Progression of written methods for division



| EYFS - Division | | | | | |
|---|---|---|---|--|--|
| Knowledge and Understanding of Number Observe number relationships and patterns in the environment and use these to derive facts. | Calculating Count repeated groups of the same size. Share objects into equal groups and count how many in each group | | Using and Applying Sort objects, making choices and justifying decisions. | | |
| Method | | Practice | | | |
| Context: opportunities through play Participate in practical sessions, e.g. counting a collection of objects into groups of equal size. Introduce counting in 10s. Act out stories involving division. Sharing equally: E.g. 6 cars are shared equally between 2 children. How many cars does each child get? | | Count back and forth in 1s. Practical experience of sharing objects. Practical experience of pairing objects e.g. shoes, gloves, socks. Practical experience of putting objects into groups of a given size. Solve practical problems eg. I have 12 sweets. How many children will get 3 each? Use vocabulary associated with number e.g. zero, ten, twenty one hundred, count, count (up) to count on (from, to) count back (from, to) count in ones, twos tens, how | | | |
| Grouping: How many pairs of socks can we make from this pile of socks? Count the pairs. | | | | | |
| Halving: Cut the sandwich in half. How many pieces are there? | | <u>Profile Points</u> 8. Uses developi solve practical p | Pupil Profile ng mathematical ideas and methods to roblems. | | |

Year 1 - Division

EYFS COULD

Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

| Calculation method | Practice | | |
|---|---|--|--|
| Sharing equally: Share items equally where there are no remainders, (see below.) E.g. 6 sweets are shared equally between 2 people. How many sweets does each one get? Recording as a pictorial representation AND related number sentences | Putting practical equipment in groups of a given size. Count forward and backwards in 2s, 5s, 10s. Start on a number other than 0. Use counting stick, washing lines etc. Using wrapping paper arrays that are then cut into groups and used to create a number line. Using a bead string to group objects. Using the vocabulary of division. Steps 2 Success | | |
| 3 + 3 = 6 "3 sweets for me and 3 sweets for you makes 6 sweets altogether" 6 ÷ 2 = 3 "6 sweets shared between two people is 3 sweets each" | To share objects equally: Share 10 cubes equally between 2 children. Count out 10 objects. | | |
| Grouping: Understand the operation of division as Grouping e.g. There are 15 apples in a box. How many bags of 5 apples can be filled? i.e. How many groups of 5 can you make from 15? | Share the objects in to 2 groups. | | |
| | When you have shared all of the objects, count how many are in each group. This is the answer. 5 in each group. Each child will get 5 cubes. | | |

| Year 2 - | Division | Year 1 COULD | |
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| 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 tables are using the multiplication (×), division (÷) and | ultiplication and ad write them d equals (=) | Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. | |
| Calculation method | Steps 2 Success | | |
| Grouping: continue with grouping by sorting objects into groups of Grouping and Numicon: children work with shapes alongside the Numicon number | To use a number line to group: Read the number sentence e.g. 25÷5 | | |
| line to begin to understand division as the inverse of multiplication. Children also begin to understand the concept of remainders. | Set out the number line like shown below: | | |
| Arrays to link with multiplication: 15÷3= 5 × 3 5 rows of 3 | Can a group of 5 be taken out? (5 = 1 jump; mark where you are on the number line) 1x5 0 5 Can another group of 5 be taken out? Carry on until you reach the first number in the number sentence e.g 25 ÷ 5. Remember to mark where you jump below the number line. | | |
| Grouping can also be shown on a number line. Numbered line: e.g. 8 children are put into teams of 2. How many teams are there? i.e. How many groups of 2 are there in 8? $1x^2$ $1x^2$ $1x^2$ $1x^2$ $1x^2$ 0 1 2 3 4 5 6 7 8 9 | | | |
| Number line $30 \div 5 = 6$ $1x5 1x5 1x5 1x5 1x5 1x5$ $0 5 10 15 20 25 30$ | | x5 1x5 1x5 1x5 1x5 5 10 15 20 25 | |
| Halving using partitioning: 16 = 10 + 6 5 + 3 = 8 |) Count | the number of jumps. This is the answer. | |
| Using symbols to stand for unknown numbers to complete equations using inverse operations | 0 | 5 10 15 20 25 | |
| $\square \div 2 = 4 \qquad 20 \div \bigtriangleup = 4 \qquad \square \div \bigtriangleup = 4$ | 5 jum | ps on the number line. | |

