SCPS Calculation Guide

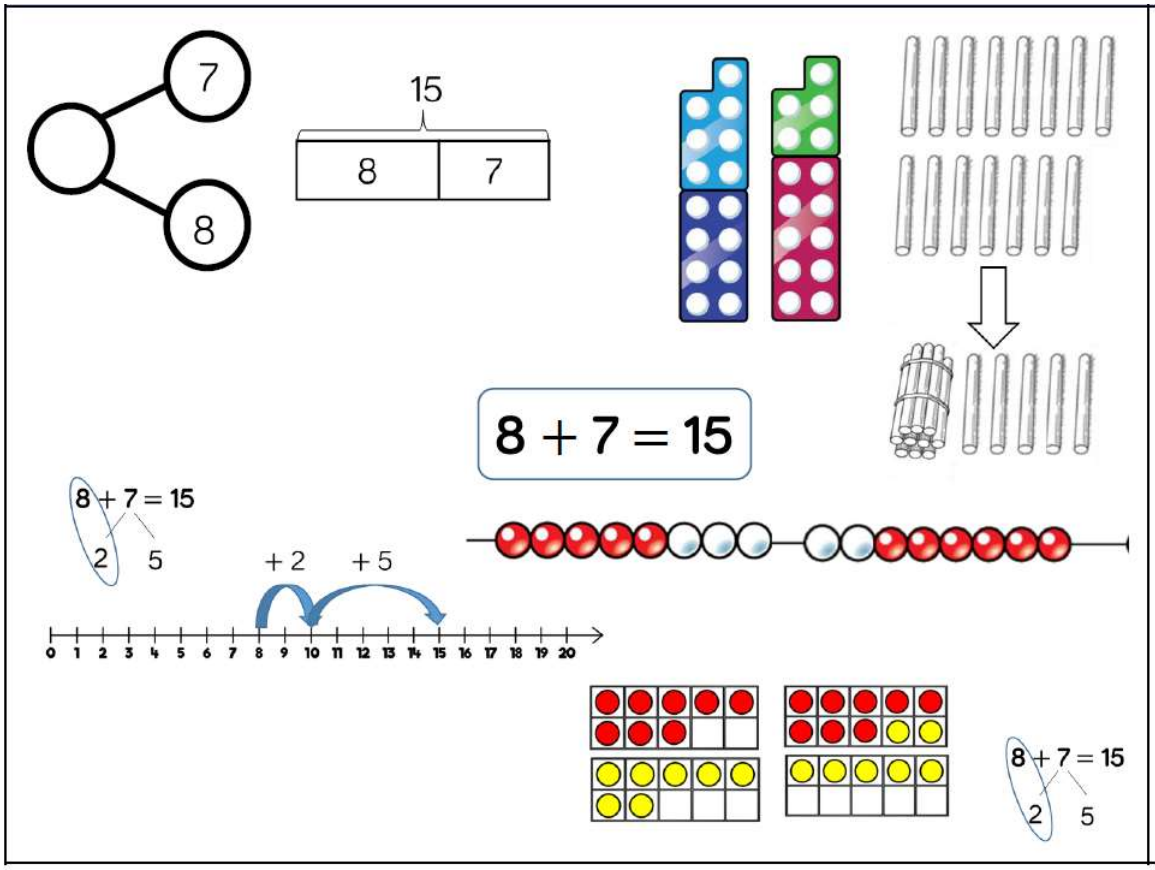
Year 2

This guide shows illustrations and examples of the methods used to teach addition, subtraction, multiplication and division

Year 2

Addition

Adding 1 and 2-digit Numbers to 20



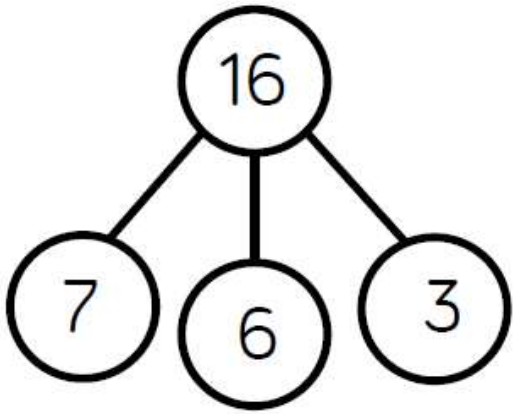
When adding one-digit numbers that cross 10, it is important to highlight the importance of ten ones equalling one ten.

