

How to Help your Child with Maths



A Quick Guide to the New Curriculum Year 3

Year 3

What topics are they taught?

Please see the target tracker statement sheets for individual objectives!

Topics taught in Year 3:

- **Number and place value**
- **Calculations (addition and subtraction)**
- **Calculations (multiplication and division)**
- **Measurement**
- **Fractions, decimals and percentages**
- **Geometry (shape)**
- **Statistics**



To help your child develop a good understanding of number we ask you to use every opportunity to explore mathematical ideas in everyday life.

For example:

- Play fun board games with your children like dominoes, snakes and ladders, snap, pairs or connect 4.
- Practise counting in different groups of number while walking up the stairs.

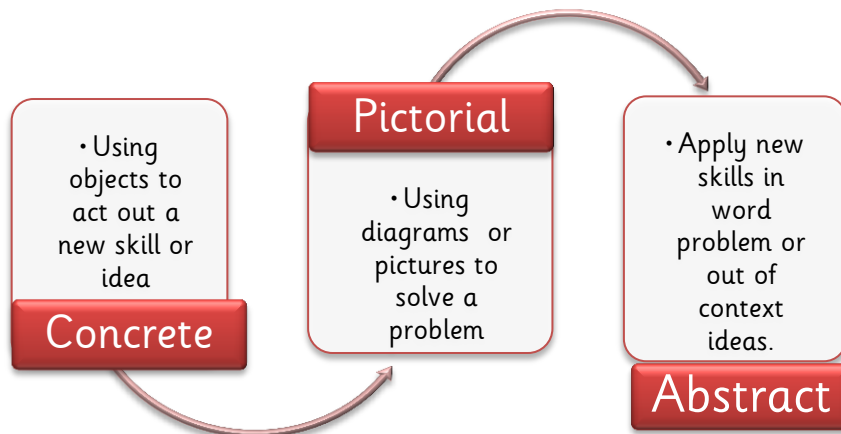
On the way to school, see how many different shapes you can spot. Which did you see most of?

- Find out which number facts your child is learning at school. (addition facts to 10, times tables, doubles). Try to practise for a few minutes each day using a range of vocabulary.
- Sing number rhymes together - there are lots of commercial tapes and CD's available.
- Give your child the opportunity to count a range of interesting objects (coins, pasta shapes, buttons etc.). Encourage them to touch and move each object as they count.
- Look for numerals in the environment. You can spot numerals at home, in the street or when out shopping.
- Cut out numerals from newspapers, magazines or birthday cards. Then help your child to put the numbers in order.
- Keep a Maths folder or book including any activities, games or practice that you do together at home!



LEARNING

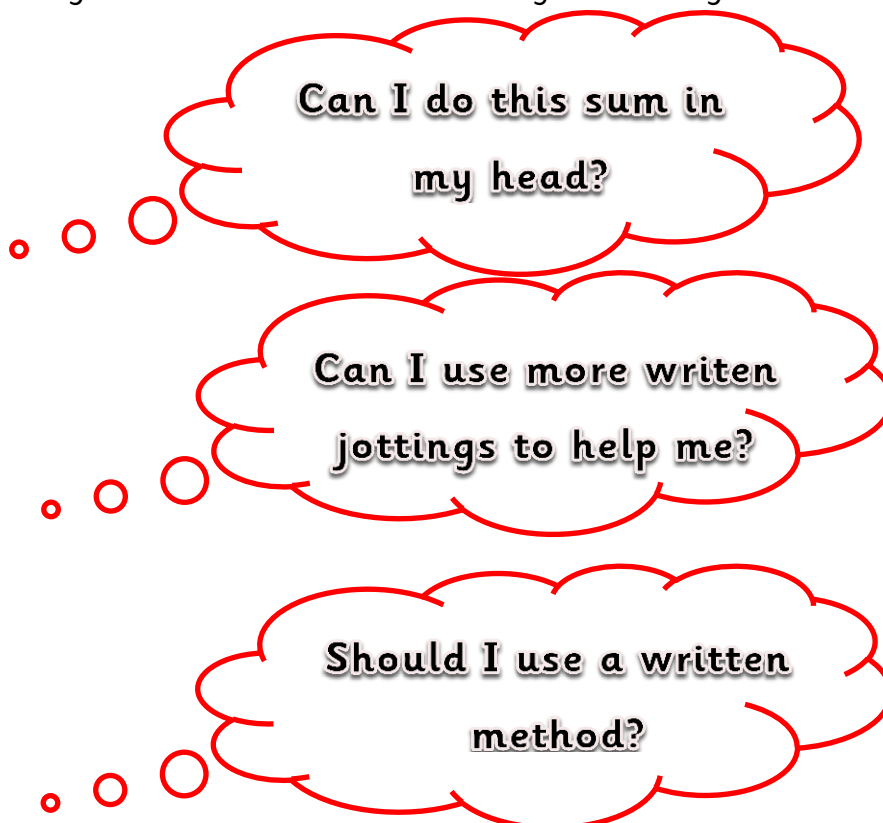
At Highworth, we use three steps (or representations) necessary for pupils to develop understanding of each mathematical concept.



