Year 2

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

- Add numbers using concrete objects, pictorial representations, and mentally, including:
- a two-digit number and 1s
- a two-digit number and 10s
- 2 two-digit numbers
- adding 3 one-digit numbers
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

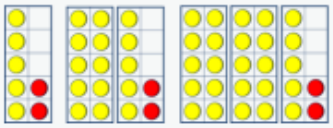
Progression of skills

Representations

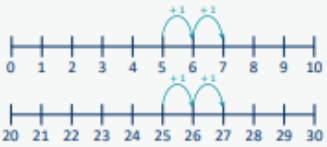
Add ones to any number (related facts)

Make links to known facts.

I know that ... and ... = ...
so ... and ... = ...



... more than ... is ...
so ... more than ... is ...



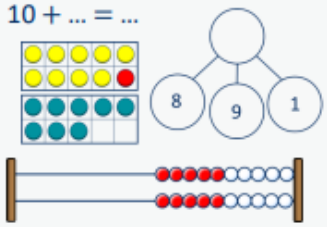
What do you notice?
Can you continue the pattern?

$5 + 2 = 7$
$15 + 2 = 17$
$25 + 2 = 27$...

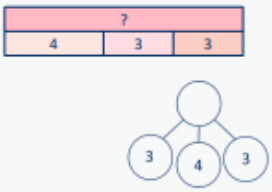
Add three 1-digit numbers

Prompt children to understand that addition can be done in any order and to make links to known facts.

... and ... are a bond to 10
$10 + \ldots = \ldots$



Double ... + ... = ...



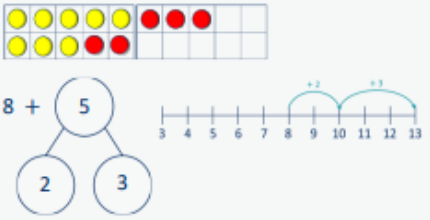
What do you notice?
Which addition is the easiest to calculate?

$8 + 9 + 1 =$
$8 + 1 + 9 =$
$9 + 1 + 8 =$

Add across a 10

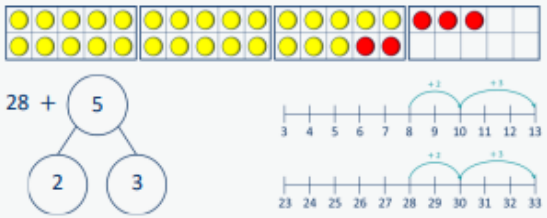
Partition the number being added to make a full ten.

... can be partitioned into ... and ...



I add ... to get to ... then I add ...

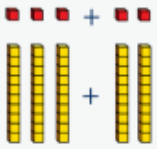
$8 + 5 = 13$
$28 + 5 = 33$



Add multiples of 10

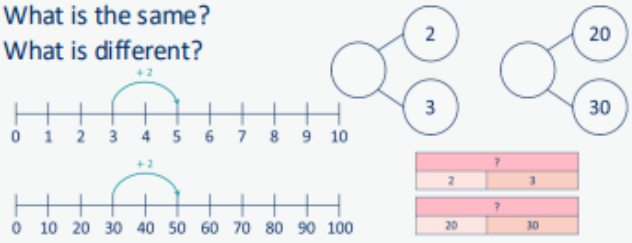
Make links to known facts within ten.

... ones + ... ones = ... ones
so ... tens + ... tens = ... tens



$3 + 2 = 5$
$30 + 20 = 50$

What is the same?
What is different?

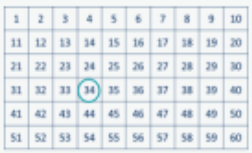


Add 10s to any number

Make links to known facts.

... tens + ... tens = ... tens
... tens and ... ones = ...

To add ... I need to add 10 ... times.



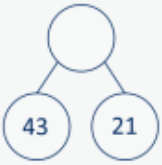
I know that ... and ... = ...
so ... and ... = ...

