Improving education & skills

entrust

Maths parents workshop

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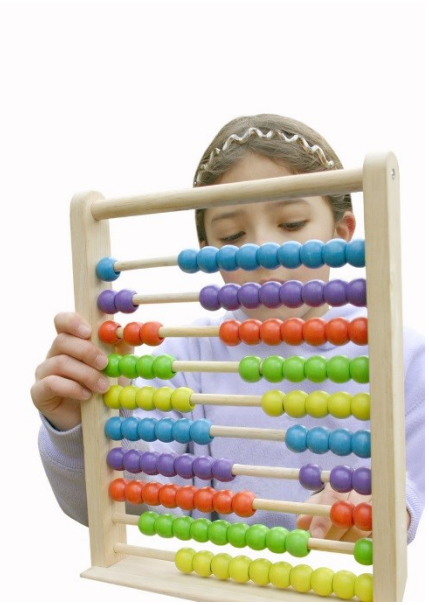
"They didn't do it like that in my day!"



What do we expect children to know?

Recall facts for addition

How many recall facts should children know in order to be able calculate efficiently any addition?

0+0,	0+1,	0+2,	0+3,	0+4,	0+5,	0+6,	0+7,	0+8,	0+9,
1+1,	1+2,	1+3,	1+4,	1+5,	1+6,	1+7,	1+8,	1+9	
2+2,	2+3,	2+4,	2+5	2+6,	2+7,	**2+8**,	2+9		
3+3,	3+4,	3+5,	3+6,	**3**+7,	3+8,	3+9			
4+4,	4+5,	**4+6**,	4+7,	4+8,	4+9,				
5+5,	5+6,	5+7,	5+8,	5+9,					
6+6,	6+7,	6+8,	6+9						
7+7,	7+8,	7+9							
8+8,	8+9,								
9+9									

55 addition facts

What do we expect children to know?

By the end of Year 4 children should be able to recall multiplication facts up to 12 x 12

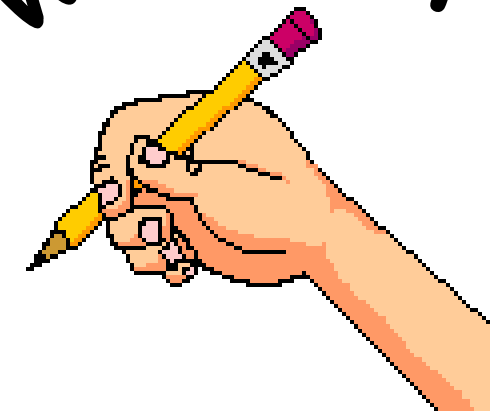
In years 5 and 6 children continue to practice the multiplication facts becoming more fluent – recalling without hesitation

Which is more important?

mental calculation

or

written



This will depend on the numbers involved and the individual child.

When faced with a calculation, no matter how large or difficult the numbers may appear to be, all children should ask themselves:

Tackling a problem

Can I do this in my head?

Do I know the approximate size of the answer?

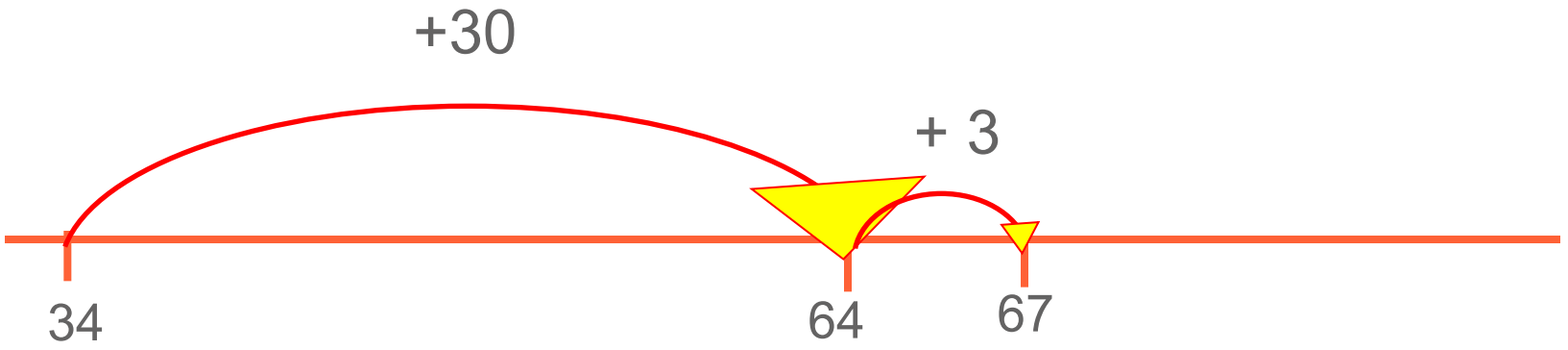
If I can't do it wholly in my head, what do I need to write down in order to help me calculate the answer?

