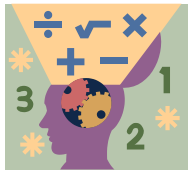
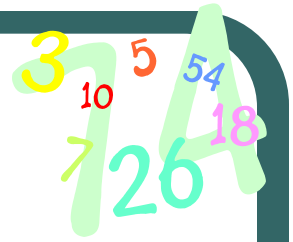
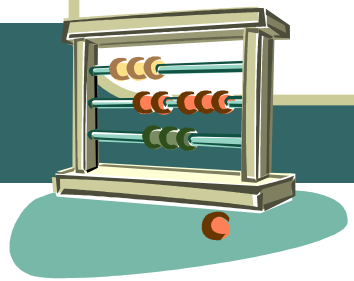


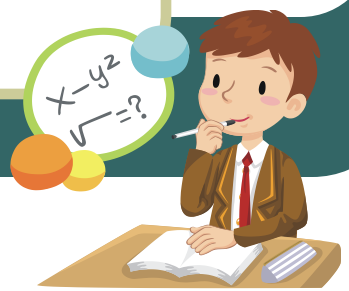


Multiplication & Division

'LEARN TOGETHER'

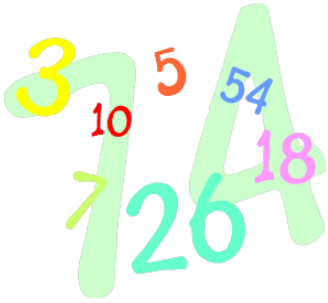
Let's learn to enjoy, achieve, respect and nurture together





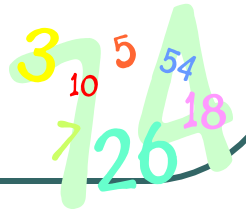
Introduction

- Whole School Calculation Policy
- Teaching methods have changed – focus now on understanding, rather than following a set of given steps to solve problems
- Multiplication – mental and written methods
- Division – mental and written methods
- Literacy & Numeracy Framework
- National Testing
- Web Page



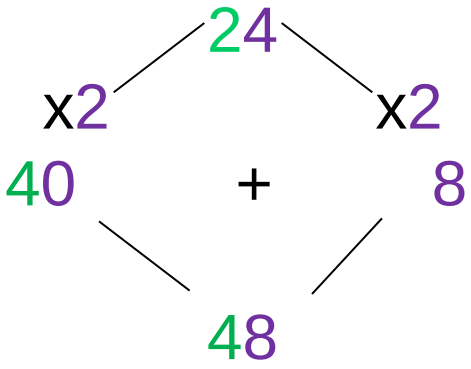
Mental Skills of Multiplication (v)

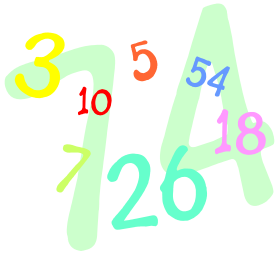
- Counting on in steps
- Doubling and halving
- Commutative e.g 4x8 = 8x4
- Times tables (aim is to know all facts to 12x12 by end of Y4)
- Partitioning
- Multiplying by multiples and near multiples of 10/100/1000



Mental Method - Partitioning

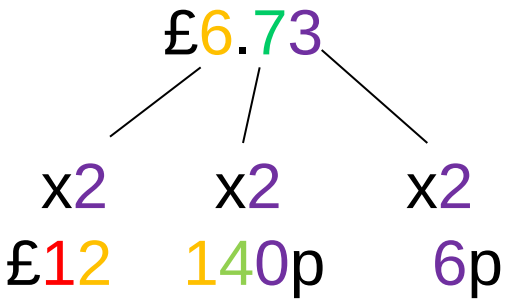
24 x 2





Double £6.73

£6.73 x 2



£13.46

Written Methods – Grid to Compact/Standard

Try to get an idea of an approximate answer before calculating e.g. 23 x 4 (20 x 4 = 80) therefore answer will be a bit larger than this

23 x 4

x	20	3
4	80	12

= 92

23 x 4 = (20x4) + (3x4)

= 80 + 12

= 92

23

x4

92

1

Extending to 3 digit numbers

Make an approximation before calculating e.g. 253 x 6 (250 x 6 = 1500) therefore answer will be a bit larger than this

253 x 6

x	200	50	3
6	1200	300	18

=1518

253 x 6 = (200x6)+(50x6) +(3x6)

