Maths Long Term Plan with Progression of Skills

Year 1

<table>
<tr><td colspan="4" align="center">Autumn</td></tr>
<tr>
<td align="center">Knowledge</td>
<td>1NPV–1 Count forwards and backwards within 100

1NPV–2 Numbers to 20 in the linear number system</td>
<td>1NPV–1 Count forwards and backwards within 100

1NPV–2 Numbers to 20 in the linear number system</td>
<td>1NPV–2 Numbers to 20 in the linear number system

1AS–1 Compose and partition numbers to 10</td>
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<tr>
<td></td>
<td align="center">Unit 1
Counting Within 100</td>
<td align="center">Unit 2
Comparison of quantities and part-whole relationships</td>
<td align="center">Unit 3
Numbers 0-5</td>
</tr>
<tr>
<td align="center">Progression of Skills</td>
<td>

Count within 100 in different ways

</td>
<td>

Explain that items can be compared using length and height.
Explain that items can be compared using weight/mass and volume/capacity.
Count a set of objects.
Compare sets of objects.
Use equality and inequality symbols to compare sets of objects.
Use equality and inequality symbols to compare expressions.
Explain what a whole is.
Explain that a whole can be split into parts.
Explain that a whole can represent a group of objects.
Identify a part of a whole group.

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Explain that numbers can represent how many objects there are in a set
Explain that ordinal numbers show a position and not a set of objects
Partition numbers one to five in different ways
Partition the numbers one to five in a systematic way
Find a missing part when one part and the whole is known
Show one more and one less than a number using representations. Pupils describe this accurately.
Show one more and one less than a number using representations. Pupils describe this accurately.

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</table>

		• Explain what a part-whole model is. • Use a part-whole model to represent a whole partitioned into two parts. • Use a part-whole model to represent a whole partitioned into more than two parts.	• Use a bar model to represent a whole partitioned into two parts	

Spring				
Knowledge	1G–1 Recognise common 2D and 3D shapes 1G–2 Compose 2D and 3D shapes from smaller shapes	1NPV–2 Numbers to 20 in the linear number system 1AS–1 Compose and partition numbers to 10	1AS–2 Read, write and interpret additive equations	1NF–1 Fluently add and subtract within 10
	Unit 4 **Recognise, compose, decompose and manipulate 2D and 3D shapes**	**Unit 5** **Numbers 0-10**	**Unit 6** **Additive Structures**	**Unit 7** **Addition and Subtraction facts within 10**
Progression of Skills	• Compose pattern block images • Copy, extend and develop repeating and radiating pattern block patterns • Compose tangram images • Investigate tetromino and pentomino arrangements	• Count a set of objects and match the spoken number to the written numeral and number name • Represent the numbers 6 to 10 using a five and a bit structure • Identify the whole and parts of the numbers 6 to	• Combine two or more parts to make a whole • Explain that addends can be represented in any order. This is called the commutative law • Explain that the = sign can be used to show that the whole	Explain that addition is commutative Find pairs of numbers to 10 (1) Find pairs of numbers to 10 (2) Add and subtract 1 from any number • Explain what the difference is between consecutive numbers

	• Pupils investigate ways that four cubes can be composed into different 3D models • Explore, discuss and compare 3D shapes • Identify 2D shapes within 3D shapes • Explore, discuss and compare 2D shapes • Explore, discuss and identify circles and shapes that are not circles from shape cut-outs • Explore, discuss and identify triangles and shapes that are not triangles from shape cut-outs • Explore, discuss and identify rectangles (including squares) from shape cut-outs	10 using the five and a bit structure • Explore the numbers 6 to 10 using the part whole model and the five and a bit structure • Explain where 6, 7, 8 and 9 lie on a number line • Explain what odd and even numbers are and the difference between them • Explain how even and odd numbers can be partitioned • Partition numbers 6 to 10 in different ways • Partition the numbers 6 to 10 in a systematic way • Identify a missing part when a whole is partitioned into two parts	and the sum of the parts are equal (1) • Explain that the = sign can be used to show that the whole and the sum of the parts are equal (2) • Add parts to find the value of the whole and write the equation • Find the missing addend in an equation • Explain how even and odd numbers can be partitioned • Make addition and subtraction stories and write equations to match • Represent 'first, then, now' stories with addition equations (1) • Represent 'first, then, now' stories with addition equations (2) • Represent 'first, then, now' stories with subtraction equations (1) • Represent 'first, then, now' stories with subtraction equations (2) • Represent different types of stories with	• Explain what happens when 2 is added to or subtracted from odd and even numbers • Explain what the difference is between consecutive odd and even numbers • Explain what happens when zero is added to or subtracted from a number • Explain what happens when a number is added to or subtracted from itself • Double numbers and explain what doubling means • Halve numbers and explain what halving means • Use knowledge of doubles and halves to calculate near doubles and halves • Represent different types of stories with subtraction calculations • Use knowledge and strategies to add 5 and 3 and 6 and 3

				subtraction calculations	
				• Make addition and subtraction stories, writing equations to match	
				• Work out the missing part of an addition story and equation if the other two parts are known	
				• Work out the missing part of a subtraction story and equation if the other two parts are known	
				• Explain that addition and subtraction are inverse operations (1)	
				• Explain that addition and subtraction are inverse operations (2)	
				• Use additive structures to think about addition and subtraction equations in different ways	

Summer					
Knowledge					
Specific Knowledge	Unit 8	Unit 9	Unit 10	Unit 11	
Progression of Skills	Will be updated soon				

Maths Long Term Plan with Progression of Skills

Year 2

	Autumn				
Knowledge	2NPV–1 Place value in two-digit numbers 2NPV–2 Two-digit numbers in the linear number system	2AS–1 Add and subtract across 10 2AS–2 Solve comparative addition and difference problems	2NF-1 Secure fluency in addition and subtraction facts within 10, through continued practice.	2AS–3 Add and subtract within 100	2MD–1 Multiplication as repeated addition
	Unit 1 **Numbers 10 to 100**	**Unit 2** **Calculations within 20**	**Unit 3** **Fluently add and subtract within 10**	**Unit 4** **Addition and Subtraction of two-digit numbers**	**Unit 5** **Introduction to Multiplication**
Progression of Skills	• Explain that one ten is equivalent to ten ones • Represent multiples of ten using their numerals • Represent multiples of ten using their numerals and names • Represent multiples of ten in an expression or an equation • Estimate the position of multiples of ten	• Add three addends • Use a 'First... Then... Now" story to add 3 addends • Explain that addends can be added in any order • Add 3 addends efficiently • Add 3 addends efficiently by finding two addends that total Add two numbers that bridge through 10	• Demonstrate their fluency of addition and subtraction within ten • Practise addition and subtraction strategies as required	• Add and subtract one to and from a two-digit number • Add and subtract one to and from a two-digit number that crosses a tens boundary • Add and subtract one from any two-digit number • Use number facts to add a single-digit number to a two-digit number	• Explain that objects can be grouped in different ways • Describe how objects have been grouped • Represent equal groups as repeated addition • Represent equal groups as repeated addition and multiplication • Represent equal groups as multiplication

