to two decimal places by whole numbers
			divide proper fractions by whole numbers (e.g. $^1/_3 \div 2 = {}^1/_6$)
Multiplication and division of decimals			
			multiply one-digit numbers with up to two decimal places by whole numbers
	find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths		multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
			identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
			associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$)
			use written division methods in cases where the answer has up to two decimal places
Problem Solving			
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	solve problems involving numbers up to three decimal places	
	solve simple measure and money problems involving fractions and decimals to two decimal places.	solve problems which require knowing percentage and decimal equivalents of $^1/_2$, $^1/_4$, $^1/_5$, $^2/_5$, $^4/_5$ and those with a denominator of a multiple of 10 or 25.	

Greater depth	Greater depth	Greater depth	Greater depth
Can find fractional values (from ½ to 1/10) of amounts up to 1000.	Relate tenths and hundredths to fractional values. Work out simple percentage values of whole numbers. Compare and add fractions whose denominators are all multiples of the same number.		Compare, order and convert between fractions, decimals and percentages in contexts.
Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key vocabulary**
Sixths, sevenths, eighths, tenths, *unit fraction, non-unit fraction, compare, order*	Hundredths, decimal, decimal fractions, decimal point, decimal place, decimal equivalent, proportion, *equivalent fraction*	Proper/improper fraction, equivalent, reduced to, cancel, thousandths, in every, for every, percentage, per cent, *mixed numbers, fifth, two fifths, four fifths, ratio, proportion*	Ratio, *degree of accuracy, simplify*

Ratio and Proportion

KEY SKILLS Statements only appear in Year 6 but should be connected to previous learning, particularly fractions and multiplication and division			
Year 3	**Year 4**	**Year 5**	**Year 6**
			solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
			solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
			solve problems involving similar shapes where the scale factor is known or can be found
			solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
			Solve problems involving ratio relationships.
Greater depth	**Greater depth**	**Greater depth**	**Greater depth**
			Reason with numbers showing an understanding of ratio and proportion.
Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key vocabulary**
			Integer, percentages, scale factor, unequal grouping.
Cross-Curricular Links			
Year 6: Ratio and proportion to describe maps and populations in Geography. Science investigations where variables are being used.			

Measurement

KEY SKILLS		
Reception	**Year 1**	**Year 2**
Comparing and estimating		
Tackles problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness and accuracy	compare, describe and solve practical problems for: * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half] * mass/weight [e.g. heavy/light, heavier than, lighter than] * capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter] time [e.g. quicker, slower, earlier, later]	compare and order lengths, mass, volume/capacity and record the results using >, < and =
	sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]	compare and sequence intervals of time
Measuring and calculating		
Becomes familiar with measuring tools in everyday experiences and play Beginning to experience measuring time with timers and calendars	measure and begin to record the following: * **lengths and heights** * **mass/weight** * **capacity and volume** * **time** (hours, minutes, seconds**)**	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
	recognise and know the value of different denominations of **coins and notes**	recognise and use symbols for pounds **(£) and pence (p)**; combine amounts to make a particular value
		find different combinations of coins that equal the same amounts of money
		solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
Telling the time		
	tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	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.
Able to order and sequence events using everyday language related to time	recognise and use language relating to dates, including days of the week, weeks, months and years	know the number of minutes in an hour and the number of hours in a day. (appears also in Converting)
Converting		
		know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time)

Greater depth	Greater depth	Greater depth
Estimate, measure, weigh and compare and order objects. Talk about properties, position and time.	Recognise all coins and notes, and know their value. Use coins to pay for items bought up to £1. Use knowledge of time to know when key periods of the day happen, for example, lunchtime, home time etc.	Read scales where not all numbers on the scale are given, and estimate points in between. Read the time on a clock to the nearest 5 minutes.
Key vocabulary	**Key vocabulary**	**Key vocabulary**
Measure, size, compare, guess, estimate, enough, too much, too little, too many, too few, nearly, close to, about the same as, length, height, long, short, tall, wide, narrow, thick, thin, longer, shorter, taller… longest, shortest, tallest, higher, highest…, weigh, weighs, balances, heavy, light, lighter, lightest, heaviest, heavier than, lighter then, scales, non-standard units, full, empty, half full, holds, container, time, days of the week, Monday, Tuesday….day, week, birthday, morning, afternoon, evening, night, bedtime, dinner time, playtime, today, yesterday, tomorrow, before, after, next, last, quick, quicker, quickest, quickly, slow, slower, slowest, slowly, old, new, hour, o'clock, watch, clock, hands, money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, *change, how much? How many? total, seasons, Spring, Summer, Autumn, Winter, month, year, weekend, holiday.*	Measurement, roughly, centimetre, metre, standard units, wide, narrow, ruler, metre stick, kilogram, litre, capacity, volume, more than, less than, quarter full, months of the year, January, February…, seasons, Autumn, Winter, Spring, Summer, weekend, month, year, earlier, later, first, midnight, date, always, never, often, sometimes, usually, once, twice, half past, clock face, hour hand, minute hand, hours, minutes, *now, soon, early, late, quick, quicker, quickly, fast, slow, slower, old, older, oldest, new, newer, newest, takes longer, takes less time, o'clock, watch, hands, how long ago? How long will it be to….?How long will it take to…? How often? First, second, third, etc, close to, about the same as, just over, just under, enough, not enough, width, depth, long, short, tall, high, low, wide, narrow, deep, shallow, thick, thin, far, near, close, costs more, costs less, dear (er), cheaper, costs the same as.*	Measuring scales, further, furthest, tape measure, gram, millimetre, temperature, degree, 5, 10, 15 minutes past/ to, fortnight, quarter past, digital, analogue, timer, seconds, bought, sold, *m/km, g/kg.*
Cross-curricular links		
Music- singing familiar songs		

