Billingshurst Primary School

Long Term Maths Plan

Year: 3

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
AUTUMN 1	**Adding and subtracting across 10** RtP: • 2AS-1 Page 57 • 3NF-1 Page 98 SPINES: 1.11 Addition and subtraction: bridging 10 Small Steps: **1 Pupils add 3 addends** **2 Pupils use a 'First.. Then… Now" story to add 3 addends** **3 Pupils explain that addends can be added in any order** **4 Pupils add 3 addends efficiently** **5 Pupils add 3 addends efficiently by finding two addends that total 10** **6 Pupils add two numbers that bridge through 10** **7 Pupils subtract two numbers that bridge through 10** NC: Review of Y2 content Y2: 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.		**Numbers to 1,000 / Measures** RtP: • 3NPV-1 Page 86 • 3NPV-2 Page 88 • 3NPV-3 Page 91 • 3NPV-4 Page 95 • 3NF-3 Page 103 • 3AS-1 Page 106 Prior Learning RtP: • 2NPV-1 Page 51 • 2NPV-2 Page 53 SPINES: 1.17 Composition and Calculation: 100 and bridging 100 1.18 Composition and calculation: three-digit numbers Small Steps: **1 Pupils explain that 100 is composed of ten tens and one hundred ones** **2 Pupils explain that 100 is composed of 50s 25s and 20s** **3 Pupils use known facts to find multiples of ten that compose 100** **4 Pupils will use known facts to find a two-digit number and a one- or two-digit number that compose 100** **5 Pupils use known facts to find correct complements to 100** **6 Pupils use known facts to find complements to 100 accurately and efficiently** 7 Pupils represent a three-digit number which is a multiple of ten using their numerals and names **8 Pupils use place value knowledge to write addition and subtraction equations** 9 Pupils bridge 100 by adding or subtracting in multiples of ten 10 Pupils use knowledge of addition and subtraction of multiples of ten bridging the hundreds boundary to solve problems 11 Pupils count across and on from 100 12 Pupils represent a three-digit number up to 199 in different ways 13 Pupils bridge 100 by adding or subtracting a single-digit number 14 Pupils find ten more or ten less than a given number 15 Pupils cross the hundreds boundary when adding and subtracting any two-digit multiple of ten 16 Pupils become familiar with a metre ruler (marked and unmarked intervals, 1 x 1m, 10 x 10cm, 100 x 1cm) 17 Pupils measure length and height from zero using whole metres and cm 18 Pupils measure length and height from zero using cm 19 Pupils convert between m and cm (include whole m to cm, cm to whole m and cm and vice versa) 20 Pupils become familiar with a ruler in relation to cm and mm (marked and unmarked intervals, knowing 1cm = 10mm) 21 Pupils measure length from zero using mm / whole cm and mm 22 Pupils convert between cm and mm (include whole cm to mm, mm to whole cm and mm and vice versa) 23 Pupils estimate a length/height, measure a length/height and record in a table **24 Pupils use knowledge of place value to represent a three-digit number in different ways** NC: Count from 0 in multiples of ~~4, 8~~, 50 and 100. Find 10 or 100 more or less than a given number. Recognise the place value of each digit in a three-digit number (hundreds, tens and ones). Compare and order numbers up to 1000. Identify, represent and estimate numbers using different representations. Read, and write numbers to 1000 in numerals and words. Solve problems involving these ideas. Measure, compare, add and subtract: lengths (m/cm/mm), mass (kg/g) and volume/capacity (l/ml).			

AUTUMN 2

Numbers to 1,000 / Measures continued

RtP:

- 3NPV-1 Page 86
- 3NPV-2 Page 88
- 3NPV-3 Page 91
- 3NPV-4 Page 95
- 3NF-3 Page 103
- 3AS-1 Page 106

SPINES:

1.18 Composition and calculation: three-digit numbers

Small Steps:

24 **Pupils use knowledge of place value to represent a three-digit number in different ways**
25 **Pupils represent a three-digit number up to 1000 in different ways**
26 Pupils use knowledge of the additive relationship to solve problems
27 **Pupils count in hundreds and tens on a number line**
28 **Pupils identify the previous, next and nearest multiple of 100 on a number line for a three-digit multiples of ten**
29 Pupils position three-digit numbers on number lines
30 Pupils estimate the position of three-digit numbers on unmarked number lines
31 Pupils compare one-, two- and three-digit numbers
32 **Pupils compare two three-digit numbers**
33 **Pupils order sets of three-digit numbers**
34 Pupils use known facts to add or subtract multiples of 100 within 1000
35 Pupils write a three-digit multiple of 10 as a multiplication equation
36 **Pupils partition three-digit numbers in different ways**
37 **Pupils use known facts to solve problems involving partitioning numbers**
38 Pupils use known facts to add or subtract to/from multiples of 100 in tens
39 Pupils use known facts to add or subtract to/from multiples of 100 in ones
40 Pupils add/subtract multiples of ten bridging 100
41 Pupils add/subtract to/from a three-digit number in ones bridging 100
42 Pupils find 10 more or less across any hundreds boundary
43 Pupils use knowledge of adding or subtracting to/from three-digit numbers to solve problems
44 Pupils count forwards and backwards in multiples of 2, 20, 5, 50 and 25
45 Pupils use knowledge of counting in multiples of 2, 20, 5, 50 and 25 to solve problems
46 Pupils become familiar with different weighing scales up to 1kg (intervals of 100g, 200g, 250g and 500g)
47 Pupils become familiar with the tools to measure volume and capacity up to 1 litre (intervals of 100ml, 200ml, 250ml and 500ml)
48 Pupils measure mass from zero up to 1kg using grams
49 Pupils measure mass from zero above 1kg using whole kg and grams
50 Pupils measure volume from zero up to 1 litre using ml
51 Pupils measure volume from zero above 1 litre using whole litres and ml
52 Pupils estimate mass in grams and volume in ml
53 Pupils estimate a mass/volume, measure a mass/volume and record in a table

NC:

Count from 0 in multiples of ~~4, 8~~, 50 and 100.
Find 10 or 100 more or less than a given number.
Recognise the place value of each digit in a three-digit number (hundreds, tens and ones).
Compare and order numbers up to 1000.
Identify, represent and estimate numbers using different representations.
Read, and write numbers to 1000 in numerals and words.
Solve problems involving these ideas.
Measure, compare, add and subtract: lengths (m/cm/mm), mass (kg/g) and volume/capacity (l/ml).
Mentally add and subtract a 3-digit number and ones.
Mentally add and subtract a 3-digit number and tens.
Mentally add and subtract a 3-digit number and hundreds.

Right Angles

RtP:

- 3G-1 Page 134

Small Steps:

1 Pupils rotate two lines around a fixed point to make different sized angles
2 Pupils draw triangles and quadrilaterals and identify vertices
3 Pupils learn that a right angle is a 'square corner' and identify them in the environment
4 Pupils learn that a rectangle is a 4-sided polygon with four right angles
5 Pupils learn that a square is a rectangle in which the four sides are equal length
6 Pupils cut rectangles and squares on the diagonal and investigate the shapes they make
7 Pupils join four right angles at a point using different right-angled polygons
8 Pupils investigate and draw other polygons with right angles

Refine small steps and supplement with other resources, e.g. White Rose and Maths no Problem.

NC:

Recognise angles as a property of shape or 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 complete a turn; identify whether angles are greater than or less than a right angle.
Draw 2-D shapes

Manipulating the additive relationship and securing mental calculation

(see next column)

