



Maths Strategies at
Ravenstone Primary
School

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Numberless!

If all the numbers in the world were rubbed out,
removed,
taken away:

I wouldn't know how old I was,

I wouldn't know the time of day,

I wouldn't know which bus to catch,

I wouldn't know the number of goals I had scored,

I wouldn't know how many scoops of ice cream I had,

I wouldn't know my phone number,

I wouldn't know the page on my reading book,

I wouldn't know I how tall I was,

I wouldn't know how much I weighed,

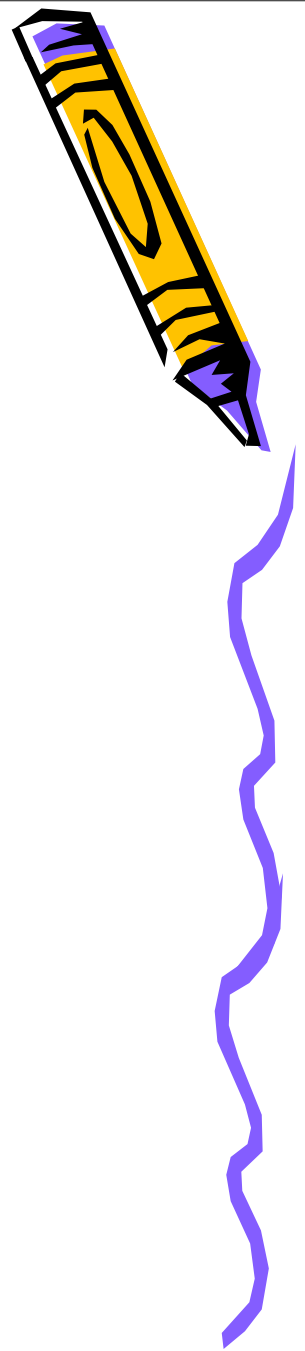
I wouldn't know how many sides there are in a hexagon,

I wouldn't know how many days in the month,

I wouldn't be able to work my calculator,



The Four Operations



Reception

- Say and use the number names in order in familiar contexts
- Count reliably up to ten objects
- Recognise numerals 1-9
- Use language such as; more or less, greater or smaller to compare numbers or quantities
- In practical activities and discussion begin to use the vocabulary involved in adding and subtracting
- Find 1 more or 1 less than a number from 1-10



Addition



- Counting and ordering

1	2	3						9	10
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Combine sets of objects or numbers to make a total