	• on a 0-100 number line • Explain what happens when you add and subtract ten to a multiple of ten • Use knowledge of facts and unitising to add and subtract multiples of ten • Add and subtract multiples of ten • Explore the counting sequence for counting to 100 and beyond • Count a large group of objects by counting groups of tens and the extra ones • Count a large group of objects by using knowledge of unitising by counting tens and ones • Represent a number from 20-99 in different ways • Explain and mark the position of	• Subtract two numbers that bridge through 10 • Compare numbers and describe how many more or less there are in each set • Calculate the difference • Use knowledge of subtraction to solve problems in a range of contexts • Explain what the difference is between consecutive numbers • Calculate difference when information is presented in a pictogram • Calculate difference when information is presented in a bar chart	• Use number facts to subtract a single-digit number from a two-digit number • Use a part-part-whole model to represent addition and subtraction • Use number bonds to ten to add a single-digit number to a two-digit number • Use number bonds to ten to subtract a single-digit number from a two-digit number • Use knowledge of 'make ten' to add a one-digit number to a two-digit number • Use knowledge of 'make ten' to subtract a multiple of ten or a single-digit from a two-digit number • Solve problems using knowledge of addition and subtraction	• Explain and represent multiplication when a group contains zero or one items • Identify and explain each part of a multiplication equation • Use knowledge of multiplication to calculate the product • Represent the two times table in different ways • Use knowledge of the two times table to solve problems • Explain the relationship between adjacent multiples of two • Explain that factor pairs can be written in any order • Represent counting in tens as the ten times table • Represent the ten times table in different ways • Explain the relationship

	• numbers 20-99 on a number line • Explain that numbers 20-99 can be represented as a length • Compare two, two-digit numbers • Partition a two-digit number into tens and ones • Add two, two-digit numbers by partitioning into tens and ones			• Find ten more or ten less than a two-digit number (1) • Find ten more or ten less than a two-digit number (2) • Add and subtract ten to/from a two-digit number • Explain the patterns when adding and subtracting ten • Use knowledge of adding and subtracting ten to solve problems • Use number facts to add a multiple of ten to a two-digit number • Use number facts to subtract a multiple of ten from a two-digit number • Partition a two-digit number into parts in different ways (two and three parts) • Use knowledge of adding and subtracting multiples of ten	• between adjacent multiples of ten • Represent counting in fives as the five times table • Represent the five times table in different ways • Explain the relationship between adjacent multiples of five • Explain how groups of five and ten are related • Explain the relationship between multiples of five and ten • Use knowledge of the relationships between the five and ten times tables to solve problems • Explain how a factor of zero or one affect the product • Represent multiplication equations in different ways

				to solve problems	• Use knowledge of the two, five and ten times tables to solve problems (1) • Use knowledge of the two, five and ten times tables to solve problems (2) • Explain what each factor represents in a multiplication story • Explain what each factor represents in a multiplication story when one of the factors is one • Explain how a multiplication equation with two as a factor is related to doubling • Double two-digit numbers • Multiply efficiently when one of the factors is two • Explain how halving and doubling are related • Explain the relationship

				between factors and products • Halve two-digit numbers • Use knowledge of doubling, halving and the two times table to solve problems

Spring				
Knowledge		2MD–2 Grouping problems: missing factors and division.	2G–1 Describe and compare 2D and 3D shapes	2AS–4 Add and subtract within 100 (part 2)
	Unit 5 Continued	**Unit 6 Introduction to division structures**	**Unit 7 Shape**	**Unit 8 Addition and subtraction of two digit numbers**
Progression of Skills		• Explain that objects can be grouped equally • Identify and explain when objects cannot be grouped equally • Explain the relationship between division expressions and division stories • Calculate the number of equal groups in a division story • Use their knowledge of skip counting and	• Learn that a polygon is a 2D shape with straight sides that meet at vertices • Describe polygons and find different ways to sort them • Learn that polygons can be sorted and named according to the number of sides and vertices • Discuss, and compare by direct comparison, the	• Explain strategies used to add • Add a two-digit number to a two-digit number • Add a two-digit number to a two-digit number when not crossing ten (i) • Add a two-digit number to a two-digit number when not crossing ten (ii) • Add a two-digit number to a two-digit number when crossing ten

		• division to solve problems relating to measure • Skip count using the divisor to find the quotient • 7 Pupils use their knowledge of division to solve problems • Explain that objects can be shared equally • Use skip counting to solve a sharing problem • Skip count using the divisor to find the quotient • Solve a variety of division problems, explaining their understanding	• shape and size of polygons • Discuss, and compare by direct comparison, the vertices of polygons • Investigate how polygons can be joined and folded to form 3-dimensional shapes • Describe 3-dimensional shapes and find different ways to sort them • Discuss, and compare by direct comparison, the shape and size of 3-dimensional shapes	• Explain strategies used to subtract • Subtract a two-digit number from a two-digit number • Partition the subtrahend to help with subtraction • Subtract a two-digit number from a two-digit number when not crossing ten (i) • Subtract a two-digit number from a two-digit number when not crossing ten (ii) • Subtract a two-digit number from a two-digit number when crossing ten • Subtract efficiently using knowledge of two-digit numbers

Summer					
Unit 9 Money	Unit 10 Fractions	Unit 11 Time	Unit 12 Position and Direction	Unit 13 Multiplication and division – doubling, halving, quotitive and partition division.	Unit 14 Sense of measure – capacity, volume, mass.
To be updated soon					

Maths Long Term Plan with Progression of Skills

Year 3

	Autumn	
Theme	**Unit 1** **Adding and Subtracting across 10**	**Unit 2** **Numbers to 1000**
Significant Knowledge	Add Subtract Number facts to 10	Composition of 3 digit numbers Representation Place value and positioning in the number system Scales
Knowledge to enable subsequent learning	2AS–1 Add and subtract across 10 3NF–1 Fluently add and subtract within and across 10	3NPV–1 Equivalence of 10 hundreds and 1 thousand 3NPV–2 Place value in three-digit numbers 3NPV–3 Three-digit numbers in the linear number system 3NPV–4 Reading scales with 2, 4, 5 or 10 intervals 3NF–3 Scaling number facts by 10 3AS–1 Calculate complements to 100
Application of Knowledge (Skills)	• Add 3 addends • Use a 'First.. Then… Now" story to add 3 addends • Explain that addends can be added in any order • Add 3 addends efficiently • Add 3 addends efficiently by finding two addends that total 10 • Add two numbers that bridge through 10 • Subtract two numbers that bridge through 10	• Explain that 100 is composed of ten tens and one hundred ones • Explain that 100 is composed of 50s 25s and 20s • Use known facts to find multiples of ten that compose 100 • Use known facts to find a two-digit number and a one- or two-digit number that compose 100 • Use known facts to find correct complements to 100 • Use known facts to find complements to 100 accurately and efficiently • Represent a three-digit number which is a multiple of ten using their numerals and names

		• Use place value knowledge to write addition and subtraction equations
		• Bridge 100 by adding or subtracting in multiples of ten
		• Use knowledge of addition and subtraction of multiples of ten bridging the hundreds boundary to solve problems
		• Count across and on from 100
		• Represent a three-digit number up to 199 in different ways
		• Bridge 100 by adding or subtracting a single-digit number
		• Find ten more or ten less than a given number
		• Cross the hundreds boundary when adding and subtracting any two-digit multiple of ten
		• Become familiar with a metre ruler (marked and unmarked intervals, 1 x 1m, 10 x 10cm, 100 x 1cm)
		• Measure length and height from zero using whole metres and cm
		• Measure length and height from zero using cm
		• Convert between m and cm (include whole m to cm, cm to whole m and cm and vice versa)
		• Become familiar with a ruler in relation to cm and mm (marked and unmarked intervals, knowing 1cm = 10mm)
		• Measure length from zero using mm / whole cm and mm
		• Convert between cm and mm (include whole cm to mm, mm to whole cm and mm and vice versa)
		• Estimate a length/height, measure a length/height and record in a table
		• Use knowledge of place value to represent a three-digit number in different ways
		• Represent a three-digit number up to 1000 in different ways
		• Use knowledge of the additive relationship to solve problems
		• Count in hundreds and tens on a number line
		• Identify the previous, next and nearest multiple of 100 on a number line for a three-digit multiples of ten
		• Position three-digit numbers on number lines

