Bitterley Church of England Primary School

"Be courageous; be strong. Do everything in love" (1 Corinthians 16:13-14)

Place Value progression of skills

Key of Text Colours EYFS Development Matters (DM) Objectives & NC Objectives

Key concepts that create solid foundations in EYFS to build upon for the NC Objectives

Ready to progress criteria

Place Value - count

Nursery 3-4 years	Reception	Early Learning Goals	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fast recognition of up to 3 objects, without having to count them individually (subitising) Recite numbers past 5 Say one number for each item in order 1,2,3,4,5 Compare quantities using language "more than" "fewer than"	Count objects, actions and sounds. Subitise Count beyond ten Compare numbers Understand the one more than/one less than relationship between consecutive numbers Explore the composition of numbers to 10 Have a deep understanding of numbers to 10, including the composition of each number. Verbally count beyond 20, recognizing the pattern of the counting system.	Have a deep understanding of numbers to 10, including the composition of each number Subitise to 5. Verbally count to 20, recognizing the pattern of the counting system. Compare quantities up to 10 in different contexts, recognizing when one quantity is greater than, less than or the same as the other quantity	• count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • Count numbers to 100 in numerals; count in multiples of twos, fives and tens RTP 1NPV-1 Count within 100, forwards and backwards, starting with any number. 6 – Count on from any number 8 – Count backwards within 10	• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward	• count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number RTP 3NPV-1 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 4 – Hundreds 10 – Make connections 4 – Multiples of 5 and 10	• count in multiples of 6, 7, 9, 25 and 1000 • count backwards through zero to include negative numbers	• count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • count forwards and backwards with positive and negative whole numbers, including through zero RTP 5NPV-1 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	**RTP** 6NPV-1 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). 4 – Powers of 10

			Autumn 1 Spring 1 Spring 3 Summer 4	Autumn 1	Autumn 1 Autumn 3	Autumn 1 Autumn 4	Autumn 1 Summer 4 RTP spring 3	RTP Autumn 1
Place Value - represent								
Link numerals and amounts for example, showing the right number of objects to match the numeral, up to 5.Show "finger numbers" up to Knows that the last number said when counting a small set of objects tells you how many there are in total (cardinal principle) Experiment with their own symbols and marks as well as numerals	Link the number symbol with its cardinal number value Begin to represent number with own symbols	Identify and represent numbers with objects and pictorial representations including introduction to a number line Practise reading and writing numbers from 1 to 10 in numerals and words.	• identify and represent numbers using objects and pictorial representations • read and write numbers to 100 in numerals • read and write numbers from 1 to 20 in numerals and words	• read and write numbers to at least 100 in numerals and in words • identify, represent and estimate numbers using different representations, including the number line RTP 2NPV-2 Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10 9 – 10s on the number line to 100 10 – 10s and 1s on the number line to 100 11 – Estimate numbers on the	• identify, represent and estimate numbers using different representations • read and write numbers up to 1000 in numerals and in words RTP 3NPV-3 Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10 9 – Find 1, 10 or 100 more or less 10 – Number line to 1,000 11 – Estimate on a number line to 1,000 12 – Compare numbers to 1,000 13 – Order	• identify, represent and estimate numbers using different representations • read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value	• read, write, (order and compare) numbers to at least 1 000 000 and determine the value of each digit • read Roman numerals to 1000 (M) and recognise years written in Roman numerals RTP 5NPV-4 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.	• read, write, (order and compare) numbers up to 10 000 000 and determine the value of each digit RTPO 6NPV-2 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 non-standard partitioning. 1 – Numbers to 1,000,000 2 – Numbers to 10,000,000 3 – Read and write numbers to