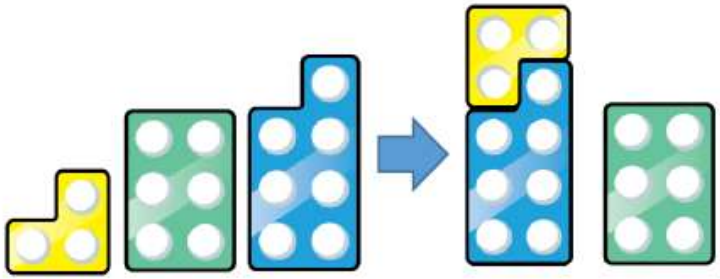
Different manipulatives can be used to represent this exchange. Use concrete resources alongside number lines to support children in understanding how to partition their jumps.

Models and Representations
Part-whole model Bar model Number shapes Ten frames (within 20)
Bead strings (20) Number tracks Number lines (labelled) Straws

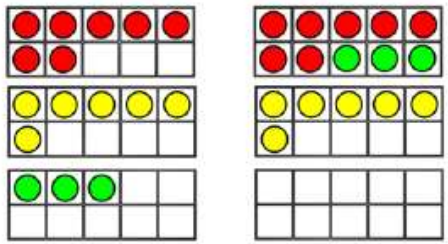
Year 2 Addition

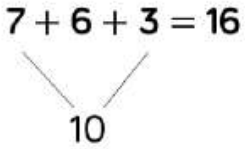
Add 3 one-digit numbers

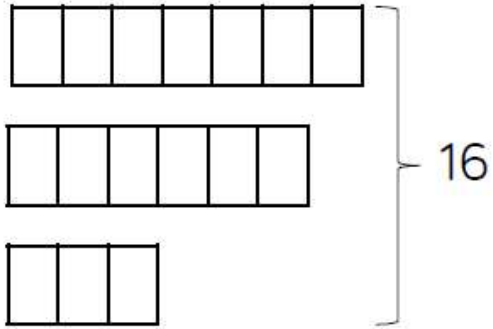




$$7 + 6 + 3 = 16$$







Models and Representations
Part-whole Model Bar Model
10 frames (within 20) Number shapes

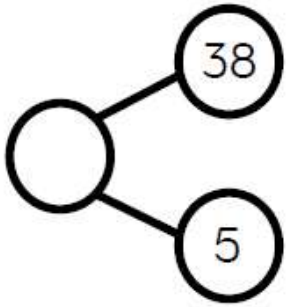
When adding three 1-digit numbers, children should be encouraged to look for number bonds to 10 or doubles to add the numbers more efficiently.

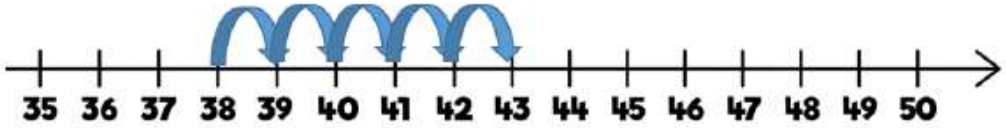
This supports children in their understanding of commutativity.

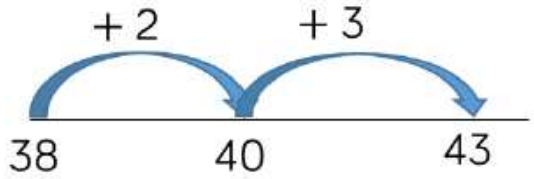
Manipulatives that highlight number bonds to 10 are effective when adding three 1-digit numbers.

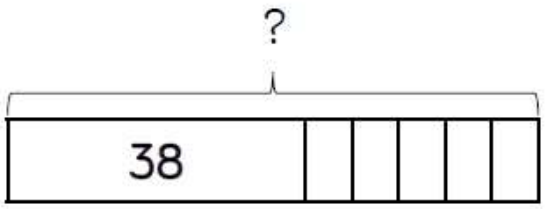
Year 2 Addition

Add one-digit and two-digit numbers to 100

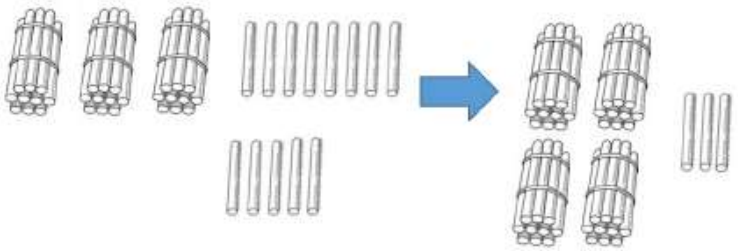








$$38 + 5 = 43$$



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
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Models and Representations