		• Estimate the position of three-digit numbers on unmarked number lines
		• Compare one-, two- and three-digit numbers
		• Compare two three-digit numbers
		• Order sets of three-digit numbers
		• Use known facts to add or subtract multiples of 100 within 1000
		• Write a three-digit multiple of 10 as a multiplication equation
		• Partition three-digit numbers in different ways
		• Use known facts to solve problems involving partitioning numbers
		• Use known facts to add or subtract to/from multiples of 100 in tens
		• Use known facts to add or subtract to/from multiples of 100 in ones
		• Add/subtract multiples of ten bridging 100
		• Add/subtract to/from a three-digit number in ones bridging 100
		• Find 10 more or less across any hundreds boundary
		• Use knowledge of adding or subtracting to/from three-digit numbers to solve problems
		• Count forwards and backwards in multiples of 2, 20, 5, 50 and 25
		• Use knowledge of counting in multiples of 2, 20, 5, 50 and 25 to solve problems
		• Become familiar with different weighing scales up to 1kg (intervals of 100g, 200g, 250g and 500g)
		• Become familiar with the tools to measure volume and capacity up to 1 litre (intervals of 100ml, 200ml, 250ml and 500ml)
		• Measure mass from zero up to 1kg using grams
		• Measure mass from zero above 1kg using whole kg and grams
		• Measure volume from zero up to 1 litre using ml
		• Measure volume from zero above 1 litre using whole litres and ml
		• Estimate mass in grams and volume in ml

				Estimate a mass/volume, measure a mass/volume and record in a table

Spring					
Theme	**Unit 3 Right angles**	**Unit 4 Manipulating the additive relationship and securing mental calculation.**	**Unit 5 Column addition**	**Unit 6 2, 4 8 times tables**	**Unit 7 Column Subtraction**
Significant Knowledge	Angles Rotation of two lines	Addition Redistribution Partitioning Finding the difference	Place value Formal Layout Order of addition Regrouping	Counting Relationship between multiples	Place value Formal Layout Order of subtraction Exchanging
Knowledge to enable subsequent learning	3G–1 Recognise right angles	3AS–3 Manipulate the additive relationship	3AS–2 Columnar addition and subtraction.	3NF–2 Recall of multiplication tables 3NF–3 Scaling number facts by 10 3MD–1 Multiplication and division structures	3AS–2 Columnar addition and subtraction
Application of knowledge (skills)	• Rotate two lines around a fixed point to make different sized angles • Draw triangles and quadrilaterals	• Add 3 addends • Add two 3-digit numbers using adjusting • Add a pair of 2- or 3-digit numbers using redistribution	• Identify the addends and the sum in column addition • Use their knowledge of place value to	• Represent counting in fours as the 4 times table • Use knowledge of the 4 times table to solve problems	• Identify the minuend and the subtrahend in column subtraction • Explain the column

	and identify vertices • Learn that a right angle is a 'square corner' and identify them in the environment • Learn that a rectangle is a 4-sided polygon with four right angles • Learn that a square is a rectangle in which the four sides are equal length • Cut rectangles and squares on the diagonal and investigate the shapes they make • Join four right angles at a point using different right-angled polygons • Investigate and draw other polygons with right angles	• Subtract a pair of 2- or 3-digit numbers, bridging a multiple of 10, using partitioning • Subtract a pair of 2-digit numbers, crossing a ten or hundreds boundary, by finding the difference between them • Subtract a pair of three-digit multiples of 10 within 1000 by finding the difference between them • Evaluate the efficiency of strategies for subtracting from a 3-digit number • Explain why the order of addition and subtraction steps in a multi-step problem can be chosen • Accurately and efficiently solve multi-step addition and subtraction problems	correctly lay out column addition • Add a pair of 2-digit numbers using column addition • Add using column addition • Use their knowledge of column addition to solve problems • Add a pair of 2-digit numbers using column addition with regrouping in the ones column • Add a pair of 2-digit numbers using column addition with regrouping in the tens column • Add using column addition with regrouping • Use known facts and strategies to accurately and efficiently calculate and check column addition • Use their knowledge of column addition	• Explain the relationship between adjacent multiples of four • Explain the relationship between multiples of 2 and multiples of 4 • Use knowledge of the relationships between the 2 and 4 times tables to solve problems • Represent counting in eights as the 8 times table • Explain the relationship between adjacent multiples of eight • Explain the relationship between multiples of 4 and multiples of 8 • Use knowledge of the relationships between the 4 and 8 times	subtraction algorithm • Subtract from a 2-digit number using column subtraction with exchanging from tens to ones • Subtract from a 3-digit number using column subtraction with exchanging from hundreds to tens (1) • Subtract from a 3-digit number using column subtraction with exchanging from hundreds to tens (2) • Evaluate the efficiency of strategies for subtraction.

		• Understand and can explain that both addition and subtraction equations can be used to describe the same additive relationship (2-digit numbers) • Understand and can explain that both addition and subtraction equations can be used to describe the same additive relationship (3-digit numbers) • Use knowledge of the additive relationship to rearrange equations • Use knowledge of the additive relationship to identify what is known and what is unknown in an equation • Use knowledge of the additive relationship to rearrange equations before solving • Rearrange missing number	to solve problems	tables to solve problems • Explain the relationship between multiples of 2, 4 and multiples of 8 • Use knowledge of the relationships between the 2, 4 and 8 times tables to solve problems • Use knowledge of the divisibility rules for divisors of 2 and 4 to solve problems • Use knowledge of the divisibility rules for divisors of 8 to solve problems • Scale known multiplication facts by 10 • Scale division derived from multiplication facts by 10	

		equations and use knowledge of the additive relationship to solve the problem			

Summer				

Theme	Unit 8 **Unit Fractions**	Unit 9 **Non Unit Fractions**	Unit 10 **Parallel and Perpendicular Sides in Polygons**	Unit 11 **Time**
Significant Knowledge	Whole Part Equal Unequal	Unit fraction Non Unit Fraction Equal Unequal	Polygon Parallel perpendicular	Minutes Hours O'clock Quarter past Half past
Knowledge to ensure subsequent learning	3F–1 Use and understand fraction notation 3F–2 Find unit fractions of quantities	3F–1 Use and understand fraction notation 3F–3 Fractions within 1 in the linear number system 3F–4 Add and subtract fractions within 1	3G–2 Draw polygons and identify parallel and perpendicular sides	NC Objectives
Application of the knowledge (Skills)	• Identify a whole and the parts that make it up • Explain why a part can only be defined when in relation to a whole • Identify the number of equal or unequal parts in a whole • Identify equal parts when they do not look the same (i) • Explain the size of the part in relation to the whole	• Explain that non-unit fractions are composed of more than one unit fraction • Identify non-unit fractions • Identify the number of equal or unequal parts in a whole • Use knowledge of non-unit fractions to solve problems • Use knowledge of unit fractions to find one whole • Place fractions between 0 and 1 on a numberline	• Make compound shapes by joining two polygons in different ways (same parts, different whole) • Investigate different ways of composing and decomposing a polygon (same whole, different parts) • Draw polygons on isometric paper • Use geostrips to investigate quadrilaterals with and	To be updated soon

