

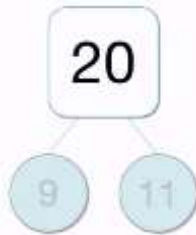
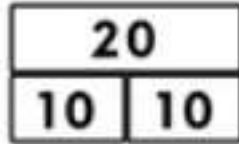
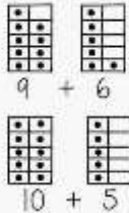
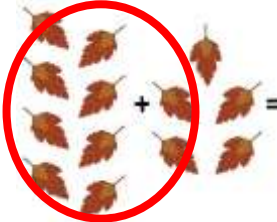
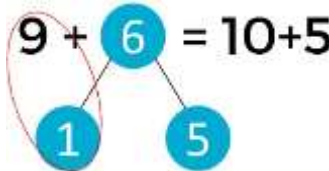




# Year 2: Addition

**Vocabulary:** add, make, altogether, sum, and, plus, total, more than, greater than



Strategy	Concrete	Pictorial	Abstract
Number bonds to 20.	<p>Use counters (ten frame), numicon or multi-link to make/ combine two parts together to make a whole. It is important to use this language.</p>  $17 + 3 = 20$	<p>Use pictures to add two numbers together as a group of 20.</p> $2 + 18 = 20$  <p>Use part, part whole models/bar model to show number bonds to 20.</p>  	<p>Number Sentence:</p> $8 + 12 = 20$ $20 = 14 + 6$ <p>Equal symbol should be presented at the beginning and end of the number sentence to reinforce understanding of equals meaning same as/balance.</p>
Regrouping to make groups of 10.	<p>Use counters and a ten frame to show number sentence starting with the largest number.</p> <p>Identify number bond to 10 in order to regroup.</p> 	<p>Draw number sentence starting with the largest number. Group 10 through identifying number bond to 10.</p>  <p>Add on remainder.</p> <p>Use part, whole model to demonstrate regrouping.</p> 	<p>Number sentence:</p> $8 + 5 = 12$ <p>If I am at 8, how many more do I need to make 10? I need 2 more (to make a group of 10). How many more do I add on now? I add 3 more on (because <math>2 + 3 = 5</math>).</p>

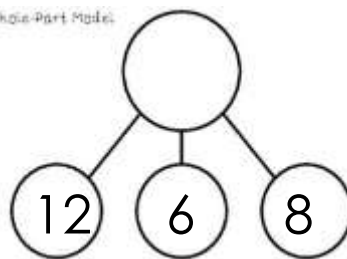
Adding 3 digits through identifying number bonds to 10 and 20.

Use practical apparatus to make the 3 numbers in the number sentence. Identify and combine the two numbers that form the number bond (a ten frame can be used to support children in identifying the number bond to 10). Add on the remainder.

Identify the number bond through drawing, part, whole model or bar model. Combine the numbers that form the number bond and then add on the remainder:



Whole-Part Model:



20		
4	7	16

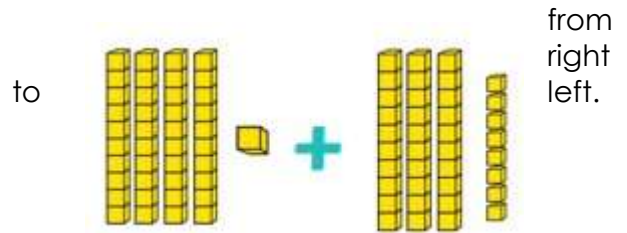
Number Sentence:

$$\begin{array}{c} \textcircled{4} + 7 + \textcircled{6} = \boxed{10} + \boxed{7} \\ 10 \\ = \boxed{17} \end{array}$$

$$\begin{array}{c} 9 + 1 + 2 = \square \\ \textcircled{\phantom{0}} \end{array}$$

Expanded column addition without regrouping (two digit + two digit).

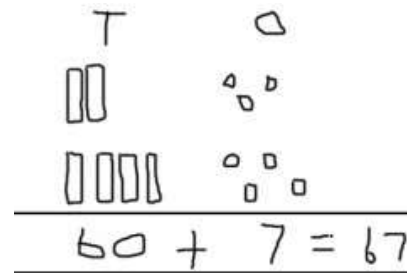
Use dienes apparatus to physically make the numbers, starting with the largest number (commutative law). Add ones, then add tens, then add hundreds working from right left.



$$41 + 38 =$$

NB: Place value knowledge must be secure in order to move onto this strategy.

$$23 + 44 =$$



Partition the number into tens and ones by drawing tens and ones in columns.

