

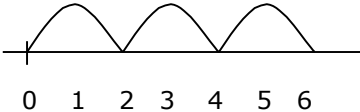
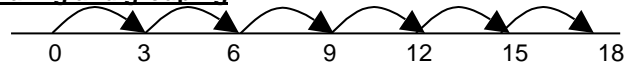



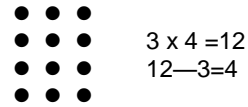
Big Maths

Written Methods for Division.

Level 1	Level 2
<p>Division is introduced as sharing.</p> <p>Sharing – 6 sweets are shared between 2 people. How many do they have each?</p> <div style="text-align: center;">  </div> <p>Practical activities involving sharing objects one at a time between people, distributing cards when playing a game, putting objects onto plates, into cups, hoops etc and then ensuring that the groups are equal.</p> <p>Grouping Sorting objects into 2s / 3s/ 4s etc How many pairs of socks are there?</p> <div style="text-align: center;">  </div> <p>Children will also halve groups of things and count how many are in each half.</p> <p>Application to real life There are 12 crocus bulbs. Plant 3 in each pot. How many pots are there? Jo has 12 Lego wheels. How many cars can she make?</p>	<p>Introduce the symbol for division and begin to relate the sharing to the calculations. Eg. Show 15 divided by 3 and then do the calculation together by physically sharing out 15 of something between 3 people. Gradually increase the number that is being divided by.</p> <p>Grouping Link to counting and understanding number strand Count up to 100 objects by grouping them and counting in tens, fives or twos;... Find one half, one quarter and three quarters of shapes and sets of objects $6 \div 2$ can be modelled as: There are 6 strawberries. How many people can have 2 each? How many 2s make 6? $6 \div 2$ can be modelled as:</p> <div style="text-align: center;">  </div> <p>In the context of money count forwards and backwards using 2p, 5p and 10p coins Practical grouping e.g. in PE 12 children get into teams of 4 to play a game. How many teams are there?</p> <p>Understand division as sharing and grouping $18 \div 3$ can be modelled as:</p> <div style="text-align: center;">  </div> <p>Sharing – 18 shared between 3 (see Year 1 diagram) OR Grouping - How many 3's make 18?</p> <p>Remainders $16 \div 3 = 5 \text{ r}1$ Sharing - 16 shared between 3, how many left over? Grouping – How many 3's make 16, how many left over? e.g.</p> <div style="text-align: center;">  </div>

Arrays -

Use arrays to illustrate relationship between multiplication and division

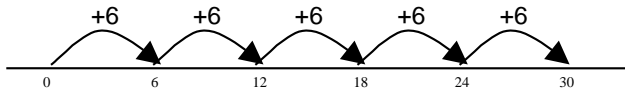


Level 3

Sharing and grouping

$30 \div 6$ can be modelled as:

grouping – groups of 6 placed on no. line and the number of groups counted e.g.

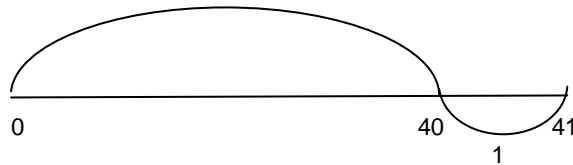


sharing – sharing among 6, the number given to each person

Remainders

$41 \div 4 = 10 \text{ r}1$

10 groups



$41 = (10 \times 4) + 1$

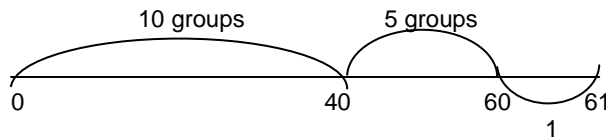
Sharing and grouping

Continue to understand division as both sharing and grouping (repeated subtraction).

Remainder

Quotients expressed as fractions or decimal fractions

$61 \div 4 = 15 \frac{1}{4}$ or 15.25



Children will jump in only 2 stages. The first group will always be a multiple of ten and the second will be what is left – the remainder.

Level 4

Pencil and paper procedures

$256 \div 7$ lies between $210 \div 7 = 30$ and $280 \div 7 = 40$

* Partition the dividend into multiples of the divisor:

e.g. $256 = 210 + 46$

$210 \div 7 = 30$

$46 \div 7 = 6\text{r}4 \rightarrow 30 + 6\text{r}4 = 36\text{r}4$

OR

256	256	
	$- \underline{210}$	(30 groups)
$210 + 46$	46	
	$- \underline{42}$	(6 groups)
$30 + 6\text{r}4$	4	

Answer: 36 remainder 4

Expanded bus stop method leads into Compact bus stop method for short division.

$$\begin{array}{r}
 6 \overline{) 196} \\
 \underline{- 180} \quad 6 \times 30 \\
 16 \\
 \underline{- 12} \quad 6 \times 2 \\
 4
 \end{array}$$

Answer: 32 R 4

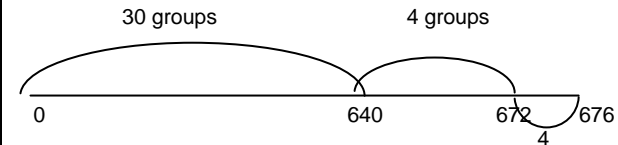
Sharing and grouping

Continue to understand division as both sharing and grouping (repeated subtraction).

Remainders

Quotients expressed as fractions or decimal fractions

$676 \div 8 = 84.5$



Pencil and paper procedures

$977 \div 36$ is approximately $1000 \div 40 = 25$

* Partition the dividend into multiples of the divisor:

e.g. $977 = 720 + 180 + 77$

$$720 \div 36 = 20$$

$$180 \div 36 = 5$$

$$77 \div 36 = 2r5 \rightarrow 20 + 5 + 2r5 = 27r5$$

OR

$$\begin{array}{r} 977 \\ 720 + 180 + 77 \\ 20 + 5 \quad 2r5 \end{array}$$

$$\begin{array}{r} 977 \\ - \underline{720} \quad (20 \text{ groups}) \\ 257 \\ - \underline{180} \quad (5 \text{ groups}) \\ 77 \\ - \underline{72} \quad (2 \text{ groups}) \\ 5 \end{array}$$

Answer: $27 \frac{5}{36}$

8 goes into 40 five times so write in 5.

$$\begin{array}{r} 9 \cdot 2 \cdot 5 \\ 8 \overline{) 74 \cdot 0 \cdot 0} \end{array}$$

Compact bus stop method