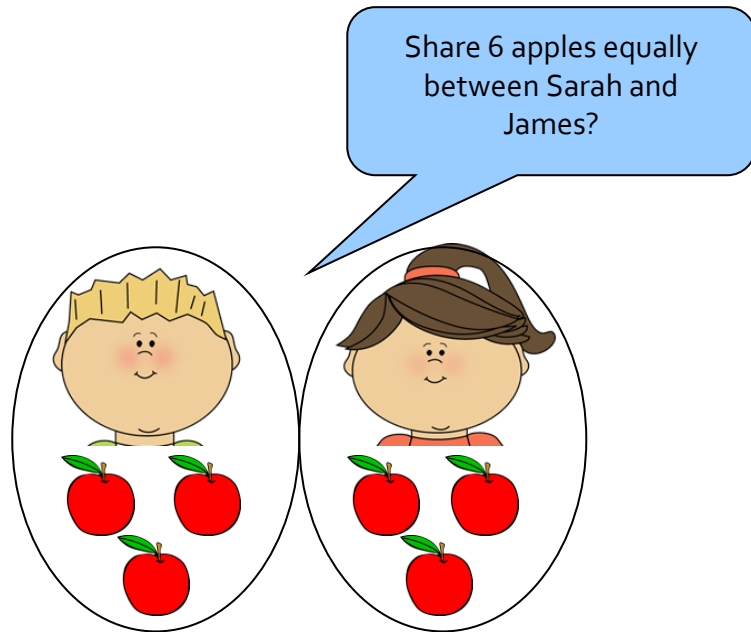


Division

EYFS

Children will engage in a wide variety of songs, rhymes, games and activities. In practical activities and through discussion, they will begin to solve problems involving sharing into equal groups and halving.



Children will understand equal groups and share items out in play and problem solving.

Key Vocabulary

Share, sharing, equal, equally, how many, etc.

Key skills for addition at EYFS

- Solve problems, including halving.

Division

Year 1

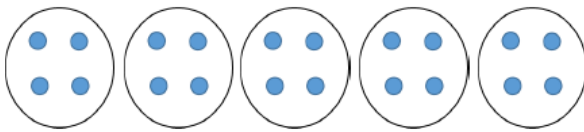
Children will start with practical sharing using a variety of resources. They will share objects into equal groups in a variety of situations.

They will begin to use the vocabulary associated with division in practical contexts.

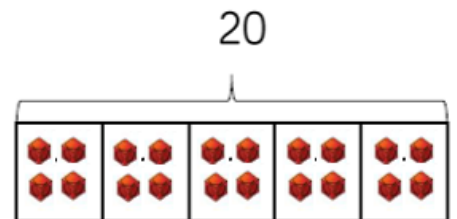
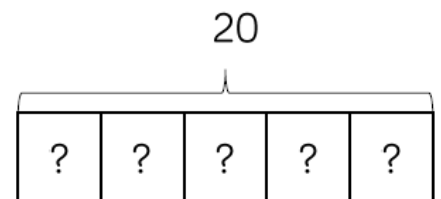
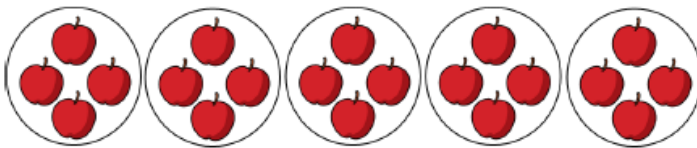


Share these 12 crayons equally between two children. How many crayons will each child have?

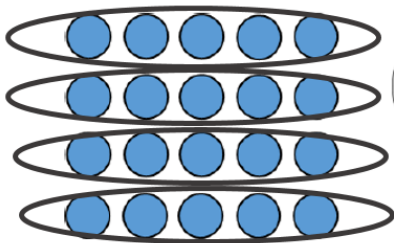
Children will move from **sharing** to **grouping** in a practical way.



$$20 \div 5 = 4$$



Use arrays to support early division.



$$20 \div 5 = 4$$

Key Vocabulary

share, share equally, one each, two each..., group, groups of, lots of, array

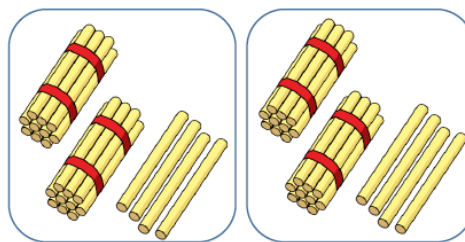
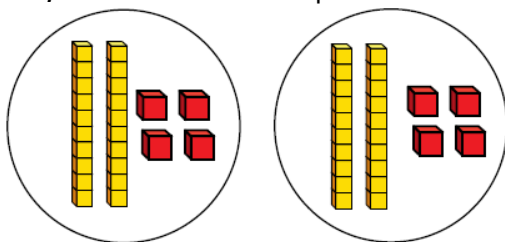
National Curriculum requirements

- Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations arrays with the support of the teacher
- Through grouping and sharing small quantities, pupils begin to understand, division, and finding simple fractions of objects, numbers and quantities.