Measurement

KEY SKILLS			
Year 3	**Year 4**	**Year 5**	**Year 6**
Comparing and estimating			
	estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring)	calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes (also included in measuring) estimate volume (e.g. using 1 cm^3 blocks to build cubes and cuboids) and capacity (e.g. using water)	calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3.
compare durations of events, for example to calculate the time taken by particular events or tasks			
estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Telling the Time)			
Measuring and calculating			
measure, compare, add and subtract: **lengths** (m/cm/mm); **mass** (kg/g); **volume/capacity** (l/ml)	estimate, compare and calculate **different measures,** including **money in pounds and pence** (appears also in Comparing)	use all four operations to solve problems involving measure (e.g. **length, mass, volume, money**) using decimal notation including scaling.	solve problems involving the calculation and conversion of **units of measure**, using decimal notation up to three decimal places where appropriate (appears also in Converting)
measure the **perimeter** of simple 2-D shapes	measure and calculate the **perimeter** of a rectilinear figure (including squares) in centimetres and metres	measure and calculate the **perimeter** of composite rectilinear shapes in centimetres and metres	recognise that shapes with the same areas can have different **perimeters** and vice versa
add and subtract amounts of **money** to give change, using both £ and p in practical contexts			

	find the area of rectilinear shapes by counting squares	calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes *recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})* (copied from Multiplication and Division)	calculate the area of parallelograms and triangles calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [e.g. mm^3 and km^3]. recognise when it is possible to use formulae for area and volume of shapes
Telling the time			
tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks	read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting)		
estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Comparing and Estimating)			
	solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Converting)	solve problems involving converting between units of time	
Converting			
know the number of seconds in a minute and the number of days in each month, year and leap year	convert between different units of measure (e.g. kilometre to metre; hour to minute)	convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	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 three decimal places
	read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting)	solve problems involving converting between units of time	solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate (appears also in Measuring and Calculating)

	solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Telling the Time)	understand and use equivalences between metric units and common imperial units such as inches, pounds and pints	convert between miles and kilometres
Greater depth	**Greater depth**	**Greater depth**	**Greater depth**
Use knowledge of number to solve problems related to money, time and measures. Can relate knowledge of time to problems related to timetables. Measure, compare, add and subtract more complex problems using common metric measures set out in kg, g, kl, l, m, km.	Use a 24 hour timetable to find out times for a journey between various places. Use knowledge of perimeter to work out the perimeter of large areas around school using metres and centimetres.	Use knowledge of measurement to create plans of areas around school, such as classroom, filed, play area etc. Relate imperial measures still used regularly in our society to their metric equivalent, e.g. miles to kilometres, pounds to kilograms. Use a range of timetables to work out journey times on a fictional journey around the world, e.g. how long would it take to reach the rainforests in the Amazon.	Use formula for measuring the area of shape such as cuboid and triangle to work out the area of an irregular shape in the school environment. Use four operations with mass, length, time, money and other measures, including with decimal quantities. Calculate costs and time involved to visit a destination in another part of the world.
Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key vocabulary**
Division, approximately, millimetre, kilometre, mile, distance apart, between, to, from, perimeter, centigrade, century, calendar, earliest, latest, a.m, p.m, roman numerals, 12 hour clock time, 24 hour clock time, leap year, Roman numerals I to XIII	Unit, standard unit, metric unit, breadth, edge, area, covers, square centimetre, mass, measuring cylinder, leap year, millennium, date of birth, timetable, arrive, depart, *convert*	Imperial unit, square metre, square millimetre, pint, gallon, discount, currency.	Yard, foot, feet, inch, inches, circumference, tonne, pound, ounce, centilitre, cubic centimetres, cubic metres, cubic millimetres, cubic kilometres, Greenwich Mean Time, British Summer Time, International Date Line, profit, loss
Cross -Curricular Links			
Science, Music, History and Geography			

Geometry: Properties of Shapes

KEY SKILLS		
Reception	**Year 1**	**Year 2**
Identifying shapes and their properties		
Investigates turning and flipping objects in order to make shapes fit and create models, predicting and visualising how they will look. Uses informal language (e.g. heart shaped and hand shaped leaves) as well as mathematical terms to describe shape. Composing and decomposing shapes, learning which shapes combine to make other shapes Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build	recognise and name common 2-D and 3-D shapes, including: * 2-D shapes [e.g. rectangles (including squares), circles and triangles] * 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres]. **Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another.** **Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.**	identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces **Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.** identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]
Comparing and classifying		
		compare and sort common 2-D and 3-D shapes and everyday objects
Greater depth	**Greater depth**	**Greater depth**
Recognise and name a range of 2D and 3D shapes.	Recognise different 2D and 3D shapes in the environment.	Describe similarities and differences of 2D and 3D shapes using their properties.
Key vocabulary	**Key vocabulary**	**Key vocabulary**
Shape, pattern, flat, curved, straight, round, solid, sort, make, build, draw, size, bigger, larger, smaller, rotate, turn, symmetrical, pattern, repeating pattern, *sort, make, build, draw, match*, 2D shape, corner, side, rectangle, square, circle, triangle, 3D shape, face, edge, corner, cube, pyramid, sphere, cone, *cuboid, cylinder.*	Point, pointed, *edge, pyramid, rectangles, orientations.*	Surface, line symmetry, rectangular, circular, triangular, pentagon, hexagon, octagon, *similarities, differences, size, bigger, larger, smaller, symmetrical, fold, match, mirror line, reflection, pattern, repeating pattern.*

Geometry: Properties of Shapes

KEY SKILLS			
Year 3	**Year 4**	**Year 5**	**Year 6**
Identifying shapes and their properties			
	identify lines of symmetry in 2-D shapes presented in different orientations **Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.**	identify 3-D shapes, including cubes and other cuboids, from 2-D representations	recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing) illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
	Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons.		
Drawing and constructing			
draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	complete a simple symmetric figure with respect to a specific line of symmetry	draw given angles, and measure them in degrees (^{o})	draw 2-D shapes using given dimensions and angles recognise, describe and build simple 3-D shapes, including making nets
Draw polygons by joining marked points, and identify parallel and perpendicular sides.	**Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.**		**Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems**
Comparing and classifying			
	compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	use the properties of rectangles to deduce related facts and find missing lengths and angles distinguish between regular and irregular polygons based on reasoning about equal sides and angles	compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons

		Compare areas and calculate the area of rectangles (including squares) using standard units.	
Angles			
recognise angles as a property of shape or a description of a turn		know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles **Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size.**	
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 **Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations.**	identify acute and obtuse angles and compare and order angles up to two right angles by size	identify: * angles at a point and one whole turn (total 360°) * angles at a point on a straight line and ½ a turn (total 180°) * other multiples of 90°	recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
identify horizontal and vertical lines and pairs of perpendicular and parallel lines			
Greater depth	**Greater depth**	**Greater depth**	**Greater depth**
	Know that the total internal angles of a triangle measure 180° and can measure each.	Recognise nets and show an understanding that they create 3D shapes. Solve problems involving angles.	
Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key vocabulary**
Draw, perimeter, pentagonal, hexagonal, octagonal, quadrilateral, right angled, parallel, perpendicular, hemisphere, prism, triangular prism, orientations, *horizontal, vertical,*	Line, construct, sketch, centre, angle, right angles, base, square based, reflect, reflection, regular, irregular, two-dimensional, oblong, rectilinear, equilateral triangle, isosceles triangle, scalene triangle, heptagon, parallelogram, rhombus, trapezium, polygon, three dimensional, spherical, cylindrical, tetrahedron, polyhedron, *quadrilateral, right angle, acute and obtuse angles*	Radius, diameter, congruent, axis of symmetry, reflective symmetry, x-axis, y-axis, quadrant, octahedron, *regular and irregular polygons*	Circumference, concentric, arc, net, open, closed, intersecting, intersection, plane, kite, dodecahedron, *vertically opposite (angles),*

Geometry: Position and Direction

KEY SKILLS		
Reception	**Year 1**	**Year 2**
Position, direction and movement		
Uses spatial language , including following and giving directions, using relative terms and describing what they see from different viewpoints Make simple maps of familiar and imaginative environments, with landmarks	describe position, direction and movement, including half, quarter and three-quarter turns.	use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)
Pattern		
Spot patterns in the environment, beginning to identify the pattern 'rule' Choose familiar objects to create and recreate repeating patterns beyond AB patterns and begins to identify the unit of repeat		order and arrange combinations of mathematical objects in patterns and sequences
Greater depth	**Greater depth**	**Greater depth**
Give simple one step instructions using positional and directional language.	Give complex instructions using positional and directional language.	
Key vocabulary	**Key vocabulary**	**Key vocabulary**
Position, over, under, above, below, top, bottom, on, in, outside, inside, around, in front of, behind, front, back, beside, next to, between, pattern, repeated pattern, *same again, direction, underneath, before, after, middle, up, down, forwards, backwards, sideways, close, far, through, towards, away from, side, roll, turn .*	Underneath, centre, left, right, whole turn, half turn, quarter turn, three quarter turn, *position, around, opposite, apart, between, edge, corner, direction, journey, across, near, along, to, from, movement, stretch, bend.*	Route, higher, lower, clockwise, anticlockwise, right angle, straight line, *rotation, ninety degree turn.*
Cross-curricular links		
Geography- locating places on maps, drawing maps, using locational and directional language to describe routes on a map, fieldwork and observational skills. Computing- giving instructions/ creating simple programs (computational thinking). Art- patterns on fabrics, printing.		

Geometry: Position and Direction

<table>
<tr><th colspan="4">KEY SKILLS</th></tr>
<tr><th>Year 3</th><th>Year 4</th><th>Year 5</th><th>Year 6</th></tr>
<tr><th colspan="4">Position, direction and movement</th></tr>
<tr><td rowspan="2">recognise angles as a property of shape or a description of a turn</td><td>describe positions on a 2-D grid as coordinates in the first quadrant</td><td rowspan="2">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</td><td>describe positions on the full coordinate grid (all four quadrants)</td></tr>
<tr><td>describe movements between positions as translations of a given unit to the left/right and up/down</td><td>draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</td></tr>
<tr><td>recognise angles as a property of shape or a description of a turn</td><td>plot specified points and draw sides to complete a given polygon</td><td></td><td></td></tr>
<tr><th>Greater depth</th><th>Greater depth</th><th>Greater depth</th><th>Greater depth</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><th>Key vocabulary</th><th>Key vocabulary</th><th>Key vocabulary</th><th>Key vocabulary</th></tr>
<tr><td>Compass point, north, south, east, west, N, S, E, W, horizontal, vertical, diagonal, angle, greater/smaller angle than…, acute angle, obtuse angle, greater/less that ninety degrees, orientation(same or different)</td><td>North east, north west, south east, south west, NE, NW, SE, SW, translate, translation, rotate, rotation, degree, reflection, ruler, set square, angle measurer, compass, coordinates, quadrant, x-axis, y-axis, perimeter and area</td><td>Coordinate, protractor, reflex angle, dimensions</td><td>Reflex angle, four quadrants</td></tr>
<tr><th colspan="4">Cross-Curricular Links</th></tr>
<tr><td colspan="4">Geography: Co-ordinates on maps
Science: Graphs
Art: Repeating patterns
Computing: Coding, Spreadsheets</td></tr>
</table>

Statistics

KEY SKILLS		
Reception	**Year 1**	**Year 2**
Handling data		
	interpret and construct simple pictograms, tally charts, block diagrams and simple tables	interpret and construct simple pictograms, tally charts, block diagrams and simple tables
		ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
		ask and answer questions about totalling and comparing categorical data
Greater depth	**Greater depth**	**Greater depth**
		Answer questions analysing the data.
Key vocabulary	**Key vocabulary**	**Key vocabulary**
	Tally, count, sort, how many, pictogram, represent, most/least popular.	Count, tally, sort, vote, graph, block graph, pictogram, represent, group, set, list, table, label, title, most/least popular, most/least common.

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Statistics

KEY SKILLS			
Year 3	**Year 4**	**Year 5**	**Year 6**
Counting			
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
Solving Problems			
solve one-step and two-step questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	solve comparison, sum and difference problems using information presented in a line graph	calculate and interpret the mean as an average
Greater depth	**Greater depth**	**Greater depth**	**Greater depth**
	Collect own data on a given project and present information in graphical formats of their choosing.	Collect own data on a given project and present information in graphical formats of their choosing, charts, graphs and tables.	Collect own data on a personal project and present information in formats of their choosing, charts, graphs and tables, and answer specific questions related to their research.
Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key vocabulary**
Chart, bar chart, frequency table, Carroll diagram, Venn diagram, axis, axes, diagram	Survey, questionnaire, data, *continuous data, line graph*	Database, bar line chart, line graph, maximum/minimum value, outcome	Pie chart, mean, mode, median, range, estimates, statistics, distribution, *construct*
Cross-Curricular Links			
Geography: Showing data on various graphs History: Showing data on various graphs Science: Showing data on various graphs			

Algebra

KEY SKILLS		
Reception	**Year 1**	**Year 2**
Equations		
	solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and **missing number problems** such as 7 = □ - 9 (copied from Addition and Subtraction)	recognise and use the inverse relationship between addition and subtraction and use this to check calculations and **missing number** problems. (copied from Addition and Subtraction)
		recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 (copied from Addition and Subtraction)
	represent and use number bonds and related subtraction facts within 20 (copied from Addition and Subtraction)	
Greater depth	**Greater depth**	**Greater depth**
Key vocabulary	**Key vocabulary**	**Key vocabulary**
	Number bonds, facts, addition, subtraction, missing number problems.	Inverse, check, fluently.