				number line	numbers to 1,000 RTP 3NPV-4 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. 10 – Number line to 1,000 11 – Estimate on a number line to 1,000 14 – Count in 50s			10,000,000
			Autumn 1 Spring 1 Spring 3 Summer 4	Autumn 1	Autumn 1	Autumn 1	Autumn 1 RTP spring 3	Autumn 1 RTP Autumn 1
Place Value – use and compare								
			• given a number, identify one more and one less RTP 1NPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and = 11 – Fewer, more,	• recognise the place value of each digit in a two-digit number (tens, ones) • compare and order numbers from 0 up to 100; use <, > and = signs RTP 2NPV-1 Recognise the place value of each digit in two-digit	• recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • compare and order numbers up to 1000 3NPV-2 Recognise the place value of each digit in three-digit numbers, and	• find 1000 more or less than a given number • recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) • order and compare numbers	• (read, write) order and compare numbers to at least 1 000 000 and determine the value of each digit RTP 5NPV-2 Recognise the place value of each digit in	• (read, write), order and compare numbers up to 10 000 000 and determine the value of each digit

			same 12 – Less than, greater than, equal to 13 – Compare numbers 14 – Order objects and numbers 15 – The number line	numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning. 3 – Recognise tens and ones 4 – Use a place value chart 5 – Partition numbers to 100 7 – Flexibly partition numbers to 100 8 – Write numbers in expanded form	compose and decompose three-digit numbers using standard and non-standard partitioning. 5 – Represent numbers to 1,000 6 – Partition numbers to 1,000 7 – Flexible partitioning of numbers to 1,000 8 – Hundreds, tens and ones	beyond 1000 RTP 4NPV-1 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 4NPV-2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning. 5 – Represent numbers to 10,000 6 – Partition numbers to 10,000 7 – Flexible partitioning of numbers to 10,000 4NPV-3 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	numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning.	

						nearest of each. 8 – Find 1, 10, 100, 1,000 more or less 9 – Number line to 10,000 10 – Estimate on a number line to 10,000 11 – Compare numbers to 10,000 12 – Order numbers to 10,000 14 – Round to the nearest 10 15 – Round to the nearest 100 16 – Round to the nearest 1,000 17 – Round to the nearest 10,000 4NPV-4 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. 9 – Number line to 10,000 10 – Estimate on a number line to 10000		
			Autumn 1 Spring 1 Spring 3 Summer 4	Autumn 1	Autumn 1	Autumn 1 RTP 4NPV-1 spring 1	Autumn 1 RTP spring 3	Autumn 1

Place Value – problems/rounding								
				• use place value and number facts to solve problems	• solve number problems and practical problems involving these ideas	• round any number to the nearest 10, 100 or 1000 • solve number and practical problems that involve all of the above and with increasingly large positive numbers	• interpret negative numbers in context • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the above RTP 5NPV-3 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	• round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across zero • solve number and practical problems that involve all of the above RTP 6NPV-3 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. 6 – Compare and order any integers 7 –

							each. 5NPV-5 Convert between units of measure, including using common decimals and fractions.	Round any integers
				Autumn 1	Autumn 1	Autumn 1	Autumn 1 RTP spring 3 RTP summer 5	Autumn 1 RTP autumn 1

