

Division - Year Four

- ◆ Recall multiplication and division facts for multiplication tables up to 12×12
- ◆ Use place value, known and derived facts to divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying by three numbers
- ◆ *Divide two-digit and three-digit numbers by a one-digit number using formal written layout (not explicitly stated in the programmes of study but implied in the non-statutory guidance).*

Continue to write and calculate mathematical statements for division using the multiplication tables that the children know e.g.

$$32 \div 8 = 4$$

Continue using the formal written layout for division using multiplication tables that they know:

'How many eights are there in thirty two?'

Continue using the **formal written layout, introducing remainders**:

$$25 \div 3 = 8 \text{ r}1$$

$$\begin{array}{r} 8 \text{ r} 1 \\ 3 \overline{) 25} \end{array}$$

NB Remainders are not specifically referred to until Year 5 in the National Curriculum.

However, this may be an appropriate point to introduce them using familiar multiplication facts.

Division - Year Five

- ◆ Multiply and 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

Continue to practise the **formal written method of short division** with whole number answers...

$$184 \div 8 = 23$$

$$\begin{array}{r} 23 \\ 8 \overline{) 184} \end{array}$$

...and with remainders:

$$432 \div 5 = 86 \text{ r}2$$

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

The remainder can also be expressed as a fraction, $\frac{2}{5}$ (the remainder divided by the divisor): $432 \div 5 = 86 \frac{2}{5}$

Continue to practise, develop and extend the formal method of short division, with and without remainders. Extend to decimal remainders. Interpret and express remainders according to the context.

Division - Year Six

- ◆ Solve problems involving addition, subtraction, multiplication and division
- ◆ Multiply and divide numbers up to 4 digits by a two-digit number using the formal written method of **short division** where appropriate, interpreting remainders according to the context (*non-statutory guidance*)
- ◆ 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 (*non-statutory guidance*)

Formal written method (long division)

$$496 \div 11 = 45 \text{ r}1$$

$$\begin{array}{r} 45 \text{ r} 1 \\ 11 \overline{) 496} \\ \underline{- 440} \quad (40 \times 11) \\ 56 \\ \underline{- 55} \quad (5 \times 11) \\ 1 \quad (\text{remainder}) \end{array}$$

Multiples of the divisor (11) have been subtracted from the dividend (496)

'40 (lots of 11) + 5 (lots of 11) = 45 (lots of 11)'

'1 is the remainder'

Answer: $45\frac{1}{11}$



Stages in Division

Mental methods of calculation

Oral and mental work in mathematics is essential, particularly so in calculation. Early practical, oral and mental work must lay the foundations by providing children with a good understanding of how the four operations build on efficient counting strategies and a secure knowledge of place value and number facts.

Later work must ensure that children recognise how the operations relate to one another and how the rules and laws of arithmetic are to be used and applied.

Division- Early Stages (EYFS)

Children will engage in a wide variety of songs and rhymes, games and activities.

In practical activities and through discussion they will begin to solve problems involving halving and sharing.



Share the apples between two people.

'Half of the apples for you and half of the apples for me.'



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Division - Year One

- ♦ Solve one-step problems involving division by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher
- ♦ Count in multiples of twos, fives and tens (**to the 10th multiple**)

Children will start with practical sharing using a variety of resources.

They will share objects into equal groups in a variety of situations.

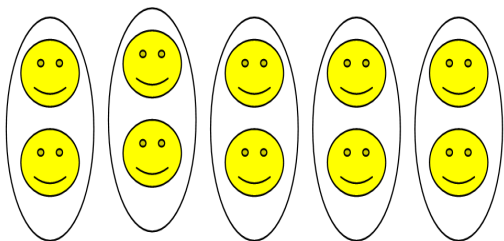
Children will move from **sharing to grouping** in a practical way

'Put 20 crayons into groups of 10. How many pots do we need?'

Use arrays to support early division



'How many faces altogether? How many groups of two?'



Division - Year Two

- ♦ Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables
- ♦ Calculate mathematical statements for division within the multiplication tables they know and write them using the division (\div) and equals (=) signs
- ♦ Solve problems involving division, using materials, arrays, repeated subtraction, mental methods, and multiplication and division facts, including problems in contexts

Sharing and grouping:



$$30 \div 10 = 3$$

$$30 \div 3 = 10$$

'30 crayons shared equally between three pots.' (Sharing)

'We have 30 crayons and put ten crayons in each pot.'

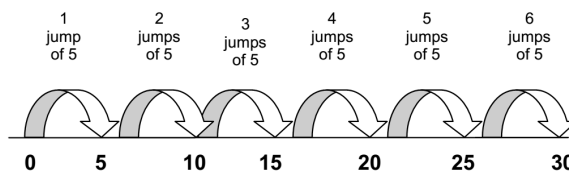
How many pots do we need?' (Grouping)

$$'30 \text{ divided by } 10 = 3'$$

$$'30 \text{ divided by } 3 = 10'$$

Grouping using a number line

$$30 \div 5 = 6$$

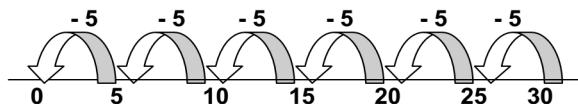


How many jumps of 5 make 30? Answer = 6

Also jump back to make the link with repeated subtraction:

$$30 \div 5 = 6$$

'How many groups of five?'



Division - Year Three

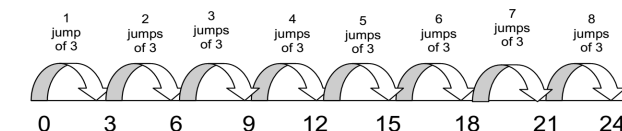
- ♦ Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables (continue to practise the 2, 5 and 10 multiplication tables)
- ♦ Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers divided by one-digit numbers, using mental and progressing to a formal written method
- ♦ Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

Continue to use practical resources, pictures, diagrams, number lines, arrays and the \div sign to record, using multiples that they know, as appropriate.

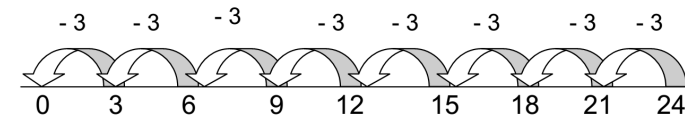
Using an empty number line to count forwards...

$$24 \div 3 = 8$$

'How many threes in 24?'



...also jump back from 24 to make the link with repeated subtraction.



'How many groups of three in 24?'

Introduce the formal layout using multiplication/division facts that the children know:

$$24 \div 3 = 8$$

This can also be recorded as...

$$\begin{array}{r} 8 \\ 3 \overline{) 24} \end{array}$$

'Twenty four divided by three equals eight.'