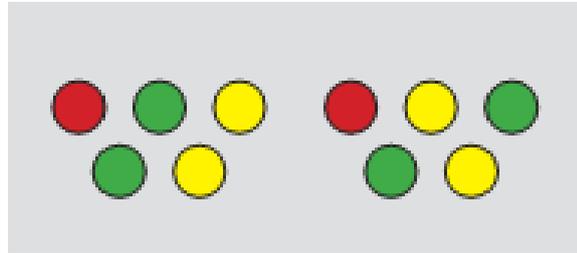


Division Progression

Stage 1

Count in 2's, 5s and 10's
 Problem solving experiences based around the concept of remainders

Practical - making sets/ groups
 Pictorial
 Numicon shapes (grouping)
 Counters



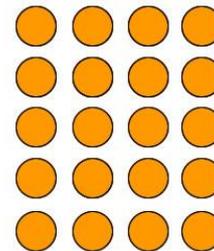
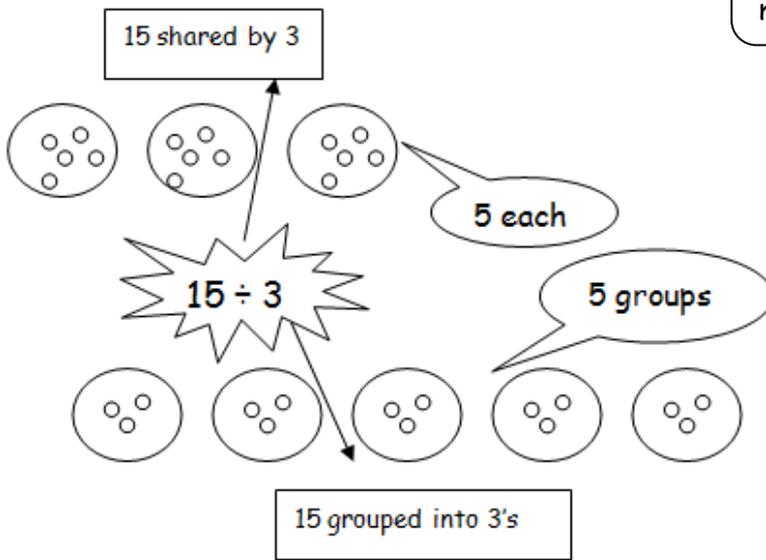
Stage 2

Share and record pictorially/ more abstract mark making.
 Group into sets of the same size.

Numicon shapes (arrays)
 Counters

Vocabulary

Put emphasis on **grouping** from a young age to eliminate misconceptions.

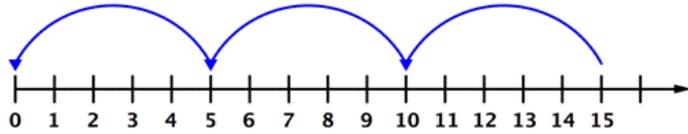


4 lots of 5 = 20
 5 lots of 4 = 20
 20 shared between 4 = 5
 20 shared between 5 = 4
 4 groups of 5 = 20
 5 groups of 4 = 20

Stage 3

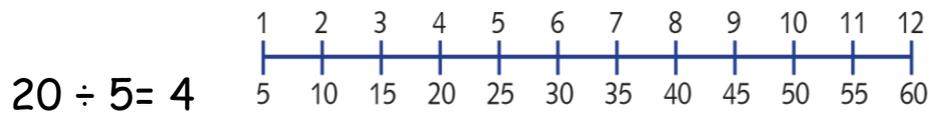
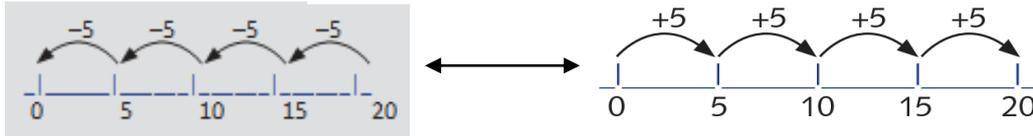
Cuisenaire rods