- Bar model
- Part-whole model
- Number lines (labelled)
- Number lines (blank)

- Straws
- Hundred square

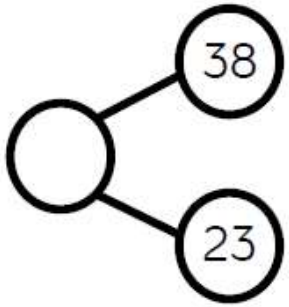
When adding single digits to a two-digit number, children should be encouraged to count on from the larger number.

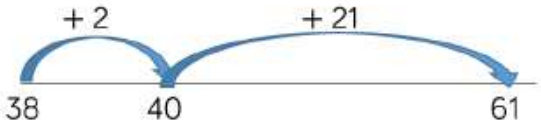
They should also apply their knowledge of ımber bonds to add more efficiently e.g. 8 + 5 = 13 so 38 + 5 = 43.

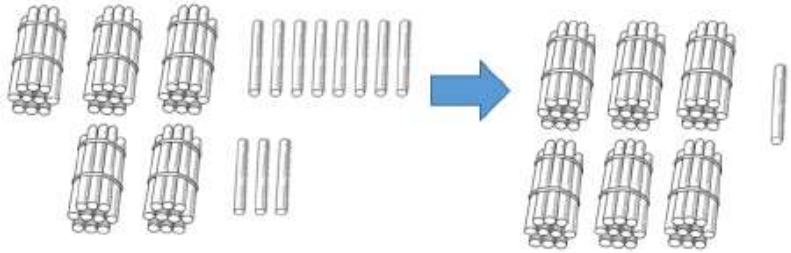
Hundred squares and straws can support children to find the number bond to 10.

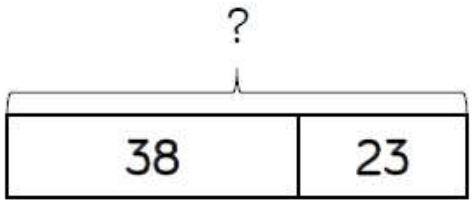
Year 2 Addition

Add 2 two-digit numbers to 100

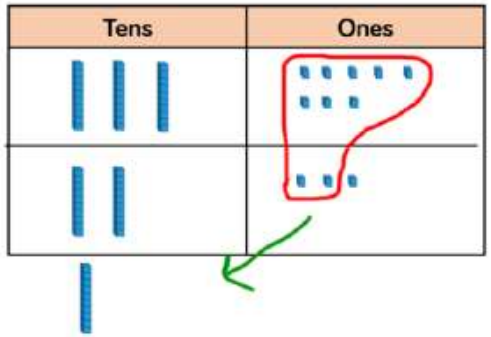




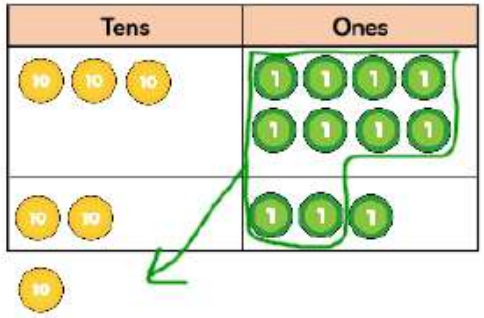




$$38 + 23 = 61$$



$$\begin{array}{r} 38 \\ +\ 23 \\ \hline 61 \\ \hline 1 \end{array}$$



Models and Representations
Part-whole model Bar model Number lines (blank) Straws
Place value counters Base 10

Children can use a blank number line and other representations to count on to find the total.