Algebra

KEY SKILLS			
Year 3	**Year 4**	**Year 5**	**Year 6**
Equations			
solve problems, including **missing number** problems, using number facts, place value, and more complex addition and subtraction. (copied from Addition and Subtraction)		use the properties of rectangles to deduce related facts and find **missing lengths and angles** (copied from Geometry: Properties of Shapes)	express missing number problems algebraically
solve problems, including **missing number** problems, involving multiplication and division, including integer scaling (copied from Multiplication and Division)			
			find pairs of numbers that satisfy number sentences involving two unknowns **Solve problems with 2 unknowns.**
			enumerate all possibilities of combinations of two variables
Formulae			
	Perimeter can be expressed algebraically as 2(a + b) where a and b are the dimensions in the same unit. (Copied from NSG measurement)		use simple formulae
			*recognise when it is possible to use **formulae** for area and volume of shapes* (copied from Measurement)
Sequences			
			generate and describe linear number sequences
Greater depth	**Greater depth**	**Greater depth**	**Greater depth**
		Calculate number problems algebraically for example 2x-3=5.	Recognise an arithmetic progression and find the nth term. Move beyond squared and cubed numbers to calculate problems such as X x 10n where n is positive.
Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key vocabulary**
Missing number, complex, integer scaling, facts, complex	Dimensions, perimeter, algebraic	Missing lengths, missing angles	Formulae, equation, unknown, variable, *linear number sequence, substitutes, symbol, known values*

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Reception Yearly Planning Overview 2021-22 – White Rose Maths

	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14
Autumn	**'Getting to know you'** Opportunities for settling in, introducing the areas of provision and getting to know the children. Baseline and Wellcomm assessments. Key times of day, class routines. Exploring the continuous provision inside and out. Where do things belong? Positional language.			**'Just like me'** Match and sort Compare amounts Compare size, mass and capacity Exploring pattern				**'It's me 1, 2, 3!'** Representing 1, 2 and 3 Comparing 1, 2 and 3 Composition of 1, 2 and 3 Circles and triangles Positional language			**'Light and dark'** Representing numbers to 5 One more and one less Shapes with 4 sides Time			
	Wk1	**Wk2**	**Wk3**	**Wk4**	**Wk5**	**Wk6**	**Wk7**	**Wk8**	**Wk9**	**Wk10**	**Wk11**	**Wk12**	**Wk13**	**Wk14**
Spring	**'Alive in 5!'** Introducing zero Comparing numbers to 5 Composition of 4 and 5 Compare mass Compare capacity				**'Growing 6, 7, 8'** 6, 7 and 8 Combining 2 amounts Making pairs Length and height Time				**'Building 9 and 10'** Counting to 9 and 10 Comparing numbers to 10 Bonds to 10 3D shape Pattern					
	Wk1	**Wk2**	**Wk3**	**Wk4**	**Wk5**	**Wk6**	**Wk7**	**Wk8**	**Wk9**	**Wk10**	**Wk11**	**Wk12**	**Wk13**	**Wk14**
Summer	**'To 20 and beyond'** Building numbers to beyond 10 Counting patterns beyond 10 Spatial reasoning (1) Match, rotate, manipulate			**'First, then, now'** Adding more Taking away Spatial reasoning (2) Compose and decompose			**'Find my pattern'** Doubling Sharing and grouping Even and odd Spatial reasoning (3) Visual and build				**'On the move'** Deepening understanding Patterns and relationships Spatial reasoning (4) Mapping			

Year 1/2 Yearly Planning Overview 2021-22

Ready to progress statements are noted in the appropriate areas (RTP).

Focus for the Autumn term based on Number to ensure that have this foundation of knowledge. Opportunities to revisit and review through oral and mental starters and Flashback Four (WRM)

Home learning from Spring 2021 identified in blue. Ensure the year 2 children are confident with the year 1 content before moving on.

Curriculum Skills and Progression Map

	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14
Autumn	**Number: Place Value** **Year 1- Numbers to 20** *- Count, read and write numbers from 1 to 20 in numerals (in words)* *- Count to and across one hundred, forwards and backwards from any given number* *- Given a number, identify one more and one less* *- Identify and represent numbers using objects and pictorial representations.* *RTP: Count within 100, forwards and backwards, starting with any number.* **Year 2- Numbers to 100** *- Read and write numbers to at least 100 in numerals and words* *- Recognise the place value of each digit in a two-digit number* *- Use place value and number facts to solve problems* *- Identify, represent and estimate numbers using different representations, including the number line.* *RTP: Recognise the place value of each digit in two-digit numbers, and compose and decompose two digit numbers using standard and non-standard partitioning.*			**Number: Addition and subtraction (home learning Spring 2021)** **Year 1- Numbers within 20 (including recognising money)** *- Read, write and interpret mathematical statements involving + - and = signs.* *- Add and subtract one digit and two digit numbers to 20, including 0.* *- Represent and use number bonds and related subtraction facts within 20.* *-Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems, e.g. 7=? -9.* *- Recognise and know the value of different denominations of coins and notes* *RTP: Develop fluency in addition and subtraction facts within 10.* *RTP: Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.* *RTP: Read, write and interpret equations containing +, - and = symbols, and relate additive expressions and equations to real life.* **Year 2- Numbers within 100 (including money)** *- Add and subtract numbers, including;* *> a two-digit number and ones* *> a two-digit number and tens* *> adding three one-digit numbers* *- Add and subtract numbers, including;* *> two two-digit numbers* *- Show that addition of two numbers can be done in any order and subtraction of one number from another cannot* *- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems* *- Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100* *- Recognise and use symbols for pounds and pence; combine amounts to make a particular value* *- Find different combinations of coins that equal the same amounts of money* *- Solve simple problems of addition and subtraction involving money, including giving change* *RTP: Secure fluency in addition and subtraction facts within 10, through continued practise.* *RTP: Add and subtract across 10.* *RTP: Recognise the subtraction structure of 'difference' and answer questions of the form 'How many more…?'* *RTP: Add and subtract within 100 by applying related one digit addition and subtraction facts, add and subtract only ones or only tens to/ from a two digit number.* *RTP: Add and subtract within 100 by applying related one-digit addition and subtraction facts, add and subtract any 2 two digit numbers.*			**Number: Multiplication** **Year 1- Place value to 50 and multiplication** *- Solve one step problems involving multiplication (and division) by calculating the answer using concreate objects and pictorial representations* **Year 2- Multiplication** *- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers* *RTP: Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, with the 2, 5 and 10 multiplication tables.*			**Consolidation** Identify learning children need extra support with and plan this in..	