- Construct a whole when given a part and the number of parts - Identify how many equal parts a whole has been divided into - Use fraction notation to describe an equal part of the whole - Represent a unit fractions in different ways - Identify parts and wholes in different contexts (i) - Identify parts and wholes in different contexts (ii) - Identify equal parts when they do not look the same (ii) - Compare and order unit fractions by looking at the denominator - Identify when unit fractions cannot be compared - 15 Pupils construct a whole when given one part and the fraction that it represents - 16 Pupils use knowledge of the relationship between parts and wholes in unit fractions to solve problems - 17 Pupils identify the whole, the number of equal parts and the size of each part as a unit fraction - 18 Pupils quantify the number of items in each part and connect to the unit fraction operator - 19 Pupils calculate the value of a part by using knowledge of division and division facts	- Use repeated addition of a unit fraction to form a non-unit fraction - Use repeated addition of a unit fraction to form 1 - Compare using knowledge of non-unit fractions equivalent to one - Compare non-unit fractions with the same denominator - Compare unit fractions - Compare fractions with the same numerator - Add up fractions with the same denominator - Add on fractions with the same denominator - Add fractions with the same denominator using a generalised rule - Subtract fractions with the same denominator - Identify the whole, the number of equal parts and the size of each part as a unit fraction - Explain that addition and subtraction of fractions are inverse operations - Subtract fractions from a whole by converting the whole to a fraction - Represent a whole as a fraction in different ways and use this to solve problems involving subtraction

without parallel and perpendicular sides
- Make and draw compound shapes with and without parallel and perpendicular sides
- Learn to extend lines and sides to identify parallel and perpendicular lines
- Make and draw triangles on circular geoboards
- Make and draw quadrilaterals on circular geoboards
- Draw shapes with given properties on a range of geometric grids

20 Pupils calculate the value of a part by connecting knowledge of division and division facts with finding a fraction of a quantity 21 Pupils find fractions of quantities using knowledge of division facts with increasing fluency		

Maths Long Term Plan with Progression of Skills

Year 4

	Autumn			
Knowledge	3AS–2 Columnar addition and subtraction	4NPV–1 Equivalence of 10 hundreds and 1 thousand 4NPV–2 Place value in four-digit numbers 4NPV–3 Four-digit numbers in the linear number system 4NPV–4 Reading scales with 2, 4, 5 or 10 intervals 4NF–3 Scaling number facts by 100	4G–2 Perimeter: regular and irregular polygons	4NF–1 Recall of multiplication tables
	Unit 1 **Review of Column Addition and Subtraction**	**Unit 2** **Numbers to 10, 000**	**Unit 3** **Perimeter**	**Unit 4** **3, 6, 9 times table**
Progression of Skills	• Identify the addends and the sum in column addition • Use their knowledge of place value to correctly lay out column addition • Add a pair of 2-digit numbers using column addition • Add using column addition • Use their knowledge of column addition to solve problems • Add a pair of 2-digit numbers using column addition with regrouping in the ones column	• Explain how many tens, hundreds and ones 1,000 is composed of • Use knowledge of 1,000 to explain common measure conversions • Use knowledge of 1,000 to solve problems • Use different strategies to add multiples of 100 • Use different strategies to subtract multiples of 100 • Use knowledge of calculation and common measure conversions to solve problems • Compose and decompose four-digit	• Understand that regular polygon has sides that are all the same length and interior angles that are all equal in size. • Know that the perimeter is the distance around the edge of a two-dimensional shape • Understand that different shapes can have the same perimeter • Measure the perimeter in units of length found by counting units. • Calculate the perimeter by adding together the	• Represent counting in threes as the three times table • Explain the relationship between adjacent multiples of three • Use knowledge of the three times table to solve problems • Represent counting in sixes as the six times table • Explain the relationship between adjacent multiples of six • Use knowledge of the six times table to solve problems

- Add a pair of 2-digit numbers using column addition with regrouping in the tens column
- Add using column addition with regrouping
- Use known facts and strategies to accurately and efficiently calculate and check column addition
- Use their knowledge of column addition to solve problems
- Identify the minuend and the subtrahend in column subtraction
- Subtract using column subtraction
- Subtract from a 2-digit number using column subtraction with exchanging from tens to ones
- Subtract from a 3-digit number using column subtraction with exchanging from hundreds to tens (1)
- Subtract from a 3-digit number using a column subtraction with exchanging from hundreds to tens (2)
- Evaluate the efficiency of strategies for subtraction

- numbers in different ways
- Use strategies to make solving calculations more efficient
- Compare and order four-digit numbers
- Calculate efficiently by using knowledge of place value, addition and subtraction
- Explain what rounding is
- Round a four-digit number to the nearest thousand
- Round a four-digit number to the nearest hundred and ten
- Round a four-digit number to the nearest thousand, hundred and ten
- Add up to 3 four-digit numbers using a column addition
- Subtract four-digit numbers using a column subtraction
- Use strategies to make solving calculations more efficient
- Explain how many '100s' and '200s', 1,000 is composed of
- Explain how many '500s' and '250s', 1,000 is composed of

- side lengths of a 2D shape
- Calculate the perimeter of a rectangle using addition and multiplication
- Find unknown side lengths by calculating the perimeter and using known side lengths
- Calculate the perimeter of a regular polygon using multiplication
- Calculate the side length of a regular polygon using division where the perimeter is known

- Use known facts from the five times table to solve problems involving the six times table
- Explain the relationship between multiples of three and multiples of six
- Use knowledge of the relationships between the three and six times tables to solve problems
- Represent counting in nines as the nine times table
- Explain the relationship between adjacent multiples of nine (1)
- Explain the relationship between adjacent multiples of nine (2)
- Use known facts from the ten times table to solve problems involving the nine times table
- Explain the relationship between multiples of three and multiples of nine
- Explain the relationship between pairs of three and nine times table facts that have the same product (1)
- Explain the relationship between pairs of three and nine times table facts that have the same product (2)

				• Use the divisibility rules for divisors of three • Use the divisibility rules for divisors of six (1) • Use the divisibility rules for divisors of six (2)

	Spring			
Knowledge		3NF–2 Recall of multiplication tables	4MD–1 Multiplying and dividing by 10 and 100 4MD–2 Manipulating the multiplicative relationship 4MD–3 The distributive property of multiplication 4MD–3 The distributive property of multiplication	4G–1 Draw polygons specified by coordinates or by translation
	Unit 4 **3, 6, 9** **times**	**Unit 5** **7 times table and patterns**	**Unit 6** **Understanding and manipulating multiplicative relationships**	**Unit 7** **Coordinates**