Jumps along number lines (with numbers/ with divisions)/ begin to draw own lines



How many 5s make 20?
15 grouped into 5s

Show how methods are linked

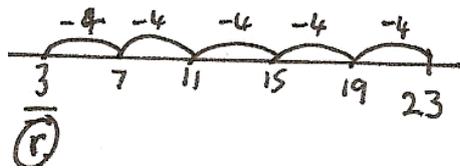


Stage 4

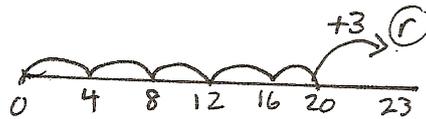
Cuisenaire rods

Solve problems involving remainders.

$$23 \div 4$$

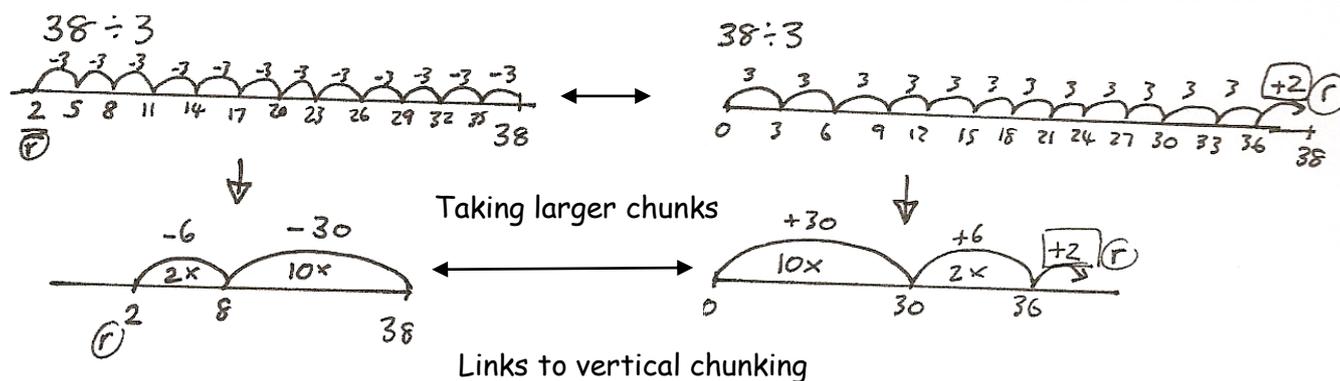


$$23 \div 4$$



Stage 4

Cuisenaire rods



Stage 5

Place value counters
Diennes

TO ÷ O

The first step is to show all the calculations involved.

Children should describe what they are doing using phrases similar to the following: 'How many fours divide into 90 so the answer is a multiple of 10? (20) There are 20 fours or 80, with 12 remaining. How many fours in 12? (3) So 92 divided by 4 = 23.'

Children must be secure in their understanding of place value and number facts before the formal written method is taught.

Expanded written method

$$92 \div 4$$

23	92	
4	80	20 × 4
	12	
	12	3 × 4
	0	

Formal written method of short division

$$4 \overline{) 92}$$

Solve problems involving remainders.

- e.g There are 38 eggs in a box-how many boxes do I need?(7)
- There are 38 eggs, how many boxes can I sell? (6)

Stage 6

HTO÷O

Expanded written method

$$486 \div 9$$

$$\begin{array}{r} 54 \\ 9 \overline{) 486} \\ \underline{450} \quad 50 \times 9 \\ 36 \\ \underline{36} \quad 4 \times 9 \\ 0 \end{array}$$

Place value counters
Diennes

Vocabulary

The superscript 3 represents the 3 tens that are remaining after 9 has been divided into 480. It is written in front of the 6 to show that 36 now has to be divided by 9.