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
SPRING 1	**Manipulating the additive relationship and securing mental calculation** RtP: • 3AS-3 Page 113 SPINES: 1.19 Securing Mental Strategies: calculation up to 999 Small Steps: 1 Pupils add 3 addends 2 Pupils add two 3-digit numbers using adjusting 3 Pupils add a pair of 2- or 3-digit numbers using redistribution 4 Pupils subtract a pair of 2- or 3-digit numbers, bridging a multiple of 10, using partitioning 5 Pupils subtract a pair of 2-digit numbers, crossing a ten or hundreds boundary, by finding the difference between them 6 Pupils subtract a pair of three-digit multiples of 10 within 1000 by finding the difference between them 7 Pupils evaluate the efficiency of strategies for subtracting from a 3-digit number 8 Pupils explain why the order of addition and subtraction steps in a multi-step problem can be chosen 9 Pupils accurately and efficiently solve multi-step addition and subtraction problems 10 Pupils understand and can explain that both addition and subtraction equations can be used to describe the same additive relationship (2-digit numbers) 11 Pupils understand and can explain that both addition and subtraction equations can be used to describe the same additive relationship (3-digit numbers) 12 Pupils use knowledge of the additive relationship to rearrange equations 13 Pupils use knowledge of the additive relationship to identify what is known and what is unknown in an equation 14 Pupils use knowledge of the additive relationship to rearrange equations before solving 15. Ensure coverage of estimating the answers to calculations NC: Mentally add and subtract a 3-digit number and ones. Mentally add and subtract a 3-digit number and tens. Mentally add and subtract a 3-digit number and hundreds. Solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction. Estimate the answer to a calculation. Y4: Solve 2-step problems by deciding which operation to use and why.			**Column addition** RtP: • 3AS-2 Page 109 SPINES: 1.20 Algorithms: column addition Small Steps: 1 Pupils identify the addends and the sum in column addition 2 Pupils use their knowledge of place value to correctly lay out column addition 3 Pupils add a pair of 2-digit numbers using column addition 4 Pupils add using column addition 5 Pupils use their knowledge of column addition to solve problems 6 Pupils add a pair of 2-digit numbers using column addition with regrouping in the ones column 7 Pupils add a pair of 2-digit numbers using column addition with regrouping in the tens column 8 Pupils add using column addition with regrouping 9 Pupils use known facts and strategies to accurately and efficiently calculate and check column addition 10 Pupils use their knowledge of column addition to solve problems NC: Add numbers with up to 3-digits, using the column method with resources to regroup units, tens and hundreds. Use inverse operations to check answers. Solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction. Estimate the answer to a calculation.		

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
SPRING 2	**Multiplication: 2, 4, 8 times table** RtP: • 3NF-2 Page 100 • 3MD-1 Page 117 • 3NF-3 Page 103 Prior Learning RtP: • 1NF-2 Page 26 SPINES: 2.7 Times tables: 2, 4 and 8 and the relationship between them Small Steps: 1 Pupils represent counting in fours as the 4 times table 2 Pupils use knowledge of the 4 times table to solve problems 3 Pupils explain the relationship between adjacent multiples of four 4 Pupils explain the relationship between multiples of 2 and multiples of 4 5 Pupils use knowledge of the relationships between the 2 and 4 times tables to solve problems 6 Pupils represent counting in eights as the 8 times table 7 Pupils explain the relationship between adjacent multiples of eight 8 Pupils explain the relationship between multiples of 4 and multiples of 8 9 Pupils use knowledge of the relationships between the 4 and 8 times tables to solve problems 10 Pupils explain the relationship between multiples of 2, 4 and multiples of 8 11 Pupils use knowledge of the relationships between the 2, 4 and 8 times tables to solve problems 12 Pupils use knowledge of the divisibility rules for divisors of 2 and 4 to solve problems 13 Pupils use knowledge of the divisibility rules for divisors of 8 to solve problems 14 Pupils scale known multiplication facts by 10 15 Pupils scale division derived from multiplication facts by 10 NC: Count from 0 in multiples of 4, 8, ~~50 and 100~~. Recall and use multiplication and division facts for the ~~3~~, 4 and 8 multiplication tables. 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. 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.			**Column subtraction and Money** RtP: • 3AS-2 Page 109 SPINES: 1.21 Algorithms: column subtraction Small Steps: 1 Pupils identify the minuend and the subtrahend in column subtraction 2 Pupils explain the column subtraction algorithm 3 Pupils subtract from a 2-digit number using column subtraction with exchanging from tens to ones 4 Pupils subtract from a 3-digit number using column subtraction with exchanging from hundreds to tens (1) 5 Pupils subtract from a 3-digit number using column subtraction with exchanging from hundreds to tens (2) 6 Pupils evaluate the efficiency of strategies for subtraction 7 Use inverse operations to check calculations. 8. Count money (in pence) 9. Count money (in pounds) 10. Identify the value of pounds and pence using different representations 11. Convert pounds and pence 12. Add money 13. Subtract money 14. Give change When exploring money: apply the same written and mental calculation strategies explored so far, e.g. bridging, complements to 100p/£1 etc, column methods. NC: Subtract numbers with up to 3-digits, using the column method with resources to regroup units, tens and hundreds. Use inverse operations to check answers. Solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction. Add and subtract amounts of money to give change, using both £ and in practical contexts		

