



Calculation Evening

- ▶ How we teach calculations – Calculation Policy
- ▶ Try it out for yourself

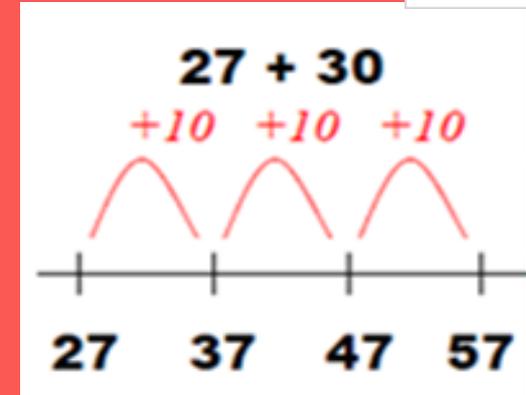
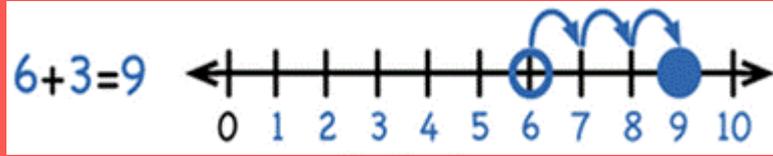




ADDITION

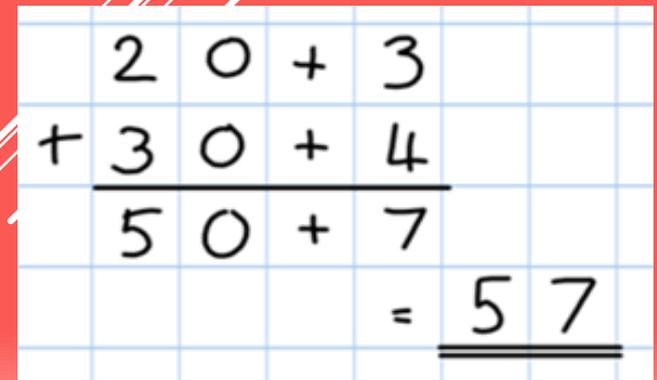
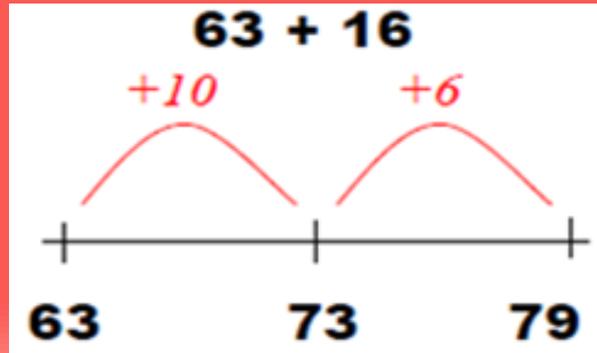
ADDITION

Stages 1 and 2



Add 2 digit numbers and tens:

Add pairs of 2 digit numbers, moving to the partitioned column method when secure adding tens and units:



ADDITION



Moving towards a written method

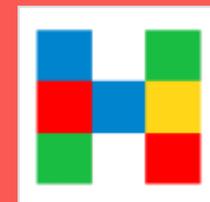
	2	3	6
+		7	3
<hr/>			
			9
	1	0	0
	2	0	0
<hr/>			
	3	0	9

Stage 3

$$\begin{array}{r} 236 \\ + 73 \\ \hline 309 \\ \hline 1 \end{array}$$

- Add ones (units) first.
- 'Carry' numbers **underneath** the bottom line.
- Remind children that the actual value is 'three tens plus sevens tens', not three add seven.

ADDITION



Written method

Stage 5

$$\begin{array}{r} \text{€ } 23.59 \\ + \text{€ } 7.55 \\ \hline \text{€ } 31.14 \end{array}$$

$$\begin{array}{r} 23.481 \\ + \quad 1362 \\ \hline 24843 \end{array}$$

Stage 6

$$\begin{array}{r} 23.361 \\ 9.080 \\ 59.770 \\ + \quad 1.300 \\ \hline 93.511 \\ \small 2 \quad 1 \quad 2 \end{array}$$

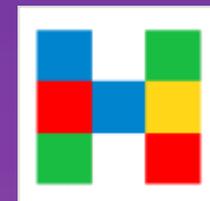
The decimal point should be aligned and must be in the same column in the answer.

