

Maths parents workshop

Karen Lawley



**“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 12×12

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

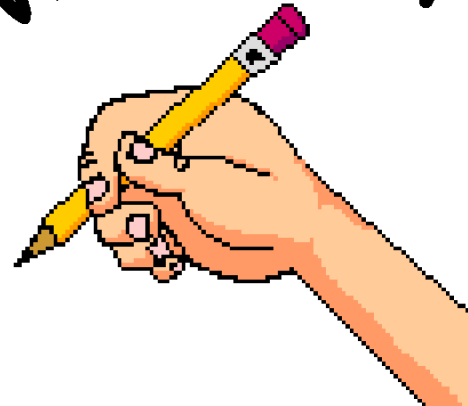
Which is more important?

mental calculation



or

written

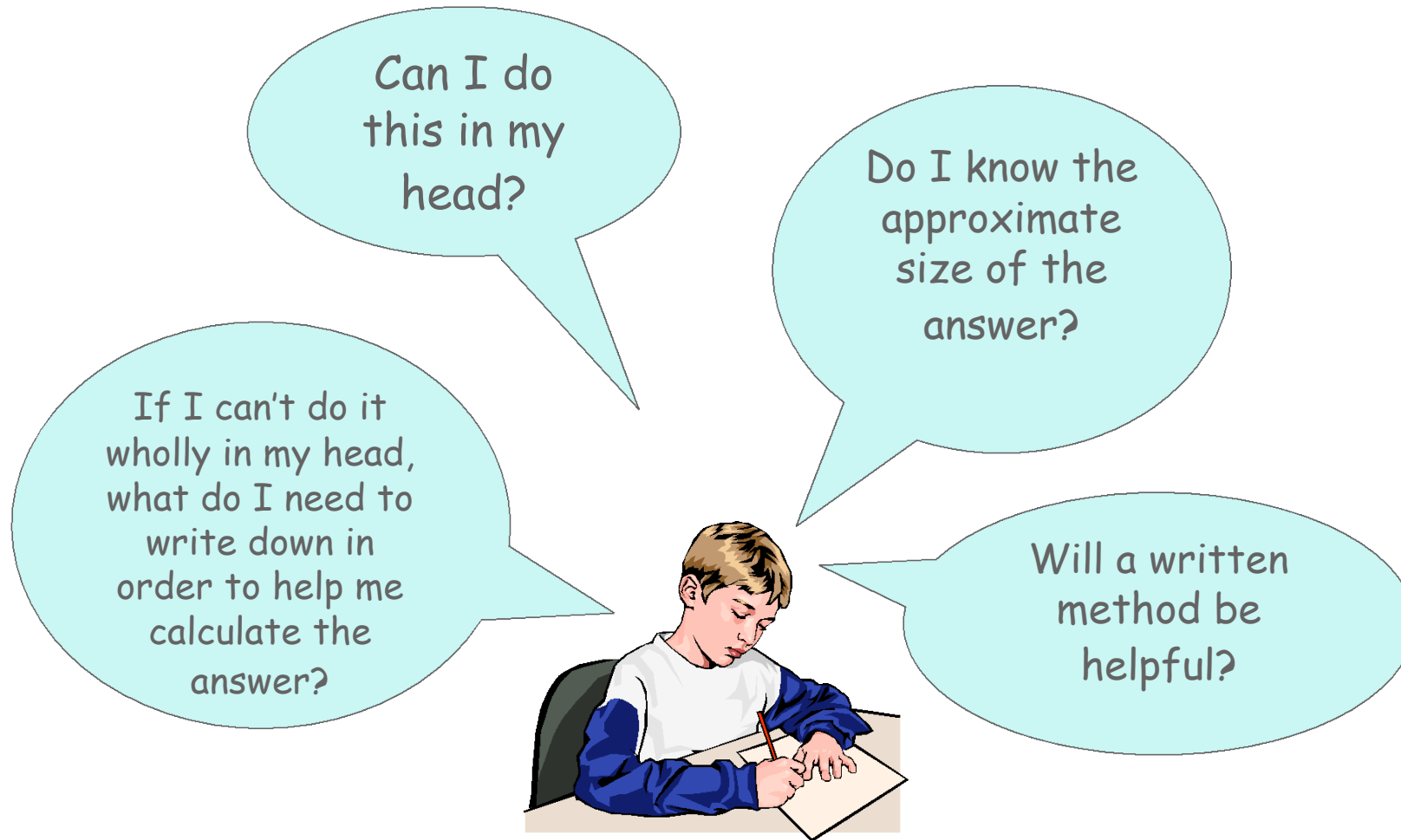


This will depend on the numbers involved and the individual child.

