Year 3 Long Term Planning Maths

Autumn 1	
Spine 1: Number, addition and subtraction	**Knowledge**
Wk 1 & 2 — **1.17 Composition and calculation: 100 and bridging 100** Explores the composition of 100; uses addition facts to calculate complements of 100 and uses known strategies to count and calculate across the hundreds boundary.	• Know there are ten tens in 100; there are 100 ones in 100. • Know that 100 can also be composed multiplicatively from 50, 25 or 20, units that are commonly used in graphing and measures. • Know that known addition facts can be used to calculate complements to 100. • Know that known strategies for addition and subtraction across the tens boundary can be combined with unitising to count and calculate across the hundreds boundary in multiples of ten. • Know that knowledge of two-digit numbers can be extended to count and calculate across the hundreds boundary from/to any two-digit number in ones or tens.
Wk 3 - 6 — **1.18 Composition and calculation: three-digit numbers** Explores the composition of three-digit numbers; uses place-value and partitioning knowledge to support additive calculation, and extends known additive strategies to three-digit numbers.	• Know that three-digit numbers can be composed additively from hundreds, tens and ones; this structure can be used to support additive calculation. • Know that each number on the 0 to 1,000 number line has a unique position. • Know that the smallest three-digit number is 100, and the largest three-digit number is 999; the relative size of two three-digit numbers can be determined by examining the hundreds digits, then the tens digits, and then the ones digits, as necessary. • Know that three-digit multiples of ten can be expressed multiplicatively and additively, in terms of tens or hundreds. • Know that known facts and strategies for addition and subtraction within and across ten, and within and across 100, can be used to support additive calculation within 1,000. • Know that familiar counting sequences can be extended up to 1,000.
7 — **Right Angles**	• Pupils rotate two lines around a fixed point to make different sized angles • Pupils draw triangles and quadrilaterals and identify vertices • Pupils learn that a right angle is a 'square corner' and identify them in the environment • Pupils learn that a rectangle is a 4-sided polygon with four right angles • Pupils learn that a square is a rectangle in which the four sides are equal length • Pupils cut rectangles and squares on the diagonal and investigate the shapes they make • Pupils join four right angles at a point using different right-angled polygons • Pupils investigate and draw other polygons with right angles
HALF TERM	

Autumn 2	
Spine 1: Number, addition and subtraction	**Knowledge**
Wk 1 -3	**1.19 Securing mental strategies: calculation up to 999** Explores the composition of three-digit numbers; uses place-value and partitioning knowledge to support additive calculation, and extends known additive strategies to three-digit numbers.	• Know that known partitioning strategies for adding two-digit numbers within 100 can be extended to the mental addition of two-digit numbers that bridge 100, and addition of three-digit numbers. • Know that transforming addition calculations into equivalent calculations can support efficient mental strategies. • Know that subtraction calculations can be solved using a 'finding the difference' strategy; this can be thought of as 'adding on' to find a missing part. • Know that the order of addition and subtraction steps in a multi-step calculation can be chosen or manipulated such as to simplify the arithmetic.
Spine 2: Multiplication and Division	**Knowledge**
4 - 6	**2.7 Times tables: 2, 4 and 8, and the relationship between them** Builds up the four/eight times table; using different structures/interpretations of multiplication and division, solves problems related to these tables; explores connections between the two-, four- and eight-times tables.	• Know that counting in multiples of four can be represented by the four times table. Adjacent multiples of four have a difference of four. Facts from the four times table can be used to solve multiplication and division problems with different structures. • Know that products in the four times table are double the products in the two times table; products in the two times table are half of the products in the four times table. • Know that counting in multiples of eight can be represented by the eight times table. Adjacent multiples of eight have a difference of eight. Facts from the eight times table can be used to solve multiplication and division problems with different structures. • Know that products in the eight times table are double the products in the four times table; products in the four times table are half of the products in the eight times table. Products that are in the two, four and eight times tables share the same factors. • Know that divisibility rules can be used to find out whether a given number is divisible (to give a whole number) by two, four or eight.
Spine 1: Number, addition and subtraction	**Knowledge**
Wk 7 - 8	**1.20 Algorithms: column addition** Introduces children to the column algorithm for addition calculations, applying the algorithm to a variety of aggregation and augmentation contexts for two-digit and three-digit numbers; explores regrouping (column total is ten or greater) in detail.	• Know that any numbers can be added together using an algorithm called *'column addition'*. • Know that the digits of the addends must be aligned correctly before the algorithm is applied. • Know that in column addition, the digits of the addends are added working from the least significant digit (on the right) to the most significant digit (on the left). • Know that if any column sums to ten or greater, we must *'regroup'*. • Know that the numbers within each column should be added in the most efficient order.

Year 3 Long Term Planning Maths

Spring 1	
Spine 2: Multiplication and Division	**Knowledge**
Wk 1 -3	**2.8 Times tables: 3, 6 and 9, and the relationship between them** Builds up the three/six/nine times table; using different structures/interpretations of multiplication and division, solves problems related to these tables; explores connections between the three, six and nine times tables.	• Know that counting in multiples of three can be represented by the three times table. Adjacent multiples of three have a difference of three. Facts from the three times table can be used to solve multiplication and division problems with different structures. • Know that counting in multiples of six can be represented by the six times table. Adjacent multiples of six have a difference of six. Facts from the six times table can be used to solve multiplication and division problems with different structures. • Know that products in the six times table are double the products in the three times table; products in the three times table are half of the products in the six times table. • Know that counting in multiples of nine can be represented by the nine times table. Adjacent multiples of nine have a difference of nine. Facts from the nine times table can be used to solve multiplication and division problems with different structures. • Know that products in the nine times table are triple the products in the three times table. Products that are in the three, six and nine times tables share the same factors. • Know that divisibility rules can be used to find out whether a given number is divisible (to give a whole number) by three, six or nine.
Spine 1: Number, addition and subtraction	**Knowledge**
Wk Week 4 -5	**1.21 Algorithms: column subtraction** Introduces children to the column algorithm for subtraction calculations, applying the algorithm to a variety of partitioning, reduction and difference contexts for two-digit and three-digit numbers; explores exchange (insufficient quantity to subtract from in a column) in detail.	• Know that one number can be subtracted from another using an algorithm called *'column subtraction'*; the digits of the minuend and subtrahend must be aligned correctly; the algorithm is applied working from the least significant digit (on the right) to the most significant digit (on the left). • Know that if there is an insufficient number of any unit to subtract from in a given column, we must exchange from the column to the left.
6	**Time**	• tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • 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 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].
HALF TERM	

