Year 1- 4

Calculation Policy
Multiplication and Division
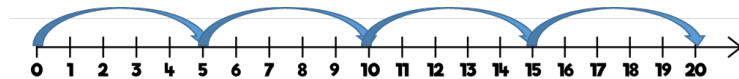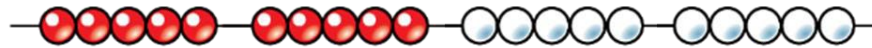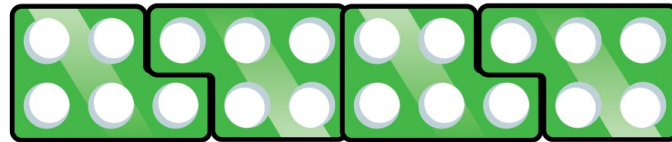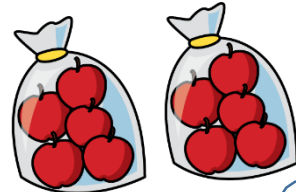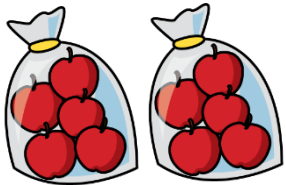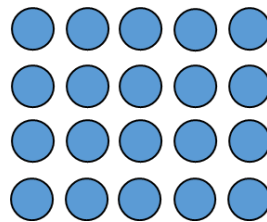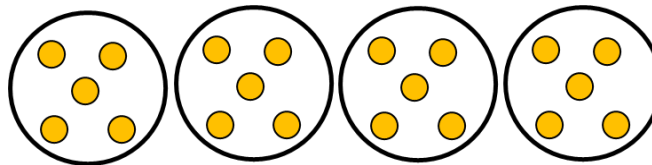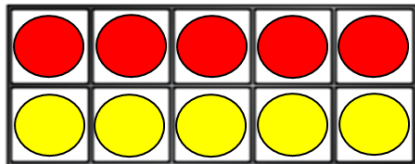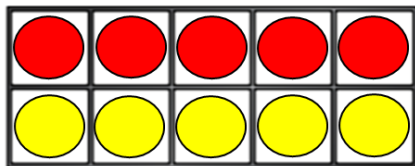
Love of learning, Love of Life itself and Love of God

HORMEAD C of E First School

White Rose Maths

Multiplication

Skill: Solve 1-step problems using multiplication	Year: 1/2

One bag holds 5 apples.
How many apples do 4 bags hold?

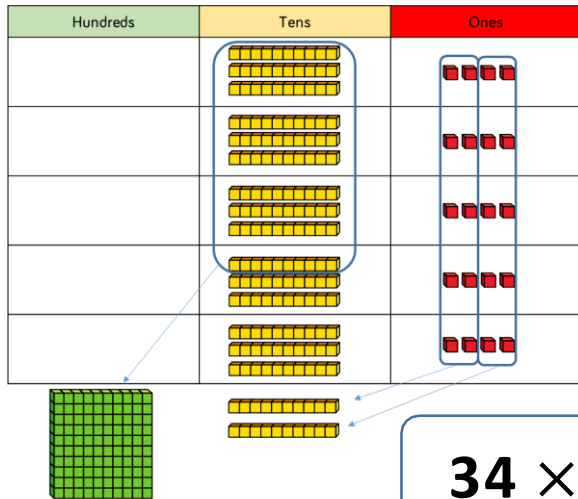$5 + 5 + 5 + 5 = 20$

$4 \times 5 = 20$

$5 \times 4 = 20$

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.
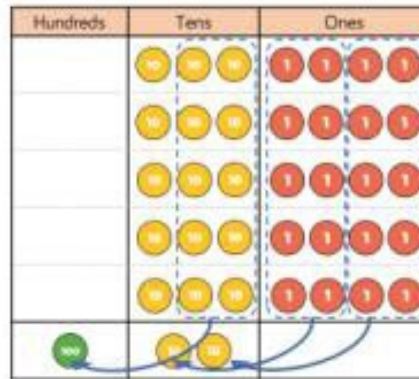
| Skill: Multiply 2-digit numbers by 1-digit numbers	Year: 3/4

$$34 \times 5 = 170$$

Informal methods and the expanded method are used in Year 3 before moving on to the short multiplication method in Year 4.