CALCULATION

Talk to your child about how you work things out. Ask your child to explain their thinking. The work your child is doing at school may look very different to the kind of 'sums' you remember. This is because children are encouraged to work mentally, where possible, using personal jottings to help support their thinking. Even when children are taught more formal written methods (from Year 3 onwards), they are only encouraged to use these methods for calculations they cannot solve in their heads.

As part of a child's learning in calculation, they need to be taught how to select the best method according to the numbers. The hierarchy of thinking should be:



Addition +

Year 3

In Year 2, your child was taught to add large 2 digit numbers using a number line. In Year 3, children add numbers up to 3 digits. They are taught to use partitioning method for addition to add two or three 3-digit numbers or three 2-digit numbers. If they are confident, they may also begin to use column addition to add numbers with three digits.

For example: Children start with partition numbers to add them together. Then move on to using the formal column method when they are ready.

Partitioning

$$\begin{array}{r} 27 + 12 = 39 \\ \hline 20 \quad 7 \\ + 10 \quad 2 \\ \hline 30 + 9 = 39 \end{array}$$

Compact Column

$$\begin{array}{r} \text{T U} \\ + 23 \\ 17 \\ \hline 40 \\ \underline{1} \end{array} \quad \begin{array}{r} \text{H T U} \\ + 236 \\ 73 \\ \hline 309 \\ \underline{11} \end{array}$$

Carry any numbers underneath.



When do we know children are ready for the column method?

- Do they know addition and subtraction facts to 20?
- Do they understand place value and can they partition numbers?
- Can they explain their mental strategies orally and record them using informal jottings?

Key Skills for Addition at Year 3:

- Know pairs with each total to 20.
- Know pairs of multiples of 10 with a total of 100.
- Add any two 2-digit numbers by counting on in 10s and 1s or by using partitioning.
- Add multiples and near multiples of 10 and 100.
- Add 1, 10, 100 to 3 digit numbers.
- Understand place value in 3 digit numbers.
- Perform place value additions without a struggle. (E.g. $300 + 8 + 50 = 358$)
- Use place value and number facts to add a 1-digit or 2-digit number to a 3-digit number. (E.g. $104 + 56$ is 160 since $104 + 50 = 154$ and $6 + 4 = 10$ and $676 + 8$ is 684 since $8 = 4 + 4$ and $76 + 4 + 4 = 84$)
- Add pairs of simple 3-digit numbers mentally, e.g. $320 + 450$.
- Begin to add amounts of money using partitioning.
- Solve problems with addition using number facts, place value and missing numbers.

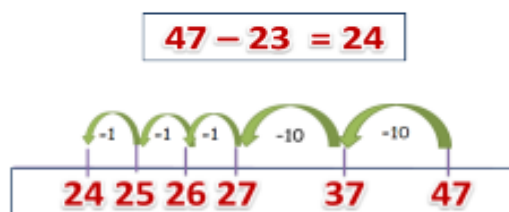
Key vocabulary:

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary, hundreds boundary, increase, vertical, 'carry', expanded, compact

Subtraction—

Year 3

In Year 2, your child was taught to subtract 2 digit numbers using a number line. In Year 3, children subtract numbers up to 3 digits. Children may still use a number line to work out these questions:



Counting back

Partition the second number and subtract the tens first

They will be taught to count back where appropriate, using place value or number facts. This skill will be reinforced through mental work. They will then begin to use compact column subtraction method, first using simple 2 digit or 3 digit numbers.

Compact Column

$$\begin{array}{r} \text{T U} \\ 47 \\ - 23 \\ \hline 24 \end{array}$$

$$\begin{array}{r} \text{H T U} \\ 236 \\ - 23 \\ \hline 13 \end{array}$$

The emphasis is to teach the children to consider the most appropriate method to subtract.