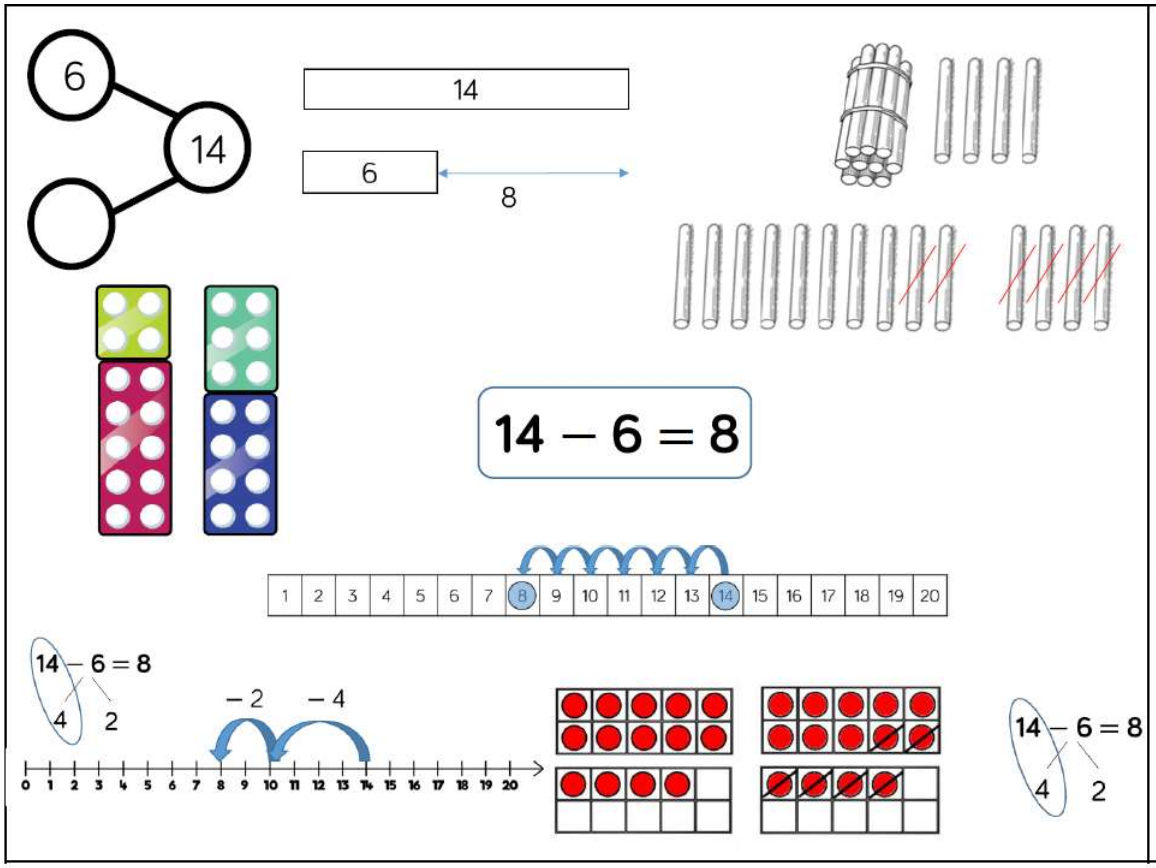
Encourage them to jump to multiples of 10 to become more efficient.

From Year 3, encourage children to use the formal column method when calculating alongside straws, base 10 or place value counters. As numbers become larger, straws become less efficient.

Year 2

Subtraction

Subtract 1 and 2-digit Numbers to 20



When subtracting one-digit numbers that cross 10, it is important to highlight the importance of ten ones equalling one ten.

Children should be encouraged to find the number bond to 10 when partitioning the subtracted number. Ten frames, number shapes and number lines are particularly useful for this.

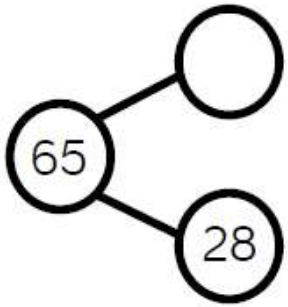
Models and Representations

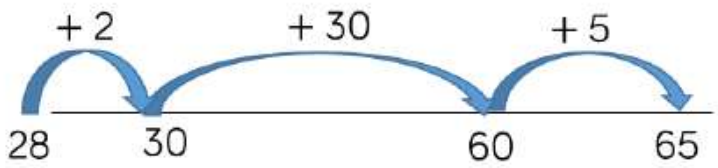
Part-whole model
Bar model
Number shapes
Ten frames (within 20)

