Billingshurst Primary School

Long Term Maths Plan

Year: 2

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
AUTUMN 1	**Numbers 10 to 100 / Place Value** RtP: • 2NPV-1 Page 51 • 2NPV-2 Page 53 Prior Learning RtP: • 1NPV-2 Page 20 SPINES: 1.8 Composition of numbers: multiples of 10 up to 100 1.9 Composition of numbers: 20-100 Small Steps: 1 Pupils explain that one ten is equivalent to ten ones 2 Pupils represent multiples of ten using their numerals 3 Pupils represent multiples of ten using their numerals and names 4 Pupils represent multiples of ten in an expression or an equation 5 Pupils estimate the position of multiples of ten on a 0-100 number line 6 Pupils explain what happens when you add and subtract ten to a multiple of ten 7 Pupils use knowledge of facts and unitising to add and subtract multiples of ten 8 Pupils add and subtract multiples of ten 9 Pupils explore the counting sequence for counting to 100 and beyond 10 Pupils count a large group of objects by counting groups of tens and the extra ones 11 Pupils count a large group of objects by using knowledge of unitising by counting tens and ones 12 Pupils represent a number from 20-99 in different ways 13 Pupils explain and mark the position of numbers 20-99 on a number line 14 Pupils explain that numbers 20-99 can be represented as a length 15 Pupils compare two, two-digit numbers 16 Pupils partition a two-digit number into tens and ones 17 Pupils add two, two-digit numbers by partitioning into tens and ones NC: Count in steps of ~~2, 3, and 5 from 1, and in~~ tens from any number, forward and backward. Recognise the place value of each digit in a two-digit number (tens, ones) Identify, represent and estimate numbers using different representations, including the number line. Compare and order numbers from 0 up to 100; use <, > and = signs. Read and write numbers to at least 100 in numerals and in words. Use place value and number facts to solve problems.				**Calculations within 20** RtP: • 2AS-1 Page 57 • 2AS-2 Page 59 Prior Learning RtP: The year 1 conceptual prerequisites are: Learn and use number bonds to 10, for example: 8 + ? = 10 Partition numbers within 10, for example: 5 = 2 + 3 Solve missing addend problems within 10, for example: 4 + □ = 10 SPINES: 1.11 Addition and subtraction: bridging 10 1.12 Addition and subtraction: subtraction as difference Small Steps: 1 Pupils add three 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 8 Pupils compare numbers and describe how many more or less there are in each set 9 Pupils calculate the difference 10 Pupils use knowledge of subtraction to solve problems in a range of contexts 11 Pupils explain what the difference is between consecutive numbers 12 Pupils calculate difference when information is presented in a pictogram 13 Pupils calculate difference when information is presented in a bar chart Ensure opportunities are built in to: Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. NC: 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. Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. Compare and order numbers from 0 up to 100; use <, > and = signs. Ask and answer questions about totalling and comparing categorical data. Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures. Solve problems with addition and subtraction: applying their increasing knowledge of mental and written methods. Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.		

AUTUMN 2

Fluently add and subtract within 10

RtP:

- 2NF-1 Page 55

Prior Learning RtP:

- 1NF-1 Page 24

SPINES:

1.7 Addition and Subtraction: strategies within ten

Small Steps:

1	Pupils demonstrate their fluency of addition and subtraction within ten
2	Pupils practise addition and subtraction strategies as required

Use this as an assessment and consolidation opportunity.

NC:

Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.

Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.

Solve problems with addition and subtraction: applying their increasing knowledge of mental and written methods.

Addition and subtraction of two-digit numbers (Part 1)

RtP:

- 2AS-3 Page 62

Prior Learning RtP:

Add and subtract within 10, for example: 6 + 3 =9; 6 – 2 = 4;

Know that a multiple of 10 is made up from a number of tens, for example, 50 is 5 tens.

SPINES:

1.13 Addition and Subtraction: two-digit and single-digit numbers

1.14 Addition and Subtraction: two-digit numbers and multiples of ten

Small Steps:

1	Pupils add and subtract one to and from a two-digit number
2	Pupils add and subtract one to and from a two-digit number that crosses a tens boundary
3	Pupils add and subtract one from any two-digit number
4	Pupils use number facts to add a single-digit number to a two-digit number
5	Pupils use number facts to subtract a single-digit number from a two-digit number
6	Pupils use a part-part-whole model to represent addition and subtraction
7	Pupils use number bonds to ten to add a single-digit number to a two-digit number
8	Pupils use number bonds to ten to subtract a single-digit number from a two-digit number
9	Pupils use knowledge of 'make ten' to add a one-digit number to a two-digit number
10	Pupils use knowledge of 'make ten' to subtract a multiple of ten or a single-digit from a two-digit number
11	Pupils solve problems using knowledge of addition and subtraction
12	Pupils find ten more or ten less than a two-digit number (1)
13	Pupils find ten more or ten less than a two-digit number (2)
14	Pupils add and subtract ten to/from a two-digit number
15	Pupils explain the patterns when adding and subtracting ten
16	Pupils use knowledge of adding and subtracting ten to solve problems
17	Pupils use number facts to add a multiple of ten to a two-digit number
18	Pupils use number facts to subtract a multiple of ten from a two-digit number
19	Pupils partition a two-digit number into parts in different ways (two and three parts)
20	Pupils use knowledge of adding and subtracting multiples of ten to solve problems

Ensure opportunities are built in to: Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

NC:

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.~~

Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures.

Solve problems with addition and subtraction: applying their increasing knowledge of mental and written methods.

Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.

Multiplication: Introduction to multiplication

RtP:

- 2MD-1 Page 69

SPINES:

2.2 Structures: multiplication representing equal groups

2.3 Times tables: groups of 2 and commutativity (part 1)

2.4 Times tables: groups of 10 and of 5, and factors of 0 and 1

2.5 Commutativity (part 2), doubling and halving

Small Steps:

1	Pupils explain that objects can be grouped in different ways
2	Pupils describe how objects have been grouped
3	Pupils represent equal groups as repeated addition
4	Pupils represent equal groups as repeated addition and multiplication
5	Pupils represent equal groups as multiplication
6	Pupils explain and represent multiplication when a group contains zero or one items
7	Pupils identify and explain each part of a multiplication equation
8	Pupils use knowledge of multiplication to calculate the product
9	Pupils represent the two times table in different ways
10	Pupils use knowledge of the two times table to solve problems
11	Pupils explain the relationship between adjacent multiples of two
12	Pupils explain that factor pairs can be written in any order
13	Pupils represent counting in tens as the ten times table
14	Pupils represent the ten times table in different ways
15	Pupils explain the relationship between adjacent multiples of ten
16	Pupils represent counting in fives as the five times table
17	Pupils represent the five times table in different ways
18	Pupils explain the relationship between adjacent multiples of five
19	Pupils explain how groups of five and ten are related
20	Pupils explain the relationship between multiples of five and ten
21	Pupils use knowledge of the relationships between the five and ten times tables to solve problems
22	Pupils explain how a factor of zero or one affect the product
23	Pupils represent multiplication equations in different ways
24	Pupils use knowledge of the two, five and ten times tables to solve problems (1)
25	Pupils use knowledge of the two, five and ten times tables to solve problems (2)
26	Pupils explain what each factor represents in a multiplication story
27	Pupils explain what each factor represents in a multiplication story when one of the factors is one
28	Pupils explain how a multiplication equation with two as a factor is related to doubling
29	Pupils double two-digit numbers
30	Pupils multiply efficiently when one of the factors is two
31	Pupils explain how halving and doubling are related
32	Pupils explain the relationship between factors and products
33	Pupils halve two-digit numbers
34	Pupils use knowledge of doubling, halving and the two times table to solve problems

NC:

Count in steps of 2, ~~3~~, and 5 from 1, and in tens from any number, forward and backward.

Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.

Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (X), division (÷) and equals (=) signs.

Solve problems using multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.

Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.

		Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.					
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
SPRING 1	**Multiplication: Introduction to multiplication** continued (See Previous Column)			**Divison: Introduction to division structures** RtP: • 2MD-2 Page 72 SPINES: 2.6 Structures: quotitive and partitive division Small Steps: 1 Pupils explain that objects can be grouped equally 2 Pupils identify and explain when objects cannot be grouped equally 3 Pupils explain the relationship between division expressions and division stories 4 Pupils calculate the number of equal groups in a division story 5 Pupils use their knowledge of skip counting and division to solve problems relating to measure 6 Pupils skip count using the divisor to find the quotient 7 Pupils use their knowledge of division to solve problems 8 Pupils explain that objects can be shared equally 9 Pupils use skip counting to solve a sharing problem 10 Pupils skip count using the divisor to find the quotient 11 Pupils solve a variety of division problems, explaining their understanding NC: Count in steps of 2, ~~3~~, and 5 from 1, and in tens from any number, forward and backward. Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (X), division (÷) and equals (=) signs. Solve problems using multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.		