= 1200 + 300 + 12

= 1518

253

x 6

1518

3 1

Long Multiplication (v2)

Make an approximation before calculating e.g. (16 x 50 = 800) therefore the answer will be a bit smaller than this

16 x 48

x	10	6
40	400	240
8	80	48

= 640 +
= 128
768

16 x 48 = (48x10) + (48x6)
= 480 + 288
= 768

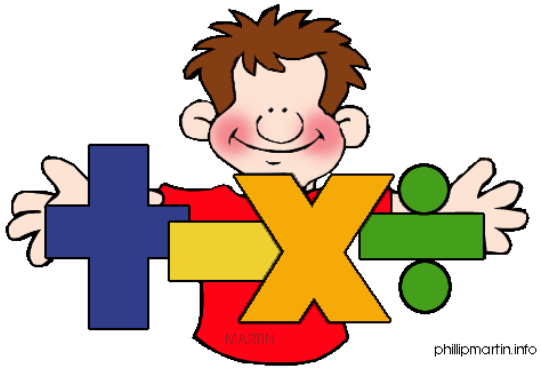
Compact/Standard:

48
x 16
480 (48x10)
+288 (48 x 6)
768
1

Have a go using the grid

Answers

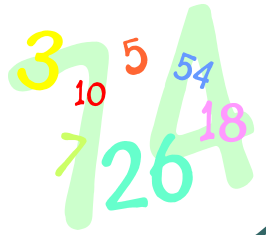
- 45 x 3 = 135
- 745 x 3 = 2235
- 23 x 15 = 345
- 745 x 34 = 25330



2-digit numbers by a 1-digit number: Ladder method (v2)

- 37 x 8 becomes
- 37
- x 8
- 240 (8 x 30)
- + 56 (8 x 7)
- 296

- Compact/Standard:
  - 37
  - x 8
  - 2 5
  - 296



4-digit numbers by a 1-digit number

1235 x 6 *(Approximation 1200 x 6 = 7200)*

Expanded:

1000 200 30 5

x 6

30 (6x5)

180 (6 x 30)

1200 (6 x 200)

6000 (6 x 1000)

7410

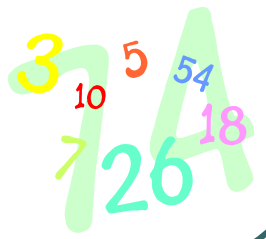
Compact/ Standard:

1235

x 6

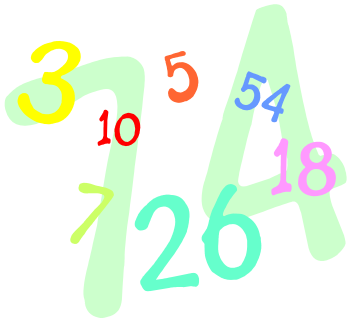
7410

1 2 3



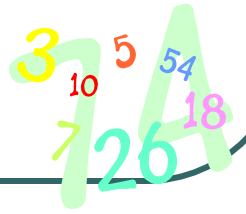
Over to you…….

Have a go at the ladder and compact/ standard methods on your sheets.



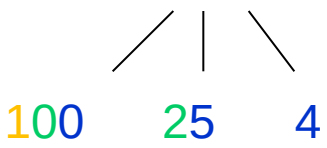
Mental Skills of Division (v3)

- Grouping / sharing
- Repeated subtraction
- Doubling and halving
- Division is NOT commutative
- Using multiplication facts
- Partitioning
- Remainders – how many are left over?



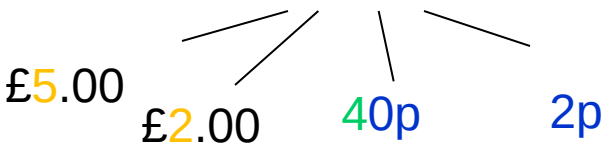
Written Division

- Halving by partitioning
- 258

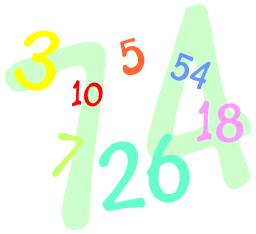


129

£14.84



£7.42



Chunking Method

$$
\begin{array}{r}
 & 1 & 7 \\
\hline
4 \;\big)\; & 6 & 8 \\
- & 4 & 0 \\
\hline
 & 2 & 8 \\
- & 2 & 0 \\
\hline
 & & 8 \\
- & & 8 \\
\hline
 & & 0
\end{array}
$$