Place value counters should be used to support the understanding of the method rather than supporting the multiplication, as children should use times table knowledge.
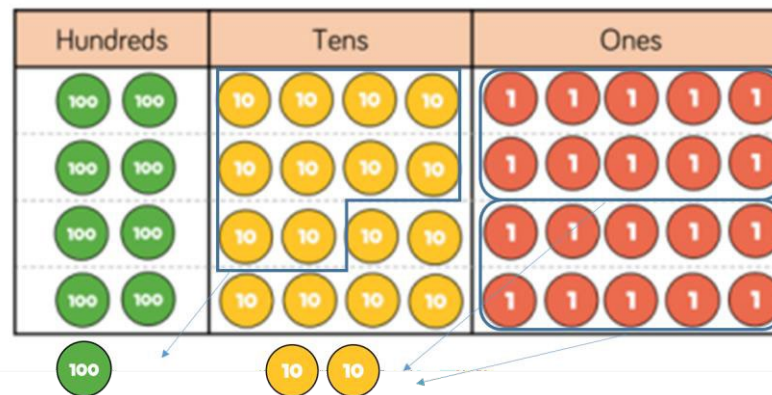
Skill: Multiply 3-digit numbers by 1-digit numbers	Year: 4

Hundreds	Tens	Ones

	H	T	O
	2	4	5
×			4
	9	8	0
		1	2

$$245 \times 4 = 980$$

Hundreds	Tens	Ones
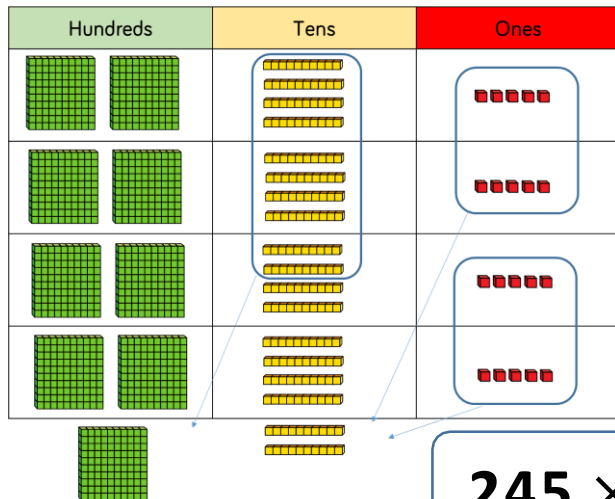
When moving to 3-digit by 1-digit multiplication, encourage children to move towards the short, formal written method.

Base 10 and place value counters continue to support the understanding of the written method. Limit the number of exchanges needed in the questions and move children away from resources when multiplying larger numbers.

Division

Skill: Solve 1-step problems using multiplication (sharing)	Year: 1/2
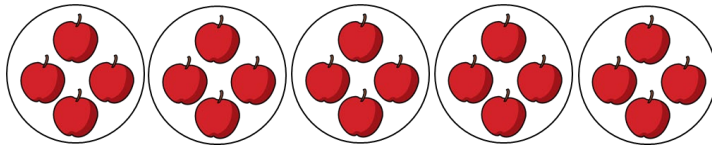
20