Division

Year 2

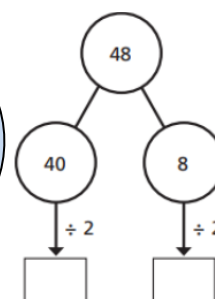
Using objects, Numicon, arrays, pictorial representations and grouping on a number line, children will develop their understanding of division further.



Tens	Ones
10 10	1 1 1 1
10 10	1 1 1 1



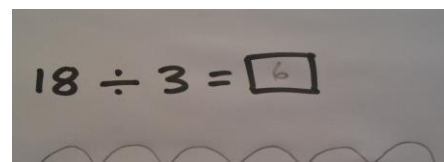
As children become more confident, they partition the number using a part-part whole model to divide.



When children are ready, use an empty number line to count forwards:

$$18 \div 3 = 6$$

In this method, children group from zero in equal jumps to find out, 'how many groups of _ make _.'



Key Vocabulary

share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over


National Curriculum requirements









- Count in steps of 2, 3, and 5 from 0
- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.
- Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the \times , \div and $=$ signs.
- Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.
- Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.


Division









Year 3

In year 3 children will continue to use practical resources, pictures, diagrams, number lines, arrays and the \div sign to record division calculations.



Tens	Ones
	
	
	
	



Tens	Ones
	
	
	
	

Children will use the formal layout using multiplication/division facts that they know through the learning of their tables:

Use the language of place value to ensure understanding.

$$72 \div 4 = 18$$

$$\begin{array}{r} 18 \\ 4 \overline{) 72} \end{array}$$

They will continue to use the formal written layout (above) then progress on to the formal written method of short division.

$$25 \div 2 = 12 \text{ r } 1$$

$$\begin{array}{r} 12 \text{ r } 1 \\ 2 \overline{) 25} \end{array}$$

Although remainders are not specifically referred to until year 5, it may be appropriate to introduce them when dealing with practical contexts.

Key Vocabulary

share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, **inverse**, **short division**, **'carry'**, **remainder**, **multiple**

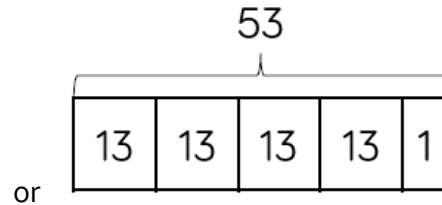
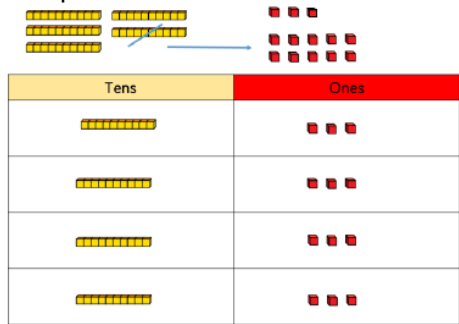
National Curriculum requirements

- Recall and use division facts for the 2, 3, 4, 5, 8 and 10 multiplication tables
- Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers divided by one digit
- Solve problems, in contexts, and including missing number problems, involving division.
- Pupils develop efficient mental methods, for example, using division facts (e.g. using $3 \times 2 = 6$, $6 \div 3 = 2$ and $2 = 6 \div 3$) to derive related facts ($30 \times 2 = 60$, so $60 \div 3 = 20$ and $20 = 60 \div 3$).
- Pupils develop reliable written methods for division, starting with calculations of 2-digit numbers by 1-digit numbers using an ENL.
- Halve even numbers up to 50 and multiples of ten to 100
- Perform divisions within the tables including those with remainders, e.g. $38 \div 5$.

Division

Year 4

Children will practise and refine the formal method for short division where appropriate and lead on to more complex examples involving three digit numbers and remainders. Children will still need to use physical manipulatives to understand the concept of exchange.



NB: Children will be reminded of the importance of accurate place value and keeping digits in the correct squares.

$$428 \div 4 =$$

$$\begin{array}{r} 107 \\ 4 \overline{) 428} \end{array}$$

Answer = 107

In examples such as this, the importance of the zero will be a focus to ensure understanding.