Children should be able to add more than two values
Zeros could be added into any empty decimal places



SUBTRACTION

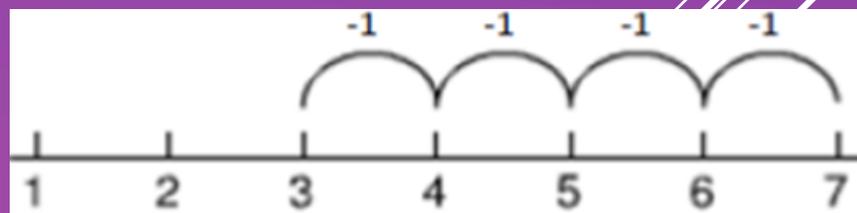
SUBTRACTION



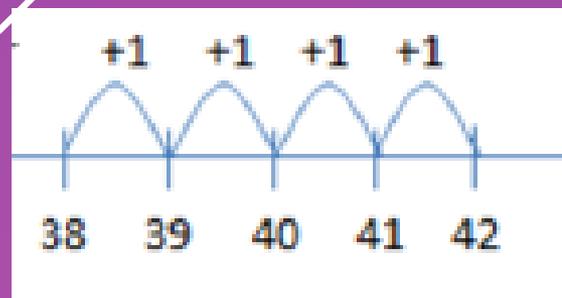
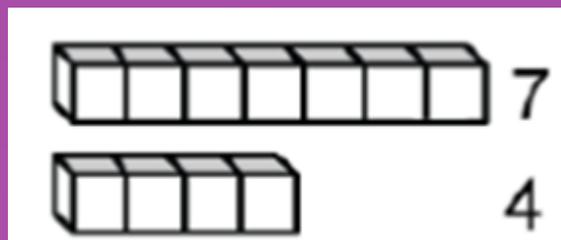
Mentally

2 types of subtraction:

1. “Take away”



2. Finding the difference



SUBTRACTION



Moving towards a written method

Stage 5

$$\begin{array}{r} \overset{2}{\cancel{2}} \overset{10}{\cancel{10}} \overset{4}{\cancel{8}} \overset{6}{\cancel{6}} \\ - \quad 2128 \\ \hline 28928 \end{array}$$

$$\begin{array}{r} \overset{6}{\cancel{7}} \overset{10}{\cancel{10}} \overset{8}{\cancel{68}} \overset{0}{\cancel{0}} \\ - \quad 372.5 \\ \hline 6796.5 \end{array}$$

Stage 6

$$\begin{array}{r} \overset{0}{\cancel{14}} \overset{9}{\cancel{10}} \overset{6}{\cancel{6}} \overset{9}{\cancel{9}} \\ - \quad 89949 \\ \hline 60750 \end{array}$$

$$\begin{array}{r} \overset{1}{\cancel{10}} \overset{5}{\cancel{5}} \overset{1}{\cancel{1}} \overset{9}{\cancel{9}} \text{ kg} \\ - \quad 36.08 \text{ kg} \\ \hline 69.339 \text{ kg} \end{array}$$

- Subtract the smaller number
- Start from the ones (units)
- If you can't do it, exchange!



MULTIPLICATION

MULTIPLICATION



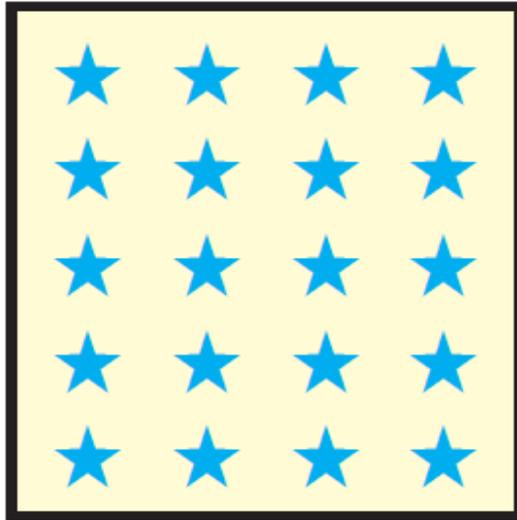
Times tables

- All (up to 12×12) should be learnt by end of Year 4
- Daily 15 mins of times tables **outside of Maths time** (in addition to 1 hour of Maths every day)