? ? ? ? ?
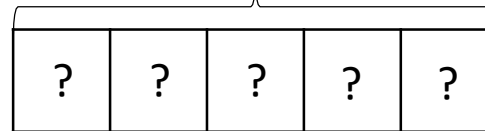
There are 20 apples altogether.
They are shared equally between 5 bags.
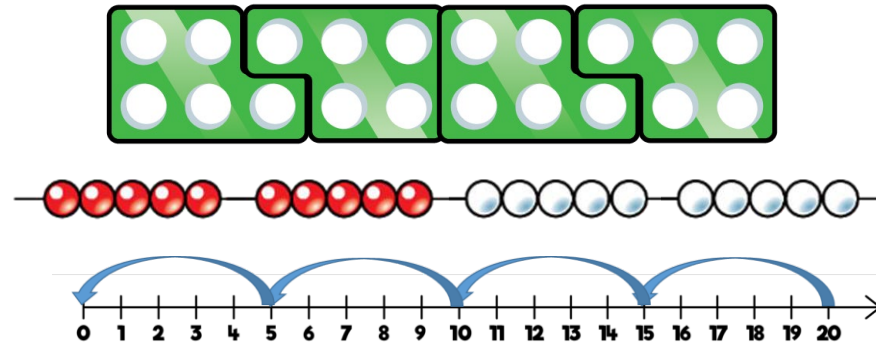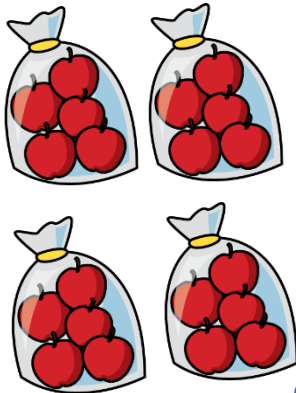How many apples are in each bag?
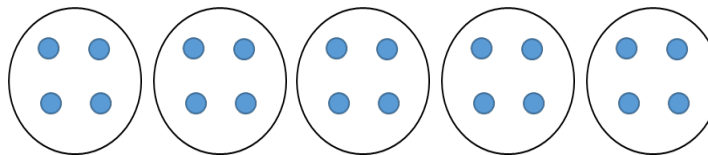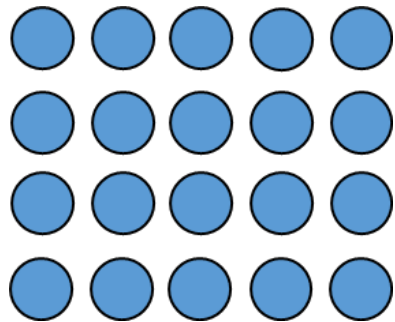
$20 \div 5 = 4$

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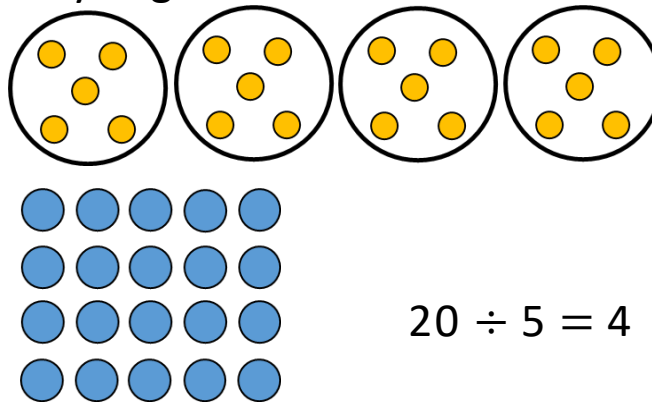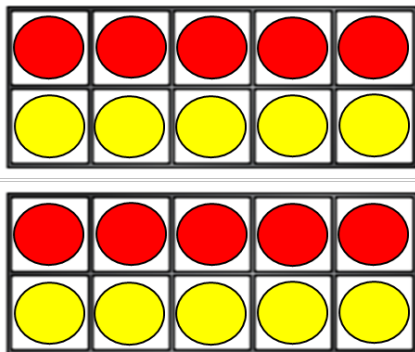
In Year 2, children are introduced to the division symbol.