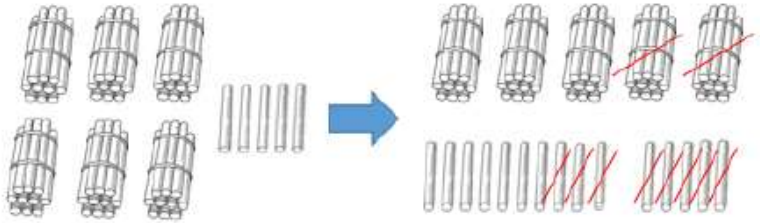
Bead strings (20)
Number tracks
Number lines (labelled)
Straws

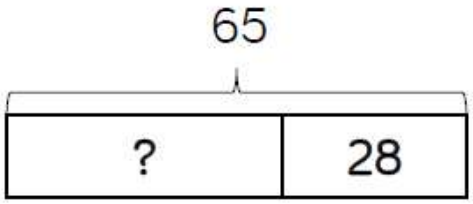
Year 2 Subtraction

Subtract one- and two-digit numbers to 100

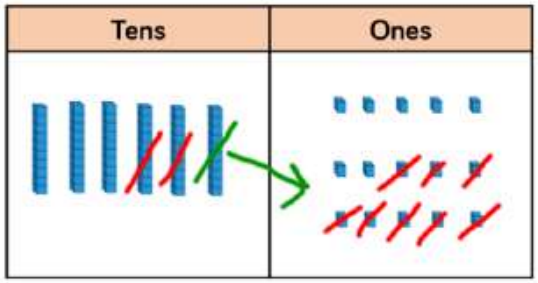




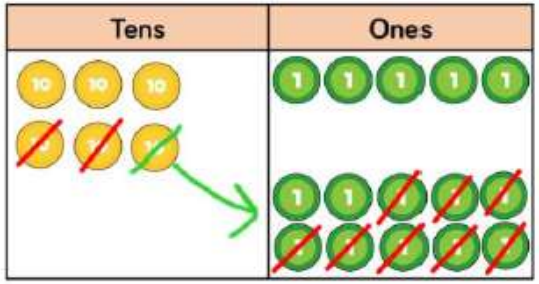




$65 - 28 = 37$



$$\begin{array}{r} {}^{5}\cancel{6}\,{}^{1}5 \\ -\ 28 \\ \hline 37 \end{array}$$



Models and Representations
Part-whole model Bar model Number lines (labelled or blank)
Hundred square Straws

Children can also use a blank number line to count back to find the difference.

Encourage them to jump to multiples of 10 to become more efficient.

From Year 3, encourage children to use the formal column method when calculating alongside straws, base 10 or place value counters.

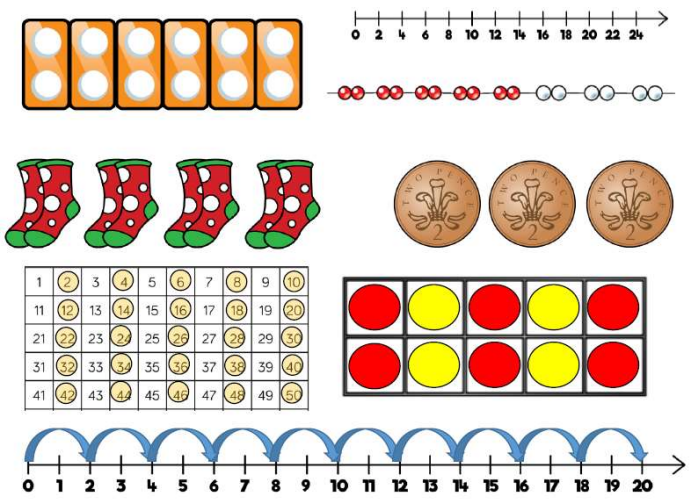
As numbers become larger, straws become less efficient.