Formal written method of short division

$$\begin{array}{r} 54 \\ 9 \overline{) 48^3 6} \end{array}$$

Stage 7

Short division (including with remainders expressed as a whole number, fraction or decimal).
Divide numbers up to 4 digits by a one-digit number (HTO ÷ O/ThHTO ÷ O)

Whole number remainder

$$279 \div 6$$

$$\begin{array}{r} 46r3 \\ 6 \overline{) 279} \end{array}$$

Fraction remainder

$$279 \div 6$$

$$\begin{array}{r} 46\frac{1}{2} \\ 6 \overline{) 279} \end{array}$$

Decimal remainder

$$279 \div 6$$

$$\begin{array}{r} 46.5 \\ 6 \overline{) 279.0} \end{array}$$

Stage 8

Long division, including with remainders expressed as a whole number, fraction or decimal (Whole numbers)

Divide numbers up to 4 digits by a two-digit number (HTO ÷ TO/ThHTO ÷ TO)

Estimate and check the answer to a calculation

Expanded written method of long division

$$\begin{array}{r} 324r4 \\ 18 \overline{) 5836} \\ \underline{- 5400} \quad (300 \times 18) \\ 436 \\ \underline{- 360} \quad (20 \times 18) \\ 76 \\ \underline{- 72} \quad (4 \times 18) \\ 4 \end{array}$$

$5836 \div 18 = 324 r 4$ or $324\frac{2}{9}$

Formal written method of long division

$$\begin{array}{r} 324r4 \\ 18 \overline{) 5836} \\ \underline{- 54} \downarrow \\ 43 \downarrow \\ \underline{- 36} \downarrow \\ 76 \\ \underline{- 72} \\ 4 \end{array}$$

$5836 \div 18 = 324 r 4$ or $324\frac{2}{9}$

Stage 9

Short division (decimals)

Divide numbers with up to two decimal places by a one-digit number (O·th ÷ O/TO·th ÷ O)

Estimate and check the answer to a calculation

Method 1

Calculating with decimals

$$\begin{array}{r} 756 \\ 6 \overline{) 45336} \end{array}$$

$$756 \div 100 = 7.56$$

Method 2

Converting decimals to whole numbers before calculating, then converting the answer back to decimals

$45.36 \div 6$ is equivalent to $4536 \div 6 \div 100$

$45.36 \div 6$ is equivalent to $4536 \div 6 \div 100$

$$\begin{array}{r} 756 \\ 6 \overline{) 45336} \end{array}$$

$$756 \div 100 = 7.56$$

Phrases similar to those above for short division of whole numbers should be used for short division involving decimals.

Long division (decimals)

Divide numbers with up to two decimal places by a two-digit whole number (TO·th ÷ TO)

Method 1

Expanded written method of long division

$$58.32 \div 18$$

$$\begin{array}{r} 3.24 \\ 18 \overline{) 58.32} \\ - 54.00 \quad (3 \times 18) \\ \hline 4.32 \\ - 3.60 \quad (0.2 \times 18) \\ \hline 0.72 \\ - 0.72 \quad (0.04 \times 18) \\ \hline 0.00 \end{array}$$

Formal written method of long division

$$58.32 \div 18$$

$$\begin{array}{r} 3.24 \\ 18 \overline{) 58.32} \\ - 54. \downarrow \\ \hline 4.3 \downarrow \\ - 3.6 \downarrow \\ \hline 0.72 \\ - 0.72 \\ \hline 0 \end{array}$$

Method 2

Converting decimals to whole numbers before calculating, then converting back to decimals.

Expanded written method of long division

$$58.32 \div 18 \text{ is equivalent to } 5832 \div 18 \div 100$$

$$\begin{array}{r} 324 \\ 18 \overline{) 5832} \\ - 5400 \quad (300 \times 18) \\ \hline 432 \\ - 360 \quad (20 \times 18) \\ \hline 72 \\ - 72 \quad (4 \times 18) \\ \hline 0 \end{array}$$

$$324 \div 100 = 3.24$$

Formal written method of long division

$$58.32 \div 18 \text{ is equivalent to } 5832 \div 18 \div 100$$

$$\begin{array}{r} 324 \\ 18 \overline{) 5832} \\ - 54 \downarrow \\ \hline 43 \downarrow \\ - 36 \downarrow \\ \hline 72 \\ - 72 \\ \hline 0 \end{array}$$

$$324 \div 100 = 3.24$$

