

Calculation Policy

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Stage 1

Pictures and symbols

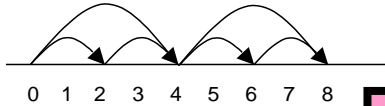
There are 3 sweets in one bag.
How many sweets are there in 5 bags?



Stage 2

Arrays and repeated addition

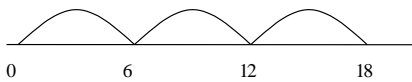
$\begin{array}{cccc} \bullet & \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet & \bullet \end{array}$ 4×2 or $4 + 4$
 2×4
 $2 + 2 + 2 + 2$



Stage 3

Number lines

E.g. 6×3



Partitioning

E.g. $15 \times 2 = 30$

$$\begin{array}{r} X \quad 10 \quad + \quad 5 \\ 2 \quad 20 \quad + \quad 10 \quad = 30 \end{array}$$

Stage 4

Grid method

E.g. $35 \times 2 = 70$

$$\begin{array}{r} X \quad 30 \quad 5 \\ 2 \quad 60 \quad 10 \quad = 70 \end{array}$$

E.g. $123 \times 3 = 369$

$$\begin{array}{r|l} X & 100 & 20 & 3 \\ 3 & 300 & 60 & 9 & = 369 \end{array}$$

Stage 5

Grid method

72×38

$$\begin{array}{r|l} X & 70 & 2 \\ 30 & 2100 & 60 \\ 8 & 560 & 16 & = 2160 \\ & & & = 576 + \\ & & & \underline{2736} \\ & & & 1 \end{array}$$

Stage 6

Short and long multiplication

$$\begin{array}{r} 342 \\ \times 7 \\ \hline 2394 \\ 21 \end{array} \qquad \begin{array}{r} 12 \\ 124 \\ \times 26 \\ \hline 744 \\ 2480 \\ \hline 3224 \\ 11 \end{array}$$

Stage 1

Pictures 12 children get into teams of 4 to play a game. How many teams are there?



Stage 2

Sharing 6 sweets are shared between 2 people. How many do they have each? ($6 \div 2$)



Repeated subtraction on a number line

$12 \div 3 = 4$

-3 -3 -3 -3

0 1 2 3 4 5 6 7 8 9 10 11 12

Stage 3

Division with remainders

$16 \div 3 = 5 \text{ r}1$

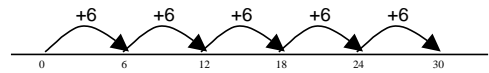
-1 -3 -3 -3 -3 -3

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

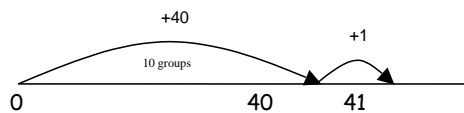
Stage 4

$30 \div 6$ can be modelled as:

Grouping - groups of 6 taken away and the number of groups counted e.g.



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



Stage 5

Use **chunking** for division.

$$\begin{array}{r} 8 \overline{) 146} \\ \underline{80} \quad (8 \times 10) \\ 66 \\ \underline{40} \quad (8 \times 5) \\ 26 \\ \underline{24} \quad (8 \times 3) \\ 2 \end{array} \qquad \begin{array}{l} \text{Total all the} \\ \text{'chunks' of} \\ \text{8 to find the} \\ \text{answer.} \end{array}$$

Answer: $18 \text{ r} 2$

Stage 6

Short and long division

$496 \div 11$ becomes

$432 \div 15$

$$\begin{array}{r} 45 \text{ r}1 \\ 11 \overline{) 496} \end{array}$$

$\frac{28}{12/15}$ or $28 \frac{4}{5}$

$$15 \overline{) 432}$$

$$\begin{array}{r} 300 \\ 132 \\ \hline 120 \\ \hline 12 \end{array}$$

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Stage 1
Draw pictures and images

Stage 2
Use of number lines to count on in ones from the bigger number.
 $7 + 4 = 11$

Stage 3
 $23 + 12 = 23 + 10 + 1 + 1$

Stage 4
Partition into tens and units.
 $53 + 36 = 89$

Stage 5

$83 + 42 = 125$	Progress to:
$80 + 3$	83
$+ 40 + 2$	$+ 42$
$120 + 5 = 125$	5
	<u>120</u>
	125

Stage 6
Formal written methods

358	Extend to numbers with any
$+ 73$	number of digits and
<u>431</u>	decimals with 1 and 2
1 1	decimal places.

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Stage 1
Draw pictures to represent numbers

Stage 2
Use of number line to count back in ones.
 $11 - 7 = 4$

Stage 3
Counting back in tens and units.
 $37 - 12 = 37 - 10 - 1 - 1$

Progressing to taking larger jumps with the units.

Stage 4
Counting on from the smaller number to the larger number $84 - 56 = 28$

Stage 5

$89 - 57 = 32$	$80 + 9$	$50 + 7$	$30 + 2 = 32$	Progress to:
$71 - 46 = 25$	$70 + 1 = 60 + 11$	$40 + 6$	$40 + 6$	Progress to:
		$20 + 5$		
$754 - 86 = 668$	$700 + 40 + 14$	$80 + 6$	$600 + 140 + 14$	
		$80 + 6$	$600 + 60 + 8 = 668$	

Stage 6
Decomposition

92	352
$- 38$	$- 178$
<u>54</u>	<u>174</u>

Progress to using decomposition with decimals.