$$\text{seashell} + \text{seashell} + \text{seashell} + \text{seashell} =$$



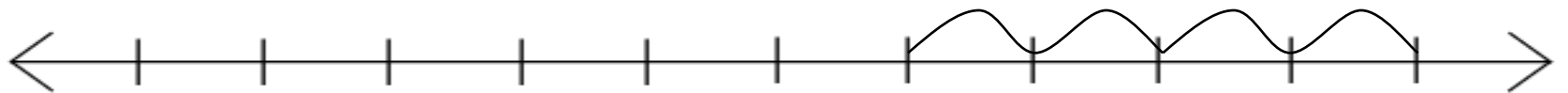


- Progressing to number sums

$$3 + 1 = 4$$

Or $6 + 4 =$

- Number lines



0 1 2 3 4 5 6 7 8 9 10

$$6 + 4 = 10$$



- Partitioning

$$36 + 59 =$$

$$30$$

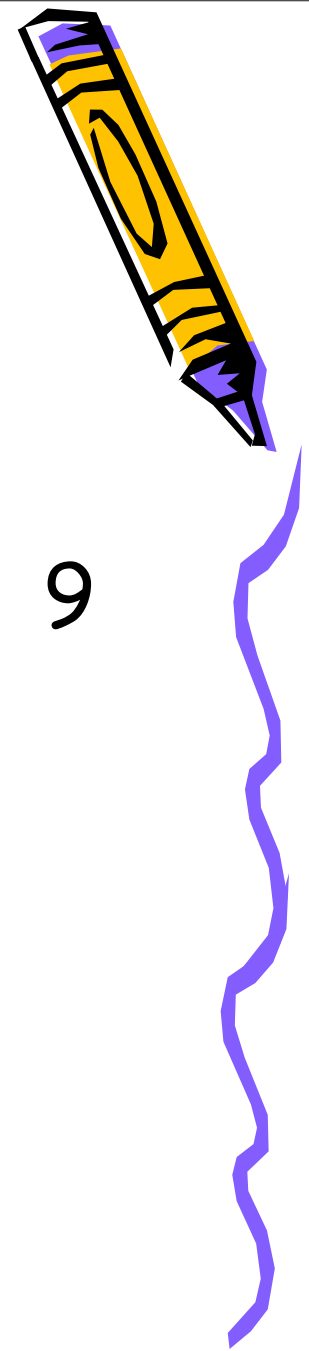
$$6$$

$$50$$

$$9$$

$$30 + 50 = 80$$

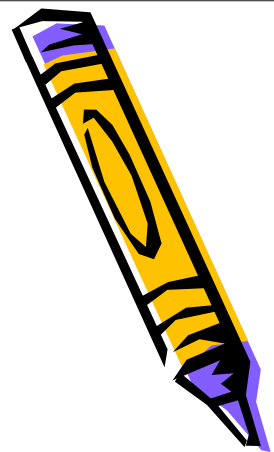
$$6 + 9 = 15$$



- Expanded Method

$$127 + 52 =$$

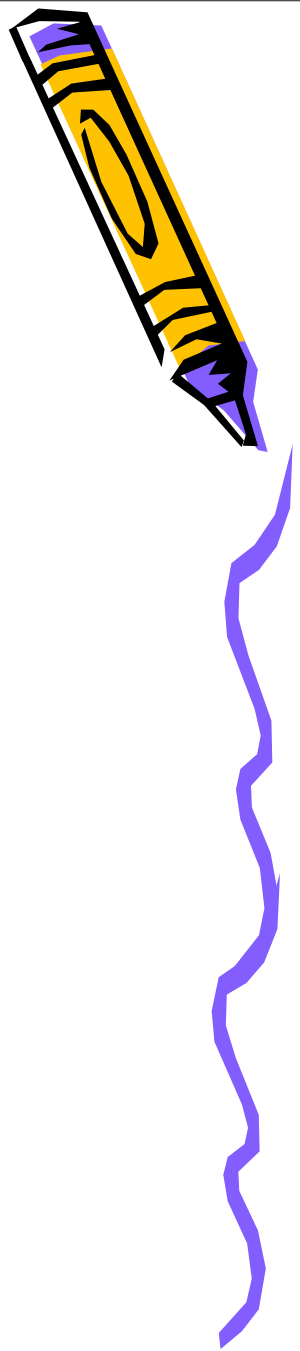
$$\begin{array}{r} 100 \qquad 20 \qquad 7 \\ \hline 100 \qquad + \qquad 70 \qquad + \qquad 9 \end{array} \qquad + \qquad \begin{array}{r} 50 \\ 2 \end{array}$$



- Short Column Method

$$127 + 52$$

$$\begin{array}{r} 127 \\ \underline{52}^+ \\ 179 \end{array}$$



Subtraction

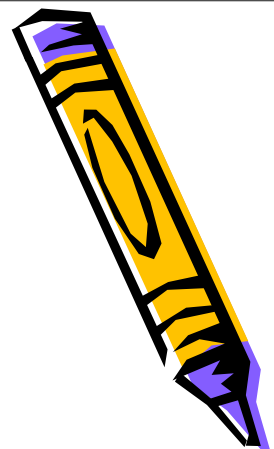
- Finding the difference
- Counting back
- Taking away objects and recording