	table continued			
Progression Of Skills		- Represent counting in sevens as the 7 times table - Explain the relationship between adjacent multiples of seven - Use their knowledge of the 7 times table to solve problems - Identify patterns of odd and even numbers in the times tables - Represent a square number - Use knowledge of divisibility rules to solve problems	- Explain what each factor represents in a multiplication equation - Explain how each part of a multiplication and division equation relates to a story - Explain where zero can be part of a multiplication or division expression and the impact it has - Partition one of the factors in a multiplication equation in different ways using representations (I) - Partition one of the factors in a multiplication equation in different ways using representations (II) - Explain which is the most efficient factor to partition to solve a multiplication problem - Use knowledge of distributive law to solve two part addition and subtraction problems, efficiently - Use knowledge of distributive law to calculate products beyond known times tables facts - Explain the relationship between multiplying a number by 10 and multiples of 10 - Explain why a zero can be placed after the final digit of a single-digit number when we multiply it by 10 - Explain why a zero can be placed after the final digit of a	- Give directions from one position to another on a grid - Move objects including polygons on a grid according to directions, and mark the new position - Describe translations of polygons drawn on a square grid - Draw polygons specified by translations - Mark points specified as a translation from the origin - Mark the position of points specified by coordinates in the first quadrant of a coordinate grid, and write coordinates for already-marked points - Draw polygons specified by coordinates in the first quadrant - Translate polygons in the first quadrant

				two-digit number when we multiply it by 10
				• Explain why the final digit zero can be removed from a two-digit multiple of 10, when we divide by 10
				• Explain why the final digit zero can be removed from a three-digit multiple of 10, when we divide by 10
				• Explain the relationship between multiplying a number by 100 and multiples of 100
				• Explain why two zeros can be placed after the final digit of a single-digit number when we multiply it by 100
				• Explain why two zeros can be placed after the final digit of a two-digit number when we multiply it by 100
				• Explain why the last two zeros can be removed from a three-digit multiple of 100 when we divide it by 100
				• Explain why the last two zeros can be removed from a four-digit multiple of 100 when we divide it by 100
				• Use knowledge of the composition of 100 to multiply by 100 in different ways
				• Use knowledge of the composition of 100 to divide by 100 in different ways
				• Explain how making a factor 10 times the size affects the product

				• Explain how making the dividend 10 times the size affects the quotient • Explain how making a factor 100 times the size affects the product • Explain how making the dividend 100 times the size affects the quotient • Scale known multiplication facts by 100 • Scale division derived from multiplication facts by 100	

Summer					
Knowledge	3F–1 Use and understand fraction notation	4F–1 Mixed numbers in the linear number system 4F–2 Convert between mixed numbers and improper fractions 4F–3 Add and subtract improper and mixed fractions (same denominator)	4G–3 Identify line symmetry in 2D shapes	NC time objectives	4NF–2 Division problems with remainders
	Unit 8 **Review of Fractions**	**Unit 9** **Fractions greater than 1**	**Unit 10** **Symmetry in 2d shapes**	**Unit 11** **Time**	**Unit 12** **Division with remainders**
Progression Of Skills	• Identify a whole and the parts that make it up • Explain why a part can only be defined when in relation to a whole	• Explain how to express quantities made up of both whole numbers and a fractional part • Explain how a quantity made up	• Complete a symmetrical pattern • Compose symmetrical shapes from two congruent shapes	• To be updated soon.	• Interpret a division story when there is a remainder and represent it with an equation (i) • Interpret a division story

	• Identify the number of equal or unequal parts in a whole • Identify equal parts when they do not look the same • Explain the size of the part in relation to the whole • Construct a whole when given a part and the number of parts	of whole numbers and a fractional part is composed • Compose and decompose quantities made of whole numbers and fractional parts • Accurately label a range of number lines and explain the meaning of each part • Identify numbers on marked but unlabelled number lines • Estimate the position of numbers on a number line using fraction sense • Compare and order mixed numbers using fraction sense • Compare and order mixed numbers when the whole number is the same • Compare and order mixed numbers when the whole number and the numerator of the fractional part is the same	• Investigate lines of symmetry in 2D shapes by folding paper shape cut-outs • Find lines of symmetry in 2D shapes using a mirror • Reflect polygons in a line of symmetry • Reflect polygons that are dissected by a line of symmetry		when there is a remainder and represent it with an equation (ii) • Interpret a division story when there is a remainder and represent it with an equation (iii) • Explain how the remainder relates to the divisor in a division equation • Explain when there will and will not be a remainder in a division equation • Use knowledge of division equations and remainders to solve problems • Interpret the answer to a division calculation to solve a problem (i) • Interpret the answer to a division calculation to solve a problem (i

		• Make efficient choices about the order they solve an addition problem in • Make efficient choices about the order they solve a subtraction problem in • Express a quantity as a mixed number and an improper fraction (quarters) • Convert a quantity from an improper fraction to a mixed number (quarters) • Express and convert a quantity from an improper fraction to a mixed number (fifths) • Explain how an improper fraction is converted into a mixed number (any unit) • Explain how a mixed number is converted into an improper fraction • Add mixed numbers • Subtract a proper fraction from a mixed number			

		(converting to an improper fraction first) • Subtract a mixed number from a mixed number and explain which strategy is most efficient • Use knowledge of subtraction to choose correct and efficient approaches when subtracting mixed numbers			

Maths Long Term Plan with Progression of Skills

Year 5

Autumn				
Knowledge	5NPV–1 Tenths and hundredths 5NPV–2 Place value in decimal fractions 5NPV–3 Decimal fractions in the linear number system 5NPV–4 Reading scales with 2, 4, 5 or 10 intervals 5NF–2 Scaling number facts by 0.1 or 0.01	NC Money Objectives	NC Negative Number Objectives	5MD–3 Multiply using a formal written method 5MD–4 Divide using a formal written method
	Unit 1 **Decimal Fractions**	**Unit 2** **Money**	**Unit 3** **Negative Numbers**	**Unit 4** **Short Multiplication and short division**
Progression of Skills	• Identify tenths as part of a whole • Describe and represent tenths as a decimal fraction • Count in tenths in different ways • Describe and write decimal numbers with tenths in different ways • Compare and order decimal numbers with tenths • Explain that decimal numbers with tenths	• Explain and represent whole pounds as a quantity of money • Explain and represent whole pounds and pence as a quantity of money • Explain how to compare amounts of money • Convert quantities of money between pounds and pence • Use their knowledge of addition to efficiently	• Represent a change story using addition and subtraction symbols • Interpret numbers greater than and less than zero in different contexts • Read and write negative numbers • Explain how the value of a number relates to its position from zero • Identify and place negative numbers on a number line	• Multiply a two-digit number by a single-digit number using partitioning and representations (no regroups) • Multiply a two-digit number by a single-digit number using partitioning and representations (one regroup) • Multiply a two-digit number by a single-digit number using

		can be composed additively • Explain that decimal numbers with tenths can be composed multiplicatively • Use their knowledge to calculate with decimal numbers within and across one whole • Use their knowledge to calculate with decimal numbers using mental methods • Use their knowledge to calculate with decimal numbers using column addition and subtraction • Use representations to round a decimal number with tenths to the nearest whole number • Identify hundredths as part of a whole • Describe and represent hundredths as a decimal fraction • Describe and write decimals numbers with hundredths in different ways • Compare and order decimal numbers with hundredths • Explain that decimal numbers with hundredths can be partitioned in different ways	add commonly used prices • Use their knowledge of subtraction to calculate the change due when paying whole pounds or notes • Use and explain the most efficient strategies when adding quantities of money • Use and explain the most efficient strategies when subtracting quantities of money • Find the change when purchasing several items • Use the most efficient and reliable strategy to find the change when purchasing several items	• Interpret sets of negative and positive numbers in a range of contexts • Use their knowledge of positive and negative numbers to calculate intervals • Explain how negative numbers are used on a coordinate grid • Use their knowledge of positive and negative numbers to interpret graphs	partitioning and representations (two regroups) • Multiply a two-digit number by a single-digit number using partitioning • Multiply a two-digit number by a single-digit number using expanded multiplication (no regroups) • Multiply a two-digit number by a single-digit number using short multiplication (no regroups) • Multiply a two-digit number by a single-digit number using expanded multiplication (regrouping ones to tens) • Multiply a two-digit number by a single-digit number using short multiplication (regrouping ones to tens) • Multiply a two-digit number by a single-digit number using expanded multiplication (regrouping tens to hundreds) • Multiply a two-digit number by a single-digit number using short multiplication