Curriculum Skills and Progression Map

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	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14
Spring	**Number: Division** **Year 1- Division** *- Solve one step problems involving multiplication and division by calculating the answer using concreate objects and pictorial representations, and arrays with the support of the teacher* **Year 2- Division** *- Show that multiplication of two numbers can be done in any order and division of one number by another cannot* *- solve problems involving multiplication and division* *- Calculate mathematical statements for multiplication and division within he multiplication tables and write them using the x ÷ and = signs* *RTP: Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotative division)*			**Number: Place value** **Year 1- Numbers to 100** *- Count, read and write numbers to 100 in numerals, count in multiples of 2s, 5s and 10s.* *- Identify and represent numbers using objects and pictorial representations, including the number line and use the language of equal to, more than, less than (fewer), most and least* *.RTP: Reason about the location of numbers to 20 with the linear number system, including comparing using < > =.* *RTP: Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers.* **Year 2- Numbers to 100** *- Count in steps of 2, 3 and 5 from 0 and in 10s from any number, forward and backward* *- Identify, represent and estimate numbers using different representations, including the number line* *- Compare and order numbers from 0 up to 100, use < > and = signs* *RTP: Reason about the location of any two digit number in the linear number system, including identifying the previous and next multiple of 10.*		**Fractions (home learning Spring 2021)** **Year 1- Halves and Quarters** *- Recognise, find and name half as one of two equal parts of an object, shape or quantity* *- Recognise, find and name quarter as one of four equal parts of an object, shape or quantity* **Year 2- Halves, quarters, thirds and writing fractions** *- Recognise, find, name and write fractions 1/3 ¼ 2/4 and ¾ of a length, shape, set of objects or quantity* *- Write simple fractions and recognise the equivalence of 2/4 and ½*		**Measurement: Length and height** **Year 1** *- Compare, describe and solve practical problems for;* *> length and height* *- Measure and begin to record the following;* *> length and height* **Year 2** *- Choose and use appropriate standard units to estimate and measure length/height; mass; temperature; capacity to the nearest appropriate unit* *- Compare and order lengths, mass, volume/capacity and record the results using > < and =*	**Geometry** **Year 1- Shape recognition** *- Recognise and name common 2D and 3D shape.* *RTP: Recognise common 2D and 3D shapes presented in different orientations and know that rectangles, triangles, cuboids and pyramids are not always similar to one another.* *RTP: Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.* **Year 2- Properties of shape** *- Identify and describe the properties of 3D shapes including the number of edges, vertices and faces* *-identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line.* *- Identify 2D shapes on the surface of 3D shapes* *- Compare and sort common 2D and 3D shapes and everyday objects* *RTP: Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another.*		**Statistics** **Year 1- look at year 2 objectives.** **Year 2-** *- Interpret and construct simple pictograms, tally charts, block diagrams and simple tables* *- Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity* *- Ask and answer simple questions about totalling and comparing categorical data*			

Curriculum Skills and Progression Map

	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14
Summer	**Geometry: Position and direction** **Year 1** *-Describe position, direction and movement, including whole, half, quarter and three quarter turns* ***Year 2*** *- Order and arrange combinations of mathematical objects and patterns and sequences* *- Use mathematical vocabulary to describe position, direction and movement, and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three quarter turns (clockwise and anticlockwise).*			**Measurement: Time (home learning Spring 2021)** **Year 1** *- Recognise and use language related to dates, including days of the week, weeks, months and years* *- Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times* - Sequence events in chronological order - Compare, describe and solve practical problems for time - Measure and begin to record time **Year 2** *- Compare and sequence intervals of time* *- Tell and write the time to five minutes, including quarter past/to the hour* *- Know the number of minutes in an hour and hours in a day*		**Year 1- Place value recap** **Year 2- Problem solving**		**Measurement: Weight, volume, mass, capacity and temperature (home learning Spring 2021)** **Year 1** *- Compare, describe and solve practical problems for;* *> mass and weight* *> capacity and volume* *- Measure and begin to record the following;* *> mass and weight* *> capacity and volume* **Year 2** *- Choose and use appropriate standard units to estimate and measure mass; temperature; capacity to the nearest appropriate unit* *- Compare and order lengths, mass, volume/capacity and record the results using > < and =*			**Consolidation** **Year 1: Four operations recap** **Year 2:Consolidations and investigations**			

Teachers may have to dip into 'year 4' (3.5, 3.6) and even year 5 (3.7) for equivalent fractions on the NCETM spine for some lessons. Will also have to revisit early fraction work a lot for deep understanding.

This NCETM Spine Link directs you to the page including all three spines (Add and Subtract, Multiplication and Division, Fractions) and the hyperlinks on the document takes you to the relevant segment which offer: teacher guidance, PowerPoint representations, and video guidance. This will assist intervention work.

White Rose Overview: https://whiterosemaths.com/resources/schemes-of-learning/primary-sols/

NCETM Teaching for Mastery home page: https://www.ncetm.org.uk/teaching-for-mastery/

NCETM Spine link reference (TP = Teaching Point) Lockdown 1 lost learning **Lockdown 2 lost learning** *Lockdown 2 indicated in Italic Comic Sans (Spring Term).*

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Year 3 Yearly Planning Overview 2021-22