Move on to short division with remainders if children are confident in above methods.

$$432 \div 5$$

$$\begin{array}{r} 86 \text{ r } 2 \\ 5 \overline{) 432} \end{array}$$

Answer = 86 r 2

Key Vocabulary

share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, 'carry', remainder, multiple, divisible by, factor

National Curriculum requirements

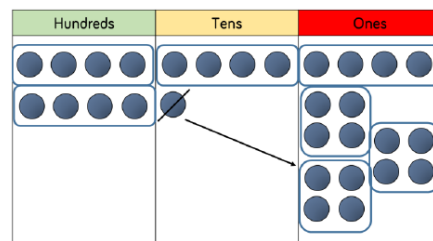
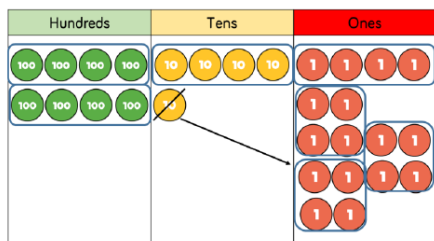
- Use a written method to divide a 2-digit or a 3-digit number by a single-digit number.
- Give remainders as whole numbers.
- Recall multiplication and division facts for all numbers up to 12×12 .
- Use place value, known and derived facts to multiply and divide mentally, including: multiplying and dividing by 10 and 100 and 1.
- Pupils practise to become fluent in the formal written method of short division with exact answers when dividing by a one-digit number
- Pupils practise mental methods and extend this to three-digit numbers to derive facts, for example $200 \times 3 = 600$ so $600 \div 3 = 200$
- Pupils solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers. This should include correspondence questions such as three cakes shared equally between 10 children.

Division

Year 5

In year 5, children will be able to use the short division method to divide numbers up to 4 digits by a one-digit number. For those who are more confident, they could progress to dividing by two-digit numbers.

		2	1	4
	4	8	5	16



Children are taught how to express their answers as remainders, decimals or fractions.

$$6497 \div 8 =$$

$$8 \overline{) 6497} \quad 8 \overline{) 6497.0000}$$

My answer as a:

- Remainder = $812 \text{ r } 1$
- Decimal = 812.125
- Fraction = $812 \frac{1}{8}$

In addition, children should be able to interpret remainders appropriately for real life contexts, including using money and measures.

Rounding up or down?

Each CD rack holds 12 CDs. If Jenny has 134 CDs, how many racks will she need to hold all her CDs?

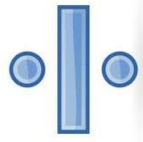
Do I round (up) or down?

Key Vocabulary

share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, 'carry', remainder, multiple, divisible by, factor **quotient, prime number, prime factors, composite number (non-prime)**

National Curriculum requirements

- Recall multiplication and division facts for all numbers up to 12×12 (as in Y4).
- Multiply and divide numbers mentally, drawing upon known facts.
- Identify multiples and factors, including finding all factor pairs of a number, and common factors of two number.
- Solve problems involving multiplication and division where larger numbers are decomposed into their factors.
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
- Use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.
- Work out whether a number up to 100 is prime, and recall prime numbers to 19
- Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
- Use multiplication and division as inverses. Interpret non-integer answers to division by expressing results in different ways according to the context, including with remainders, as fractions, as decimals or by rounding (e.g. $98 \div 4 = 24 \text{ r } 2 = 24 \frac{1}{2} = 24.5 \approx 25$).



Division

Year 6

Children should continue to use the short division method taught in previous years becoming more accurate and precise in their pictorial and abstract understanding and representation.

	0	4	8	9
15	7	7 ₃	13 ₃	13 ₅

They move on to dividing by two-digit numbers using long division. As in year 5, real life contexts will be used.

Chunking method of division:

		0	3	6	
1	2	4	3	2	(x30)
	-	3	6	0	
			7	2	(x6)
	-		7	2	
				0	

$12 \times 1 = 12$
 $12 \times 2 = 24$
 $12 \times 3 = 36$
 $12 \times 4 = 48$
 $12 \times 5 = 60$
 $12 \times 6 = 72$
 $12 \times 7 = 84$
 $12 \times 8 = 96$
 $12 \times 7 = 108$
 $12 \times 10 = 120$

Formal long division method:

$8640 \div 15 =$

15 goes into 86 five times, so put a 5 above the 6.
 $15 \times 5 = 75$
 Take that 75 away from 86 to get your remainder.
 $86 - 75 = 11$

15 into 8 doesn't go, so look at the next digit.

Next, bring down the 4 to make 114.
 15 goes into 114 seven times, so put a 7 above the 4.
 $15 \times 7 = 105$
 Take 105 from the 114 to get your remainder
 $114 - 105 = 9$

Bring the 0 down to make 90. 15 goes into 90 exactly 6 times, so put a 6 above the 0.
 $15 \times 6 = 90$

Key Vocabulary

As year 5 plus common factor.

National Curriculum requirements

- Recall and use multiplication and division facts for all numbers to 12×12 for more complex calculations
- Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. Use short division where appropriate.
- Perform mental calculations, including with mixed operations and large numbers.
- Identify common factors, common multiples and prime numbers.
- Solve problems involving all 4 operations.
- Use estimation to check answers to calculations and determine accuracy, in the context of a problem.
- Use written division methods in cases where the answer has up to two decimal places.
- Solve problems which require answers to be rounded to specified degrees of accuracy.