	- Use their knowledge of decimal place value to convert between and compare metres and centimetres - Explain that different lengths can be composed additively and multiplicatively - Use their knowledge of decimal place value to solve problems in different contexts - Use their knowledge to calculate with decimal numbers up to and bridging one tenth - Use their knowledge to calculate with decimal numbers using column addition and subtraction - Round a decimal number with hundredths to the nearest tenth - Round a decimal number with hundredths to the nearest whole number - Read and write numbers with up to 3 decimal places - Compare and order numbers with up to 3 decimal places			(regrouping tens to hundreds) - Multiply a two-digit number by a single-digit number using both expanded and short multiplication (two regroups) - Use estimation to support accurate calculation - Multiply a three-digit number by a single-digit number using partitioning and representations - Multiply a three-digit number by a single-digit number using partitioning - Multiply a three-digit number by a single-digit number using expanded and short multiplication (no regroups) - Multiply a three-digit number by a single-digit number using expanded and short multiplication (one regroup) - Multiply a three-digit number by a single-digit number using expanded and short multiplication (multiple regroups) - Use estimation to support accurate calculation - Divide a two-digit number by a single-digit

				number using partitioning and representations (no remainders, no exchanging)
				• Divide a two-digit number by a single-digit number using partitioning and representations (with exchanging)
				• Divide a two-digit number by a single-digit number using partitioning and representations (with exchanging and remainders)
				• Divide a two-digit number by a single-digit number using short division (no exchanging, no remainders)
				• Divide a two-digit number by a single-digit number using short division (with exchanging)
				• Divide a two-digit number by a single-digit number using short division (with exchanging and remainders)
				• Divide a three-digit number by a single-digit number using partitioning and representations (no

				exchanging, no remainders)
				• Divide a three-digit number by a single-digit number using partitioning and representations (one exchange, no remainders)
				• Divide a three-digit number by a single-digit number using partitioning and representations (with exchanging and remainders)
				• Divide a three-digit number by a single-digit number using short division
				• Divide a three-digit number by a single-digit number using short division (with exchanging and remainders)
				• Solve short division problems accurately when the hundreds digit is smaller than the divisor
				• Use efficient strategies of division to solve problems

Spring

Knowledge	5G–2 Compare and calculate areas	5MD–1 Multiplying and dividing by 10 and 100	5MD–2 Find factors and multiples
	Unit 5 **Area and Scaling**	**Unit 6** **Calculating with Decimal Fractions**	**Unit 7** **Factors, Multiples and Primes**
Progression of Skills	- Explain what area is and can measure using counting as a strategy (1) - Explain what area is and can measure using counting as a strategy (2) - Explain how to make different shapes with the same area - Explain how to compare the area of different shapes - Measure the area of flat shapes area using square centimetres - Measure the area of flat shapes area using square metres - Calculate the area of a rectangle using multiplication - Calculate the area of rectilinear shapes - Use their knowledge of area to solve problems - Compare and describe lengths by using their knowledge of multiplication - Use their knowledge of multiplication to solve comparison and change problems - Compare and describe lengths by using their knowledge of division - Use their knowledge of division to solve comparison and change problems	- Explain the effect of multiplying and dividing a number by 10, 100 and 1,000 (1) - Explain the effect of multiplying and dividing a number by 10, 100 and 1,000 (2) - Explain how to multiply and divide a number by 10, 100 and 1,000 (first 'number' two or more non-zero digits) - Use their knowledge of multiplication and division by 10/100/1,000 to convert between units of measure (length) - Use their knowledge of multiplication and division by 10/100/1,000 to convert between units of measure (mass and capacity) - Explain how to use known multiplication facts and unitising to multiply decimal fractions by whole numbers (tenths) - Explain how to use known multiplication facts and unitising to multiply decimal fractions by whole numbers (hundredths) - Use their knowledge of multiplying decimal fractions by whole numbers to solve measures problems - Explain the relationship between multiplying by 0.1 dividing by 10	- Explain what 'volume' is using a range of contexts - Describe the units used to measure volume - Explain how to calculate the volume of a cuboid - Explain what a cube number is - Use their knowledge of calculating volume to solve problems in a range of contexts - Explain how to calculate the volume of compound shapes - Explain the use of the commutative and distributive laws when multiplying three or more numbers - Explain the reasons for changing two-factor multiplication calculations to three-factor multiplications - Explain what a factor is and how to use arrays and multiplication/division facts to find them - Explain how to systematically find all factors of a number and how they know when they have found them all - Use a complete list of factors to explain when a number is a square number - Explain how to identify a prime number or a composite number

	• Compare and describe measurements by using their knowledge of multiplication and division (mass/capacity/time) (1) • Compare and describe measurements by using their knowledge of multiplication and division (mass/capacity/time) (2) • Describe the changes in measurements using their knowledge of multiplication and division • Use their knowledge of multiplication and division to solve comparison and change problems	• Explain the relationship between multiplying by 0.01 dividing by 100 • Explain how to use multiplying by 10 or 100 to multiply one-digit numbers by decimal fractions (1) • Explain how to use multiplying by 10 or 100 to multiply one-digit numbers by decimal fractions (2) • Explain how to use the size of the multiplier to predict the size of the product compared to the multiplicand • Explain how to use multiplying by 10 or 100 to divide decimal fractions by one-digit numbers (1) • Explain how to use multiplying by 10 or 100 to divide decimal fractions by one-digit numbers (2	• Explain how to identify a common factor or a prime factor of a number • Explain how to identify a multiple or common multiple of a number • Use knowledge of properties of number to solve problems in a range of contexts • Explain how to use the factor pairs of '100' to solve calculations efficiently

Knowledge	Summer		
	5NPV–5 Convert between units of measure 5F–1 Find non-unit fractions of quantities 5F–2 Find equivalent fractions 5F–3 Recall decimal equivalents for common fractions 3F–2 Find unit fractions of quantities	5NPV–5 Convert between units of measure	5G–1 Compare, estimate, measure and draw angles
Progression Of Skills	**Unit 8** **Fractions**	**Unit 9** **Converting Units**	**Unit 10** **Angles**
•	• Explain the relationship between repeated addition of a proper fraction and multiplication of fractions (unit fractions)	• Apply memorised unit conversions to convert between units of measure (larger to smaller units - whole number conversions)	• Compare the size of angles where there is a clear visual difference • Use the terms acute, obtuse and reflex when describing the size of

- Explain the relationship between repeated addition of a proper fraction and multiplication of fractions (non-unit fractions)
- Multiply a proper fraction by a whole number (within a whole)
- Multiply a proper fraction by a whole number (greater than a whole)
- Multiply an improper fraction by a whole number
- Multiply a mixed number by a whole number (product is within a whole)
- Multiply a mixed number by a whole number (product is greater than a whole)
- Find a unit fraction of a quantity
- Explain the relationship between finding a fraction of a quantity and multiplying a whole number by a unit fraction
- Explain the relationship between dividing by a whole number and multiplying a whole number by a unit fraction
- Use their knowledge of multiplying a whole number by a unit fraction to solve problems
- Find a non-unit fraction of a quantity (mental calculation)
- Find a non-unit fraction of a quantity (written calculation)
- Multiply a whole number by a proper fraction
- Explain when a calculation represents scaling down and when it represents repeated addition
- Find the whole when the size of a unit fraction is known

- Apply memorised unit conversions to convert between units of measure (smaller to larger units - whole number conversions)
- Convert from and to fraction and decimal fraction quantities of larger units
- Derive common conversions over 1
- Carry out conversions that correspond to 100 parts
- Solve measures problems involving different units
- Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
- Convert between miles and kilometres
- Solve problems involving converting between units of time.