Skill: Solve 1-step problems using division (grouping)	Year: 1/2

There are 20 apples altogether.
They are put in bags of 5.
How many bags are there?

$20 \div 5 = 4$

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.

Skill: Divide 2-digits by 1-digit (sharing with no exchange)	Year: 3

Tens	Ones
10 10	1 1 1 1
10 10	1 1 1 1
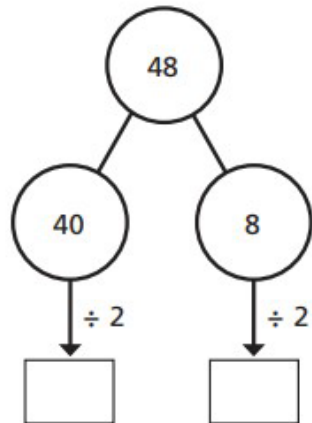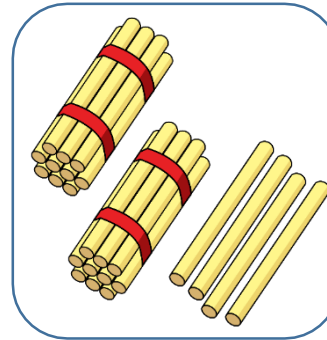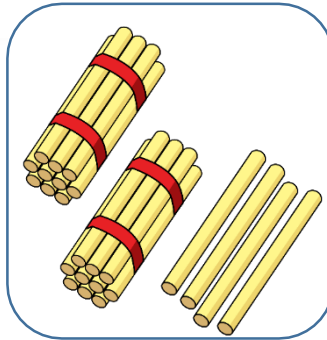
$$48 \div 2 = 24$$
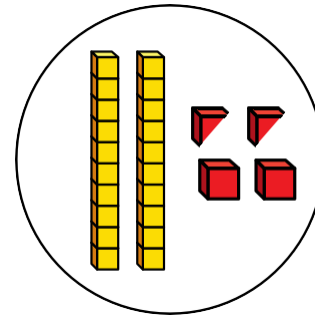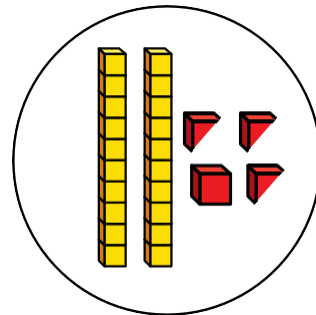
When dividing larger numbers, children can use manipulatives that allow them to partition into tens and ones.

Straws, Base 10 and place value counters can all be used to share numbers into equal groups.

Part-whole models can provide children with a clear written method that matches the concrete representation.

Skill: Divide 2-digits by 1-digit (sharing with exchange)	Year: 3/4

Tens	Ones

52

| ? | ? | ? | ? |

$$52 \div 4 = 13$$

52

40   12

÷ 4   ÷ 4

10   3
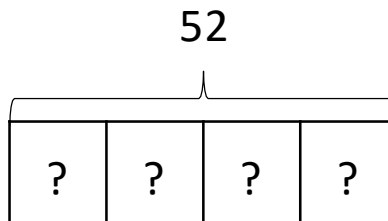
$$10 + 3 = 13$$
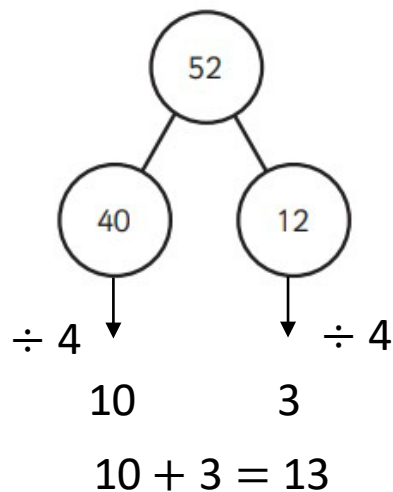
Tens	Ones

When dividing numbers involving an exchange, children can use Base 10 and place value counters to exchange one ten for ten ones. Children should start with the equipment outside the place value grid before sharing the tens and ones equally between the rows.
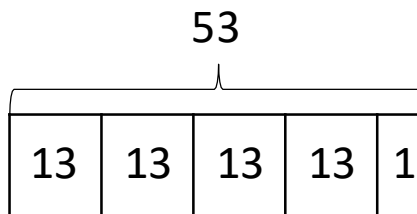
Flexible partitioning in a part-whole model supports this method.