SPRING 2

Shape

RtP:

- 2G-1 Page 74

Prior Learning RtP:

- 1G-1 Page 42

Small Steps:

1	Pupils learn that a polygon is a 2D shape with straight sides that meet at vertices
2	Pupils describe polygons and find different ways to sort them
3	Pupils learn that polygons can be sorted and named according to the number of sides and vertices
4	Pupils discuss, and compare by direct comparison, the shape and size of polygons
5	Pupils discuss, and compare by direct comparison, the vertices of polygons
6	Pupils investigate how polygons can be joined and folded to form 3-dimensional shapes
7	Pupils describe 3-dimensional shapes and find different ways to sort them
8	Pupils discuss, and compare by direct comparison, the shape and size of 3-dimensional shapes

9. Make patterns with 3D shapes.

Refine small steps and supplement with other resources, e.g. White Rose and Maths no Problem.
Ensure lines of symmetry are explored.
NC:
Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.
Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.
Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid].
Compare and sort common 2-D and 3-D shapes and everyday objects.
Order and arrange combinations of mathematical objects in patterns and sequences.

Addition and subtraction of two-digit numbers (Part 2)

RtP:

- 2AS-4 Page 66

Prior Learning RtP:

- 2AS-3 Page 62

SPINES:
1.15 Addition: two-digit and two-digit numbers
1.16 Subtraction: two-digit and two-digit numbers
Small Steps:

1	Pupils explain strategies used to add
2	Pupils add a two-digit number to a two-digit number
3	Pupils add a two-digit number to a two-digit number when not crossing ten (i)
4	Pupils add a two-digit number to a two-digit number when not crossing ten (ii)
5	Pupils add a two-digit number to a two-digit number when crossing ten
6	Pupils explain strategies used to subtract
7	Pupils subtract a two-digit number from a two-digit number
8	Pupils partition the subtrahend to help with subtraction
9	Pupils subtract a two-digit number from a two-digit number when not crossing ten (i)
10	Pupils subtract a two-digit number from a two-digit number when not crossing ten (ii)
11	Pupils subtract a two-digit number from a two-digit number when crossing ten
12	Pupils subtract efficiently using knowledge of two-digit numbers

Ensure opportunities are built in to: Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
NC:
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~~.
Solve problems with addition and subtraction: applying their increasing knowledge of mental and written methods.
Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Money

No specific NCETM Spine/RtP Resources for this Unit.
Ensure NCETM guidance is read: https://www.ncetm.org.uk/classroom-resources/cp-year-2-unit-9-money/
When planning this unit, build on children's current understanding of unitising and coin recognition developed in Year 1, Unit 9. Also, children need to have developed their understanding of calculation in order to apply this to a money context (see Year 2 Units 2, 4 and 8). There are money assessment questions in the Year 2 RtP assessments linked to these units.
Small Steps (Taken from White Rose):

1. Recognising coins and notes.
2. Count money – pence.
3. Count money – pounds (notes and coins)
4. Count money – notes ad coins
5. Select money
6. Make the same amount (finding combinations for a total)
7. Compare money
8. Find the total
9. Find the difference
10. Find change
11. Two-Step Problems