Year 3	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12
Autumn	**Place Value** Know that 10 tens are equivalent to 1 hundred.' and that 100 is 10 times the size of 10; apply this to work out how many 10s there are in other three digit multiples. Compare and order numbers up to 1000 Read and write numbers to 1000 in numerals and words Find 10 or 100 more or less than any given number Recognise the place value of each digit in a 3 digit number (H,T,U) Solve number problems and practical problems involving the above **NCETM Spine: 1.17 (TP1 hundreds, 1000, 50s, 25s)** **1.18 (TP1 100s,10s,1s) (TP2 number line to 1000) (TP3 1,10,100 more or less) (TP4 compare order)**			**Addition and Subtraction** Add and subtract numbers mentally (3 digit and 1's, 3 digit and 10's, 3 digit and 100's) Add numbers with up to 3 digits using formal written methods. Calculate complements to 100 Subtract numbers with up to 3 digits using formal written methods Estimate and use inverse operations Add and subtract numbers mentally (3 digit and 1's, 3 digit and 10's, 3 digit and 100's) Solve addition and subtraction 2 step problems in contexts (choose methods and explain why) Solve addition and subtraction 2 step problems in contexts (choose methods and explain why) Allow Reasoning Opportunities for: Recall of key facts, Mental calculations **NCETM Spine: 1.18 (TP 5 add and sub multiples of 100) 1.19** **1.17 (TP 3 + 4 crossing 10s and 100s)** **1.20 (written addition)** **1.21 (written subtraction)**					**Number Properties** Recall and use multiplication and division facts for the 3, 4 and 8 times tables Write and calculate mathematical statements for multiplication and division using times tables that they know (including 2 digit x 1 digit) **NCETM Spine: 2.6 (revisit for equal groups)** **2.8 (TP 1 mult and divide by 3)** **2.7 (mainly TP2 mult divide by 4 incl 4x table) (TP3 & 4 mult and divide by 8 incl 8x table)**		
Spring	***Multiplication and Division*** *Begin to use formal methods of multiplication and division (based on tables knowledge) including quotitive and partitive division.*			***Money*** *Add and subtract amounts of money to give change*	***Data Handling*** *Interpret and present data using bar charts, pictograms and tables*		***Solving problems with measures*** *Compare lengths (m/cm/mm)* *Measure lengths (m/cm/mm)* *Add and subtract lengths,* *Measure perimeters of simple 2D shapes*		***Properties of fractions and decimals*** *Count up and down in tenths* *Recognise tenths arise from dividing a*		*C O N S O L I*

	Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. Allow Reasoning Opportunities for: Solving problems involving multiplication and division in context (including missing number problems) Recognise the place value of each digit in a 3 digit number (H,T,U) NCETM Spine: 2.6 TP4 related 2.13 (TP 6 related facts taken from y4) 2.19 (related facts taken from y5) 2.17 and 2.8 (TP 5 scaling) 2.14 (select from TP 1 & 2) 2.15 (TP 1) (Concrete resources best for this topic)	(£ and p in practical contexts) NCETM Spine: revisit 2.1 1.25 (select appropriate)	Solve one and two step problems using info from bar charts, pictograms and tables (How many more? How many fewer?) NCETM Spine: N/A	NCETM Spine: 2.16 (TP 1 to introduce)	number/object into 10 equal parts Recognise, find and write fractions of a set of objects Recognise and use fractions as numbers Recognise, and show with diagrams, equivalent fractions with small denominators. NCETM Spine: revisit Key Stage 1 3.1, 3.2 3.6 (TP 3 Fractions of amounts)	D A T I O N

Summer	**Fractions continued** Reason about the location of any fraction within 1 in the linear number system. Compare and order fractions with the same denominators Add and subtract fractions with same denominator within one whole (5/7 + 1/7 = 6/7) Solve problems that involve the above **NCETM Spine:** **3.3 (compare and order)** **3.4 (add and sub fractions)** **3.7 (select from TP 1 + 2 only)**	**Time** Tell and write the time from: analogue clocks (including R.N) 12 hour clocks, 24 clocks Estimate and read time to the nearest minute Use vocabulary such as O'clock/a.m/p.m, morning, afternoon, noon and midnight Know the number of seconds in a minute, Number of days in each month, year and leap year Compare how long 2 things have taken **NCETM Spine: N/A**	**Properties of Shape** Identify horizontal, vertical lines and pairs of perpendicular and parallel lines Draw 2D shapes Make 3D shapes using modelling materials Recognise 3D shapes and describe them **NCETM Spine: N/A**	**Solving problems with measures** Compare mass (kg/g) Compare volume (l/ml) Measure mass (kg/g) Measure volume (l/ml) Add and subtract mass and capacity **NCETM Spine: N/A**	

Year 4 Yearly Planning Overview 2021-22

Year 4	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12
Autumn	**Place Value** Count in multiples of 6, 7, 9, 25 and 1000 Order and compare numbers beyond 1000 Find 1000 more or less than a given number Recognise the value of each digit in a 4 digit number (Th, H, T, U) Know that 10 hundreds are equivalent to 1000, and that 1000 is 10 times the size of 100; apply this to identify and work out how many 100s there are another 4 digit multiples of 100. Read Roman Numerals to 100 Round any number to the nearest 10, 100, 1000 Count backwards through 0 to include negative numbers Solve number and practical problems involving the above with increasingly large numbers **NCETM Spine: 1.17 (count in 25s), 1.22, 1.27 (negative numbers)**				**Addition and Subtraction** Add and subtract numbers with up to 4 digits using formal written methods Estimate and use inverse operations to check answers to a calculation Solve addition and subtraction 2 step problems in context (choose methods, explain why) **NCETM Spine: 1.22 (TP 3 add sub 1s,10s,100s,1000s and TP5). Refer back to 1.20 and 1.21 for introducing written methods.**			**Perimeter** Measure and calculate the perimeter of a rectilinear shape (including squares) in cm and m **Units of measure** Convert between different units of measurement (km/m hour/min) **NCETM Spine: 2.16**		**Multiplication and Division** Recall multiplication and division facts for tables up to 12 x 12 Use place value , known and derived facts to multiply and divide mentally (including x by 0 and 1; / by 1; multiply 3 numbers) Recognise and use factor pairs and commutative mental calculations **NCETM Spine: 2.6 (TP5 for x ÷ 0 and 1), 2.8 (6x and 9x), 2.9 (7x), 2.13 (x ÷ 10,100)**		

