

At Crosshall Infant School we aim to provide a positive attitude towards mathematics. Throughout the school we allow the children to develop confidence and competence with numbers and measures using appropriate language.

The Primary Strategy Numeracy Curriculum has seven strands. These are using and applying mathematics, counting and understanding number, knowing and using number facts, calculating, understanding shape, measuring and handling data.

To meet all the objectives in these strands we follow a scheme called Abacus. This allows the teachers to provide stimulating lessons that are interactive and differentiated to meet all the children's needs. Abacus works on a rolling programme so children are introduced to a new concept and this is revisited at various points throughout the year. This develops the children's mathematical skills and knowledge and gives them an appreciation of mathematical pattern and the ability to identify relationships. They are encouraged to become independent with their maths work, using strategies they have been taught to answer more complex questions. The scheme also provides opportunities for children to become aware of mathematics in relation to everyday life and the world around us. The teachers at Crosshall Infant School aim to provide an environment which emphasises the use of both practical activities and mental strategies as well as formal recording.

Teaching strategies are the methods we use to teach the children the knowledge they need for understanding, using and applying mathematics. In Reception children are grouped by ability within their own class. Each group has a focused session and a practical session on their maths area. In Key Stage 1 the children are ability grouped across their year group. This allows each child to work with children of a similar ability and for them to work at a pace which suits them. Teaching maths in the Foundation Stage and Key Stage 1 is done to the whole class and to small groups. During their Numeracy session children have opportunities to work in small groups, with a partner and individually. The maths session will normally

begin with a teacher demonstration, explanation and illustration of the mathematical idea being taught. The children have oral and mental work in their maths sessions which provide rapid recall skills and develop calculation strategies.

This booklet aims to provide an understanding of how maths is taught at Crosshall Infant School and to give some examples of ways we teach the children to work out problems within the numeracy curriculum.

Addition

There are various methods we use to teach the children how to add numbers together. We use language such as addition, more than, altogether when teaching addition to the children. When we write a number sentence out we write it across the page.

Eg.

$$14 + 7 =$$

$$1 + 18 =$$

The children may also see the equals at the beginning of the number sentence.

Eg.

$$17 = 14 + \underline{\quad}$$

$$20 = \underline{\quad} + 5$$

We encourage the children to put the biggest number in their head when working out an addition sum. The children are given lots of opportunities across the school to find out if the order of an addition sum changes the answer. Using cubes, counters (apples, bottles) the children can physically move them about to see that when you add 2 groups of numbers the order of the numbers is irrelevant.

Eg.

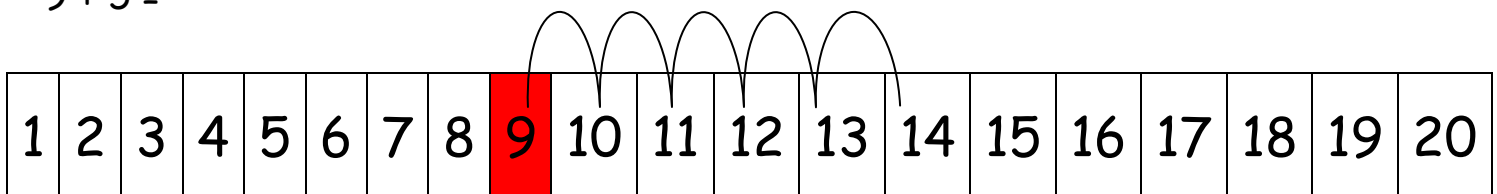
$6 + 3$ is the same as $3 + 6$



We also encourage the children to use a number line to help them work out their sum. As children progress through the school they begin to use 100 squares to answer the questions. Children must remember when they use a number line they need to jump along it, moving their finger or counter for every jump.

Eg.

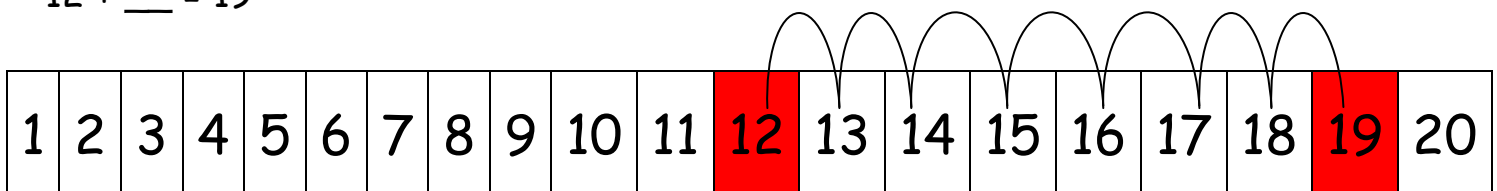
$$9 + 5 =$$



The number lines or 100 squares are also used when we are working out missing numbers in an addition question. For this, the children need to start on the number they have and see how many jumps they need to do to reach the answer. Children can also use their fingers to help them count how many more they need to reach the target number.

Eg.