Will a written method be helpful?

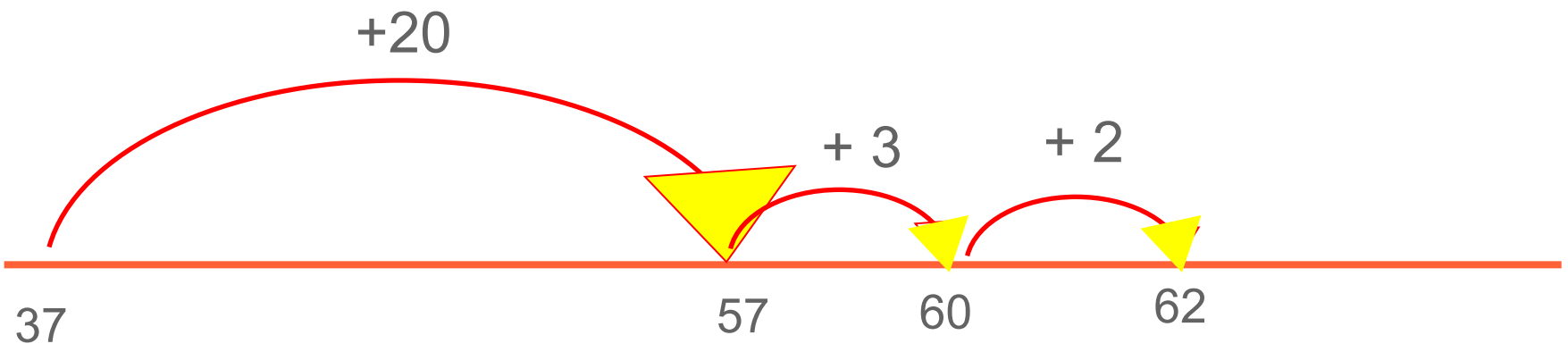
Progression in Addition

Using a number line

34 + 33 = 67



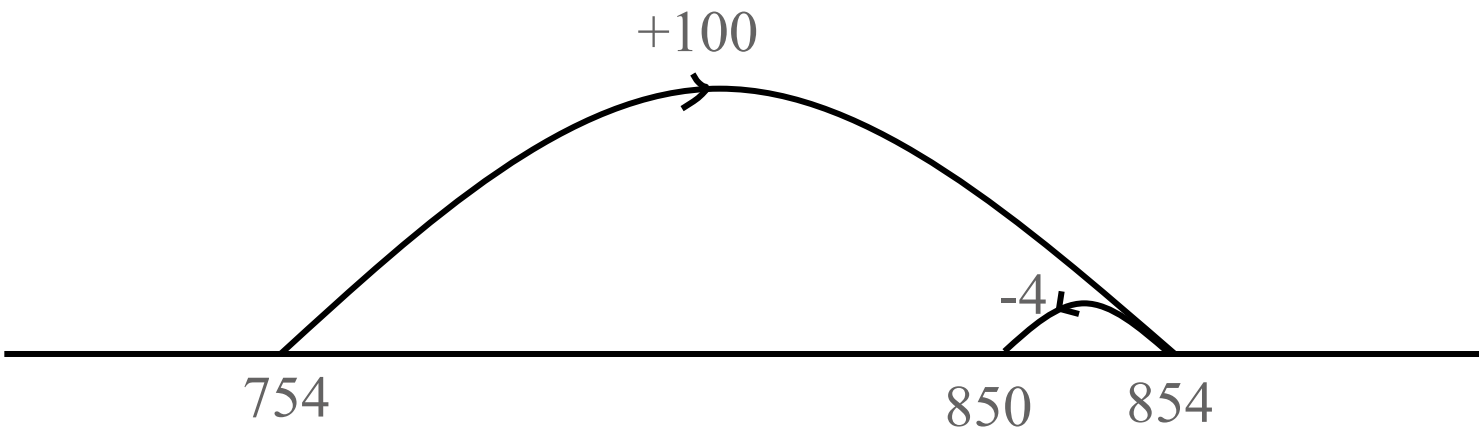
37 + 25 = 62



Using a number line to add too much and then subtract *(compensate)*

HTU + TU
754 + 96

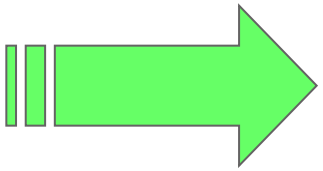
Start with the larger number 754. Add on 100 and then subtract 4.