MULTIPLICATION



Arrays



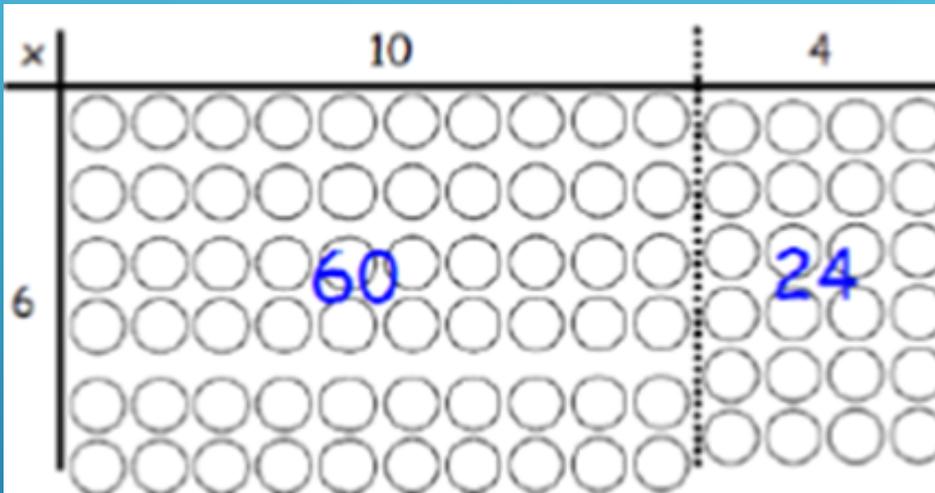
4 lots of 5 is 20
5 lots of 4 is 20

Multiplication is **commutative**

MULTIPLICATION



Moving towards a written method



x	30	5
4	120	20

- With arrays initially
- Grid method introduced at Stage 3

MULTIPLICATION



Moving towards a written method

Expanded written method

$$356 \times 7$$

$$\begin{array}{r} 356 \\ \times \quad 7 \\ \hline 42 \quad (6 \times 7) \\ 350 \quad (50 \times 7) \\ 2100 \quad (300 \times 7) \\ \hline 2492 \end{array}$$

Formal written method of short multiplication

$$378 \times 4$$

$$\begin{array}{r} 378 \\ \times 334 \\ \hline 1512 \end{array}$$

- Expanded method introduced at Stage 4
- Short multiplication and expanded long multiplication at Stage 5
- Contracted long multiplication at Stage 6

MULTIPLICATION



Moving towards a written method

$$\begin{array}{r} 64 \\ \times 48 \\ \hline 32 \\ 480 \\ 160 \\ \hline 2400 \\ \hline 3072 \end{array}$$

$$\begin{array}{r} 64 \\ \times 48 \\ \hline 512 \\ 2560 \\ \hline 3072 \end{array}$$

- Expanded long multiplication at Stage 5
- Contracted long multiplication at Stage 6



DIVISION



DIVISION

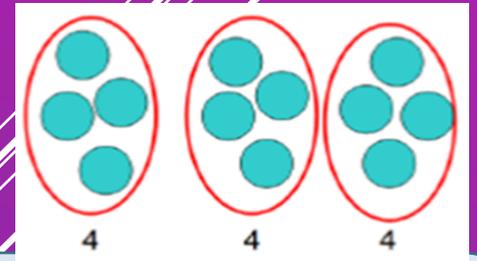


2 types:

➤ Grouping

➤ Sharing

How many groups of 4 can be made with 12 stars? = 3



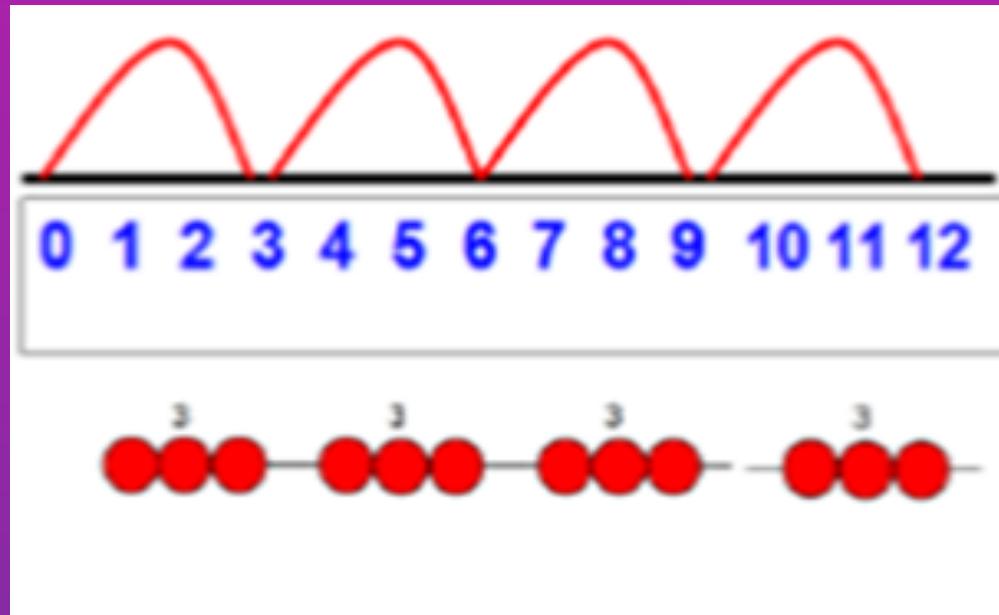
If we share 12 counters between 3 people, how many counters does each person receive? = 4