Year 2 Times Tables

Representations and models	
Bar model	Ten frames
Number shapes	Bead strings
Counters	Number lines
Money	Everyday objects
Bar model	Ten frames
Number shapes	Bead strings
Counters	Number lines
Money	Everyday objects
Hundred square	Ten frames
Number shapes	Bead strings
Counters	Number lines
Money	Base 10

Skill: 2 times table

Year: 2



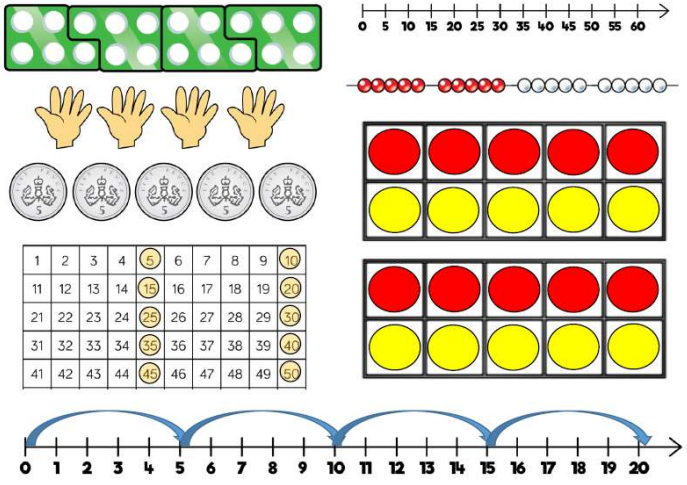
Encourage daily counting in multiples both forwards and backwards. This can be supported using a number line or a hundred square.

Look for patterns in the two times table, using concrete manipulatives to support. Notice how all the numbers are even and there is a pattern in the ones.

Use different models to develop fluency.

Skill: 5 times table

Year: 2

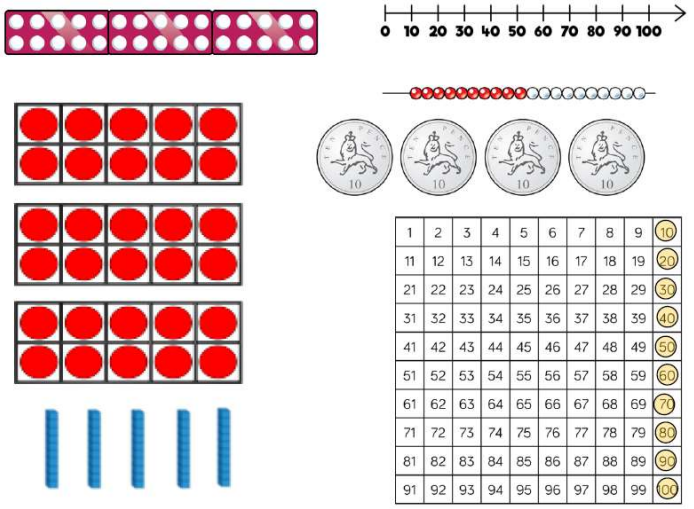


Encourage daily counting in multiples both forwards and backwards. This can be supported using a number line or a hundred square.

Look for patterns in the five times table, using concrete manipulatives to support. Notice the pattern in the ones as well as highlighting the odd, even, odd, even pattern.