Work from the right to the left, adding the ones first and then adding the tens.

Expanded column addition:

$$\begin{array}{r} \text{TO} + \text{TO} \\ 41 + 38 \end{array}$$

$$\begin{array}{r} 40 + 1 \\ 30 + 8 \\ \hline 70 + 9 = 79 \end{array}$$


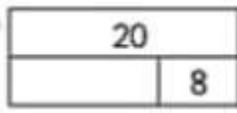
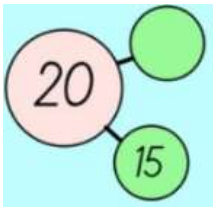
Partition the number into tens and ones. Work from the right to the left, adding the ones first and then adding the tens. Recombine the tens and the ones to find the answer.



# Year 2: Subtraction

**Vocabulary:** minus, take away, difference, less than, less, leave, left, left over, fewer, subtract, minus, difference between, distance between, **subtraction**



Strategy	Concrete	Pictorial	Abstract
Number bonds to 20.	<p>Use counters, numicon or multi-link to make a whole (5 or 10) and take away a part. It is important to use this language.</p>  $20 - 3 = 17$	<p>Use pictures, part, whole model and bar model to take away from a group of 20.</p>  $20 - 8 = 12$  $20 - 15 = 5$	<p>Number Sentence:</p> $20 - 4 = 16$ $15 = 20 - 5$

Counting backwards.

Use practical apparatus to subtract by making the largest number in the number sentence and counting backwards.

Bead String: Move the beads along the string,



counting backwards in ones.

$$7 - 2 = 5$$

Counters/Cubes/Objects: Move the objects away, counting backwards in ones.

Use a number line or number track to count backwards, starting with the largest number and counting backwards in jumps of ones.

$$7 - 3 = 4$$



Use a number line or number track to count

$$47 - 19 =$$



backwards in jumps of tens and jumps of one.

N.B: Place value knowledge must be secure (partitioning) in order to use this strategy.

Number sentence:

$$24 - 13 = 11$$

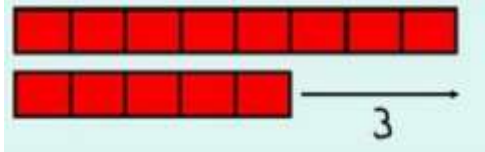
Mental Calculation:

$$24 - 3 = 21$$

**Put 24 in your head and count back 3.  
What number have you landed on?**

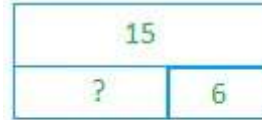
Finding the difference.

Use practical apparatus to show the difference between two numbers. Equipment such as multilink, which is equal in size and can be lined up exactly, demonstrates this concept.



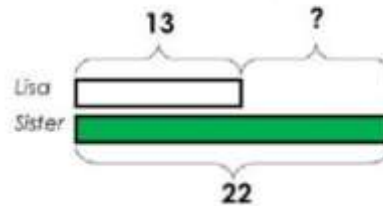
$$8 - 5 = 3$$

Use bar models to show finding the difference between two numbers.



↑  
6 less

*Lisa is 13 years old. Her sister is 22 years old.  
Find the difference in age between them.*



Number Sentence:

$$11 - 4 = 7$$

Number Stories:

Hannah has 18 sweets. Jack has 13 sweets. Find the difference between the number of sweets.

$$18 - 13 = 5$$

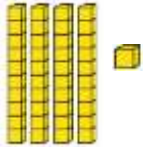
Expanded column subtraction without exchanging (two digits - two digits).

$$48 - 17 =$$

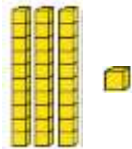
Make the largest number using dienes apparatus.



Physically take away the ones.

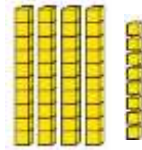


Physically take away the tens.

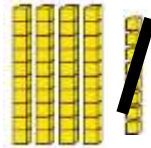


$$48 - 17 =$$

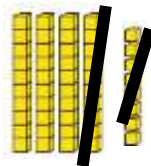
Draw the largest number.



Cross out the ones.



Cross out the tens.



Expanded column subtraction:

$$TO - TO =$$

$$34 - 11 =$$

$$30 + 4$$

$$- 10 + 1$$

$$\hline 20 + 3$$

Partition the number into tens and ones. Work from the right to the left, subtracting the ones first and then subtracting the tens. Recombine the ones and the tens to find the answer.