Spring	***Multiplication and Division*** *Multiply 2 digit and 3 digit numbers by a 1 digit number using formal written method* *Divide 2 digit numbers by 1 digit using tables knowledge and bus stop that involve remainders.* *Divide 1,000 into 2, 4, 5 and 10 equal parts and read scales/number lines marked in multiples of 1,000 with 2,4,5 and 10 equal parts.* *Understand and apply the distributive property of multiplication* *Solve problems involving multiplication and division* ***NCETM Spine: 2.10 (factor pairs),*** ***2.11 (11x, 12x & efficient mult),*** ***2.14 (multiplication) 2.15 (division) 2.12 (remainders)***	***Area*** *Find the area of rectilinear shapes by counting squares* ***NCETM Spine: 2.16***	***Fractions*** *Add and subtract fractions with the same denominator* *Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$* *Reason about the location of mixed numbers in the linear number system* *Convert mixed numbers and improper fractions and vice versa* *Add and subtract mixed number and improper fractions with the same denominator, including bridging whole numbers.* *Recognise and write decimal equivalents of any number of tenths and hundredths* *Solve problems involving calculating quantities and fractions to divide quantities* *Solve simple measure and money problems involving fractions and decimals to 2d.p.* ***NCETM Spine: May need to visit 3.0 (KS1 fractions) & Year 3 for intro. 3.4 (add and sub fractions) 3.7 (equiv - TP1 & TP2), 3.5 (be selective - show more than one whole in fractions, count on & back past 1, add & sub)***	***Properties of fractions and decimals*** *Count up and down in hundredths* *Recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten* *Round decimals with 1 d.p. to the nearest whole number* *Compare numbers with the same number of d.p. up to 2 d.p.* *Recognise and show, using diagrams, families of common equivalent fractions (1/2, 2/4, 3/6, 4/8)* *Find the effect of dividing a 1 or 2 digit number by 10 and 100 (identify value of digits in answer as ones, tenths, hundredths)* ***NCETM Spine: (Revisit 2.13 for ÷ 10 and 100), 1.23 (tenths, hundredths), 1.24 (mainly TP 1 and some of TP2)***	C O N S O L I D A T I O N

Summer	**Decimals Continued** **NCETM Spine: 1.24 (TP2, TP7)**	**Measurement Money** Compare different measures, including money Estimate different measures, including money **NCETM Spine: 1.22 (TP 4 estimate money) 1.25**	**Time** Read, write and convert time between analogue and digital clocks (12 hour and 24 hour) Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days **NCETM Spine: N/A**	**Data Handling** Interpret and present discrete and continuous data using bar charts and time graphs Sole problems using info presented in bar charts, pictograms, tables and other graphs (comparison, sum, difference etc)	**Properties of Shape** Compare and classify geometric shapes (including quadrilaterals and triangles) based on their properties Identify lines of symmetry in 2D shapes Complete a simple symmetric figure across a line of symmetry **Angles** Identify acute, obtuse and reflex angles Compare and order angles by size	**Co-ordinates** Describe positions on a 2D grid as coordinates in the first quadrant Plot specified points and draw sides to complete a given polygon **Transformations** Describe movements between positions as translations of a given unit to the left/right and up/down	C O N S O L I D A T I O N

Year 5 Yearly Planning Overview 2021-22

Year 5	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12
Autumn	**Place Value** Count forward or backward in steps of 10 for any number (up to 1000000) Know value of each digit up to 1,000,000 Read, write, order and compare numbers to at least 1,000,000 Rounding (10, 100, 1000, 10000, 100,000) Negative number counting Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size 0f 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth , and that 0.1 is 10 times the size of 0.01. Divide 1 into 2,4,5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts. (Solve practical number problems involving the above) **NCETM Spine: 1.26** **1.27 (negative numbers)**			**Addition and Subtraction** Commutativity Add and subtract numbers mentally Column addition (4+ digits) Column subtraction (4+ digits) Solve multi-step addition and subtraction problems (choose methods and explain why) **NCETM Spine: revisit 1.22 (TP 3 and TP5) and 1.20, 1.21 for written methods.** **1.29 (strategies and mental methods as opposed to written. Includes decimals)** **1.29 (TP 3 difference)** **1.29 (TP 6 estimate, approximate, inverse)** **1.28 (multi-step problems)**		**Data Handling** Complete, read and interpret info from tables (including timetables) Solve problems using information from a bar chart, pictogram or line graph **Time** Solve problems converting between units of time **NCETM Spine: some examples in 1.28 and 1.29**		**Multiplication and Division** Multiply and divide numbers mentally drawing upon know facts Multiply using a written method (Up to digits: 4 x 2) Divide numbers using written method (Up to 4 digits / 1 digit) Solve problems involving multiplication and division (including simple scaling) **NCETM Spine:** **2.21 (factors multiples prime)** **2.9 (square numbers)** **2.13 (mult divide 10,100,100)** **2.19 (10,100,1000)** **2.20 (cube numbers)** **2.18 (maybe stand alone as equivalence)**		**Perimeter** Measure and calculate perimeter of composite rectilinear shapes **Area** Calculating and compare the area of rectangles (cm2, m2) Estimate the area of irregular shapes **NCETM Spine: revisit 2.16**	

Spring	***Number Properties*** *Prime numbers, prime factors and composite numbers* *Square numbers and cube numbers (including notation)* *Identify multiples and factors (Including common factors) Multiply and divide by 10, 100, 1000 including decimals* *Read Roman Numerals up to 1000* ***NCETM Spine: 2.23 (area model)*** ***2.15 (division)*** ***2.14 (written multiplication)***	***Fractions*** *Add and subtract fractions with the same denominator and denominators that are multiples of the same number* *Compare and order fractions (whose denominators are multiples of same number)* *Multiply proper fractions and mixed numbers by whole numbers* *Recognise mixed numbers and improper fractions and convert from one to the other* *Find fractions of amounts* *Identify and write equivalent fractions* *Cancel fractions* ***NCETM Spine: revisit parts of earlier fractions to prepare for topic (3.1, 3.2, 3.3, 3.4)*** ***3.7 (equivalents and simplifying, compare order), 3.8 (add and subtract), 3.5 improper and mixed, 3.6 multiplying***	***Percentage*** *Recognise the % symbol* *Understand it relates to 'number of parts per 100'* *Write % as a fraction and as a decimal Solve problem which require knowing % and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, 1/5, 2/5, 4/5 and fractions with denominators of 10 or 25* ***NCETM Spine: continue from y4 1.23 and 1.24 (1/10, 1/100, 1/000ths)*** ***1.24 (TP 3 compare and order)*** ***3.10 FDP (TP1, TP2, TP4, TP5)***	**CONSOLIDATION**