Key Skills for Subtraction at Year 3:

- Understand place value in 3 digit numbers; add and subtract 1s, 10s or 100s without difficulty; use this to add and subtract multiples of 1, 10, 100 to/from 3 digit numbers.
- Mentally subtract any pair of 2 digit numbers, e.g. $75 - 58$.
- Recognise that there are two ways of completing subtractions, either by counting up or by counting back, e.g. $54 - 3$.
- Subtract mentally using place value and number bonds, e.g. $347 - 5$, $347 - 40$, $347 - 100$

Key

vocabulary:

equal to, take, take-away, less, minus, subtract, leaves, distance between, how many more, how many fewer/less than, most, least count back, how many left, how much less is..., difference, count on, strategy, partition, tens units, take and make, exchange, digit, value, hundreds

Multiplication X

Year 3

In Year 2, your child was taught to multiply using repeated addition. In Year 3, children **MUST** be able to do the following before moving onto grid method:

- Partition numbers into tens and units.
- Multiply multiples of ten by a single digit using their knowledge of multiplication facts and times tables.
- Recall and work out multiplication facts in the 2, 3, 4, 5, 8 and 10 times tables.

If they are confident with the points above, children are taught to multiply 2 digit numbers by a single digit number using the grid method:

$$37 \times 5 =$$

X	30	7
5	150	35

$$37 \times 5 = 150 + 35$$

$$37 \times 5 = 185$$

Key Skills for Multiplication at Year 3:

- Understand that multiplication is commutative, e.g. 4×8 is the same as 8×4 .
- Recall the 2x, 3x, 5x and 10x times tables from Year 2. All tables need to be learned to 12th multiple.
- Know the 3x, 4x and 8x tables.
- Multiply any 2 digit number by 10 or a single digit number by 100.
- Understand the effect of multiplying whole numbers by 10 and 100.
- Multiply a 1 digit number by a 2 digit number starting to use the grid method.
- Solve multiplication problems involving missing numbers.

Key vocabulary:
groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times..., partition, grid method, multiple, product, tens, units, value

Division ÷

Year 3

In Year 2, your child was taught to divide numbers by grouping and sharing objects and numbers using the \div and $=$ signs. In Year 3, children are taught to divide 2 digit numbers by a single digit number using a number line.

$$12 \div 4 = 3 \quad 12 \div 3 = 4$$



This helps to see the link between division and grouping

$12 \div 3$ as 'How many groups of 3 are in 12?'

Key Skills for Division at Year 3:

- Recall and use division facts for the 2, 3, 4, 5, 8 and 10 multiplication tables.
- Write and calculate mathematical statements for division using the multiplication tables that they know, including for two digit numbers divided by one digit.
- Solve problems, in contexts, and including missing number problems, involving division.
- Pupils develop efficient mental methods, for example, using division facts (e.g. using $3 \times 2 = 6$, $6 \div 3 = 2$ and $2 = 6 \div 3$) to derive related facts ($30 \times 2 = 60$, so $60 \div 3 = 20$ and $20 = 60 \div 3$).
- Pupils develop reliable written methods for division, starting with calculations of 2 digit numbers by 1 digit numbers.
- Halve even numbers up to 50 and multiples of ten to 100.
- Perform divisions within the tables including those with remainders, e.g. $38 \div 5$.

Key vocabulary:

share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, 'carry', remainder, multiple

Website links

The following web addresses are ones which we use in school as part of our teaching, plus additional ones which your child may find enjoyable. Most of the games are straightforward and your child will be able to play/consolidate their maths skills independently.

Useful online maths vocabulary dictionary:

<http://www.amathsdictionaryforkids.com/dictionary.html>

The following websites have links to numerous maths topics:

<http://www.bbc.co.uk/bitesize/ks1/maths/>

<http://www.ictgames.com/resources.html>

<http://www.topmarks.co.uk/Interactive.aspx?cat=8>

<http://www.bbc.co.uk/education/dynamo/den/dynamake/make.shtml>

<http://www.crickweb.co.uk/ks1numeracy.html>

<http://primarygamesarena.com/Key-Stage-1>

<http://nrich.maths.org/primary-lower>

http://www.bbc.co.uk/schools/websites/4_11/site/numeracy.shtml

<http://uk.ixl.com/math/years>

Look at our school website to see what websites we use in school.

<http://www.highworth.bucks.sch.uk/NEW/default.htm>