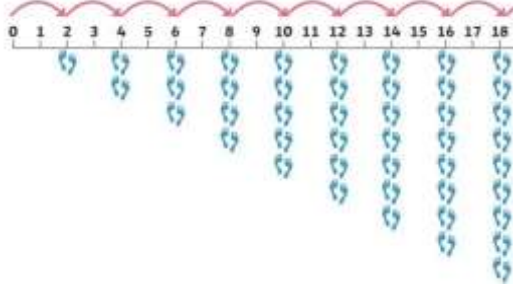


# Year 2: Multiplication

**Vocabulary:** double, groups, lot, grouping, array, twos, tens, fives, times, multiply, multiplied by, two times table, ten times table, five times table, multiple of, once, twice, three times, five times, ten times, time as, repeated addition, row, column



**Timetables Progression:** 2s 4s 10s 3s 5s 8s 6s

Strategy	Concrete	Pictorial	Abstract
Counting in multiples.	Use practical apparatus/objects to count on in 2's. 	 <p>Count on using a number line or number track.</p>	<b>Number Sequence:</b>  <b>2, 4, 6, 8, 10</b>  <b>5, 10, ?, 20, ?</b>



Repeated Addition.

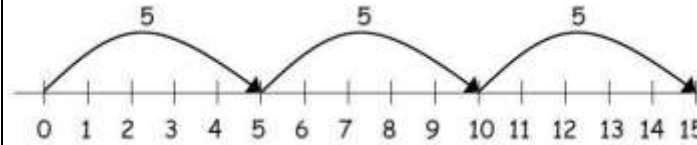
Use practical apparatus/objects to make groups for repeated addition.



$$2 + 2 + 2 = 6$$

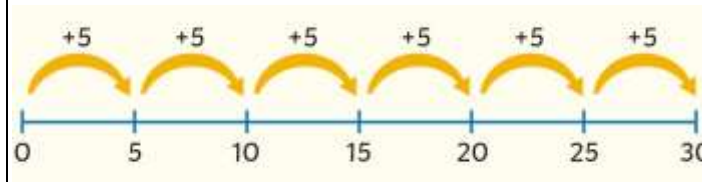
Repeated addition a number line:

$$5 + 5 + 5 =$$



Numbers or pictorial representations can be used beneath the number line to show intervals.

$$5 + 5 + 5 + 5 + 5 + 5 =$$



Number Sentence:

$$4 + 4 + 4 = 12$$

$$4 \times 3 = 12$$

$$3 \times 4 = 12$$

Use of arrays to show commutativity.

Create arrays using counters/cubes to show multiplication.



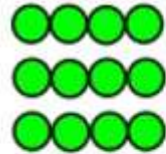
$$3 \times 5 =$$



$$4 \times 10 =$$

4 rows of 10 = 40  
10 columns of 4 = 40

Draw arrays to show multiplication.



$$3 \times 4 = 12$$



$$4 \times 3 = 12$$

Arrays should be created in different rotations to demonstrate the commutative law.

**Number Sentence:**

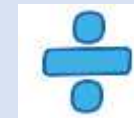
$$4 \times 3 = 12$$

$$3 \times 4 = 12$$



# Year 2: Division

**Vocabulary:** half, halve, pair, share equally, equal groups, grouping, sharing, repeated subtraction, arrays, column, row, one each, two each, three each, group in pairs, group in tens, group in fives, equal groups of, divide, divided, divided by, divided into

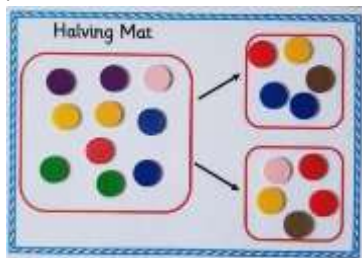


**Timetables Progression:** 1s 2s 5s 10s 3s 4s 8s 6s

Strategy	Concrete	Pictorial	Abstract
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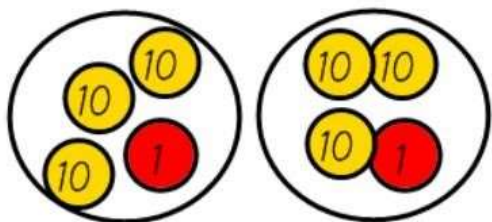
## Sharing

Use physical apparatus/objects such as counters or multi-link share an amount into equal groups.