Skill: 10 times table

Year: 2



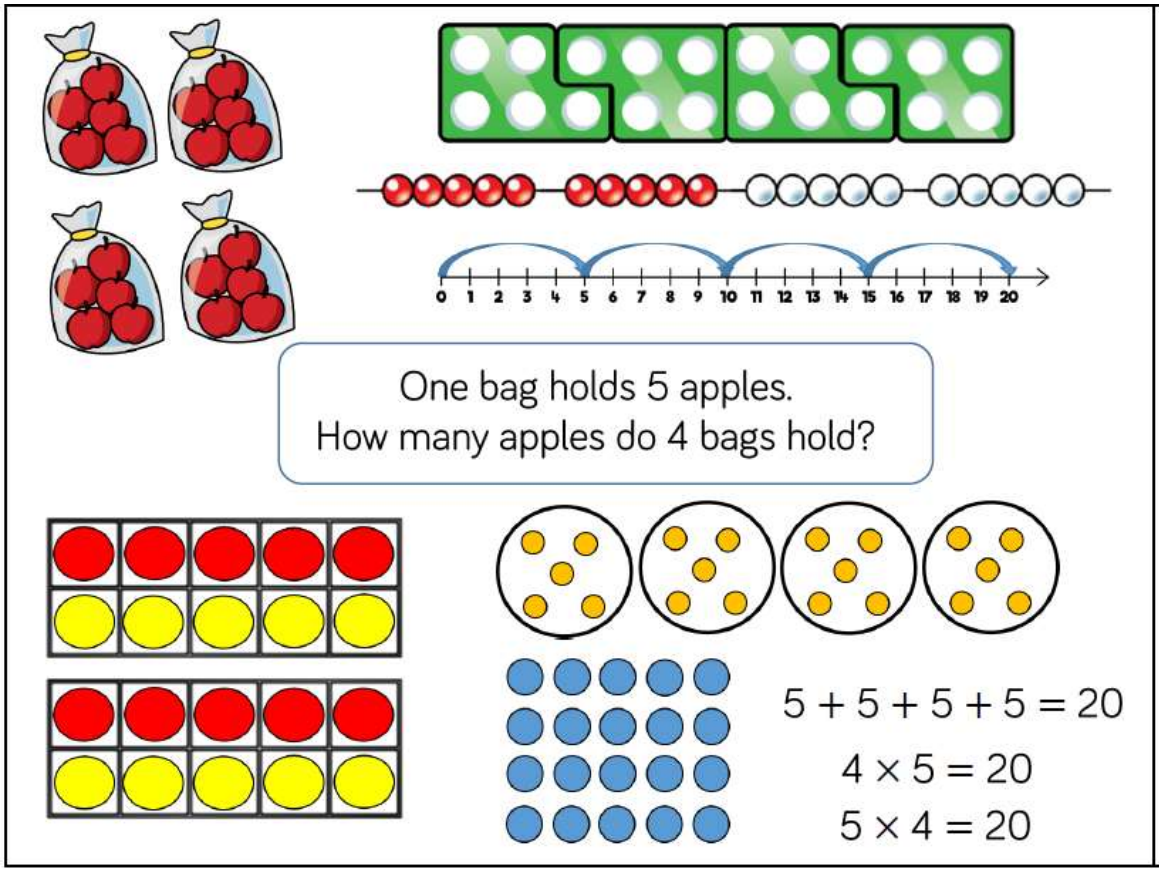
Encourage daily counting in multiples both forwards and backwards. This can be supported using a number line or a hundred square.

Look for patterns in the ten times table, using concrete manipulatives to support. Notice the pattern in the digits- the ones are always 0, and the tens increase by 1 ten each time.

Year 2

Multiplication

Solve 1-step problems with multiplication



Children represent multiplication as repeated addition in many different ways.

In Year 1, children use concrete and pictorial representations to solve problems. They are not expected to record multiplication formally.

In Year 2, children are introduced to the multiplication symbol.