$30 + 20 = 50$
$34 + 20 = 54$

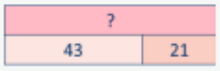
Add 2-digit numbers (not across a ten)

Lining up ones and tens in columns will support with later written methods.

... ones + ... ones = ... ones
... tens + ... tens = ... tens



3 ones + 1 one = 4 ones
4 tens + 2 tens = 6 tens
6 tens + 4 ones = 64

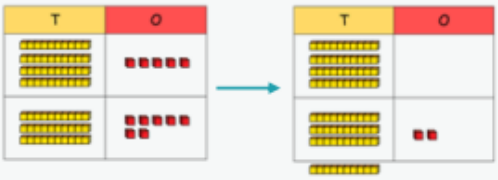


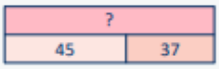
Add 2-digit numbers
(across a ten)

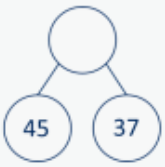
Begin to exchange 10 ones for 1 ten.

There are .... ones, so I do/do not need to make an exchange.

... ones = ... ten and ... ones





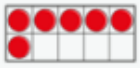


5 ones + 7 ones = 12 ones
12 ones = 1 ten and 2 ones
4 tens + 3 tens + 1 ten = 8 tens
8 tens and 2 ones = 82

Missing numbers

Solve missing number problems and use the inverse to check.

How many more do you need to make ...?



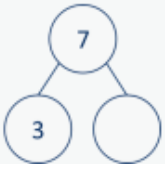
$6 + \square = 10$

$10 - \square = 6$

If ... is a whole and ... is a part, then ... is the other part.

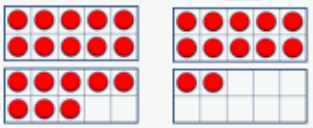
$\square + 3 = 7$

$7 - 3 = \square$



... can be partitioned into ... and ...

$10 + 8 = 12 + \square$



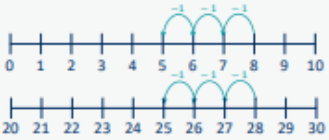
Year 2	Recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100 Subtract numbers using concrete objects, pictorial representations, and mentally, including: • a two-digit number and 1s • a two-digit number and 10s • 2 two-digit numbers Recognise and use the inverse relationship between a addition and subtraction and use this to check calculations and solve missing number problems.
Progression of Skills	Representations

Subtract ones from any number
(related facts)

Make links to known facts.

I know that … minus … = …
so … minus … = …

… less than … is …
so … less than … is …



What do you notice?
Can you continue the pattern?

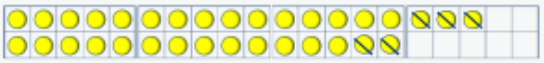
$8 - 3 = 5$
$18 - 3 = 15$
$28 - 3 = 25$…

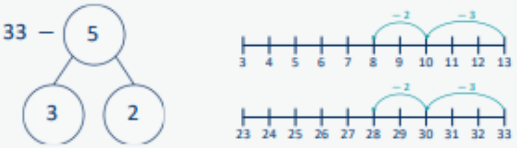
Subtract across a 10

Partition the number being subtracted to bridge through a ten.

… can be partitioned into … and …

Make links with related facts.





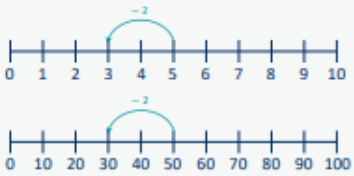
Subtract multiples of 10

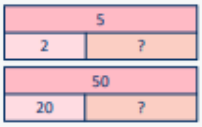
Make links to known facts within ten.

… ones − … ones = … ones
so … tens − … tens = … tens

$5 - 2 = 3$
$50 - 20 = 30$

What is the same?
What is different?

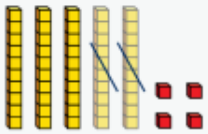




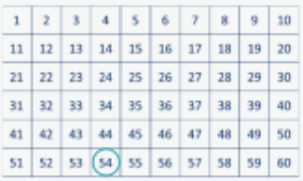
Subtract 10s from any number

Make links to known facts.