Skill: Divide 2-digits by 1-digit (sharing with remainders)	Year: 3/4

$$53 \div 4 = 13\ r1$$

When dividing numbers with remainders, children can use Base 10 and place value counters to exchange one ten for ten ones.

Starting with the equipment outside the place value grid will highlight remainders, as they will be left outside the grid once the equal groups have been made.

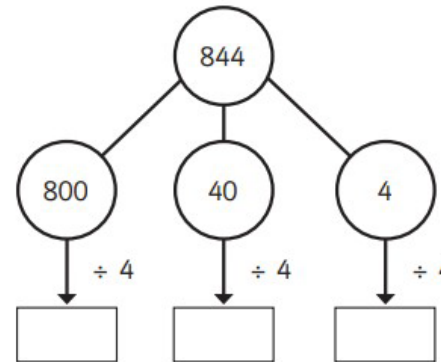Flexible partitioning in a part-whole model supports this method.

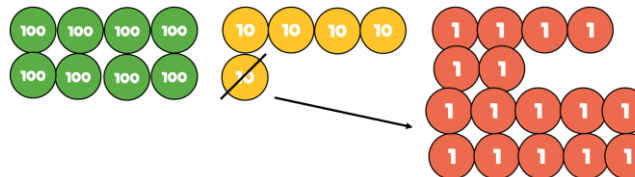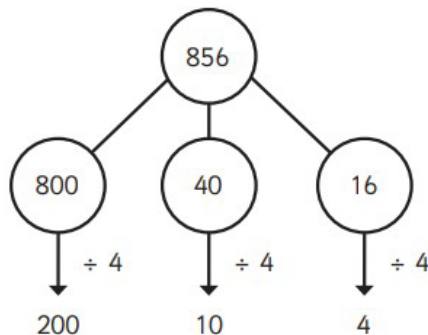| Skill: Divide 3-digits by 1-digit (sharing)	Year: 4

$$844 \div 4 = 211$$

844

?	?	?	?

H	T	O
100 100	10	1
100 100	10	1
100 100	10	1
100 100	10	1

844
800   40   4
÷ 4   ÷ 4   ÷ 4

$$856 \div 4 = 214$$

856
800   40   16
÷ 4   ÷ 4   ÷ 4
200   10   4

Hundreds	Tens	Ones
100 100	10	1 1 1 1
100 100	10	1 1 1 1
100 100	10	1 1 1 1
100 100	10	1 1 1 1

Children can continue to use place value counters to share 3-digit numbers into equal groups. Children should start with the equipment outside the place value grid before sharing the hundreds, tens and ones equally between the rows. This method can also help to highlight remainders. Flexible partitioning in a part-whole model supports this method.

Glossary

Array – An ordered collection of counters, cubes or other item in rows and columns.

Commutative – Numbers can be multiplied in any order.

Dividend – In division, the number that is divided.

Divisor – In division, the number by which another is divided.

Exchange – Change a number or expression for another of an equal value.

Factor – A number that multiplies with another to make a product.

Multiplicand – In multiplication, a number to be multiplied by another.

Partitioning – Splitting a number into its component parts.

Product – The result of multiplying one number by another.

Quotient – The result of a division

Remainder – The amount left over after a division when the divisor is not a factor of the dividend.

Scaling – Enlarging or reducing a number by a given amount, called the scale factor