$$4 - 2 = 2 \quad \text{NOT} \quad 2 - 4 = 2$$



Using number lines to find the difference

$$36 - 27 =$$



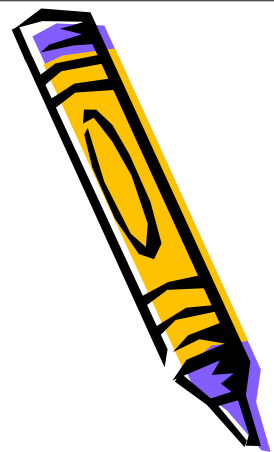
Expanded Method

$$57 - 24 =$$

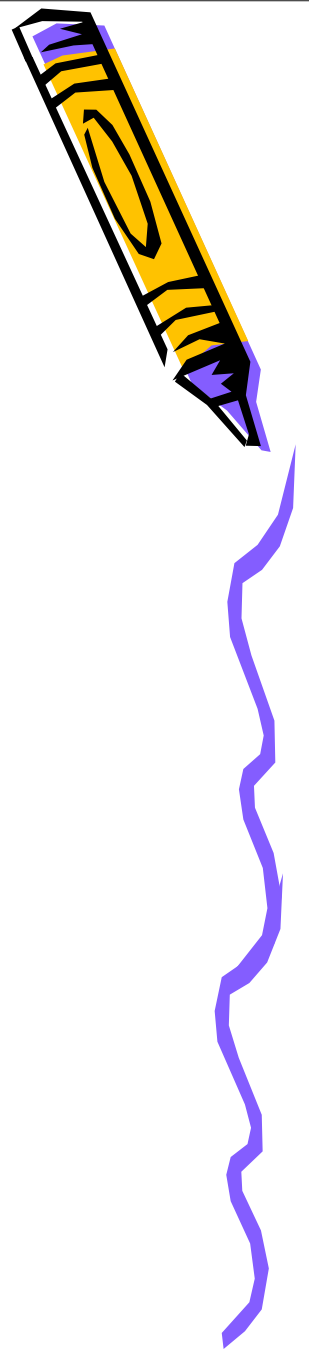
$$\begin{array}{r} 50 \quad 7- \\ \hline 20 \quad 4 \end{array}$$

$$\hline$$

$$30 \quad 3 \quad (30+3=33)$$



Column Method



167

125

042

389

274



Multiplication



- Counting in steps of 2/5/10
- Repeated addition



$$2 + 2 + 2 + 2 + 2 = 10$$

$$2 \times 5 = 10$$

2 multiplied by 5

5 pairs

5 hops of 2



$$5 + 5 + 5 + 5 + 5 + 5 = 30$$

$$5 \times 6 = 30$$

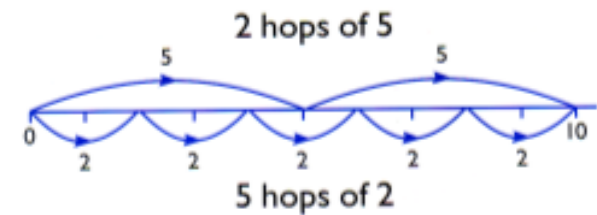
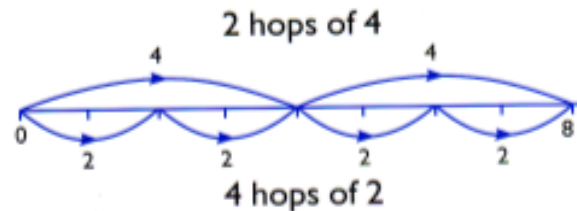
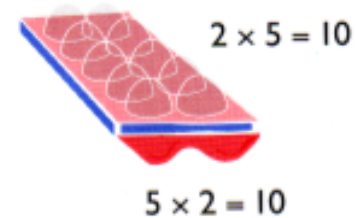
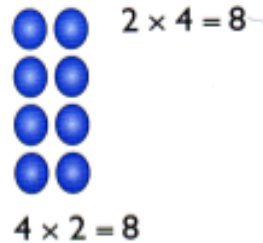
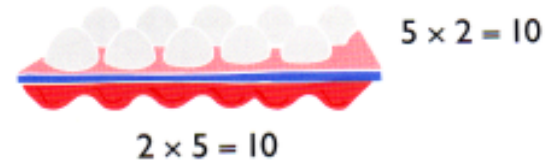
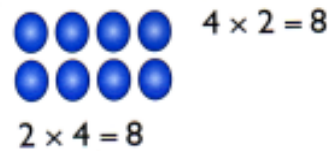
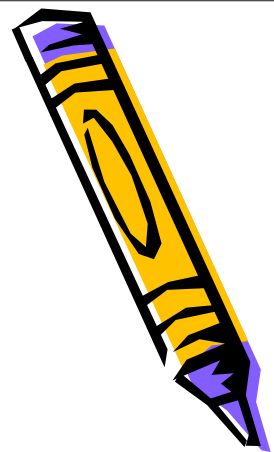
5 multiplied by 6

6 groups of 5

6 hops of 5



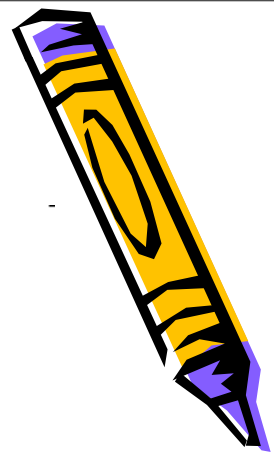
- Counting in sets of 2/5/10
- Times tables
- Arrays



A: grid method (TU × U)

For example, 23×8 is approximately $20 \times 10 = 200$.

$$\begin{array}{r} \times \quad 20 \quad 3 \\ 8 \quad \boxed{160} \quad \boxed{24} \quad = 184 \end{array}$$



Grid Method



372×24 is approximately $400 \times 20 = 8000$.

$$372 \times 24$$

	\times	300	70	2	
20		6000	1400	40	7440
4		1200	280	8	+ <u>1488</u>
					8928



Short Multiplication



Standard written methods

Develop an efficient standard method that can be applied generally, approximating first. Where calculations are set out in columns, know that units should line up under units, tens under tens...