… tens − … tens = … tens
… tens and … ones = …



To subtract … I need to subtract 10 … times.

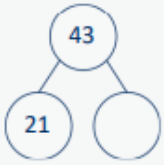


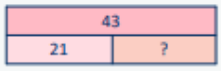
I know that … minus … = …
so … minus … = …

$50 - 20 = 30$
$54 - 20 = 34$

Subtract two 2-digit numbers
(not across a ten)

… ones − … ones = … ones
… tens − … tens = … tens



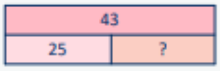


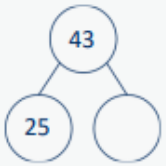
3 ones − 1 one = 2 ones
4 tens − 2 tens = 2 tens
2 tens and 2 ones = 22

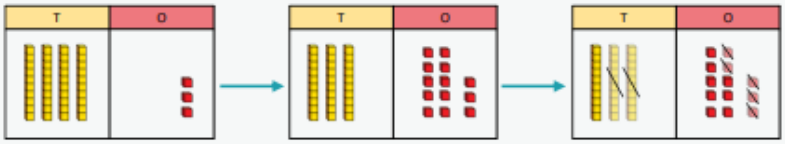
Subtract two 2-digit numbers
(across a ten)

Begin to exchange 1 ten for 10 ones.

I need to make an exchange because I do not have enough ones to subtract … ones.







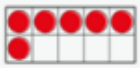
3 ones − 5 ones
(I need to exchange 1 ten for 10 ones)

13 ones − 5 ones = 8 ones
3 tens − 2 tens = 1 ten
1 ten and 8 ones = 18

Missing numbers

Solve missing number problems and use the inverse to check.

How many do you need to subtract to make …?



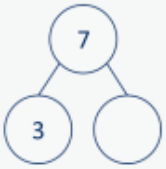
$10 - \square = 6$

$6 + \square = 10$

If … is a whole and … is a part, then … is the other part.

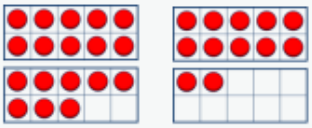
$7 - 3 = \square$

$\square + 3 = 7$



… can be partitioned into … and …

$18 - \square = 12 + 2$



Year 2

Recall and use multiplication facts for the 2, 5 and 10 multiplication tables.
Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (×) and equals (=) signs.
Show that multiplication of two numbers can be done in any order (commutative).

Progression of Skills

Representation

Link repeated addition and multiplication

Encourage children to make the link between repeated addition and multiplication.

There are … equal groups with … in each group.
There are … altogether.

6	
3	3

$3 + 3 = 6$
$2 \times 3 = 6$

20			
5	5	5	5

$5 + 5 + 5 + 5 = 20$
$4 \times 5 = 20$

Use arrays

Encourage children to see that multiplication is commutative.

There are … rows with … in each row.
There are … columns with … in each column.

3 lots of 5 = 15
5 + 5 + 5 = 15

5 lots of 3 = 15
3 + 3 + 3 + 3 + 3 = 15

I can see … × … and … ×…

$3 \times 5 = 15$
$5 \times 3 = 15$

$3 \times 5 = 5 \times 3$

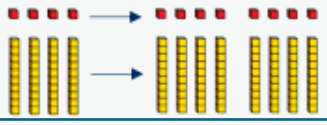
Double

Encourage children to make links with related facts.