Addition and subtraction: Calculation

Fast recognition of up to 3 objects, without having to count them (subitising) Show finger numbers up to 5 Experiment with their own symbols and marks as well as numerals	Explore the composition of numbers to 10 Automatically recall number bonds for numbers 0-10 Begin to understand the operations of addition and subtraction and use associated vocabulary. Begin to understand mathematical symbols associated with addition and subtraction. Subitise Automatically recall number bonds for numbers 0 – 10 Automatically recall number bonds for numbers 0 – 10 To understand and recall doubling facts up to 10. To become familiar with and	Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some numbers bonds to 10 including double facts. Subitise up to 5 Automatically recall..number bonds up to 5...and some number bonds up to 10 including double facts.	• add and subtract one-digit and two-digit numbers to 20, including zero RTP 1NF-1 Develop fluency in addition and subtraction facts within 10 5 – Number bonds within 10 6 – Systematic number bonds within 10 7 – Number bonds to 10 1NF-2 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. (link multiplication and division) 1AS-1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.	• 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 RTP 2NF-1 Secure fluency in addition and subtraction facts within 10, through continued practice. 1 – Bonds to 10 6 – Add by making 10 8 – Add to the next 10 11 – Subtract from a 10 2AS-1 Add and subtract across 10 9 – Add across a 10 10 – Subtract across a 10 11 – Subtract from a 10 12 – Subtract 1-digit number from a 2-digit number (across	• 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 with up to three digits, using formal written methods of columnar addition and subtraction RTP 3NF-1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice. 6 – Add 1s across a 10 7 – Add 10s across a 100 8 – Subtract 1s across a 10 9 – Subtract 1s across a 100 13 – Add two numbers (across a 10) 14 – Add two numbers (across a 100) 15 – Subtract two	• 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) • add and subtract numbers mentally with increasingly large numbers	• perform mental calculations, including with mixed operations and large numbers • use their knowledge of the order of operations to carry out calculations involving the four operations RTP 6AS/MD-1 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). 6AS/MD-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value

	understand mathematical symbols linked to addition and subtraction. To begin to represent mathematical sentences with appropriate symbols.		5 – Number bonds within 10 6 – Systematic number bonds within 10 7 – Number bonds to 10 1AS-2 Read, write and interpret equations containing addition (+), subtraction (−) and equals (=) symbols, and relate additive expressions and equations to real-life contexts. 4 – Fact families – addition facts 8 – Addition – add together 9 – Addition – add more 10 – Addition problems 11 – Find a part 12 – Subtraction – find a part 13 – Fact families – the eight facts 14 – Subtraction – take away/cross out (How many left?) 15 – Subtraction – take away (How many left?) 16 – Subtraction on a number line	a 10) 2AS-2 Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?". 2AS-3 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. 9 – Add across a 10 10 – Subtract across a 10 11 – Subtract from a 10 12 – Subtract 1-digit number from a 2-digit number (across a 10) 13 – 10 more, 10 less 14 – Add and subtract 10s 2AS-4 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers. 15 – Add two 2-digit numbers (not across a 10) 16 – Add two 2-digit numbers (across a	numbers (across a 10) 16 – Subtract two numbers (across a 100) 3NF-2 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. 3NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). 3AS-1 Calculate complements to 100 19 – Complements to 100 3AS-2 Add and subtract up to three-digit numbers using columnar methods. 11 – Add two numbers (no exchange) 12 – Subtract two			understanding. 8 – Solve problems with multiplication 10 – Division using factors 13 – Solve problems with division 14 – Solve multi-step problems 17 – Reason from known facts

				10) 17 – Subtract two 2-digit numbers (not across a 10) 18 – Subtract two 2-digit numbers (across a 10) 19 – Mixed addition and subtraction	numbers (no exchange) 13 – Add two numbers (across a 10) 14 – Add two numbers (across a 100) 15 – Subtract two numbers (across a 10) 16 – Subtract two numbers (across a 100) 17 – Add 2-digit and 3-digit numbers 18 – Subtract a 2-digit number from a 3-digit number 3AS-3 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. 21 – Inverse operations 22 – Make decisions			

			Autumn 2 Spring 2 RTP Autumn 2	Autumn 2 RTP Autumn 2 RTP 2as4 spring 1 and 3	Autumn 2 RTP autumn block 2 RTP sas3 summer 2	Autumn 2	Autumn 2	Autumn 2 RTP 6as md 1sping 1 RTP 6as md 2 Autumn
Addition and subtraction: Problems								
			• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9	• solve problems with addition and subtraction: ➢ using concrete objects and pictorial representations, including those involving numbers, quantities and measures ➢ applying their increasing knowledge of mental and written methods	• solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	• solve addition and subtraction two- step problems in contexts, deciding which operations and methods to use and why	• solve addition and subtraction multi- step problems in contexts, deciding which operations and methods to use and why • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why 6AS/MD-3 Solve problems involving ratio relationships. 6AS/MD-4 Solve problems with 2 unknowns.
			Autumn 2 Spring 2	Autumn 2	Autumn 2	Autumn 2	Autumn 2	Autumn 2