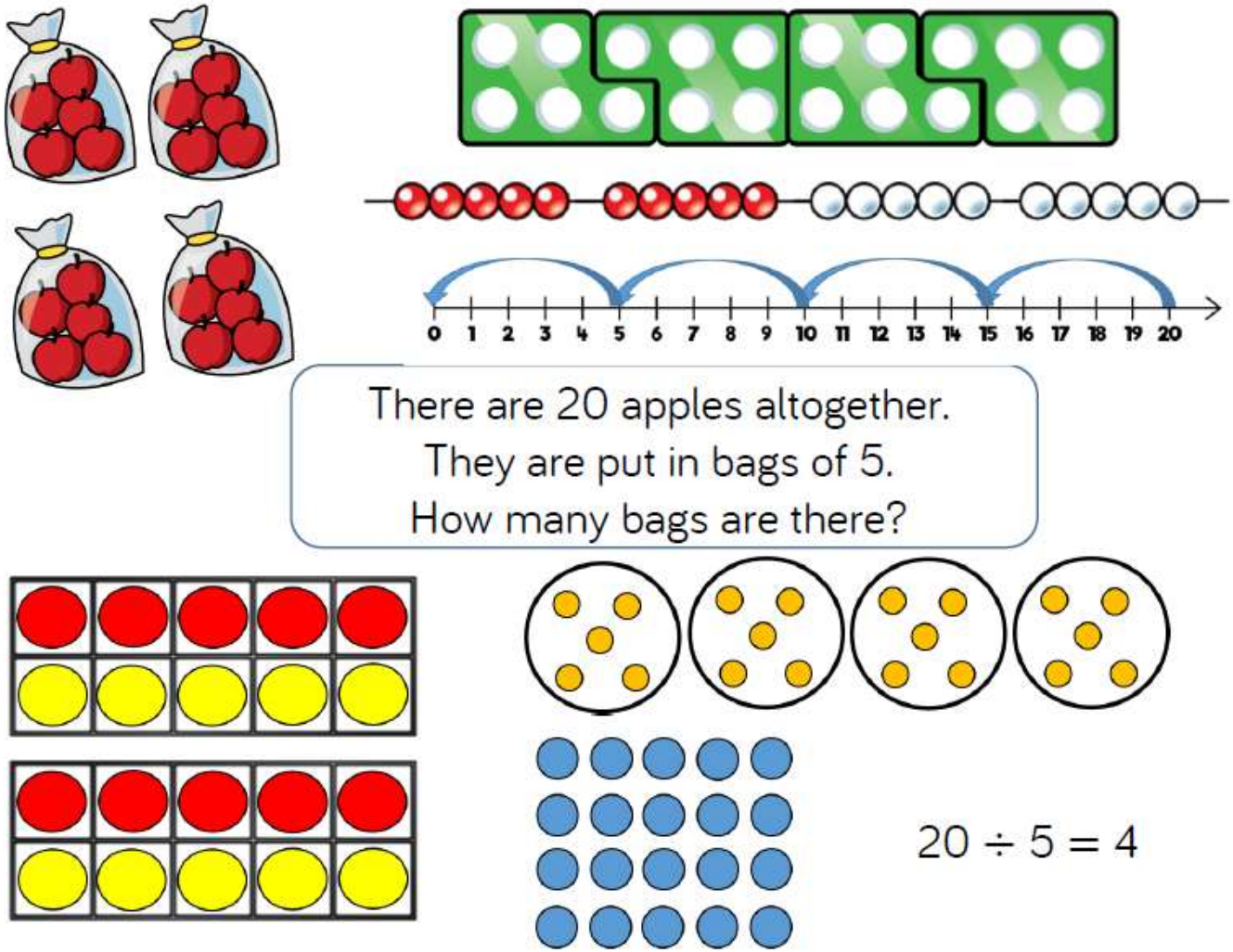
Models and Representations

Bar model
Number shapes
Counters

Ten frames
Bead strings
Number lines

Year 2 Division

Solve 1-step problems with division (grouping)



Models and Representations
Bar model Real life objects
Arrays Counters

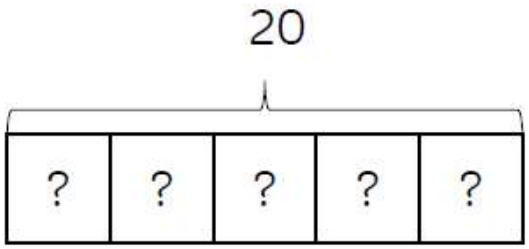
Children solve problems by grouping and counting the number of groups.

Grouping encourages children to count in multiples and links to repeated subtraction on a number line.

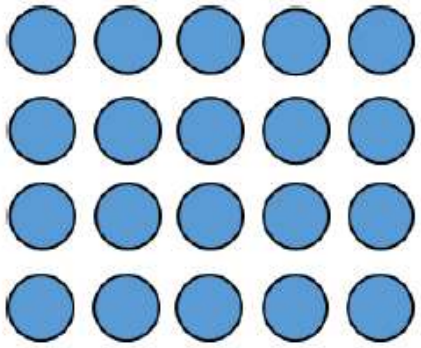
They can use concrete representations in fixed groups such as number shapes which helps to show the link between multiplication and division.

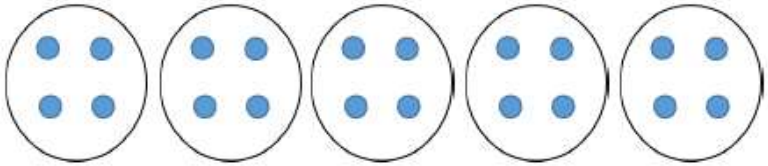
Year 2 Division

Solve 1-step problems using multiplication (sharing)



There are 20 apples altogether.
They are shared equally between 5 bags.
How many apples are in each bag?





$20 \div 5 = 4$

Models and Representations
Part-whole model Bar model
Arrays Counters

Children solve problems by sharing amounts into equal groups.

In Year 1, children use concrete and pictorial representations to solve problems.

They are not expected to record division formally.

In Year 2, children are introduced to the division symbol.