| Year 3 - Di | vision Year 2 COULD | | |
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| Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for multiplication tables that they know, including for two- numbers, using mental and progressing to formal writte | iplication and division using the digit numbers times one-digit an methods. 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. | | |
| Calculation method | Steps 2 Success | | |
| Division with grouping: Use repeated addition as a method of grouping by counting up, including remainders. Move on to grouping in larger multiples of the divisor: | To use more formal methods for division - short division: Read the calculation and set out with the divisor on the left and the number you're dividing by inside the step: | | |
| $48 \div 4 =$ 10 times the divisor is calculated in one 'chunk' because it is quicker, more efficient and more reliable. This will lead on to the 'chunking' method later. (pupils need to have a good understanding of this before they go on to 'chunking'). 10 x 4 1x4 1x4 | 98 ÷ 7 = 7 9 8 Calculate how many of your divisor can go into the first digit - so how many 7s into 9? = 1 | | |
| Using symbols to stand for unknown numbers to complete equations using inverse operations: $26 \div 2 = \square$ $24 \div \triangle = 12$ $\square \div 10 = 8$ | Place your answer above the first digit. $7 9^{2} 8$ | | |
| Introducing the 'bus stop method' using place value counters to support: | Calculate the amount left over (the remainder) and move it along to the right. | | |
| $\begin{array}{c} 3+2+3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\$ | Now calculate how many 7s will go into 28. Write your answer on top of the step. | | |
| Moving onto more formal written methods - short division: | 7 9 2 8 | | |
| 7 9 8 Answer = 14 | Your answer = 14 (14 lots of 7 in 97). | | |

Year 4 - Division

Year 3 COULD

Recall multiplication and division facts for multiplication tables up to 12 × 12; use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers; recognise and use factor pairs and commutativity in mental calculations.





| | Year 6 | o - Division | Year 5 COULD |
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| Perform mental calculations, including with mixed operations and large numbers.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; 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. | | | Solve problems involving addition, subtraction, multiplication and division. |
| Ca | alculation method | Steps 2 S | Success |
| Formal Method for division - remainders into decimals and 5 Converting remainders into fraction becomes the denominator. Converting remainders into decimal before 0. You then work out how more examples in Year 5 section of policy Long Division: $432 \div 15 = 15$ 4 1 1 | - Short Division: (including converting d fractions) $ \frac{8 6 r^{2}}{4 3 2} $ ons - remainder becomes the numerator and divisor Is - the remainder is placed after the decimal point any of your divisor goes into you new number (See .) $ \frac{2 8 8}{3 2 0} $ $ \frac{2 8 8}{3 2 0} $ $ \frac{2 0}{1 2 0} $ $ \frac{2 0}{0} $ | Long Division: Read the calculation and set our left and the number you're divin $15 \ 4 \ 3$ Look at the first two digits - h this number? Use both x and ÷ Write underneath the nearest equally. So 2 x 15 = 30. Write 2 below. 2 Draw a line and calculate how much is left (13) and write under the line. Now calculate how many of your did thinking about nearest multiple of = 8. Take this from 132 and show you $15 \ 4 \ 3 \ 2 \ 3 \ 0 \ 1 \ 3 \ 2 \ 1 \ 3 \ 2 \ 1 \ 3 \ 2 \ 1 \ 3 \ 2 \ 1 \ 3 \ 2 \ 1 \ 2 \ 0 \ 1 \ 3 \ 2 \ 1 \ 2 \ 0 \ 1 \ 2 \ 1 \ 2 \ 0 \ 1 \ 2 \ 1 \ 2 \ 0 \ 1 \ 2 \ 1 \ 2 \ 0 \ 1 \ 2 \ 1 \ 2 \ 0 \ 1 \ 2 \ 1 \ 2 \ 0 \ 1 \ 2 \ 1 \ 2 \ 0 \ 1 \ 2 \ 1 \ 2 \ 0 \ 1 \ 2 \ 1 \ 2 \ 0 \ 1 \ 2 \ 1 \ 2 \ 0 \ 1 \ 2 \ 1 \ 2 \ 0 \ 1 \ 2 \ 1 \ 2 \ 0 \ 1 \ 2 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 2 \ 0 \ 1 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$ | At formally with the divisor to the ding inside the step: 2 ow many of the divisor will go into to help you. number your divisor will go into 2 above in the correct column and 30 2 2 2 3 3 3 3 3 3 3 3 |