Multiplication and division: Recall and use

cal	To be introduced to the concepts of sharing equally and doubling. To understand concept of odd and even numbers. To be introduced to the concepts of sharing equally and doubling. To understand concept of odd and even numbers. Automatically recall number bonds for numbers 0 – 10 To begin to represent mathematical statements with appropriate symbols.	Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally Automatically recall number bonds up to 5...and some number bonds up to 10 including double facts.	count in multiples of twos, fives and tens Number: Place Value NC Objective) 1NF-1 Develop fluency in addition and subtraction facts within 10	• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot RTP 2MD-1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.	• recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables RTP 3NF-1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice. 3NF-2 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. 3 – Multiples of 2 4 – Multiples of 5 and 10 5 – Sharing and grouping 9 – Multiply by 4 10 – Divide by 4 11 – The 4 times-table 3NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10)	• recall multiplication and division facts for multiplication tables up to 12 × 12 • use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers • recognise and use factor pairs and commutativity in mental calculations RTP 4NF-1 Recall multiplication and division facts up to 12 × 12 and recognise products in multiplication tables as multiples of the corresponding number. All 13 steps in this block relate to this criterion 4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100).	• identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 • recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) RTP 5NF-1 Secure fluency in multiplication table facts, and corresponding division facts, through continued practice. 1 – Multiples 2 – Common multiples 3 – Factors 4 – Common factors 6 – Square numbers	identify common factors, common multiples and prime numbers • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy

							5NF-2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth). 10 – Divide by 10, 100 and 1,000	
				Spring 2 RTP spring 2 4 and summer 2	Autumn 3 Spring 1 RTP Autumn 3 RTP NF 3 spring 1 and 3	Autumn 4 Spring 1 RTP Autumn 4 Spring 1 RTP Spring 1 and sring 4	Autumn 3 RTP Autumn 3 spring 1 and 2 5NF-2 Autumn 3 and Spring 3	Autumn 2

Multiplication and division: Calculations

			RTP 1NF-2 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.	• calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	• write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	• multiply two-digit and three-digit numbers by a one-digit number using formal written layout RTP 4MD-1 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. 4MD-2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. 4MD-3 Understand and apply the distributive property of multiplication.	• 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 and divide numbers mentally drawing upon known facts • 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 • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 RTP 5MD-1 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. 8 – Multiply by 10, 100	• 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 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 • divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context • perform mental calculations, including with mixed operations and large numbers 6AS/MD-1 Understand that 2 numbers can be related additively or

							and 1,000 9 – Divide by 10, 100 and 1,000 10 – Multiples of 10, 100 and 1,000 5MD-2 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. 1 – Multiples 2 – Common multiples 3 – Factors 4 – Common factors 6 – Square numbers 5MD-3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method. 5MD-4 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.	multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). 6AS/MD-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.
			RTP summer 1,4 and 5	Spring 2	Autumn 3 Spring 1	Spring 1 RTP 4 MD 1 spring 1 RTP 4 MD 2 autumn	Autumn 3 Spring 1 RTP 5 MD 1 and 5 MD 2 autumn 3	Autumn 2 RTP 6AD MD 1 spring 1