- angles or amount of rotation with relation to right angles
- Use a unit called degrees (°) as a standard unit to measure angles
- Estimate the size of angles in degrees using angle sets
- Measure the size of angles accurately using a protractor

	• Find a unit fraction when the size of a non-unit fraction is known • Find the whole when the size of a non-unit fraction is known • Find the unit fraction when the size of a non-unit fraction is known • Use representations to describe and compare two fractions (1/4 and 3/12) • Use representations to describe and compare two fractions (1/5 and 5/10) • Use representations to describe and compare two fractions (pouring context) • Correctly use the language of equivalent fractions • Explain the vertical relationship between numerators and denominators within equivalent fractions (1/5, 1/3 and equivalent) • Use their knowledge of the vertical relationship to solve equivalent fractions problems • Explain the horizontal relationship between numerators and denominators across equivalent fractions (1/5, 1/3 and equivalent) • Explain the relationship within families of equivalent fractions • Use their knowledge of equivalent fractions to solve problems • Explain and represent how to divide 1 into different amounts of equal parts • Identify and describe patterns within the number system • Use their knowledge of common equivalents to compare fractions with decimals		

	• Practise recalling common fraction-decimal equivalents		

Maths Long Term Plan with Progression of Skills

Year 6

	Autumn			
Knowledge	6AS/MD–1 Quantify additive and multiplicative relationships 6AS/MD–2 Derive related calculations	Multiples of 1000	6NPV–1 Powers of 10 6NPV–2 Place value in numbers up to 10,000,000 6NPV–3 Numbers up to 10 million in the linear number system 6NPV–4 Reading scales with 2, 4, 5 or 10 intervals.	6G–1 Draw, compose and decompose shapes
	Unit 1 **Calculating using knowledge of structures**	**Unit 2** **Multiples of 1000**	**Unit 3** **Numbers up to 10, 000**	**Unit 4** **Draw, compose and decompose shapes**
Progression of Skills	• Explain how a combination of different parts can be equivalent to the same whole and can represent this in an expression • Identify structures within stories and use their knowledge of structures to create stories • Identify the missing part using their knowledge of part whole relationships and structures • Interpret and represent a part-whole problem	• Explain how ten thousand can be composed • Explain how one hundred thousand can be composed • Read and write numbers up to one million (1) • Read and write numbers up to one million (2) • Identify and place the position of five-digit multiple of one thousand numbers, on a marked, but unlabelled number line	• Use representations to identify and explain patterns in powers of 10 • Compose seven or eight-digit numbers using common intervals • Use their knowledge of the composition of up to eight-digit numbers to solve problems • Explain how to read numbers with up to seven digits efficiently • Recognise and create numbers that contain place-holding zeroes	• Draw, sketch and identify shapes using knowledge of shape properties. • Compose the same 3D shape from different 2D nets. • Decompose and rearrange 2D shapes so the area remains the same. The area of a compound shape is therefore equal to the total of the areas of the constituent parts • Decompose parallelograms and rearrange the parts to

with 3 addends using a model • Create stories to correctly match a structure presented in a model • Use their knowledge of additive structures to solve problems • Calculate the value of a missing part (1) • Calculate the value of a missing part (2) • Correctly represent an equation in a part-whole model • Explain how adjusting both addends affects the sum (2 digit numbers) • Explain how adjusting both addends affects the sum (decimal fractions) • Use the 'same sum' rule to balance equations • Use the 'same sum' rule to balance equations with an unknown • Explain how adjusting one addend affects the sum • Solve addition calculations mentally by using known facts • Solve calculations with missing addends • Explain how adjusting both the minuend and subtrahend by the same	• Identify and place the position of six-digit multiple of one thousand numbers, on a marked, but unlabelled number line • Count forwards and backwards in steps of powers of 10, from any multiple of 1,000 • Explain that 10,000 is composed of 5,000s 2,500s and 2,000s • Explain that 100,000 is composed of 50,000s 25,000s and 20,000s • Read scales in graphing and measures contexts, by using their knowledge of the composition of 10,000 and 100,000	• Determine the value of digits in numbers up to tens of millions • Explain how to compare up to eight-digit numbers • Use their knowledge of the composition of seven-digit numbers to solve problems • Add and subtract mentally without bridging a boundary (only one and more than one digit changes) • Add numbers whilst crossing the millions boundary • Subtract numbers whilst crossing the millions boundary (multiples of 100,000 and different powers of 10) • Explain how a seven-digit number can be composed and decomposed into parts • Identify and explain a pattern in a counting sequence • Identify numbers with up to seven digits on marked number lines • Estimate the value and position of numbers on unmarked or partially marked number lines • Explain why we round and how to round	form a rectangular parallelogram. • Compose two congruent triangles to form a parallelogram. • Investigate shapes with the same area to understand that they can have different perimeters. Shapes with the same perimeters can have different areas. • Use the relationship between area and side length, and perimeter and side length, to reason about measurements of shapes, including compound shapes.

	amount affects the difference • Explain how using the 'same difference' rule can make mental calculation easier (1) • Explain how using the 'same difference' rule can make written calculation easier (2) • Use the 'same difference' rule to balance equations • Explain how increasing or decreasing the minuend affects the difference (1) • Explain how increasing or decreasing the minuend affects the difference (2) • Solve subtraction calculations mentally by using known facts • Explain how adjusting the minuend can make mental calculation easier • Explain how adjusting the subtrahend affects the difference • Explain how increasing or decreasing the subtrahend affects the difference • Calculate the difference using their knowledge of an adjusted subtrahend (1)		seven-digit numbers to the nearest million • Explain how to round seven-digit numbers to the nearest hundred thousand • Explain how to round up to seven-digit numbers to any power of 10 in context • Identify and explain the most efficient way to solve a calculation • Add and subtract numbers with up to seven digits using column addition and subtraction • Explore and explain different written and mental strategies to solving addition and subtraction problems • Solve addition and subtraction problems and explain whether a mental or written strategy would be most efficient	

	• Calculate the difference using their knowledge of an adjusted subtrahend (2)		

	Spring		
Knowledge	6AS/MD–2 Derive related calculations	Area, Perimeter, position and direction.	6F–1 Simplify fractions 6F–2 Express fractions in a common denomination 6F–3 Compare fractions with different denominators
	Unit 5 **Multiplication and Division**	**Unit 6** **Area, perimeter, position and direction.**	**Unit 7** **Fractions and percentages**
Progression of Skills	• Explain why the product stays the same when one factor is doubled and the other is halved • Explain the effect on the product when scaling the factors by the same amount • Use their knowledge of equivalence when scaling factors to solve problems • Explain the effect on the quotient when scaling the dividend and divisor by 10 • Explain the effect on the quotient when scaling the dividend and divisor by the same amount • Explain how to multiply a three-digit by a two-digit number	• Explain how to calculate the area of a parallelogram • Explain how to calculate the area of a triangle • Explain why shapes can have the same perimeters but different areas • Explain why shapes can have the same areas but different perimeters • Describe the relationship between scale factors and side lengths of two shapes • Describe the relationship between scale factors and perimeters of two shapes • Describe positions on the full coordinate grid (all four quadrants)	• Explain how to write a fraction in its simplest form • Reason and apply their knowledge of how to write a fraction in its simplest form • Use their knowledge of how to write a fraction in its simplest form when solving addition and subtraction problems (1) • Use their knowledge of how to write a fraction in its simplest form when solving addition and subtraction problems (2) • Use their knowledge of how to write a fraction in its simplest form when solving multiplication problems