754 + 96 = 850

Moving to a written method

$$
\begin{array}{r}
647 \\
+\ 326 \\
\hline
13 \\
60 \\
900 \\
\hline
973 \\
\hline
\end{array}
$$



$$
\begin{array}{r}
647 \\
+\ 326 \\
\hline
973 \\
\hline
1
\end{array}
$$

REMEMBER - least significant digit first

Progression in the formal method

Decimals

£	p
6.72	+
8.56	
+ 2.30	
£ 17.58	

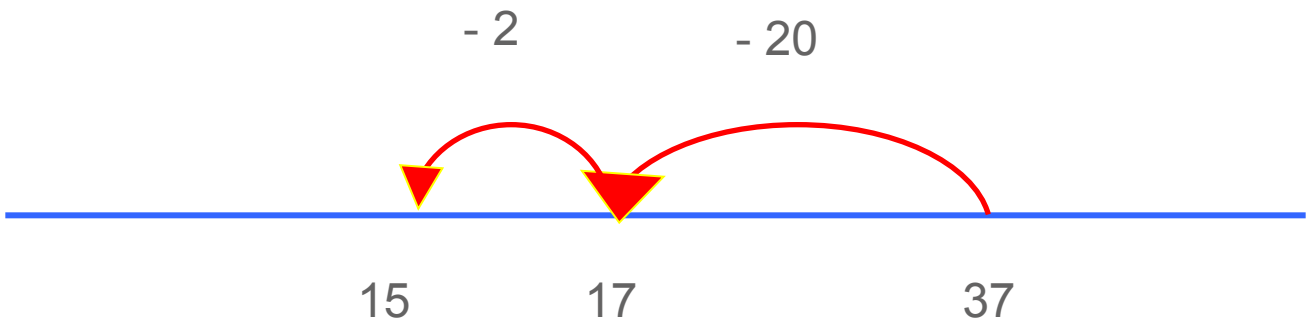
Differing number of digits

9632 + 42 + 786 +3

	9	6	3	2
		4	2	
	7	8	6	
				3
1	0	4	6	3
	1	1	1	

Progression in subtraction

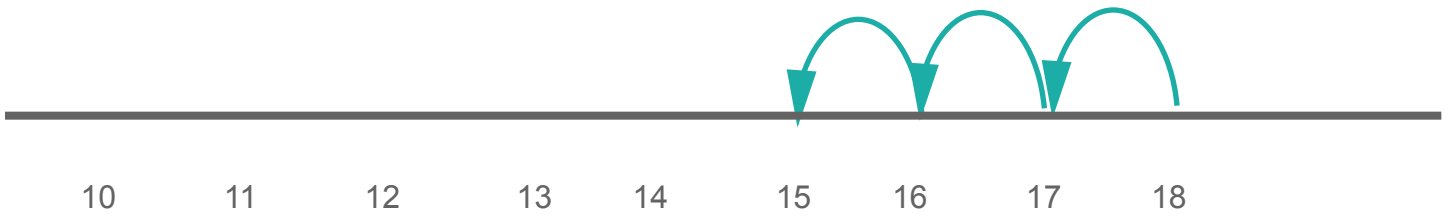
- 37 - 22 = 15



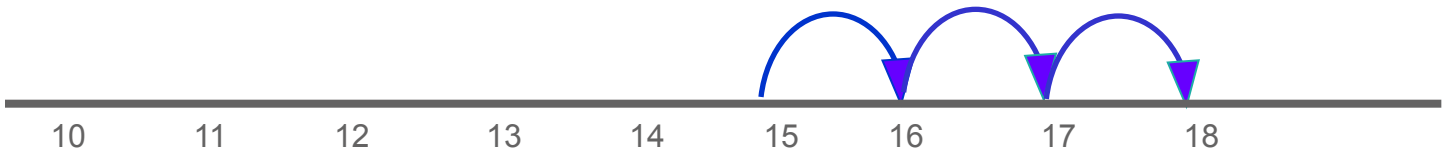
Progression in subtraction

Would you use the same method for 18 – 3 and 18 – 15?