						4 RTP 4 MD 3 spring 1	RTP 5 MD 4 and 5MD 4 spring 1	RTP 6AD MD 2 autumn 2
Multiplication and division: Problems								
			• solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	• solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts RTP 2MD-2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).	• 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 RTP 3MD-1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division. All 15 steps in this block relate to this criterion	• 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 RTP 4NF-2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context. All 13 steps in this block relate to this criterion	• solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	• solve problems involving addition, subtraction, multiplication and division RTP 6AS/MD-3 Solve problems involving ratio relationships. 6AS/MD-4 Solve problems with 2 unknowns.
			Summer 1	Spring 2 RTP sping 2	Spring 1 RTP autumn 3 and spring 1	Spring 1 RTP autumn 4 and spring 1	Autumn 3 Spring 1	Autumn 2

Multiplication and division: Combined

							• solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	• use their knowledge of the order of operations to carry out calculations involving the four operations
							Spring 1	Autumn 2

Fractions: recognise and write								
	Beginning to use the term “half” and understand it means sharing into 2 equal parts		• recognise, find and name a half as one of two equal parts of an object, shape or quantity • recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	• recognise, find, name and write fractions 1 , 1 , 2 344 and 3 of a length, 4 shape, set of objects or quantity	• count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 • recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators • recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators RTP 3F-1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. 3F-2 Find unit fractions of quantities using known division	• count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.	• identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 / 1 1/5) RTP 5F-1 Find non-unit fractions of quantities.	

					facts (multiplication tables fluency).			
			Summer 2	Summer 1 RTP spring 3	Spring 3 RTP 3F1spring 3 RTP 3F2 summer 1	Spring 4 Summer 1	Autumn 4 RTP sing 2	
Fractions: Compare								
				• Recognise the equivalence of 2/4 and 1/2	• recognise and show, using diagrams, equivalent fractions with small denominators • compare and order unit fractions, and fractions with the same denominators RTP 3F-3 Reason about the location of any fraction within 1 in the linear number system.	• recognise and show, using diagrams, families of common equivalent fractions RTP 4F-1 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 5F-2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system. 1 – Find fractions equivalent to a unit fraction 2 – Find fractions equivalent to a non-unit fraction 3 – Recognise equivalent fractions	• use common factors to simplify fractions; use common multiples to express fractions in the same denomination • compare and order fractions, including fractions >1 RTP 6F-1 Recognise when fractions can be simplified, and use common factors to simplify fractions. 6F-2 Express fractions in a common denomination and use this to compare fractions that are similar in value. 6F-3 Compare fractions with different denominators, including fractions greater than 1,

								using reasoning, and choose between reasoning and common denomination as a comparison strategy.
				Summer 1	Spring 3 RTP spring 3	Spring 3 RTP 4F5 Spring 3	Autumn 4 RTP autumn 4	Autumn 3 RTP Autumn 3
Fractions: Calculations								
				write simple fractions for examples 1/2 of 6 = 3	add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7 RTP 3F-4 Add and subtract fractions with the same denominator, within 1	add and subtract fractions with the same denominator 4F-2 Convert mixed numbers to improper fractions and vice versa. 4F-3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.	• add and subtract fractions with the same denominator and denominators that are multiples of the same number • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 x 1/2 = 1/8 divide proper fractions by whole numbers [for example 1/3 ÷ 2 = 1/6
				Summer 1	Summer 1 RTP summer 1	Spring 3 RTP spring 3	Autumn 4 Spring 2	Autumn 3 Autumn 4

Fractions: Problems								
					• solve problems that involve all of the above	• solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number		
					Spring 3 Summer 1	Spring 3		
Decimals: Recognise, write, compare								
						• recognise and write decimal equivalents of any number of tenths or hundredths • recognise and write decimal equivalents to 1/4. 1/2, 3/4 • round decimals with one decimal place to the nearest whole number • compare numbers with the same number of decimal places up to two decimal places	• read and write decimal numbers as fractions [for example,0.71 = 71/100 • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare	• identify the value of each digit in numbers given to three decimal places

							numbers with up to three decimal places RTP Recall decimal fraction equivalents for 1/4, 1/2, 1/5 and 1/10 and for multiples of these proper fractions	
						Spring 4 Summer 1	Spring 3 Summer 3 RTP spring 3	Spring 3
Fractions,. decimals and percentages								
						• solve simple measure and money problems involving fractions and decimals to two decimal places	• 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, and as a decimal • solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5 4/5 and those fractions with a denominator of a multiple of 10 or 25	• associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8 • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