Use place value counters to share larger quantities.

$$62 \div 2 = 31$$



Place value grids can also be used to support sharing larger quantities. One ten may need to be exchanged for ten ones.

10s	1s
●	●●●●●
●	●●●●●
●	●●●●●

$$42 \div 3 = 14$$

## Place Value Grid:

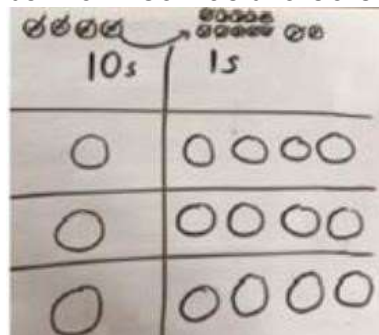
$$42 \div 3 = 14$$

Draw total amount (4 tens and 2 ones).

Divide into 3 equal groups.

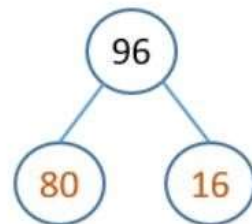
Cross out counters as they are shared.

Where a ten cannot be shared equally, exchange for ten ones so that it can be shared equally.



## Part-Whole Model:

$$96 \div 4 = 24$$



$$(80 \div 4) + (16 \div 4)$$

$$20 + 4 = 24$$

## Number Sentence:

Write calculations to demonstrate the process of sharing using place value.

$$42 \div 3 =$$

$$42 = 30 + 12$$

$$30 \div 3 = 10$$

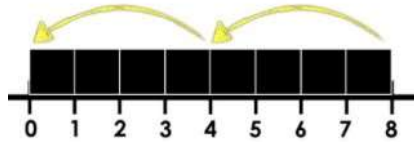
$$12 \div 3 = 4$$

$$10 + 4 = 14$$

Repeated subtraction (using a number line).

Use unifix cubes/bead strings to physically demonstrate how many times a smaller number goes into a larger number. Number lines can be used alongside bead strings/unifix cubes.

$$8 \div 2 =$$

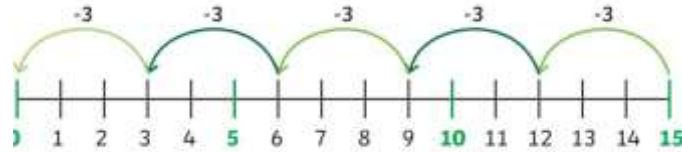


$$15 \div 3 =$$



Use repeated subtraction to demonstrate how many times a smaller number goes into a larger number.

$$15 \div 3 =$$



**Number Sentence:**

$$15 \div 3 =$$

The number of times you can take 3 from 15 is 5.

$$15 - 3 - 3 - 3 - 3 - 3 = 0$$

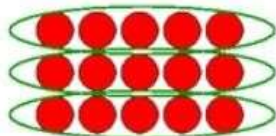
$$15 \div 3 = 5$$

Arrays

Use physical apparatus/objects such as counters to create arrays.

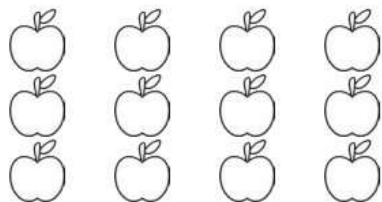
$$15 \div 3 = 5$$

Number of counters      Number of rows      Number in each row



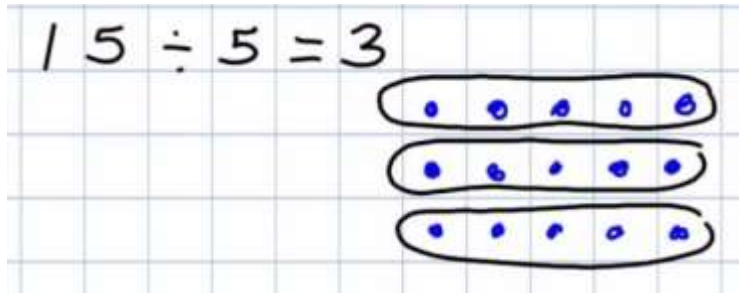
$$12 \div 3 = 4$$

$$12 \div 4 = 3$$



Draw arrays to demonstrate division.

$$15 \div 5 = 3$$



**Number Sentence:**

$$12 \div 3 = 4$$

There are 3 groups of 4.

There are 4 groups of 3.