Information based on the NCETM Teaching Sequence.

Spring 2	
Spine 3: Fractions	**Knowledge**
Wk 1 -2	**3.1 Preparing for fractions: the part-whole relationship** Identifies parts and wholes of areas, lengths and sets. Identifies equal and unequal parts; makes judgements about the relative size of a part to a whole. Finds the whole when the size of a part and number of equal parts is known.	• Know that Any element of a whole is a part; if a whole is defined, then a part of this whole can be defined. • Know that a whole can be divided into equal parts or unequal parts. • Know that the relative size of parts can be compared. • Know that if one of the equal parts and the number of equal parts are known, these can be used to construct the whole.
Wk 3 -5	**3.2 Unit fractions: identifying, representing and comparing** Learns to name and write unit fractions. Recognises and shows unit fractions of areas, lengths and quantities. Relates numerators and denominators to parts and wholes; explore how the greater the denominators, the smaller the unit fraction.	• Know that a whole can be divided into any number of equal parts. • Know that fraction notation can be used to describe an equal part of the whole. One equal part of a whole is called a unit fraction. Each unit fraction has a name. • Know that fractional notation can be applied to represent one part of a whole in different contexts. • Know that Equal parts do not need to look the same. • Know that unit fractions can be compared and ordered by looking at the denominator. The greater the denominator, the smaller the fraction. • Know that if the size of a unit fraction is known, the size of the whole can be worked out by repeated addition of that unit fraction.

Summer 1	
Spine 3: Fractions	**Knowledge**
Wk 6 - 8	**3.3 Non-unit fractions: identifying, representing and comparing** Learns to name and write non-unit fractions, recognises them as multiples of unit fractions. Learns that fractions are numbers that can be positioned on a number line. Compares and orders fractions with the same denominator or same numerator.	• Know that all non-unit fractions are made up of more than one of the same unit fraction. • Know that non-unit fractions are written using the same convention as unit fractions. A non-unit fraction has a numerator greater than one. • Know that when the numerator and the denominator in a fraction are the same, the fraction is equivalent to one whole. • Know that all unit and non-unit fractions are numbers that can be placed on a number line. • Know that repeated addition of a unit fraction results in a non-unit fraction. • Know that when the numerator and the denominator are the same, the value of the fraction is one. • Know that non-unit fractions with the same denominator can be compared. If the denominators are the same, then the greater the numerator, the greater the fraction. • Know that non-unit fractions with the same numerator can be compared. If the numerators are the same, then the greater the denominator, the smaller the fraction.
HALF TERM	

Summer 2	
Spine 3: Fractions	**Knowledge**
Wk 1 - 2	**3.4 Adding and subtracting within one whole** Learns to name and write unit fractions. Recognises and shows unit fractions of areas, lengths and quantities. Relates numerators and denominators to parts and wholes; explores how the greater the denominators, the smaller the unit fraction.	• Know that when adding fractions with the same denominators, just add the numerators. • Know that when subtracting fractions with the same denominators, just subtract the numerators. • Know that when subtracting fractions with the same denominators, just subtract the numerators. • Know that to subtract from one whole, first convert the whole to a fraction where the denominator and numerator are the same.
Spine 2: Multiplication and Division	**Knowledge**
Wk 3 - 4	**2.9 Times tables: 7 and patterns within/across times tables** Builds up the seven times table and solves associated multiplication and division problems; explores times table patterns including generalising about the product in terms of odd/even factors, reviewing divisibility rules, and exploring square numbers.	• Know that counting in multiples of seven can be represented by the seven times table. Adjacent multiples of seven have a difference of seven. Facts from the seven times table can be used to solve multiplication and division problems with different structures. • Know that when both factors are odd numbers, the product is an odd number; when one factor is an odd number and the other is an even number, the product is an even number; when both factors are even numbers, the product is an even number. • Know that when both factors have the same value, the product is called a square number; square numbers can be represented by objects arranged in square arrays. • Know that divisibility rules can be used to find out whether a given number is divisible (to give a whole number) by particular divisors.
5 -6	**Parallel and perpendicular side**	• Pupils make compound shapes by joining two polygons in different ways (same parts, different whole) • Pupils investigate different ways of composing and decomposing a polygon (same whole, different parts) • Pupils draw polygons on isometric paper • Pupils use geostrips to investigate quadrilaterals with and without parallel and perpendicular sides • Pupils make and draw compound shapes with and without parallel and perpendicular sides • Pupils learn to extend lines and sides to identify parallel and perpendicular lines • Pupils make and draw triangles on circular geoboards • Pupils make and draw quadrilaterals on circular geoboards • Pupils draw shapes with given properties on a range of geometric grids
7	**Statistics**	• learn to interpret, construct and present data. • present data using bar charts, pictograms and tables • interpret data using bar charts, pictograms and tables • ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • solve one-step and two-step questions (e.g. 'How many more?' and 'How many fewer?') using information presented in scaled bar charts and pictograms and tables