DIVISION

Stage 2

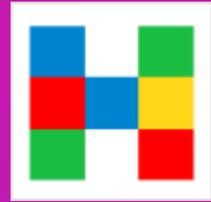


Grouping using a number line



Pose $12 \div 3$ as 'How many groups of 3 are in 12?'

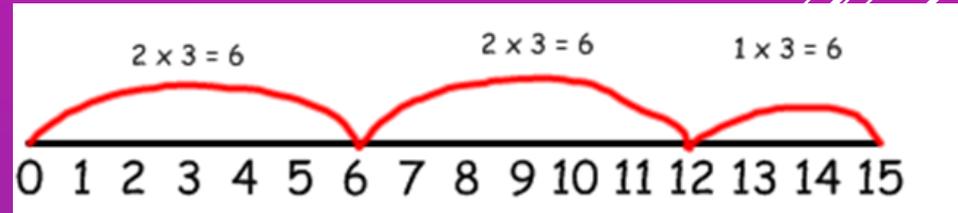
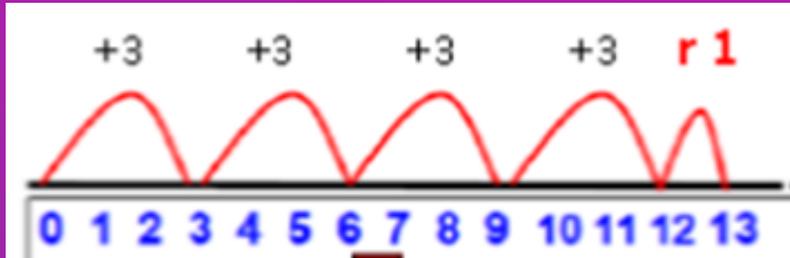
DIVISION



Stage 3 Divide 2 digit numbers by a single digit

$$13 \div 3 = 4 \text{ r } 1$$

$$15 \div 3 = 5$$



STEP 1: Children continue to work out unknown division fact by grouping on a number line from zero. They are also now taught the concept of remainders, as in the example.

STEP 2: Children begin to use 'chunks' of the divisor to speed up the process.

DIVISION



Stage 3 Divide 2 digit numbers by a single digit

$$\begin{array}{r|l} & 32 \\ 3 \overline{) 96} & \end{array}$$

No remainders at
all at first

$$\begin{array}{r} 18 \\ 4 \overline{) 72} \\ \hline \end{array}$$

Concept of remainders with examples where the remainder occurs within the calculation (e.g. $72 \div 4$).

DIVISION



Stage 4 Divide 3 digit numbers by a single digit

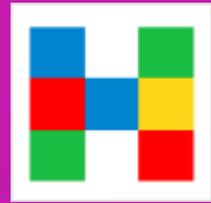
$$\begin{array}{r} 218 \\ 4 \overline{) 872} \end{array}$$

$$\begin{array}{r} 037 \\ 5 \overline{) 185} \end{array}$$

When the answer for the first column is zero (e.g. $1 \div 5$), children could write a zero above to acknowledge the place value.

The number must be carried over to the next digit as a remainder.

DIVISION



Stage 5

$$\begin{array}{r} 0663r5 \\ 8 \overline{)5309} \end{array}$$

Stage 6

$$\begin{array}{r} 0812.125 \\ 8 \overline{)6497.000} \end{array}$$

'What is the biggest multiple of the divisor I can take away?'

Write the size of the 'chunk' of the divisor on the answer line, then subtract the multiple.

Once the subtraction is completed, bring down the next digit from the answer and repeat the process.

$$\begin{array}{r} 22 \\ 32 \overline{)704} \\ \underline{64} \\ 64 \\ \underline{64} \\ 0 \end{array}$$

Over to you!

- ▶ Questions on tables for you to try
 - ▶ Year 6 helpers to answer queries
 - ▶ ICT room computers for 'I-learn' videos
 - ▶ Maths Skills and prompt sheets on tables
 - ▶ Any questions, please ask!
- 
- A decorative graphic consisting of several parallel white lines of varying lengths, slanted diagonally from the bottom right towards the top right, located in the lower right corner of the slide.