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
SUMMER 1	**Unit fractions** RtP: • 3F-1 Page 120 • 3F-2 Page 124 SPINES: 3.1 Preparing for fractions: the part whole relationship 3.2 Unit fractions: identifying, representing and comparing Small Steps: 1 Pupils identify a whole and the parts that make it up 2 Pupils explain why a part can only be defined when in relation to a whole 3 Pupils identify the number of equal or unequal parts in a whole 4 Pupils identify equal parts when they do not look the same (i) 5 Pupils explain the size of the part in relation to the whole 6 Pupils construct a whole when given a part and the number of parts 7 Pupils identify how many equal parts a whole has been divided into 8 Pupils use fraction notation to describe an equal part of the whole 9 Pupils represent a unit fractions in different ways 10 Pupils identify parts and wholes in different contexts (i) 11 Pupils identify parts and wholes in different contexts (ii) 12 Pupils identify equal parts when they do not look the same (ii) 13 Pupils compare and order unit fractions by looking at the denominator 14 Pupils 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 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 NC: 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. Compare and order unit fractions~~, and fractions with the same denominator~~.				**Non-unit fractions** RtP: • 3F-1 Page 120 • 3F-3 Page 127 • 3F-4 Page 131 SPINES: Non-unit fractions: identifying, representing and comparing 3.4 Adding and subtracting within one whole Small Steps: 1 Pupils explain that non-unit fractions are composed of more than one unit fraction 2 Pupils identify non-unit fractions 3 Pupils identify the number of equal or unequal parts in a whole 4 Pupils use knowledge of non-unit fractions to solve problems 5 Pupils use knowledge of unit fractions to find one whole 6 Pupils place fractions between 0 and 1 on a numberline 7 Pupils use repeated addition of a unit fraction to form a non-unit fraction 8 Pupils use repeated addition of a unit fraction to form 1 9 Pupils compare using knowledge of non-unit fractions equivalent to one 10 Pupils compare non-unit fractions with the same denominator 11 Pupils compare unit fractions 12 Pupils compare fractions with the same numerator 13 Pupils add up fractions with the same denominator 14 Pupils add on fractions with the same denominator 15 Pupils add fractions with the same denominator using a generalised rule 16 Pupils subtract fractions with the same denominator 17 Pupils identify the whole, the number of equal parts and the size of each part as a unit fraction 18 Pupils explain that addition and subtraction of fractions are inverse operations 19 Pupils subtract fractions from a whole by converting the whole to a fraction 20 Pupils represent a whole as a fraction in different ways and use this to solve problems involving subtraction NC: 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. Add and subtract fractions with the same denominator up to one whole, e.g. 5/7+1/7 = 6/7. Recognise and show, using diagrams, equivalent fractions with small denominators. Solve fraction problems that involve all of the above. Use inverse operations to check answers.	

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
SUMMER 2	**Non-unit fractions** continued (See previous column)		**Parallel and perpendicular sides in polygons** RtP: • 3G-2 Page 137 Small Steps: 1 Pupils make compound shapes by joining two polygons in different ways (same parts, different whole) 2 Pupils investigate different ways of composing and decomposing a polygon (same whole, different parts) 3 Pupils draw polygons on isometric paper 4 Pupils use geostrips to investigate quadrilaterals with and without parallel and perpendicular sides 5 Pupils make and draw compound shapes with and without parallel and perpendicular sides 6 Pupils learn to extend lines and sides to identify parallel and perpendicular lines 7 Pupils make and draw triangles on circular geoboards 8 Pupils make and draw quadrilaterals on circular geoboards 9 Pupils draw shapes with given properties on a range of geometric grids 10. Recognise and describe 3D shapes (White Rose) 11. Make 3D shapes (White Rose) Refine small steps and supplement with other resources, e.g. White Rose and Maths no Problem. NC: Draw 2-D shapes and make 3-D shapes using modelling materials. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. Recognise 3-D shapes in different orientations and describe them			**Time** No specific NCETM Spine/RtP Resources for this Unit. NCETM guidance: https://www.ncetm.org.uk/classroom-resources/cp-year-3-unit-11-time/ Small Steps (Taken from White Rose): 1. O'clock and half past 2. Quarter past and quarter to 3. Months and years 4. Hours in a day 5. Telling the time to 5 minutes 6. Telling the time to the minute 7. Using a.m. and p.m 8. 24 hour clock 9. Finding the duration 10. Comparing durations 11. Start and end times 12. Measuring time in seconds Refine small steps and supplement with other resources, e.g. Maths no Problem. NC: 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 or events (for example to calculate the time taken by particular events or tasks).	

Cross Curricular opportunities:

Using Roman Numerals: using Roman numerals from I to XII
Could be for the daily date.

Statistics
NC: Interpret and present data using bar charts, pictograms and tables
Solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.