	- Explain how to accurately use the method of long multiplication to multiply two, two-digit numbers (no regrouping of ones to tens) - Explain how to accurately use the method of long multiplication (with regrouping of ones to tens) - Explain how to accurately use the method of long multiplication (with regrouping of ones to tens & tens to hundreds) - Explain how to accurately use the method of long multiplication to multiply a three-digit by a two-digit number - Explain how to accurately use the method of long multiplication to multiply a four-digit by a two-digit number - Explain how to use the associative law to multiply efficiently - Explain when it is more efficient to use long multiplication or factorising to multiply by two-digit numbers - Explain how to use accurately the methods of short and long division (two and three-digit number by multiples of 10) - Explain how to use accurately the method of long division with and without remainders (two-digit by two-digit numbers) - Use knowledge of long division to solve problems in a range of contexts (with and without remainders) - Explain how to use a ratio chart to solve efficiently: short division - Explain how to use a ratio chart to solve efficiently: long division	Draw and translate simple shapes on the coordinate plane and reflect them in the axes	- Explain, using an image, how to add related fractions (unit fractions) - Explain what is meant by 'related fractions' - Explain, without using an image, how to add related fractions - Use their knowledge of adding related fractions to solve problems in a range of contexts - Explain, with and without using an image, how to subtract related fractions (unit fractions) - Use their knowledge of adding and subtracting related fractions to solve problems in a range of contexts - Explain, with and without using an image, how to add and subtract related fractions (non-unit fractions) - Explain, with and without using an image, how to add and subtract related fractions (non-unit fractions that bridge the whole) - Use their fraction sense to fraction addition, subtraction and comparison - Explain how to add or subtract non-related fractions with different denominators - Use their knowledge of adding or subtracting non-related fractions with different denominators to solve problems in a range of contexts (non-related fractions) - Explain how to compare pairs of non-related fractions (converting to common denominators) - Explain how to compare pairs of non-related fractions (using fraction sense)

	• Explain how to use a ratio chart to solve efficiently: long division (II) • Explain how to use accurately the method of long division with and without remainders (three-digit by two-digit, four-digit by two-digit numbers) • Use long division with decimal remainders (1 decimal place) • Use long division with fraction remainders • Use long division with decimal remainders (2 decimal places) • Use knowledge of the best way to interpret and represent remainders from a range of division contexts • Explain how and why a product changes when a factor changes multiplicatively • Use their knowledge of multiplicative change to solve problems efficiently (multiplication) • Explain how and why a quotient changes when a dividend changes multiplicatively (increase or decrease) • Explain how and why a quotient changes when a divisor changes multiplicatively • Identify and explain the relationship between divisors and quotients		• Explain how to compare pairs of non-related fractions (using common numerators) • Explain which method for comparing non-related fractions is most efficient • Explain how to multiply two unit fractions • Explain how to multiply two non-unit fractions • Explain how to divide a unit fraction by a whole number • Explain how to divide a non-unit fraction by a whole number • Explain when and how to divide efficiently a fraction by a whole number • Explain what percent means • Explain how to represent a percentage in different ways • Explain how to convert percentages to decimals and fractions (with a denominator of 100) • Explain how to convert a percentage to a fraction (without denominator of 100) • Use their knowledge of fraction-decimal-percentage conversions to solve conversion problems in a range of contexts • Use their knowledge of calculating 50%, 10% and 1% of a number to solve problems in a range of contexts • Use their knowledge of calculating common percentages of a number to solve problems in a range of contexts • Use their knowledge of calculating any percentage of a number to

						• solve problems in a range of contexts • Explain how to solve problems where the percentage part and the size of the part is known and the whole is unknown • Explain how to solve problems where the known percentage part and the size of the part changes the whole

Summer						
Knowledge	**Unit 8 Statistics**	**6AS/MD–3 Solve problems involving ratio relationships**	**6AS/MD–2 Derive related calculations**	**6AS/MD–4 Solve problems with 2 unknowns**	**Unit 12 Order of Operations**	**Unit 13 Mean Average**
		Unit 9 Ratio and Proportion	**Unit 10 Calculating using knowledge of structures**	**Unit 11 Solving Problems with two unknowns**		
Progression Of Skills	Will be updated soon.	• Describe the relationship between two factors (in a ratio context) • Explain how to use multiplication and division to calculate unknown values (two variables) • Explain how to use	• Explain how to balance equations with addition expressions • Explain how to balance equations with subtraction expressions • Explain how to balance equations with addition	• Compare the structure of problems with one or two unknowns • Compare the structure of problems with two unknowns • Represent the structure of contextual problems	• Explain how addition and subtraction can help to solve multiplication problems efficiently (I) • Explain how addition and subtraction can help to solve multiplication	• Explain the relationship between the mean and sharing equally • Explain how to calculate the mean of a set of data • Explain how the mean changes when the total quantity

			multiplication and division to calculate unknown values (three variables) • Explain how to use a ratio grid to calculate unknown values • Explain how to use multiplication to solve correspondence problems • Explain how and why scaling is used to make and interpret maps • Use their knowledge of multiplication and division to solve scaling problems in a range of contexts • Identify and describe the relationship between two	or subtraction expressions • Explain how to balance equations with addition and subtraction expressions • Use their knowledge of balancing equations to solve problems	with two unknowns • Represent a problem with two unknowns using a bar model • Explain why sometimes there is only one solution to a sum and difference problem • Explain why sometimes there is only one solution to a sum and multiple problem • Explain the values a part-whole model could represent • Use a bar model to visualise how to solve a problem with two unknowns • Use diagrams to explain how to solve a spatial problem	problems efficiently (II) • Explain how the distributive law applies to multiplication expressions with a common factor (addition) • Use their knowledge of the distributive law to solve equations including multiplication, addition and subtraction • Explain how addition and subtraction can help to solve division problems efficiently • Explain how the distributive law applies to division expressions with a common	or number of values changes • Explain how to calculate the mean when one of the values in the data set is zero or missing • Explain how to use the mean to make comparisons between two sets of information • Explain when the mean is not an appropriate representation of a set of data.

		shapes using scale factors (squares) • Identify and describe the relationship between two shapes using scale factors and ratios (regular polygons) • Identify and describe the relationship between two shapes using scale factors and ratios (irregular polygons)		• Explain how to represent an equation with a bar model • Solve problems with two unknowns in a range of contexts • Systematically solve problems with two unknowns using 'trial and improvement' (one and several solutions) • Explain how I know I have found all possible solutions to problems with two unknowns • Explain how to balance an equation with two unknowns • Systematically solve problems with two unknowns	divisor (addition) • Explain how the distributive law applies to division expressions with a common divisor (subtraction) • Use their knowledge of the distributive law to solve equations including division, addition and subtraction.	

				using 'trial and improvement' (one, several and infinite solutions).		