						Spring 3 Spring 4 Summer1	Spring 3	Spring 3 Spring 4

Geometry 2D shapes

Talk about and explore 2d and 3d shapes... using informal and mathematical language “sides”, “corners”, ”straight”, “flat”, ”round” Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. Combine shapes to make new ones. Understand position through words alone eg “The bag is under the table” without pointing Select shapes appropriately: flat shapes for building eg a triangular prism for a roof Using construction sets to create various models. Talk about and compare 2d and 3d shapes (eg circles, rectangles, triangles and cuboids) using informal and formal mathematical language eg sides, corners, flat, round.Make comparisons between objects relating to size,	Select, rotate and manipulate shapes in order to develop spatial reasoning skills Compose and decompose shapes so that children 25ecognize a shape can have other shapes within it, just as numbers can. Recognise and name common 2d and 3d shapes and talk about properties of sides, corners, edges, faces, curved and flat, Compose and decompose shapes so that children 25ecognize a shape can have others shapes within, just as numbers can. Using various construction sets in sustained construction projects eg The Shard, The 3 bears beds and chairs. Select, rotate and manipulate shapes in order to develop spatial reasoning skills Compose and decompose shapes so that children 25ecognize a shape	**ELG: There is no ELG for SSM**	• recognise and name common 2- D shapes [for example, rectangles (including squares), circles and triangles] RTP 1G-1 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. 1 – Recognise and name 3-D shapes 2 – Sort 3-D shapes 3 – Recognise and name 2-D shapes 4 – Sort 2-D shapes 5 – Patterns with 2-D and 3-D shapes 1G-2 Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations. 1 – Recognise and name 3-D shapes 2 – Sort 3-D shapes 3 – Recognise and name 2-D shapes 4 – Sort 2-D shapes5 – Patterns with 2-D and 3-D	• identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line • identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] • compare and sort common 2-D shapes and everyday objects RTP 2G-1 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. 1 – Recognise 2-D and 3-D shapes 2 – Count sides on 2-D shapes 3 – Count vertices on 2-D shapes 7 – Sort 2-D shapes 8 – Count faces on 3-D shapes 9 – Count edges on 3-D shapes 10 – Count vertices on 3-D shapes 11 – Sort 3-D shapes	• draw 2-D shapes RTP 3G-2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.	• compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • identify lines of symmetry in 2-D shapes presented in different orientations RTP 4G-1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant. 4G-2 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.	• distinguish between regular and irregular polygons based on reasoning about equal sides and angles. • use the properties of rectangles to deduce related facts and find missing lengths and angles	• 25 draw 2-D shapes using given dimensions and angles • compare and classify geometric shapes based on their properties and sizes • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius RTP 6G-1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.

length.	can have other shapes within it, just as numbers can. To sort shapes into categories according to their properties, eg all 3 sided shapes, shapes with curved edges.							
			Autumn 3 RTP autumn 3	Autumn 3 RTP autumn 2	Summer 4 RTP summer 4	Summer 4 RTP 4g – 1 summer 4 RTP spring 2 and summer 4	Summer 1	Summer 1 RTP spring 1 summer 1
Geometry 3D shapes								
Talk about and compare 2d and 3d shapes (eg circles, rectangles, triangles and cuboids) using informal and formal mathematical language eg sides, corners, flat, round.Make comparisons between objects relating to size, length.	Recognise and name common 2d and 3d shapes and talk about properties of sides, corners, edges, faces, curved and flat,		• recognise and name common 3- D shapes [for example, cuboids (including cubes), pyramids and spheres]	• recognise and name common 3- D shapes [for example, cuboids (including cubes), pyramids and spheres] • compare and sort common 3-D shapes and everyday objects	• make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them		• identify 3-D shapes, including cubes and other cuboids, from 2-D representations	• recognise, describe and build simple 3-D shapes, including making nets RTP 6G-1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.