Summer	**C O N S O L I D A T I O N**	**Decimals** Recognise and use tenths, hundredths and thousandths Round decimals with 2d.p. to nearest whole number/1 d.p. Read, write, order and compare numbers with up to 3 d.p. Read and write decimal numbers as fractions (0.71=71/100) Solve problems involving numbers up to 3 d.p **Sequences** Recognise and describe number sequences (including fractions and decimals) Identify term to term rule in the sequence **NCETM Spine: ref back to 1.23 TP 4 -6** **1.24 (TP 4 & 6)** **2.19 TP 2 and 2.29 (decimals by 10,100,1000)**	**Properties of Shape** Use properties of rectangles to identify missing length/angles Identify regular and irregular polygons Properties of 2D shapes Properties of 3D shapes **Angles** Estimate and compare acute, obtuse and reflex angles in degrees Draw given angles and measure in degrees Angles in a triangle (180) Angles on straight line (180) Angles round a point (360) **NCETM Spine: N/A** **1.28 (some ideas in TP4)**	**Transformations** Identify, describe and represent the position of a shape following a reflections or a translation **Co-ordinates** Identify and plot co-ordinates Plot specified points to complete polygons **NCETM Spine 1.27 TP 6**	**Units of measure** Convert between different metric units of measure Understand and use approx. equivalences between metric and imperial (inches, pounds, pints) **Solving problems with measures** Use all four operations to solve problems involving money (including scaling) Use all four operations to solve problems involving length (including scaling) Use all four operations to solve problems involving mass (including scaling) Use all four operations to solve problems involving volume (including scaling) **NCETM Spine: (1.24 TP5)**	**Measurement:** **Volume** Estimate volume (1cm3 blocks) and capacity (water) **NCETM Spine: 2.20**

Year 6 Yearly Planning Overview 2021-22

Year 6	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12
Autumn	**Place Value** Read, write, order and compare number up to 10,000,00 Determine the value of each digit in numbers up to 10,000,000 Round any whole number to required degree of accuracy Use negative numbers in context, calculate across zero Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, i hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000) Divide powers of 10, from 1 hundredth to		**Addition and Subtraction** Solve addition and subtraction multi-step problems in contexts (decide which operations/methods to use and why) **Multiplication and Division** Multiply numbers using formal written method (Up to 4 digit x 2 digit) Divide numbers using formal written method (up to 4 digit by 2 digit) and interpret remainders as appropriate for context (whole, fraction, rounding) **Number Properties** Identify common factors, common multiples and prime numbers Perform mental calculations, including with mixed operations and large numbers **NCETM Spine: 1.30TP 4** **(revisit 1.20 and 1.21 for column)** **1.30 (maybe use to secure PV and counting through boundaries using mental methods TP4 and fluency including RPS in TP6)** **2.24 (division - ref back to 2.15 if necessary)** **2.23 long multiplication** **2.21 common factors, common multiples, primes**					**Fractions** Add and subtract fractions with different denominators and mixed numbers (using concept of equivalent fractions) Multiply simple pairs of proper fractions writing answer in simplest form (1/4 x ½ = 1/8) Divide proper fractions by whole numbers (1/3 / 2 = 6) Associate a fraction with division to calculate decimal fraction equivalents (0.375 = 3/8) **Properties of fractions** Use common factors to simplify equivalent fractions Use common multiples to express fractions in the same denomination Compare and order fractions (including fractions >1) **NCETM Spine: 3.7 simplify equivalent incl. number line** **revisit 3.5 mixed number improper fraction add, sub, number line** **3.8 add and sub fractions**			**Co-ordinates and transformations** Draw and translate simple shapes on the coordinate plane, and reflect them in the axes Describe positions on full coordinate grid (all 4 quadrants) **NCETM Spine: 1.27 TP 6**

	10 million, into 2, 4, 5 and 10 equal parts, and read scales/ number lines with labelled intervals divided equally into 2, 4, 5 and 10 equal parts. **NCETM Spine: revisit y5 1.26PV** **1.30 (mainly TP2 and TP3)** **1.30 (TP 5 rounding)**	**2.20 cubes and ref back to 2.9 for square numbers** **2.22 and 2.28 (order operations)** **2.25 (reason known facts)**			**3.8 TP 5 (compare denom. and numerator)** **3.9 Multiply, divide** **3.9 fractions of amounts TP1 - revisit 3.6 TP 3**		
Spring	***Decimals*** *Identify the value of each digit to 3 d.p.* *Multiply and divide by 10, 100, 1000 giving answer to 3 d.p.* ***Multiplication and Division*** *Multiply 1 digit numbers with up to 2 d.p. by whole numbers* *Divide numbers using formal written method (up to 4 digit by 2 digit) and*	***Percentages*** *Recall and use equivalences between simple fractions, decimals and percentages (including in different contexts)* ***NCETM Spine: 3.10***	***Algebra*** *Express missing number problems algebraically* *Use simple formulae* *Generate and describe linear number sequences* *Find pairs of numbers that satisfy an equation with 2 unknowns* *Enumerate possibilities of*	***Solving problems with measures*** *Use read, write and convert between standard units (length, mass, volume and time)from smaller unit to*	***Perimeter, Area and Volume*** *Recognise shapes with the same area can have different perimeters and vice versa* *Calculate the area of parallelograms and triangles* *Recognise when it is possible to use formulae for the area of shapes*	***Ratio and Proportion*** *Solve problems involving the relative size of 2 quantities (missing values found using x and / facts)* *Solve problems involving the calculation of percentages* *Solve problems involving similar shapes where scale factor is known or can be found*	***Data Handling*** *Interpret and construct pie charts and line graphs and use these to solve problems* *Calculate and interpret the mean*

	interpret remainders as appropriate for context (whole, fraction, rounding) Use written division for answers with up to 2 d.p Solve problems involving addition, subtraction, multiplication and division using knowledge of order of operations **Spine: revisit TP 1.24 for 3 D.P, revisit 2.29 - multi div 10,100,1000** **2.19 mult div decimals by integers** **2.28 (some support with division problems but no decimals)** **3.10 fraction decimal**		combinations of 2 variables **NCETM Spine: 1.28, 1.31**	larger and vice versa (up to 3d.p.) Convert between miles and km Solve problems involving the conversion of measure (up to 3d.p.) **NCETM Spine: 2.29 TP2 (metric only)**	Calculate, estimate and compare volume of cubes and cuboids (cm3/m3/km3) Recognise when it is possible to use the formulae for the volume of shapes **NCETM Spine: 2.30 area perimeter (revisit 2.16)** **2.20 volume**	Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples **NCETM Spine: 2.27**	as an average **NCETM Spine: 1.28 TP3 (pie chart, bar chart - missing values focus)** **3.10 TP6 - percentage context, 2.26 mean average**

Summer	**Properties of Shape** Compare and classify geometric shapes based on their properties and sizes Describe simple 3D shapes Draw 2D shapes given dimensions and angles Recognise and build simple 3D shapes, including making nets Name parts of circles, including radius, diameter and circumference Know diameter is twice the radius **Angles** 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 missing angles **NCETM Spine: 1.28 TP4 (missing angles only)**	**SATs Revision**	**Enterprise Project**