When it is sensible to count back e.g. 18 - 3



When it is sensible to count forward e.g. 18 - 15



Progression in subtraction

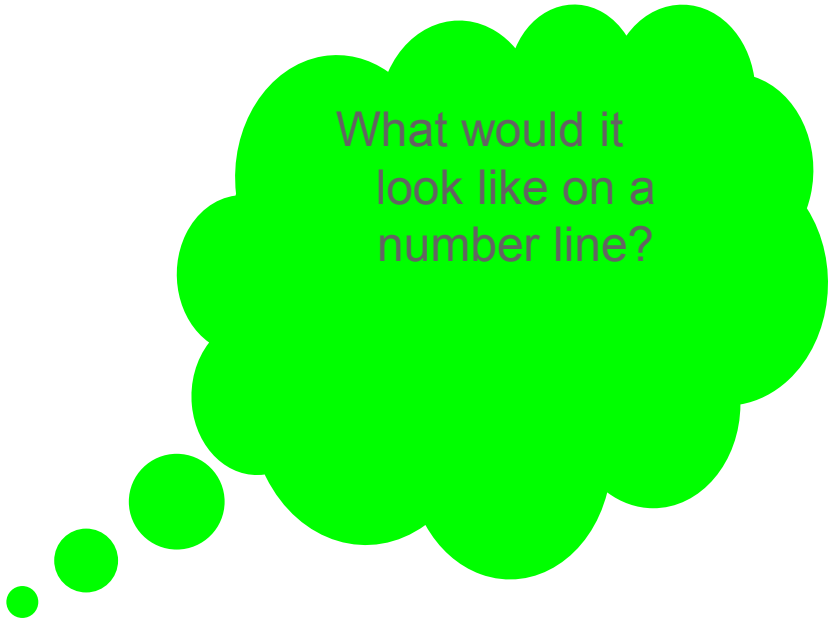
Partitioning

758 – 232 = 526

758 – 200 = 558

– 30 = 528

– 2 = 526



How would you calculate…?

- 62 – 4 - Start at 62 and count back 4
- 62 – 42 - Use difference of tens value
- 62 – 31 - Use doubles and halves
- 62 – 9 - Start at 62 – 10 + 1
- 62 – 58 - Start at 58 and count on to 62
- 62 – 10 - Recall of subtracting 10
- 62 – 11 - Subtract 10 then subtract 1
- 62 – 43 - 43 + 20 = 63 so +19 = 62
- 62 - 37 - 62 – 30 – 7

Mental Multiplication

If I know…. Then I also know….

If I know 8 x 6 = 48 then I know:

80 x 6 =

8 x 0.6 =

16 x 6 =

Mental Multiplication

Use of factors

25 x 12 =

25 x 4 x 3 =

100 x 3 = 300

Partition

$23 \times 4 = 92$

$23 \times 4 = (20 \times 4) + (3 \times 4)$

$= (\ 80\ ) + (\ 12\ )$

$= 92$

Grid Multiplication

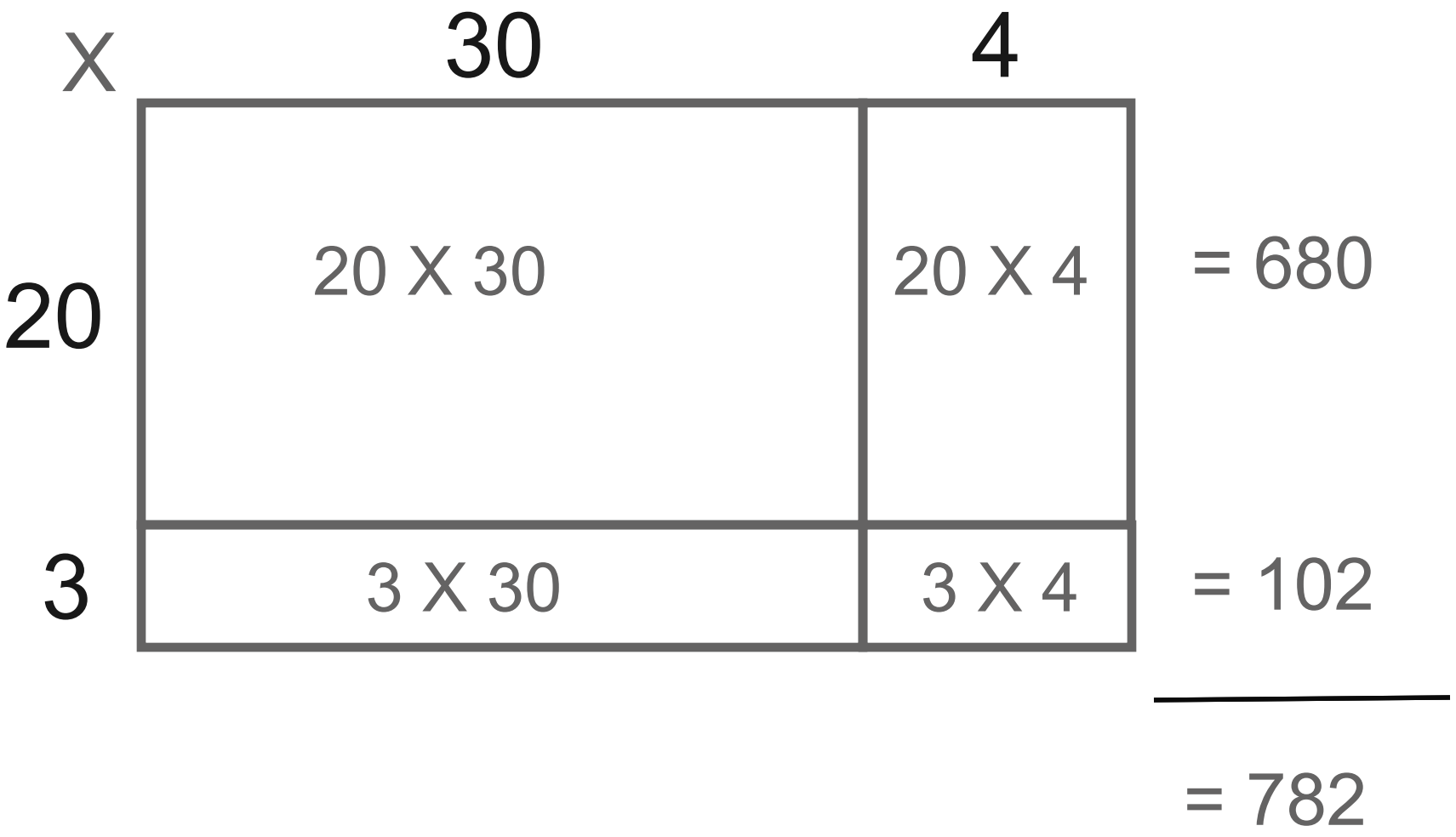
TU X TU

34 x 23

Why do you *partition* the numbers into tens and units?

I can see what I have to multiply easily.

34 x 23



Progression in Multiplication

$$\begin{array}{r} 13 \times \\ 6 \\ \hline 18 \\ 60 \\ \hline 78 \end{array}$$

$$\begin{array}{r} 13 \times \\ 6 \\ \hline 78 \\ \hline {\scriptstyle 1} \end{array}$$

Progression in Multiplication

Long Multiplication

234 x
16

1404 (234 x 6)
2 2

2340 (234 x 10)

3744

Progression in Division

Chunking

```
      24
   ┌────
3  │ 72
   - 30        10 x 3
   ──────
     42
   - 30        10 x 3
   ──────
     12
   - 12        4 x 3
   ──────
      0
```

```
      22 r 2
   ┌──────
7  │ 156
   - 140       20 x 7
   ──────
     16
   - 14        2 x 7
   ──────
      2
```

Long and short division

98 ÷ 7 =

```
    1  4
  ┌─────
  │  2
7 │9 8
```

432 ÷ 15

```
       2  8  r 12
    ┌──────────
1 5 │4  3  2
      3  0  0
    ──────────
      1  3  2
      1  2  0
    ──────────
         1  2
```

Long and short division

Children should be able to show remainders as:

- Fractions
- Decimals
- Whole numbers
- Rounded up/down

E.g. The answer to 5309 ÷ 8 could be expressed as

- 663⅝
- 663 r 5
- 663·625
- or rounded as appropriate to the problem involved.

What can you do?

Be positive about maths, even if you don't feel confident about it yourself.

Talk and listen to your child about their work. It will help your child if they have to explain to you.

Encourage them to use mental strategies whenever possible.

Play number games

Help with learning number facts – in particular, multiplication facts