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



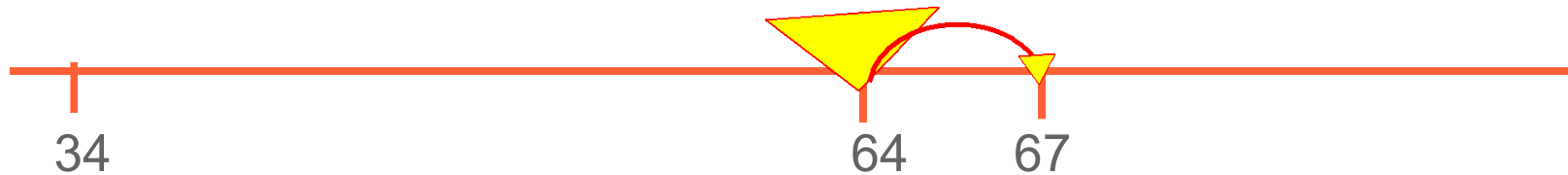
Progression in Addition

Using a number line

$$34 + 33 = 67$$

+30

+ 3

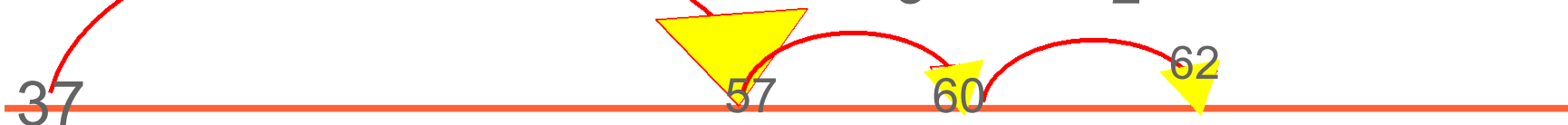


$$37 + 25 = 62$$

+20

+ 3

+ 2



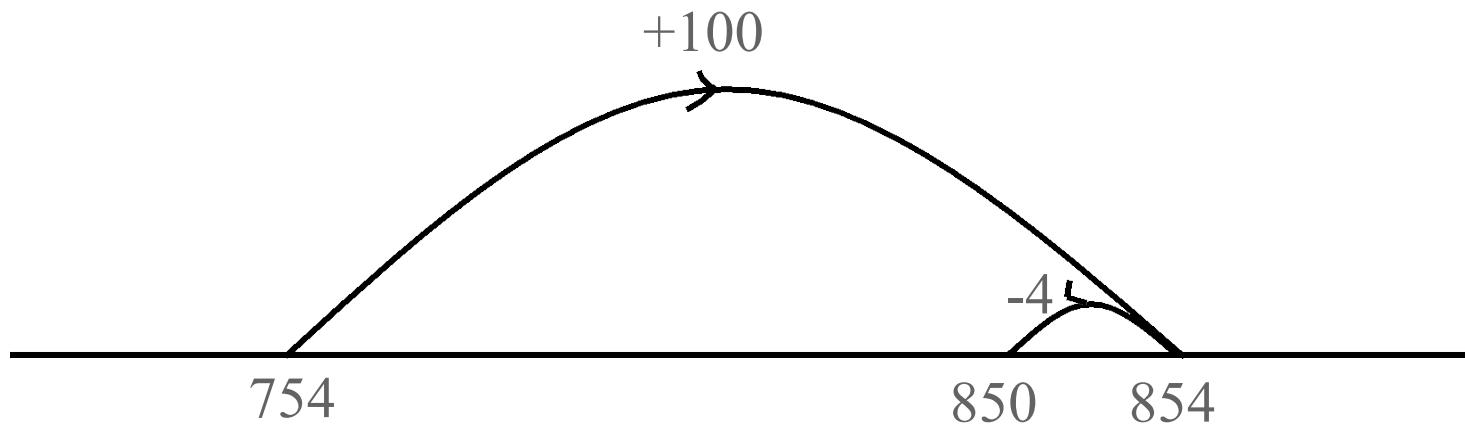
Using a number line to add too much and then subtract (*compensate*)

