



ADDITION METHODS

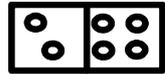
STAGE 1 (From EYFS)

Understanding of addition begins with oral and practical work. Children are encouraged to explore addition through role play and number stories to give meaning to the concept. Number rhymes and songs are used to rehearse number order and prepare children for counting on mentally.

When ready, pupils will begin to add two groups using objects, Numicon apparatus and pictures, later recording their work.



$$6 + 2 = 8$$



$$2 + 4 = 6$$



$$3 + 4 = 7$$

WAYS TO SUPPORT YOUR CHILD:

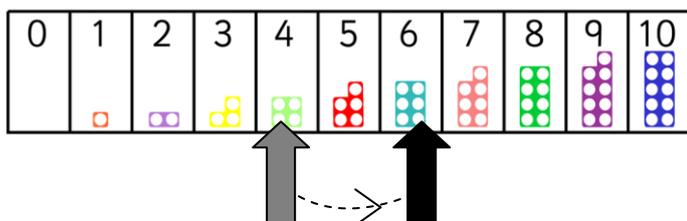
- Encourage your child to explore addition through real life situations and role play, eg. If I have 3 apples and I buy 2 more, how many will I have altogether?
- Use a range of vocabulary when talking about addition, eg. 'add', 'more than', 'how many altogether'.
- If you have Numicon at home, encourage your child to free play with the shapes to encourage familiarity and prepare them for formal calculations.
- Sing songs and number rhymes with your child (see YPS Number Rhymes booklet, iTunes and YouTube for ideas!).



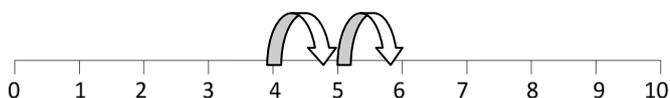
STAGE 2 (From EYFS / Y1)

From EYFS / Year 1, children will also begin to use Numicon number tracks and number lines to support their mental calculations, initially by moving their finger along the track / line then by drawing jumps.

$$4 + 2 = 6$$



Using a number
track



Using a number
line

WAYS TO SUPPORT YOUR CHILD:

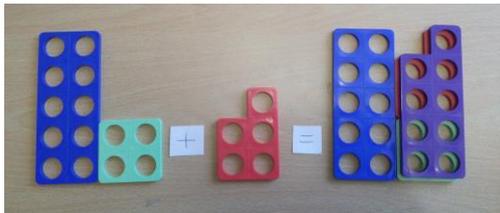
- Play board games with your child to rehearse counting on, eg. Snakes and Ladders.
- Expose your child to number tracks / lines to 10 and 20 to support their calculations.
- Counting on can also be encouraged through play with bead strings, pegs on a washing line, abacus etc.



STAGE 3 (From Y1)

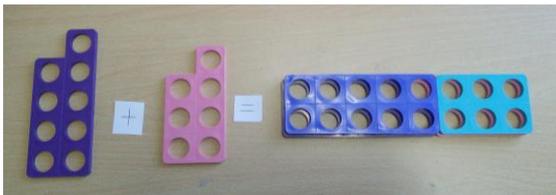
From Year 1, pupils begin to use Numicon more formally to add two numbers together. By becoming more fluent in the use of Numicon, they become more able to calculate without counting.

Pupils initially add by putting the Numicon 'together' vertically to find the total.



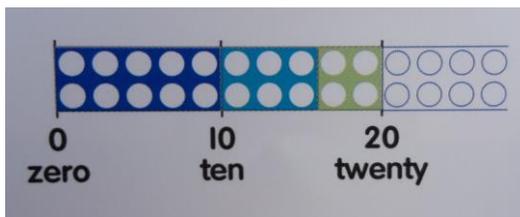
$$14 + 5 = 19$$

When confident in this, pupils will then begin to use the Numicon horizontally in order to prepare them for working with larger numbers.



$$9 + 7 = 16$$

When ready, the pupils will begin to add two 2 digit numbers horizontally, using the Numicon tens line to support them and make links to number line images (usually towards the end of Y1 / beginning of Y2).



$$16 + 4 = 20$$

WAYS TO SUPPORT YOUR CHILD:

- Numicon resources are available to buy through school (please see Mrs Hodgkiss for further details).
- Free downloads of Numicon resources can be found through the Maths Zone at www.yardleyschool.com
- If you do have Numicon resources at home, encourage your child to make 2 digit numbers and see how many tens and units there are in each, and challenging your child to make a large number both vertically (as tens, then units), and horizontally.

