

Stage 1

Children are encouraged to develop a mental image of the number system in their heads to use for calculation. They should experience practical calculation opportunities involving **equal** groups and **equal** sharing.



They may develop ways of recording calculations using pictures.

A child's jotting showing halving six spots between two sides of a ladybird.



A child's jotting showing how they shared the apples at snack time between two groups.

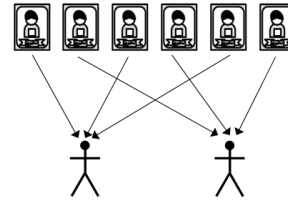


Stage 2

Children explore practical contexts where they share equally and group equally. $6 \div 2 = ?$

Equal sharing (6 shared equally between 2)

6 football stickers are shared equally between 2 people, how many do they each get? Children may solve this by using a 'one for you, one for me' strategy until all of the stickers have been given out.



Equal grouping (How many groups of 2 are there in 6?)

There are 6 football stickers, how many people can have 2 stickers each?



Stage 3

Children continue to use practical equipment to represent division calculations as grouping (repeated subtraction) and use jottings to support their calculation.

$12 \div 3 = ?$ Children begin to read this calculation as, 'How many groups of 3 are there in 12?'



At this stage, children will also be introduced to division calculations that result in remainders.

$13 \div 4 = 3$ remainder 1



Stage 4

$43 \div 8$



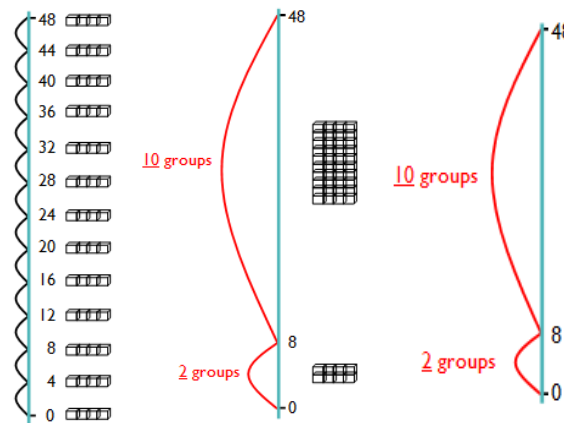
$43 \div 8 = 5$ remainder 3

At this stage, children also learn if the remainder should be rounded up or down e.g. $62 \div 8 = 7$ remainder 6

I have 62p. Sweets are 8p each. How many can I buy?
 Answer: 7 (the remaining 6p is not enough for another sweet)
 Apples are packed into boxes of 8. There are 62 apples. How many boxes do I need?
 Answer: 8 (the remaining 6 apples still need to be placed into a box)

Stage 5

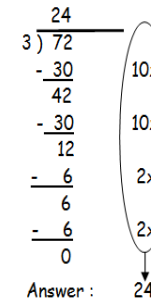
The previous method of repeated subtraction on a number line is continued, but using a vertical number line alongside practical equipment. The repeated subtraction is made more efficient by subtracting 'chunks' of the divisor.



Stage 6

This is the final stage, in which children use the 'chunking' method.

$72 \div 3$



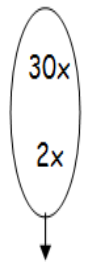
1x	3
2x	6
5x	15
10x	30

Children should write key facts in a menu box. This will help them in identifying the largest group they can subtract in one chunk.

Stage 6 continued

$196 \div 6$

$$\begin{array}{r} 32 \text{ r } 4 \\ 6 \overline{) 196} \\ \underline{- 180} \\ 16 \\ \underline{- 12} \\ 4 \end{array}$$



1x	6
2x	12
4x	24
5x	30
10x	60
20x	120

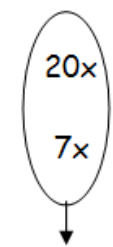
The key facts in the menu box should be extended to include 4x and 20x.

Answer: 32 remainder 4 or 32 r 4

Stage 6 continued

$972 \div 36$

$$\begin{array}{r} 27 \\ 36 \overline{) 972} \\ \underline{- 720} \\ 252 \\ \underline{- 252} \\ 0 \end{array}$$



Answer: 27

Stage 6 continued

$362 \div 17$

$$\begin{array}{r} 21.29 \\ 17 \overline{) 362} \\ \underline{- 340} \\ 22 \\ \underline{- 17} \\ 5.0 \\ \underline{- 3.4} \\ 1.60 \\ \underline{- 1.53} \\ 0.07 \end{array}$$

To enable children to continue the calculation, they need to understand that 5 is the same as 5.0

When recalling and deriving multiplication and division facts, children should also identify decimal equivalents of times tables,
 e.g. if $2 \times 17 = 34$, I know that $0.2 \times 17 = 3.4$
 if $9 \times 17 = 153$, $0.9 \times 17 = 15.3$
 so $0.09 \times 17 = 1.53$

Children should not be made to go onto the next stage if:

- 1) they are not ready.
- 2) they are not confident.

Children should be encouraged to consider if a mental calculation would be appropriate before using written methods.