HTU + TU

754 + 96



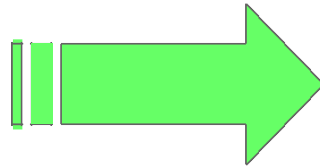
Start with the larger number 754. Add on 100 and then subtract 4.



$$754 + 96 = 850$$

Moving to a written method

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



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

$$\begin{array}{r} 900 \\ \hline 973 \end{array}$$

REMEMBER - least significant digit first

Progression in the formal method

Decimals

$$\begin{array}{r} \text{£} \quad \text{p} \\ 6.72 + \\ 8.56 \\ + 2.30 \\ \hline \text{£} 17.58 \end{array}$$

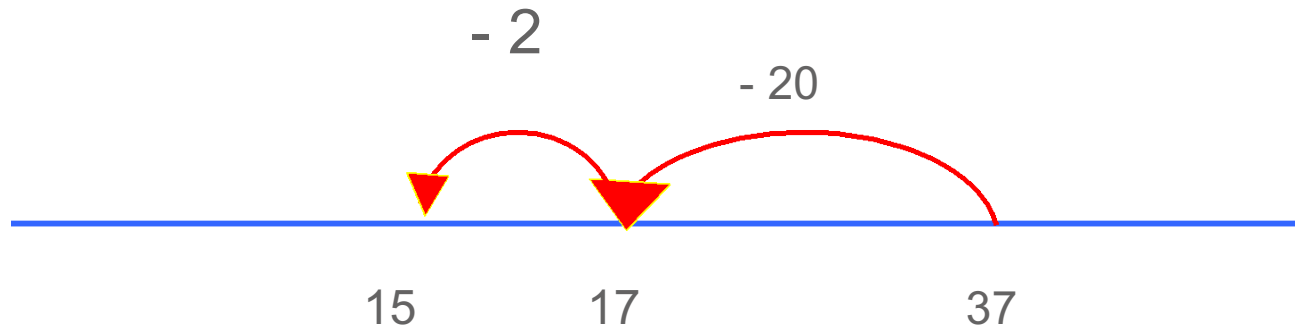
Differing number of digits

$$9632 + 42 + 786 + 3$$

$$\begin{array}{r} 9632 \\ 42 \\ 786 \\ 3 \\ \hline 10463 \\ 1 \quad 1 \quad 1 \end{array}$$