Double … is …

Double 4 = 4 + 4
Double 4 is 8

Double … is … so double … is …

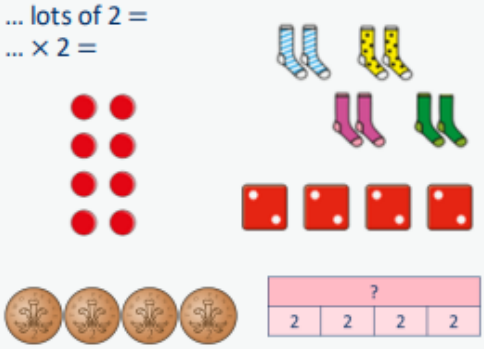


Double 4 is 8
Double 40 is 80

The 2 times-table

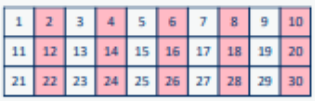
Encourage daily counting in multiples both forwards and back. Notice that all multiples of 2 are even numbers.

… lots of 2 =
… × 2 =



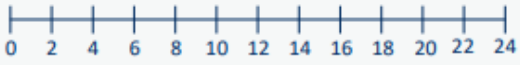
?			
2	2	2	2

… times 2 is equal to …



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

$1 \times 2 = 2 \quad 2 = 1 \times 2$
$2 \times 2 = 4 \quad 4 = 2 \times 2$
$3 \times 2 = 6 \quad 6 = 3 \times 2$

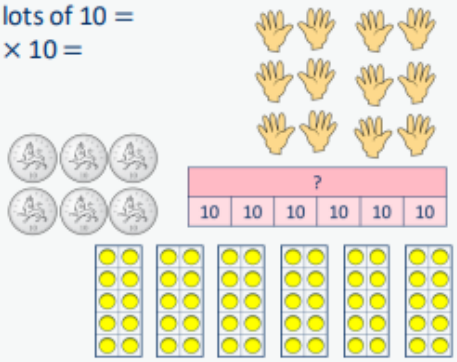


0 2 4 6 8 10 12 14 16 18 20 22 24

The 10 times-table

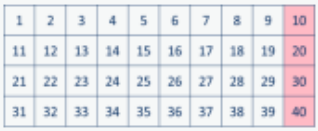
Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.

… lots of 10 =
… × 10 =



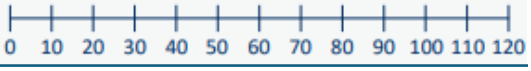
?					
10	10	10	10	10	10

… times 10 is equal to …



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

$1 \times 10 = 10 \quad 10 = 1 \times 10$
$2 \times 10 = 20 \quad 20 = 2 \times 10$
$3 \times 10 = 30 \quad 30 = 3 \times 10$

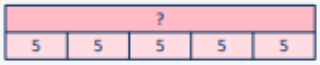


0 10 20 30 40 50 60 70 80 90 100 110 120

The 5 times-table

Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.

... lots of 5 =
... × 5 =



... times 5 is equal to ...

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

$1 \times 5 = 5$ $\quad 5 = 1 \times 5$

$2 \times 5 = 10$ $\quad 10 = 2 \times 5$

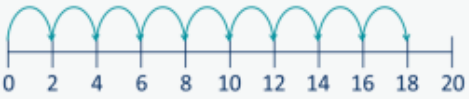
$3 \times 5 = 15$ $\quad 15 = 3 \times 5$

Missing numbers

Make links to known facts.

... is equal to ... groups of ...

18 socks, how many pairs?



... times ... is equal to ...

$\square \times 2 = 18$

$18 = 2 \times \square$

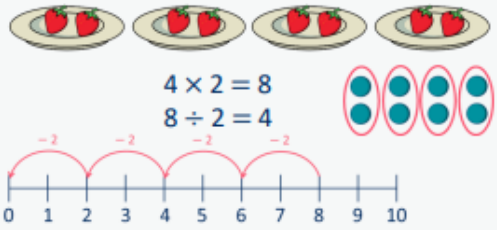
Year 2

Recall and use division facts for the 2, 5 and 10 multiplication tables.
Calculate mathematical statements for division within the multiplication tables and write them using the division (÷) and equals (=) signs.
Recognise, find, name and write fractions 1/3 , 1/4 , 2/4 and 3/4 of a quantity.