			Autumn 3	Autumn 3	Summer 4		Summer 1	Summer 1 RTP spring 1 summer 1
Angles and lines								
					• recognise angles as a property of shape or a description of a turn • identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle • identify horizontal and vertical lines and pairs of perpendicular and parallel lines RTP 3G-1 Recognise	• identify acute and obtuse angles and compare and order angles up to two right angles by size • identify lines of symmetry in 2-D shapes presented in different orientations • complete a simple symmetric figure with respect to a specific line of symmetry RTP 4G-3 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	• know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • draw given angles, and measure them in degrees • identify: ➢ angles at a point and one whole turn (total 360°) ➢ angles at a point on a straight line and 1/2 turn ➢ other multiples of 90° RTP 5G-1 Compare angles, estimate and measure angles in degrees (°) and	• 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 RTP 6G-1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.

					right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations.	to a specified line of symmetry.	draw angles of a given size.	
					Summer 4 RTP Summer 4	Summer 4 RTP summer 4	Summer 2	Summer 1 RTP spring 1 summer 1

Position and Direction								
Understand position through words alone eg "The bag is under the table" with no pointing Describe a familiar route Discuss routes and locations , using words like in front of and behind	Stages of understanding repeated patterns cont. - continue, copy, make own ABC pattern - continue a pattern that has ended mid-unit of repeat - can do the above with a range of patters e.g. ABB, ABBC, AABB can begin to explain the rule of a pattern and then create another pattern with the same rule.	**ELG: There is no ELG for SSM** ELG: They recognise, create and describe patterns.	• describe position, direction and movement, including whole, half, quarter and three-quarter turns	• order and arrange combinations of mathematical objects in patterns and sequences • use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a		• describe positions on a 2-D grid as coordinates in the first quadrant • describe movements between positions as translations of a given unit to the left/right and up/down • plot specified points and draw sides to complete a given polygon	• identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	• describe positions on the fullcoordinate grid (all four quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes

	Can begin to make patterns that are not linear e.g. around a circle, or a border with fixed number of spaces			turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)				
			Summer 3	Summer 4		Summer 6	Summer 2	Summer 2

Measures								
	Compare length, weight and capacity To use prior vocabulary and supplement with Lightest/heaviest/ Tallest/shortest/ Half full/quickest/ Slowest To compare, describe and solve practical problems for >length and heights. >weight >capacity >time To order and sequence 3 comparisons of measure. To begin to use non –standard units to	THERE IS NO ELG RELATED TO SSM	• compare, describe and solve practical problems for: ➢ lengths and heights ➢ mass/weight ➢ capacity and volume ➢ time • 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 • compare and order lengths, mass, volume/capaci	• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	• Convert between different units of measure [for example, kilometre to metre; hour to minute] • estimate, compare and calculate different measures	• convert between different units of metric measure • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • use all four operations to solve problems involving measure [for example, length, mass, volume,	• solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 d.p. where appropriate • use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal

	measure static objects. To record findings during investigations.			ty and record the results using >, < and =			money] using decimal notation, including scaling	notation to up to 3 d.p. • convert between miles and kilometres
			Spring 4 Spring 5 Summer 6	Spring 3 Spring 4	Spring 2 Spring 4	Spring 2 Summer 3	Spring 4 Summer 5 Summer 6	Autumn 5
Money								
			• 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	• add and subtract amounts of money to give change, using both £ and p in practical contexts	• estimate, compare and calculate different measures, including money in pounds and pence	• use all four operations to solve problems involving measure [for example, money]	