(10 x 4)

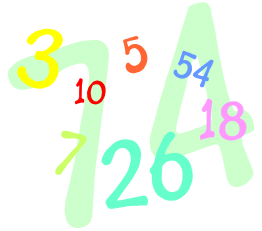
(5 x 4)

(2 x 4)

68 ÷ 4 = 17

Or

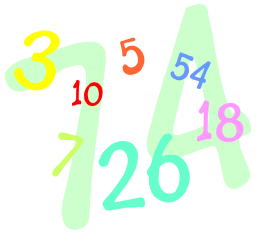
17 x 4 = 68



Chunking with remainders

```
   32 r 4
6 ) 196
  - 60      (10 x 6)
  136
  - 60      (10 x 6)
    76
  - 60      (10 x 6)
    16
  -12       (2 x 6)
    4
```

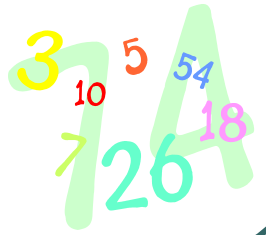
```
   32 r 4
6 ) 196
  - 180     (30 x 6)
    16
  -  12     (2 x 6)
     4
```



Short division (v4)

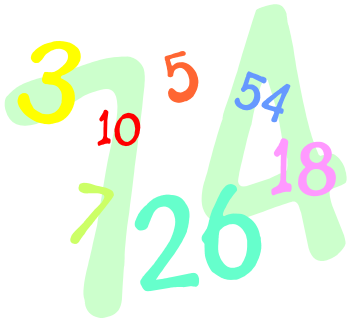
$$\begin{array}{r} 4\ 5 \\ 3\overline{)\,1\,3\,{}_{1}5} \end{array}$$

$$\begin{array}{r} 1\ 2\ 1 \\ 12\overline{)\,1\,4\,{}_{2}5\,{}_{1}2} \end{array}$$



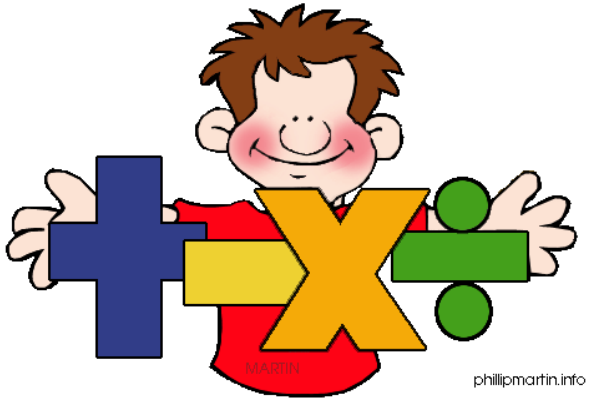
Now try something for yourselves….

Have a go at the division calculations on your sheets:



Division answers

- 75 ÷ 5 = 15
- 175 ÷ 5 = 35
- 77 ÷ 5 = 15 r 2
- 173 ÷ 5 = 34 r 3
- 275 ÷ 25 = 11
- 277 ÷ 25 = 11 r 2

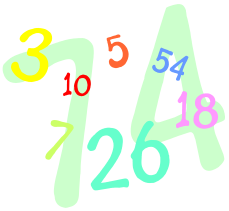


Plenary

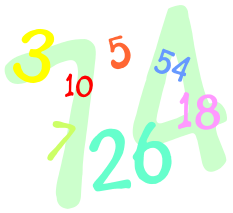
- **Mental strategies:**
  - Importance of having a good understanding of place value and number facts.
- **Multiplication:**
  - Grid, Expanded & Compact/Standard methods of multiplication.
- **Division:**
  - Using multiplication facts; Chunking; Long & Short Division.

The National Curriculum and the Numeracy Framework

- Set of expectations for each year group from Reception to Year 9
- Applying numeracy skills in all areas of the curriculum
- Change in thinking – applying numerical skills rather than just isolated maths lessons



National Tests



- All children in Wales from Y2 to Y9.
- Test window set by Welsh Government: 3rd – 10th May 2017
- Two parts to the Numeracy Tests:
    1) Procedural (9th May)
    2) Numerical Reasoning (10th May)

Next steps…..

Any questions?

Have a look at the web page:

www.barkerslaneprimary.co.uk

Please complete the questionnaire – your feedback is important to us!

Diolch yn fawr iawn!