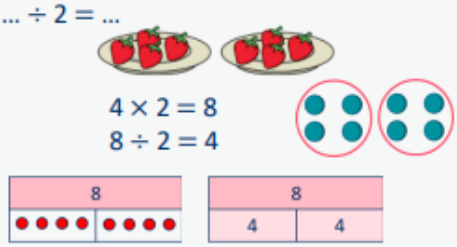
Divide by 2

Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts and halving.

There are … equal groups of 2
… ÷ 2 = …



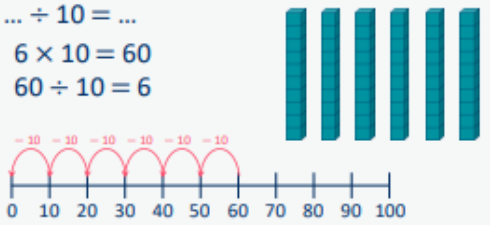
… shared equally between 2 is …
Half of … is …
… ÷ 2 = …



Divide by 10

Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.

There are … equal groups of 10
… ÷ 10 = …

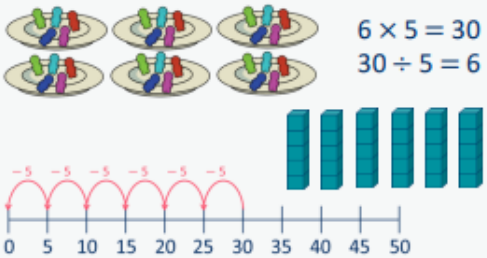


… shared equally between 10 is …
… ÷ 10 = …

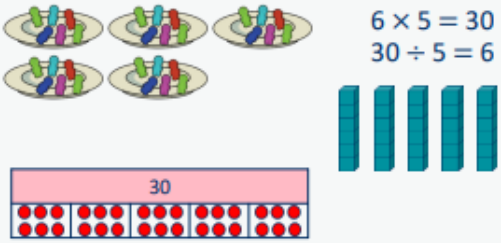
Divide by 5

Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.

There are … equal groups of 5
… ÷ 5 = …



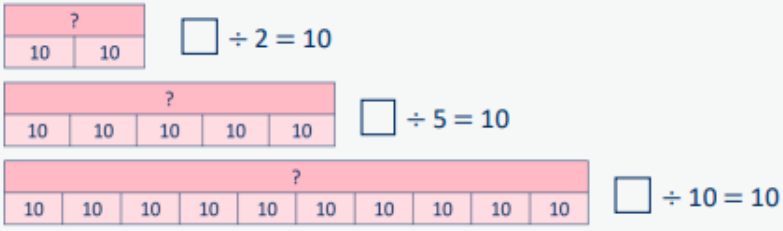
… shared equally between 5 is …
… ÷ 5 = …



Missing numbers

Bar models are useful to show the link between multiplication and division.

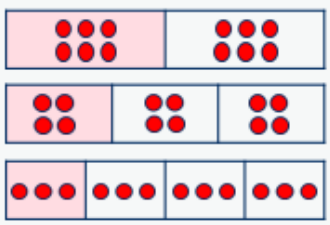
… divided by 2/5/10 is equal to …



Unit fractions

In Y2 the focus is on finding $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$
Bar models are useful to show the link between division and finding a fraction.

The objects have been shared fairly into … groups.
$\frac{1}{\square}$ of … is …



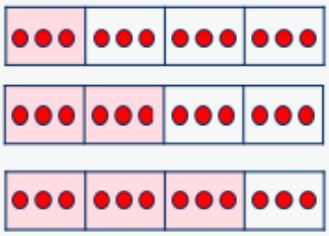
There are … equal parts.
There is … part circled.
$\frac{1}{\square}$ is circled.

Non-unit fractions

In Y2 the focus is on finding $\frac{2}{4}$ and $\frac{3}{4}$

Prompt children to notice that $\frac{2}{4}$ is equivalent to $\frac{1}{2}$

The objects have been shared fairly into … groups.
$\frac{\square}{\square}$ of … is …



There are … equal parts.
There are … parts circled.
$\frac{\square}{\square}$ is circled.