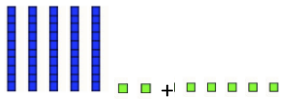
Addition: By the end of Y2

- Understanding that 'sum' means 'to add'
- Counting forward in steps of 2, 3, and 5 from 0, and make jumps in tens from any number.

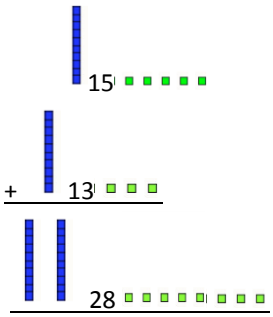
Understanding that addition can be done in any order.

- Adding 3 numbers together such as 2 + 5 + 9
- Adding numbers such as 52 + 5 using objects such as Numicon or Dienes or pictures to help.



Mentally adding 1 and 2 digit numbers and two 2 digit numbers together. Prepare for this by using Numicon and other equipment/ pictures.

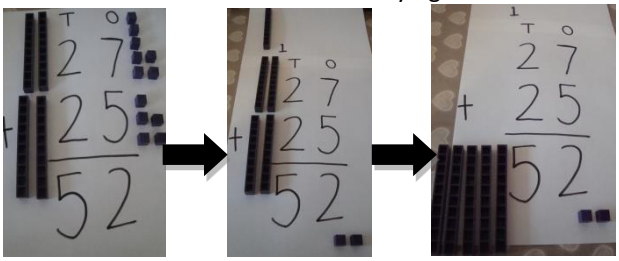
- **Introduce column addition** (without carrying) when ready.
- Use Dienes to demonstrate.



For some children, when ready, move onto carrying within 100 (Emphasise as a school, we will 'carry' over digits at the top for all column addition)

TO
1
27
+25
52

Use Dienes to demonstrate the 'carrying'



- Solving problems using number facts such as
  20= 18 + ☐ and other number facts up to 100.
- Solving missing number problems (and understanding that using subtraction as the inverse operation will help)

14 + ☐ = 26
26 – 14 = 12

- Solve word problems using the bar model (either by drawing it/using Multilink to make the problem etc)

Sam had 10 red marbles and 12 blue marbles. How many marbles did he have altogether?

10 + 12 = 22

To add successfully, children need to be able to:

- Recall all addition pairs to 9 + 9 and know number bonds to and within 10/20/100
- Add multiples of 10 (such as 60 + 70) and 100 (such as 600 + 700) using the related addition fact, e.g. 6 + 7, and their knowledge of place value
- Partition two-digit and three-digit numbers into multiples of 100, 10 and 1 in different ways.
  e.g. 52 = 50 + 2, 40 + 12, 30 + 22

Note: It is important that children's mental methods of calculation are practised and secured alongside their learning and use of an efficient written method for addition.

Subtraction: By the end of Y2

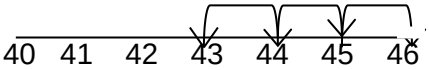
Through practical activities and meaningful contexts e.g. finding out the difference in the height or using bar graph information etc

- Children need to be aware of when to count back and when to count on.

- Counting back (when the amount being subtracted is small)

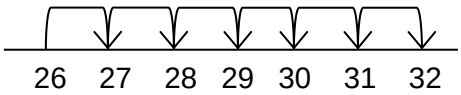
E.g. 46-3

Use jottings of subtraction on a number line



- Counting on (when the numbers are closer together)

E.g. 32 -26



Move onto using blank number lines to solve problems- Children to draw and write on the numbers

_____

- Use the Numicon 10s track

- Use Numicon to show that subtraction is the inverse of addition

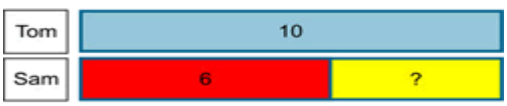
E.g. 20- ? =14

- Introduce the formal method of column subtraction (with no exchange)
  (show using Dienes first)

  36 - 11

- Move onto jottings

- Use the bar model to find the difference



Tom has 10 pencils and Sam has 6 pencils. How many more does Tom have?

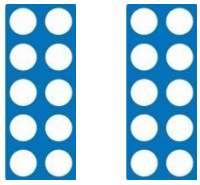
- Explain 'finding the difference' with bar chart examples

Multiplication :By the end of Y2

Through practical activities and meaningful contexts

- Doubles of even numbers in which the ones total less than 10 by partitioning and recombining

e.g. 12 + 12 (Use Numicon)



10 + 10

2 + 2

(Leading to abstract thinking)

- Use Cuisenaire to count in 2s, 3s, 5s and 10s

Discuss which numbers appear in more than 1 row. Show the link between the 5 and 10 times tables.