				giving change				
			Summer 5	Spring 1	Summer 2	Summer 2	Summer 3	
Time								
Begin to describe a sequence of events using words such as “first”, “then”	To understand the importance of constant baseline To sequence a familiar set of events both fictional and non- fictional To be introduced to and understand the o’clock time on an analogue clock. To be able to read and draw the hands on a clock face to show this times.		• sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] • recognise and use language relating to dates, including days of the week, weeks, months and years • tell the time to the hour and half past the hour and draw the hands on a clock face to show these	• compare and sequence intervals of time • tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times • know the number of minutes in an hour and the number of hours in a day	• tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12- hour and 24-hour clocks • estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o’clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a	• read, write and convert time between analogue and digital 12- and 24-hour clocks • solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	• solve problems involving converting between units of time	• use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa

			times		minute and the number of days in each month, year and leap year • compare durations of events [for example to calculate the time taken by particular events or tasks]			
			Summer 6	Summer 2	Summer 3	Summer 3	Summer 5	Autumn 5
Perimeter, area, volume								
					• measure the perimeter of simple 2-D shapes	• measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • find the area of rectilinear shapes by counting	• measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • calculate and compare the area of rectangles (including squares) and	• recognise that shapes with the same areas can have different perimeters and vice versa • recognise when it is possible to use formulae for area and volume of shapes

						squares RTP 4G-2 fund the perimeter of regular and irregular polygons.	including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes • estimate volume [for example, using blocks to build cuboids] and capacity [for example, using water] 5G-2 Compare areas and calculate the area of rectangles (including squares) using standard units.	• calculate the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units RTP 6G-1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.
					Spring 2	Autumn 3 Spring 2 RTP summer 4	Spring 4 Summer 6 RTP spring 4	Spring 5 RTP spring 1 summer 1

Present and interpret data								
Experiment with their own symbols and marks as well as numerals	Compare quantities up to 10 in different contexts Introduction to simple tally charts			• interpret and construct simple pictograms, tally charts, block diagrams and simple tables	• interpret and present data using bar charts, pictograms and tables	• interpret and present discrete and continuous data using appropriate graphical methods, including bar charts	• complete, read and interpret information in tables, including timetables	• interpret and construct pie charts and line graphs and use these to solve problems

	Use of 3d block towers to vote for storytime book					and time graphs		
				Summer 3	Summer 5	Summer 5	Spring 5	Spring 6
Solve statistical problems								
				• ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • ask and answer questions about totalling and comparing categorical data	• solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables	• solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	• solve comparison, sum and difference problems using information presented in a line graph	• calculate and interpret the mean as an average
				Summer 3	Summer 5	Summer 5	Spring 5	Spring 6

Algebra								
Experiment with their own symbols and marks as well as numerals Solve real world mathematical problems with numbers up to 5. Talk about and identifies the patterns around them. Eg stripes on clothes, designs on rugs and wallpaper (use informal language) Extend and create ABAB patterns Notice and correct an error in a repeating pattern. Begin to describe a sequence of events , real or fictional, using words such as "first" "then"	Continue, copy and create repeating patterns Automatically recall number bonds for numbers 0 -10 Explore the composition of numbers to 10 Identifying missing numbers from number lines up to 10	Have a deep understanding of numbers to 10, including the composition of each number Automatically recall number bonds to 5 and some number bonds to 10 including double facts. Explore and represent patterns within numbers to 10, including evens and odds, double facts and how quantities can be distributed equally	• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9	35 • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	• solve problems, including missing number problems			• use simple formulae • generate and describe linear number sequences • express missing number problems algebraically • find pairs of numbers that satisfy an equation with two unknowns • enumerate possibilities of combinations of two variables
								Spring 2

Ratio and Proportion				
			Ratio and Proportion objectives only appear in Year 6. However, it is vital that these objectives build upon children's prior learning in other mathematical concepts, in particular: fractions, decimals and percentages.	• 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/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
				Spring 1