Year 2

Key Stage 1

Children in Years 1 and 2 will be given a really solid foundation in the basic building blocks of mental and written arithmetic. Through being taught place value, children will develop an understanding of how numbers work, so that they are confident with 2-digit numbers and beginning to read and say numbers above 100. A CPA approach will be used throughout each unit, ensuring a range of manipulative and representations are used to support children's learning.

Addition and Subtraction: A focus on number bonds, first via practical hands-on experiences and subsequently using memorisation techniques, enables a good grounding in these crucial facts, and ensures that all children leave Year 2 knowing the pairs of numbers which make all the numbers up to 10 at least. Children will also have experienced and been taught pairs to 20. Children's knowledge of number facts enables them to add several 1-digit numbers, and to add/subtract a 1-digit number to/from a 2-digit number. Another important conceptual tool is the ability to add/subtract 1 or 10, and to understand which digit changes and why. This understanding is extended to enable children to add and subtract multiples of 10 to and from any 2-digit number. The most important application of this knowledge is the ability to add or subtract any pair of 2-digit numbers by counting on or back in 10s and 1s. Children will then extend this knowledge by learning the written method of column addition and subtraction (with regrouping and exchanging) with emphasis on the place value of each digit.

Multiplication and Division: Children will be taught to count in 2s, 3s, 5s and 10s, and will relate this skill to repeated addition. Children will learn the associated ×2, ×3, ×5 and ×10 tables. Engaging in a practical way with the concept of repeated addition and the use of arrays enables children to develop a preliminary understanding of multiplication, and asking them to consider how many groups of a given number make a total will introduce them to the idea of division. Children will also be taught to double and halve numbers, and will thus experience scaling up or down as a further aspect of multiplication and division.

Fractions: Fractions will be introduced as numbers and as operators, specifically in relation to halves, quarters and thirds. Children will learn how to find halves and quarters of shapes and amounts, linking to their learning of division, using the same skills and methods.

	National Curriculum Objectives	Mental Calculation	Written Calculation
Y2 +	**Add 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;** **three one-digit numbers.**	Use place value knowledge to find one more and ten more than any 2-digit number up to 100. Count on in multiples of 10, 5, 2 and 3 and in tens from any number. Use patterns of known facts. **Eg. 7 + 2 = 9 so 27 + 2 = 29** Use number bonds to 10 knowledge when adding three or more single digit numbers. **Eg. 8 + 4 + 2 as 10 + 4**	

Part Whole Models and Bar Models to visualise number bonds and simple addition calculations

$6 + 14 = 20$

$14 + 6 = 20$

$20 = 14 + 6$

$20 = 14 + 6$

Number lines for 2-digit add 1 digit and for adding multiples of 10

$7 + 5 = 12$

NB: When initially introducing written strategies, simpler calculations (which would normally be solved mentally) may be used to demonstrate the method before progressing onto more challenging calculations.

$90 + 50 = 140$

Column Addition for adding two 2-digit numbers

NB: Emphasis to be made on the place value of each digit so children do not think it is 2 +1. Ask questions such as 'What is the value of 2 in this calculation?', 'Can you show me this number partitioned?'

T	O
2	1
+ 1	1

T	O
2	8
+ 1	3
4	1

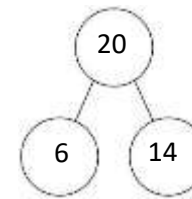|			
Y2 **−**	**Subtract numbers using concrete objects, pictorial representations, and mentally, including:** **• a two digit number subtract ones;** **• a two digit number subtract tens;** **• two-digit numbers subtract two-digit.**	Use place value knowledge to find one more and ten more than any 2-digit number up to 100. Count back in multiples of ten from 100. Using concrete initially, moving on to 100 square and then mentally. Use patterns of known facts. **Eg. 5 − 2 = 3 so 25 − 2 = 23**	*Continue to use part whole models and bar models to represent related addition and subtraction facts.* 6 + 14 = 20 14 + 6 = 20 So… 20 − 14 = 6 20 − 6 = 14 *Number lines for 2-digit minus 1 digit and for subtracting multiples of 10* 16 − 3 = 13 37-21 = 16 -1 -10 -10 16 17 27 37 *Column subtraction for two 2-digit number, with regrouping* NB: Emphasis to be made on the place value of each digit and when introduced to the method children should be shown it using Numicon or Base 10 to model the exchanging of tens and ones. 2 3 ¹3 - 1 5 1 8
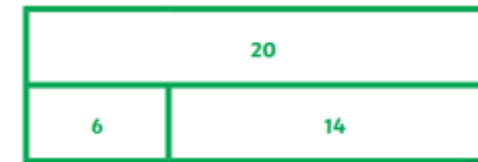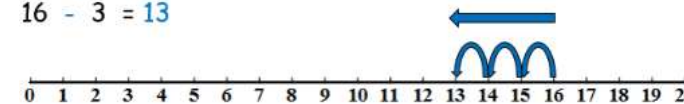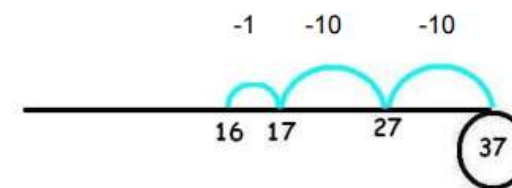
Y2 **x**	**Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.** **Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.** **Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.** **Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in context.**	Children to use a range of vocabulary to describe multiplication and use a variety of practical resources to explain multiplication. Use songs to aid children's initial ability to recite counting in 10s, 2s, 5s and 3s (in that order). Rote learn times tables to increase children's rapid recall.	*__Count in 2s, 5s, 10s and 3s using variety of concrete and pictorial representations__* one 5 two 5s three 5s four 5s | two pence	four pence	six pence	eight pence	ten pence
2p	4p	6p	8p	10p | *__Arrays for multiplication__* 3 x 4 = 12 4 x 3 = 12 Rotate arrays to show that multiplication of two numbers can be done in any order **(commutative law)** Show multiplication as repeated addition. 3 +3+3+3=12 *__Use other pictorial representations to help children visualise the concept of multiplication.__* 3 groups of 4 stars = 12 stars altogether | 30		
10	10	10	
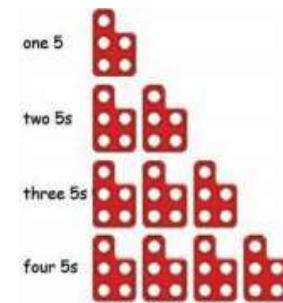
Y2 **÷**	**Recall and use division facts for the 2, 5 and 10 multiplication tables.** **Solve problems involving division, using materials, arrays, repeated subtraction, mental methods, and multiplication and division facts, including problems in contexts.** **Calculate mathematical statements for division within the multiplication tables and write them using the division (÷) and equals (=) signs.** **Show that division of one number by another is not commutative [i.e. can be done in any order].**	Children to use a range of vocabulary to describe division and use a variety of practical resources to explain multiplication. Use their multiplication knowledge to derive known division facts. **Eg. 5 x 10 = 50 so 50 ÷ 10 = 5**	*Make links to multiplication by continuing to use arrays to support division.* How many groups of 3? How many groups of 5? 15 shared between 3 people is....? 15 shared between 5 people is....? 15 divided by 3 = 5 15 divided by 5 = 3 15 ÷ 3 = 5 15 ÷ 5 = 3 NB: Continue to reinforce sharing and grouping in a practical context. *Use pictorial representations to share into equal groups* 12 ÷ 3 = 4 NB: This method also to be used when finding fractions of amounts. $\frac{1}{2}$ of 8 is 4