Progression in subtraction

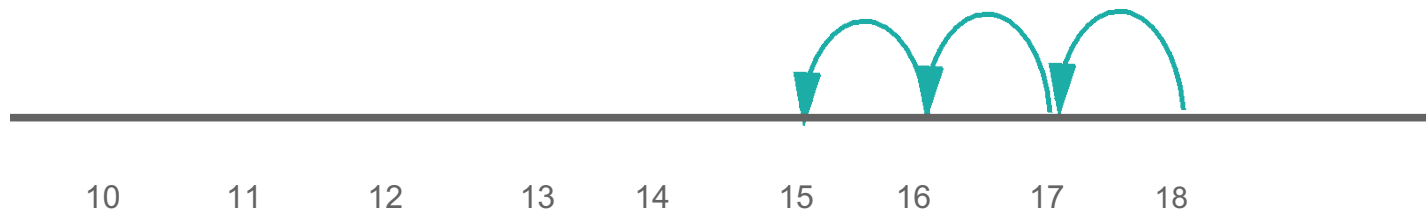
- $37 - 22 = 15$



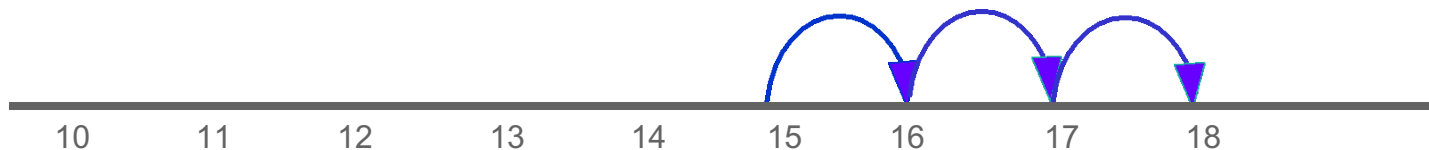
Progression in subtraction

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

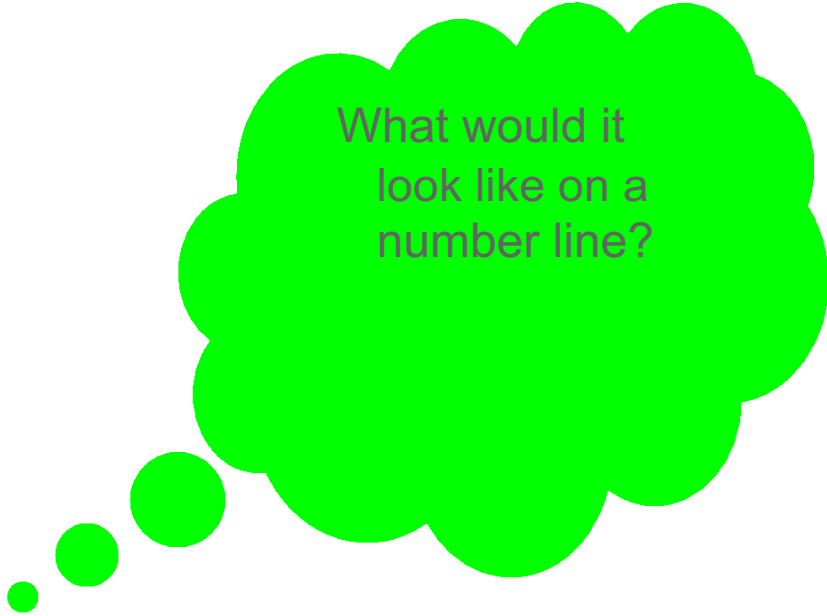
Partitioning

$$758 - 232 = 526$$

$$758 - 200 = 558$$

$$- 30 = 528$$

$$- 2 = 526$$



What would it
look like on a
number line?

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 $8 \times 6 = 48$ then I know:

$$80 \times 6 =$$

$$8 \times 0.6 =$$

$$16 \times 6 =$$

Mental Multiplication

Use of factors

$$25 \times 12 =$$

$$25 \times 4 \times 3 =$$

$$100 \times 3 = 300$$

Partition

$$23 \times 4 = 92$$

$$\begin{aligned} 23 \times 4 &= (20 \times 4) + (3 \times 4) \\ &= (80) + (12) \\ &= 92 \end{aligned}$$

