



Dean Field Community Primary School

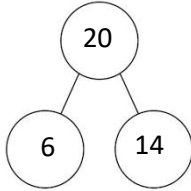
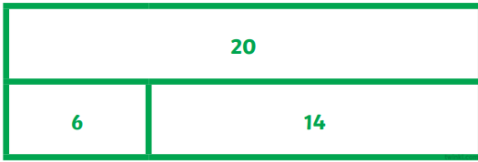
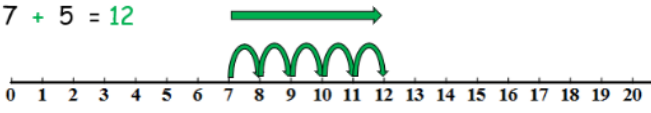

-

Calculation Methods

Year 2

This booklet contains the calculation methods used in year 2 for each of the four operations - addition, subtraction, multiplication and division.

Please use this document as a tool to support your child at home. The methods we use in school may or may not be familiar to you. Children can become confused when they seek support from an adult at home because often, the adult will teach the method they, themselves were taught. Knowing how the methods in this booklet work will help you to help your child. All staff in school use this document so that we can ensure the consistency of our approach.

	National Curriculum Objectives	Mental Calculation	Written Calculation																											
<p style="text-align: center; font-size: 2em; font-weight: bold;">Y2 +</p>	<p>Add numbers using concrete objects, pictorial representations, and mentally, including:</p> <ul style="list-style-type: none"> • a two digit number and ones; • a two digit number and tens; • two two-digit numbers; three one-digit numbers. 	<p>Use place value knowledge to find one more and ten more than any 2-digit number up to 100.</p> <p>Count on in multiples of 10, 5, 2 and 3 and in tens from any number.</p> <p>Use patterns of known facts. Eg. $7 + 2 = 9$ so $27 + 2 = 29$</p> <p>Use number bonds to 10 knowledge when adding three or more single digit numbers. Eg. $8 + 4 + 2$ as $10 + 4$</p>	<p style="text-align: center;">Part Whole Models and Bar Models to visualise number bonds and simple addition calculations</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>$6 + 14 = 20$ $14 + 6 = 20$ $20 = 14 + 6$ $20 = 14 + 6$</p> </div> <div style="text-align: center;">  </div> </div> <p style="text-align: center;">Number lines for 2-digit add 1 digit and for adding multiples of 10</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>$7 + 5 = 12$</p>  </div> <div style="border: 1px solid green; padding: 5px; width: 200px;"> <p>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.</p> </div> </div> <div style="text-align: center; margin-top: 20px;"> <p>$90 + 50 = 140$</p>  </div> <p style="text-align: center;">Column Addition for adding two 2-digit numbers</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <table border="1" style="border-collapse: collapse; text-align: center; width: 60px;"> <tr><td></td><td>T</td><td>O</td></tr> <tr><td></td><td>2</td><td>1</td></tr> <tr><td>+</td><td>1</td><td>1</td></tr> <tr><td></td><td></td><td></td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center; width: 60px;"> <tr><td></td><td>T</td><td>O</td></tr> <tr><td></td><td>2</td><td>8</td></tr> <tr><td>+</td><td>1</td><td>3</td></tr> <tr><td></td><td>4</td><td>1</td></tr> <tr><td></td><td>1</td><td></td></tr> </table> <div style="border: 1px solid green; padding: 5px; width: 150px;"> <p>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?'</p> </div> </div>		T	O		2	1	+	1	1					T	O		2	8	+	1	3		4	1		1	
	T	O																												
	2	1																												
+	1	1																												
	T	O																												
	2	8																												
+	1	3																												
	4	1																												
	1																													

Y2

—

Subtract numbers using concrete objects, pictorial representations, and mentally, including:

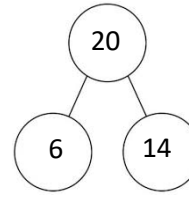
- a two digit number subtract ones;
- a two digit number subtract tens;
- two-digit numbers subtract two-digit.

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.



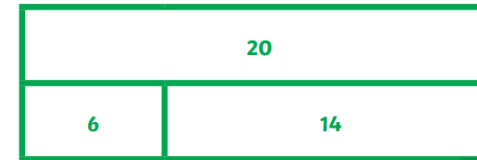
$$6 + 14 = 20$$

$$14 + 6 = 20$$

So...

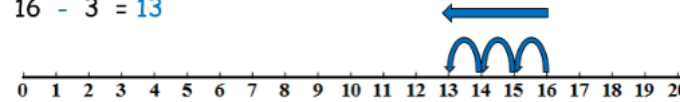
$$20 - 14 = 6$$

$$20 - 6 = 14$$

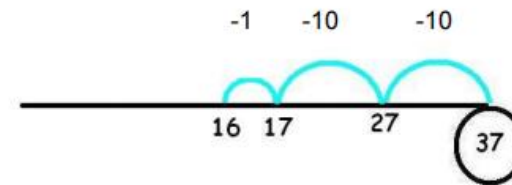


Number lines for 2-digit minus 1 digit and for subtracting multiples of 10

$$16 - 3 = 13$$



$$37 - 21 = 16$$



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.

$$\begin{array}{r} 2 \\ 3 \ 13 \\ - 1 \ 5 \\ \hline 1 \ 8 \end{array}$$

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 (\times), division (\div) 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.

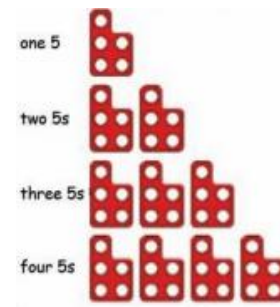
Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in context.

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



two pence	four pence	six pence	eight pence	ten pence
2p	4p	6p	8p	10p



Arrays for multiplication

$3 \times 4 = 12$



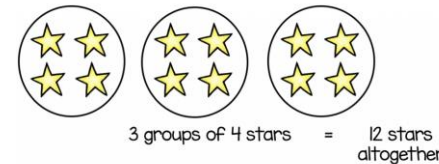
$4 \times 3 = 12$



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.



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. $5 \times 10 = 50$ so $50 \div 10 = 5$

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

$15 \div 3 = 5$

$15 \div 5 = 3$

NB: Continue to reinforce sharing and grouping in a practical context.

Use pictorial representations to share into equal groups

$$12 \div 3 = 4$$



NB: This method also to be used when finding fractions of amounts.

$$\frac{1}{2} \text{ of } 8 \text{ is } 4$$