B: partitioning

Short multiplication: TU \times U

For example, 23×7 is approximately $20 \times 10 = 200$.

$$\begin{array}{r} 20 \times 7 \\ 3 \times 7 \end{array}$$

$$\begin{array}{r} 23 \\ \times \underline{7} \\ 140 \\ \underline{21} \\ 161 \end{array}$$

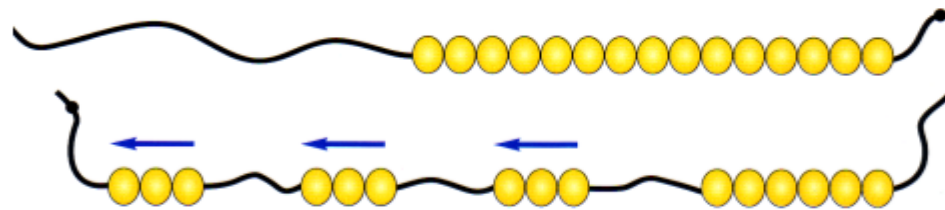
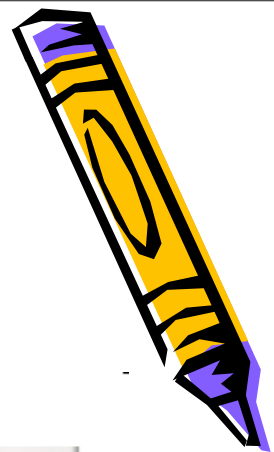
leading to

$$\begin{array}{r} 23 \\ \times \underline{7} \\ \underline{161} \\ 2 \end{array}$$



Division

- Grouping and Sharing
- Repeated subtraction



How many 3s
in 15?



$$15 \div 3 = 5$$



5 hops in 15. How big is each hop?

$$15 \div 5 = 3$$

15 shared between 5



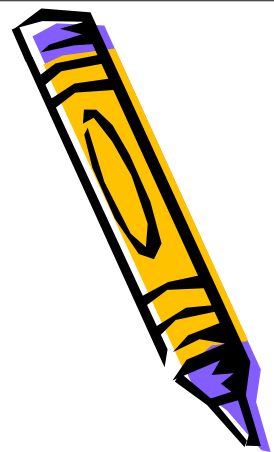
Division

- Use knowledge of times tables and number lines.

$$3 \times 5 = 15$$

$$15 \div 3 = 5$$

$$15 \div 5 = 3$$



Division cont...



- Informal written method

$$\begin{array}{r} \dots \\ 72 \div 5 \end{array}$$

$$\begin{array}{r} 72 \\ - \underline{50} \\ 22 \\ - \underline{20} \\ 2 \end{array}$$

$$10 \times 5$$

$$4 \times 5$$

Answer:

14 remainder 2



HTU \div U

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

$$256 \div 7$$

$$\begin{array}{r} 256 \\ - \underline{70} \\ 186 \\ - \underline{140} \\ 46 \\ - \underline{42} \\ 4 \end{array}$$

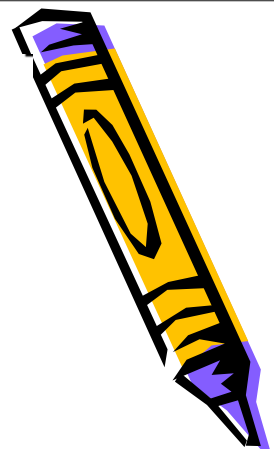
$$10 \times 7$$

$$20 \times 7$$

$$6 \times 7$$

Answer:

36 remainder 4



And finally...

B: short division HTU \div U

$196 \div 6$ is approximately $200 \div 5 = 40$.

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

$$\begin{array}{r} 32 \text{ R } 4 \\ 6 \overline{) 196} \\ \quad \underline{18} \\ \quad \quad 16 \\ \quad \quad \underline{12} \\ \quad \quad \quad 4 \end{array}$$

Answer: 32 R 4

