

Addition by partitioning

Year 3

TU +TU leading to
HTU+TU /HTU+HTU

$$67+24=(60+20)+(7+4)=$$

$$\begin{array}{r} 80 \\ + 11 \\ \hline 91 \end{array}$$

OR

$$67+24=(7+4)+(60+20)=$$

$$\begin{array}{r} 11+80 \\ = 91 \end{array}$$

**Need to teach mental
strategies in main lesson not
just starter.**

Year 4

HTU+TU extend to
HTU+HTU

**Most significant number
first.**

625	783
<u>+ 48</u>	<u>+42</u>
600	700
60	120
<u>+ 13</u>	<u>+ 5</u>
<u>673</u>	<u>825</u>

Year 5

HTU+HTU extend to
ThHTU +ThHTU

**Most significant number
first.**

587	7587
<u>+475</u>	<u>+ 675</u>
900	7000
150	1100
<u>+ 12</u>	<u>+12</u>
<u>1062</u>	<u>8262</u>

**Extend- use more than 2
numbers and more than 4
digits.**

Year 6

ThHTU+ThHTU
Extend to any number

**Most significant number
first.**

7648	6584
<u>+1486</u>	<u>+5848</u>
8000	11000
1000	1300
	120
<u>+ 120</u>	<u>+ 12</u>
<u>9134</u>	<u>12432</u>

**This method can be used
for decimal numbers.**

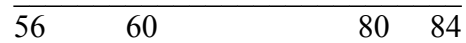
The use of the number line is to be used throughout the year groups.

Subtraction by adding on.

Year 3

TU-TU → Extend to HTU-TU or HTU-HTU.

$$84 - 56 =$$



Year 4

HTU-TU Extend to HTU-HTU (crossing the 10s&100s boundary)

The use of number lines are essential throughout all year groups. If children need them, use them.

Decimal problems can be done using this method.

Year 5

HTU- HTU. Extend to ThHTU-ThHTU

Year 6

**ThHTU –ThHTU
Then with any number.**

Leading to

$$783 - 356 =$$



$= 184$

2100	60
560	16

12	2.7
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9

Leading to

$72 \times 38 =$

$$\begin{array}{r} \times 70 2 \\ 30 \\ 8 \end{array}$$

$2660 + 76 =$

Extend to decimals

$4.9 \times 3 =$

$$\begin{array}{r} \times 4 0.9 \\ 3 \end{array}$$

$= 14.7$

Multiplication by grid method.

Year 3

Describing an array.
Understand that multiplication can be done any order.

.....
..... 2x4
4x2

June07

Year 4

TUxU

Approximate first

$23 \times 8 =$

$$\begin{array}{r} \times 20 3 \\ 160 \\ 24 \end{array}$$

Year 5

HTUxU Extend to TUxTU

Approximate first.

346×9

$$\begin{array}{r} \times 300 40 6 \\ 2700 \\ 360 \\ 54 \end{array}$$

Year 6

ThHTU x U Extend to HTU x TU

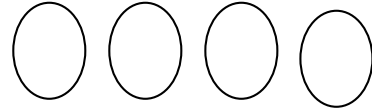
Approximate first

4346×8

$$\begin{array}{r} \times 4000 300 40 6 \\ 32000 \\ 2400 \\ 320 \\ 48 \end{array}$$

8

Or



Develop to
 372×24

$$\begin{array}{r} 20 \\ 4 \\ \times \quad 300 \quad 70 \quad 2 \\ \hline \end{array}$$

Extend to decimals $4.92 \times 3 =$

$$\begin{array}{r} X \quad 4 \quad 0.9 \quad 0.02 \\ 3 \\ \hline \end{array}$$

Grouping is repeated subtraction

$$\begin{array}{l} 8 \div 2 = \\ 8 - 2 = 6 \\ 6 - 2 = 4 \\ 4 - 2 = 2 \\ 2 - 2 = 0 \end{array}$$

4 lots of 2

$$\begin{array}{r} - \underline{60} (10 \times 6) \\ 36 \\ - \underline{36} (6 \times 6) \\ 00 \end{array}$$

16

36 r4

6000	1400	40
1200	280	8

12	2.7	0.06
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Division using chunking-repeated subtraction.

Year 3

Grouping

How many 5's make 35 ?

Or

$8 \div 2 =$ how many 2's make 8 ?

June07

Year 4

TU ÷ U

Approximate first

$$\begin{array}{r} 72 \div 5 = 72 \\ - \underline{50} (10 \times 5) \\ 22 \\ - \underline{20} (4 \times 5) \\ 2 \end{array}$$

14 r 2

$96 \div 6 = 96$

Year 5

HTU ÷ U

Approximate first

$$\begin{array}{r} 256 \div 7 = 256 \\ - \underline{70} (10 \times 7) \\ 186 \\ - \underline{140} (20 \times 7) \\ 46 \\ - \underline{42} (6 \times 7) \\ 4 \end{array}$$

Year 6

HTU ÷ TU

Approximate first

$$\begin{array}{r} 977 \div 36 = 977 \\ - \underline{360} (10 \times 36) \\ 617 \\ - \underline{360} (10 \times 36) \\ 257 \\ - \underline{180} (5 \times 36) \\ 77 \\ - \underline{72} (2 \times 36) \end{array}$$

27r5 or $27\frac{5}{36}$ ⁵

Extend to decimals.

$$\begin{array}{r} 87.5 \div 7 = 87.5 \\ - \underline{70.0} \text{ (10x7)} \\ 17.5 \\ - \underline{14.0} \text{ (2x7)} \\ 3.5 \\ - \underline{3.5} \text{ (0.5 x7)} \\ 0.0 \end{array}$$

12.5