Refine small steps and supplement with other resources, e.g.Maths no Problem.
When exploring money, ensure that the same calculation strategies that have been learnt so far are applied. E.g. bridging 10
NC:
Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.
Find different combinations of coins that equal the same amounts of money.
Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
SUMMER 1	**Fractions** SPINES: 3.0 Guidance on the teaching of fractions in Key Stage 1 Small Steps: 1 Pupils identify whether something has or has not been split into equal parts 2 Pupils name the fraction 'one-half' in relation to a fraction of a length, shape or set of objects 3 Pupils name the fraction 'one-quarter' in relation to a fraction of a length, shape or set of objects 4 Pupils name the fraction 'one-third' in relation to a fraction of a length, shape or set of objects 5 Pupils read and write the fraction notation ½, ⅓ and ¼ and relate this to a fraction of a length, shape or set of objects 6 Pupils find half of numbers 7 Pupils find ⅓ or ¼ of a number 8 Pupils find ¼ and ¾ of an object, shape, set of objects, length or quantity 9 Pupils recognise the equivalence of 2/4 and ½ Refine small steps and supplement with other resources, e.g.Maths no Problem. NC: Recognise, find, name and write fractions $^1/_3$, $^1/_4$, $^2/_4$ and $^3/_4$ of a length, shape, set of objects or quantity. Write simple fractions, e.g. ½ of 6 = 3 and recognise the equivalence of 2/4 and ½		**Time** No specific NCETM Spine/RtP Resources for this Unit. Ensure NCETM guidance is read: https://www.ncetm.org.uk/classroom-resources/cp-year-2-unit-11-time/ Small Steps (Taken from White Rose): 1. Telling time to the hour 2. Telling time to the half hour 3. O'clock and half past 4. Quarter past and quarter to 5. Telling time to 5 minutes 6. Writing time 7. Hours and days 8. Find durations of time 9. Compare durations of time Refine small steps and supplement with other resources, e.g. Maths no Problem. NC: Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. Know the number of minutes in an hour and the number of hours in a day. Compare and sequence intervals of time.		**Position and direction** No specific NCETM Spine/RtP Resources for this Unit. Ensure NCETM guidance is read: https://www.ncetm.org.uk/classroom-resources/cp-year-2-unit-12-position-and-direction/ Small Steps (taken from White Rose): 1. Describe position (positional language) 2. Describe position (left and right focus) 3. Describe movement 4. Describe turns 5. Describe movement and turns 6. Making patterns with shapes Refine small steps and supplement with other resources, e.g. Maths no Problem NC: Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise). Order and arrange combinations of mathematical objects in patterns and sequences	
SUMMER 2	**Multiplication and division – doubling, halving, quotitive and partitive division** SPINES: 2.5 Commutativity (part 2), doubling and halving 2.6 Structures: quotitive and partitive division Small Steps: 1 Pupils identify the patterns and relationships between the 5 and 10 times tables 2 Pupils explain the patterns and relationships between the 5 and 10 times tables 3 Pupils use their knowledge of the 5 and 10 times tables to solve problems 4 Pupils identify and explain relationships between the 5 and the 10 times tables 5 Pupils use their knowledge of the 5 and 10 times tables to solve problems 6 Pupils explain how times table facts can help to find the quotient (10 times table) 7 Pupils explain how times table facts can help to find the quotient (5 times table) 8 Pupils explain how times table facts can help to find the quotient (2 times table) 9 Pupils explain how a division equation with 2 as a divisor is related to halving 10 Pupils explain each part of a division equation and know how they can be interchanged 11 Pupils use knowledge of divisibility rules when the divisor is 2 to solve problems 12 Pupils use knowledge of divisibility rules when then divisor is 10 to solve problems 13 Pupils use knowledge of divisibility rules when the divisor is 5 to solve problems 14 Pupils explain how a dividend of zero affects the quotient 15 Pupils explain how the quotient is affected when the divisor is equal to the dividend 16 Pupils explain how a divisor of one affects the quotient NC: Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (X), division (÷) and equals (=) signs. Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. Solve problems using multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.			**Measure – capacity, volume and mass** No specific NCETM Spine/RtP Resources for this Unit. Ensure NCETM guidance is read: https://www.ncetm.org.uk/classroom-resources/cp-year-2-unit-14-sense-of-measure-capacity-volume-mass/ Small Steps (Taken from White Rose): 1. Compare lengths and heights 2. Measure lengths (moving from non-standard to standard units of measure) 3. Measure lengths (cm) 4. Measure lenths (mm) 5. Compare and order lengths 6. Solve problems involving length 7. Introducing weight and mass 8. Measure mass (moving from non-standard to standard units of measure) 9. Compare masses 10. Measure mass in grams 11. Measure mass in kilograms 12. Introduce capacity and volume 13. Measure capacity 14. Compare volume 15. Mililitres 16. Litres 17. Temperature NC: Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. Compare and order lengths, mass, volume/capacity and record the results using >, < and =.		

Cross Curricular opportunities:

Statistics:

NC to cover:

Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.
Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.
Ask and answer questions about totalling and comparing categorical data.

Money:

- PSHE - Financial literacy. The Bank of England's **Money and Me** resources support this.
- Design Technology (Cooking and nutrition) - plan opportunities for children to use real money in real-life situations such as visiting the local greengrocer to buy ingredients and to read prices to compare value. Encourage them to handle money to pay for an item and to calculate change.
- Create a class shop - either in role play or for a purpose such as a charity event. Allow children to experience pricing and comparing the price of items, paying, change, reductions in price, etc.

Time:

- History – children should develop an awareness of the past, using common words and phrases relating to the passing of time.
- Throughout the school day referring to when events occur such as the start and end of the school day, lunch time etc. increasing their awareness from year 1 through referring to how many minutes past the hour. Focus on time intervals – for example, how many hours and minutes (to five minutes) have passed since break time.

Measure – capacity, volume and mass

- Science - when working scientifically, children should be encouraged to estimate and make measurements in order to observe the world around them and to ensure when investigating, that tests are fair.
- Geography - identifying seasonal and daily weather patterns and identifying features of places could include opportunities to measure.
- Design Technology - measure ingredients for a recipe and consider the temperatures of storing and cooking the food. Measure materials for projects involving cutting and measuring in a variety of contexts.
- Create a role-play post office or visit a real one - measuring the length of and finding the mass of parcels and letters.
- Create a role-play shop or visit a real one - looking carefully at measures on packaging.