Grid Multiplication

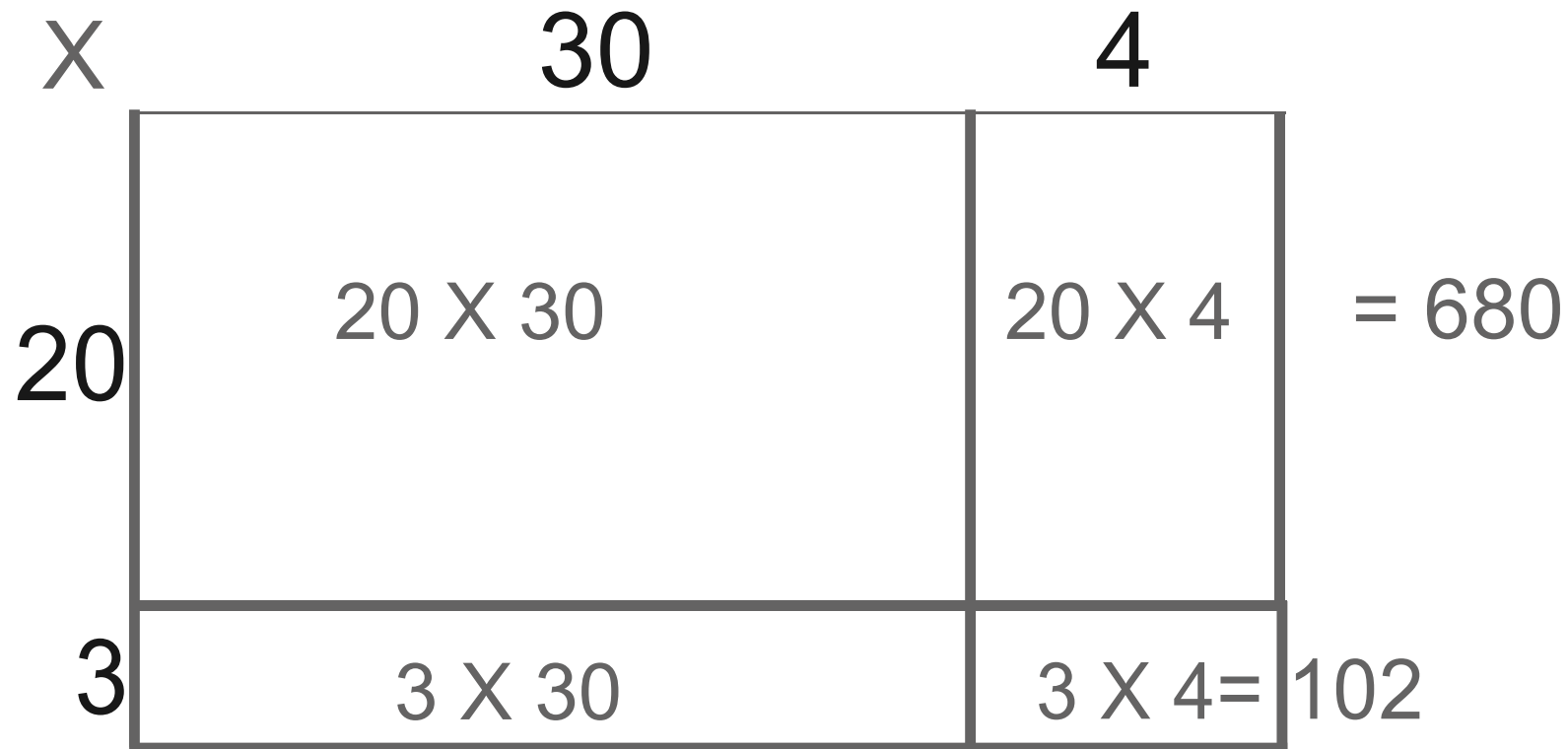
$$\begin{array}{r} \text{TU} \times \text{TU} \\ 34 \times 23 \end{array}$$

Why do you
partition the
numbers into
tens and units?

I can see what I
have to multiply
easily.



$$34 \times 23$$



$$= 782$$

Progression in Multiplication

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



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

Progression in Multiplication

Long Multiplication

$$\begin{array}{r} 234 \times \\ 16 \\ \hline 1404 \quad (234 \times 6) \\ 22 \\ 2340 \quad (234 \times 10) \\ \hline 3744 \end{array}$$

Progression in Division

Chunking

$$\begin{array}{r} 24 \\ 3 \overline{) 72} \\ \underline{- 30} \quad 10 \times 3 \\ 42 \\ \underline{- 30} \quad 10 \times 3 \\ 12 \\ \underline{- 12} \quad 4 \times 3 \\ 0 \end{array}$$

$$\begin{array}{r} 22 \text{ r } 2 \\ 7 \overline{) 156} \\ \underline{140} \quad 20 \times 7 \\ 16 \\ \underline{14} \quad 2 \times 7 \\ 2 \end{array}$$

Long and short division

$$98 \div 7 =$$

$$\begin{array}{r} 14 \\ 7 \overline{) 98} \\ \underline{7} \\ 28 \\ \underline{28} \\ 0 \end{array}$$

$$432 \div 15$$

$$\begin{array}{r} 28 \text{ r } 12 \\ 15 \overline{) 432} \\ \underline{30} \\ 132 \\ \underline{120} \\ 12 \end{array}$$

Long and short division

Children should be able to show remainders as:

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

E.g. The answer to $5309 \div 8$ could be expressed as

- $663\frac{5}{8}$
- $663 \text{ r } 5$
- 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