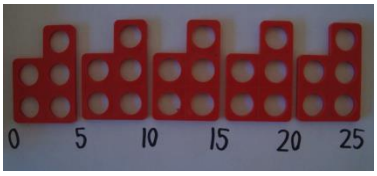
Highlight multiples of 2, 3, 5 and 10 on a 100 square. Which numbers appear in more than 1 times table?

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

- Understanding multiplication as repeated addition/ groups/ lots.

Use Numicon pieces to count leading to the recall of the 2, 3, 5 and 10 times tables.

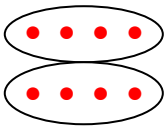
The 5 times tables:



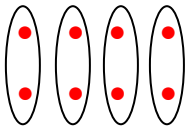
- Use dice to generate arrays. Use real life objects to create them e.g. egg boxes, chocolate trays, Cheerio cereal pieces laid in rows.

Show that multiplication can be done in any order (commutative)

2 x 4

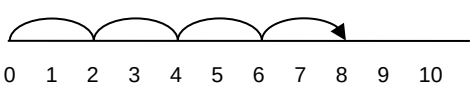


4 x 2

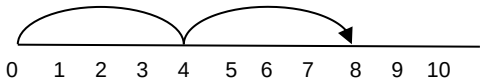


- Remind children of repeated addition learnt in previous years.

2 + 2 + 2 + 2 (4 groups of 2)



4 + 4 (2 groups of 4)



Include times table problems in meaningful contexts.

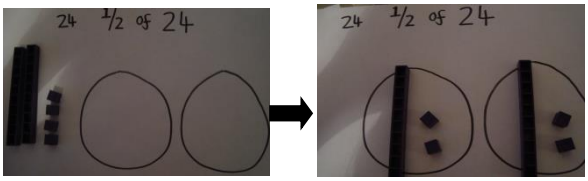
e.g. Alice has 6 pairs of shoes. How many shoes does she have?

Division: By the end of Y2

Through practical activities in meaningful contexts

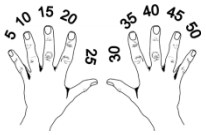
- Calculate half of simple two-digit even numbers (numbers in which the tens are even)

Use Numicon/bead strings/counters shared/Dienes to demo this

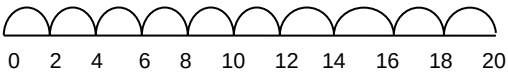


- Recognise the relationship between x and ÷

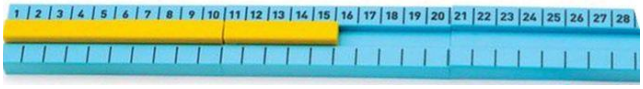
- Use Numicon and hands to help with how many groups of 5 in 15?
How many 5s have been counted?



Using number lines to answer questions such as 20 ÷ 2 linking to how many 2s in 20?

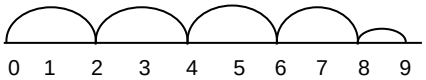


Use Cuisenaire rods and the number track to solve problems e.g. how many 5s in 15?

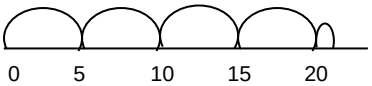


Record using ÷ and = signs. Children to understand that, unlike multiplication, division cannot be written in any order.

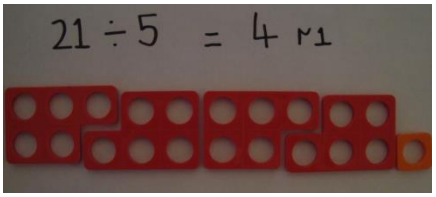
Include calculations with remainders 9 ÷ 2 = 4 r1
Use number lines to show remainders

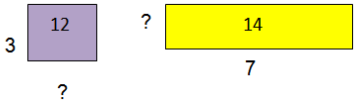


21 ÷ 5 = 4 r 1 remainder 1



Also use Numicon to show what a remainder is





Know related division facts for 2 x 5 x 10 x tables

By the end of the year, when children are familiar with their times tables, solve missing number problems on arrays