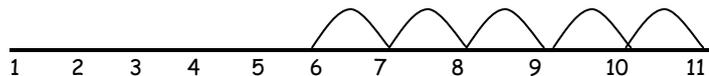


STAGE 4 (From Y1)

Alongside the Numicon image, pupils are encouraged to use prepared, and later their own, number lines as appropriate to support their calculations. Pupils are always encouraged to count on from the largest number.

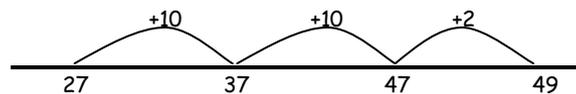
- Counting in ones

$$6 + 5 = 11$$



- Counting in tens and ones

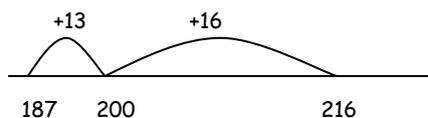
$$27 + 22 = 49$$



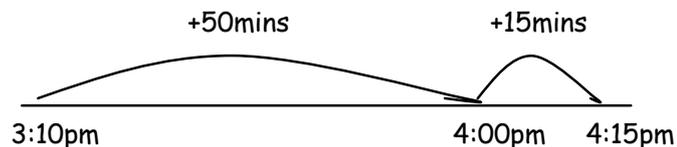
The use of number lines continues to be developed throughout Key Stage 2, whereby pupils are expected to draw their own number lines and choose appropriate jumps. This is an important image to support mental calculations.

- Drawing own line and deciding on appropriate jumps

$$187 + 29 = 216$$



- Number lines to support addition of time and decimals



WAYS TO SUPPORT YOUR CHILD:

- Play games to rehearse number bonds to 10, and later to 100, to aid counting on.
- Count with your child in tens, and later hundreds, from any starting number, eg. 13, 23, 33 etc.
- Give your child access to hundred squares and extended number lines (eg. a measuring tape) to support calculations.
- Find different ways to partition (split up) numbers with your child, eg. $34 = 30 + 4 = 20 + 14$ etc.



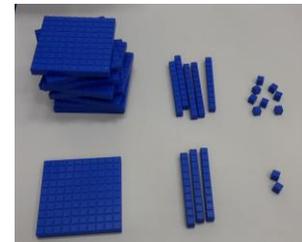
STAGE 5 (From Y3)

Children begin to develop more formal methods of addition through the 'expanded method' of recording. In school this is supported through the use of Base Ten equipment.

Pupils first partition each number, recording them vertically, before adding up each column and finding the total.

$$375 + 67$$

$$\begin{array}{r} 300 \quad 70 \quad 5 \\ + \quad \quad 60 \quad 7 \\ \hline 300 \quad 130 \quad 12 = 442 \end{array}$$



WAYS TO SUPPORT YOUR CHILD:

- Reinforce place value of each column as your child records and adds (hundreds, tens, units).
- Encourage your child to add the least significant digits first, right to left (in preparation for column addition), eg. adding units, then tens, then hundreds and so on.
- Continue to explore partitioning with your child as they encounter larger numbers, eg. For 375, what is the value of the 7? How many hundreds are there?

STAGE 6 (From Y3)

Children will begin to use column addition, lining up digits according to place value before adding vertically.

- Column addition with all digits below 5

$$\begin{array}{r} \text{H T U} \\ 4 \quad 2 \quad 3 \\ + \quad 4 \quad 4 \\ \hline 4 \quad 6 \quad 7 \end{array}$$

- Moving to column addition with any digit, carrying below the line.

$$\begin{array}{r} 3 \quad 6 \quad 7 \\ + \quad 8 \quad 5 \\ \hline 4 \quad 5 \quad 2 \\ \text{± ±} \end{array}$$

$$\begin{array}{r} 1 \quad 3 \quad . \quad 5 \quad 6 \quad 3 \\ + \quad 1 \quad 1 \quad . \quad 6 \quad 1 \quad 9 \\ \hline 2 \quad 5 \quad . \quad 1 \quad 8 \quad 2 \\ \text{± ±} \end{array}$$

WAYS TO SUPPORT YOUR CHILD:

- Reinforce place value as your child 'carries', eg. carry ten/one hundred (not one).
- Remind your child to cross out as they carry.
- Encourage your child to line up digits by place value and decimal point.
- Remind your child to start adding from least significant digit (right to left).