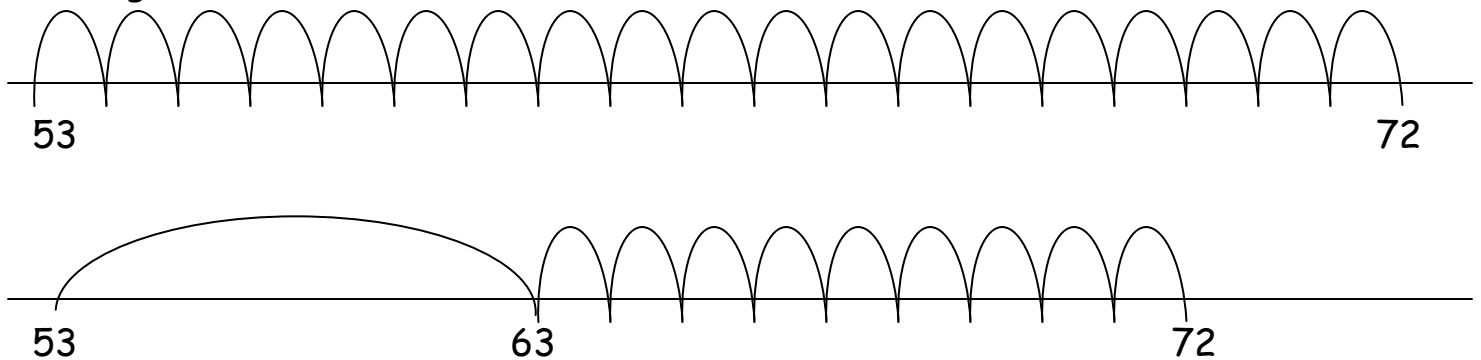
$$12 + \underline{\quad} = 19$$



Allowing the children to physically move a counter across the number line helps them to remember that the first jump will be from 12 to 13. Alternatively, you could collect the amount they need altogether and remove the amount they already know about. So for the above example 19 bottles could be collected and 12 will be taken away. This will leave 7 bottles.

As children become more confident with their numbers they will be introduced to blank number lines. The children then have ownership over the start number on their line and the numbers along the bottom. This is particularly effective when children begin to use larger numbers. It is not always practical to have a number line starting from 1 when the number sentences is using 2 or 3 digit numbers. For the example below children will be expected to realise that the number line will need to begin at 53. Below there are 2 examples answering the same question.

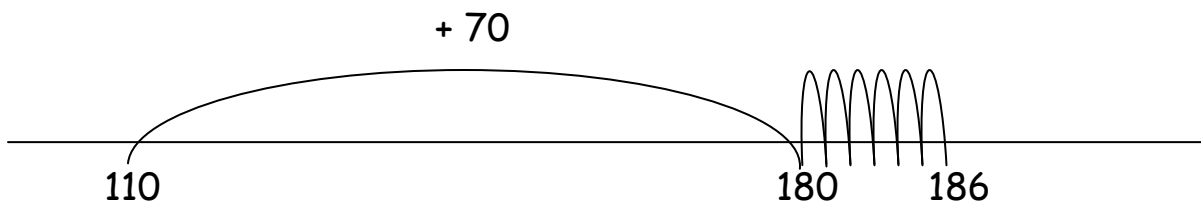
Eg. $53 + 19 =$



As the children progress into Year 2 they begin to use numbers beyond 100. They are taught a similar method to above where by they add the 10's numbers first and then the unit numbers. As they become more confident they will be encouraged to add a group of 10's.

Eg.

$110 + 76 =$



Throughout all the year groups we teach addition through real life problems. This includes the children adding together amounts of coins and working out the number of items bought. Addition is something you could easily do at home without the children realising they are doing maths!

Eg.

If I went to the shop and I bought 5 loaves of bread, 3 pints of milk and 2 bananas., how many things did I buy?

When I went to the zoo it cost 12p for me to get in and 10p for my little brother. How much did it cost altogether?

(walking around the supermarket)

Please can you fetch me 2 tins of beans and 1 bag of apples. How many things do you need to carry?

Please count 4 green apples and 5 red apples into the bag. How many apples have we got altogether?

Bananas cost 5p. Apples cost 10p. If I bought 4 bananas and 4 apples, how much did I spend? How much change would I get from £1.

There is a high focus throughout the school for the children to apply number concepts in other areas of maths. Children frequently visit number bonds to 10 as a maths concept. We highlight these bonds when the children progress to finding numbers that make 20 and 100. Number bonds are also important when children begin to add 3 numbers together. When teaching number bonds to 10 we encourage the children to use their fingers and use money up to 10p.

Eg.

$$8 + 2 =$$

$$6 + \underline{\quad} = 10$$

$$10 = 5 + \underline{\quad}$$

If you hold up 8 fingers, how many more do you need to make 10?

If you have 10 and you fold down 6, how many fingers are left standing?

$$\begin{array}{c} 18 + 2 = \\ \swarrow \quad \searrow \\ 10 \quad 8 \end{array}$$

$$\begin{array}{c} 4 + 16 = \\ \swarrow \quad \searrow \\ 10 \quad 6 \end{array}$$

Children will begin to see $8 + 2 = 10$ and then add on the extra 10.

$$5 + 5 + 3 = \underline{\quad}$$

Children will be encouraged to look for the number bonds to make 10 first. $5 + 5 = 10$ and then add the 3 on. Children will use cubes, counters, fingers and coins to help them with this.

$$6 + 2 + 4 = \underline{\quad}$$

Sometimes looking for the number bonds to 10 is harder as they are not together in the number sentence. Children will read from left to right and add the 6 and 2 together first before adding on the 4. The teachers throughout the school will encourage children to add the 6 and 4 together and finally add the 2.

Subtraction

Similar to addition we encourage children to use practical equipment to help them work out subtraction questions. We introduce the children to the following language: subtraction, take away, less than and the difference.

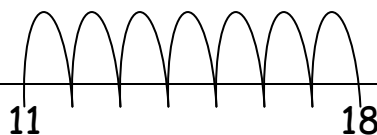
Number lines, 100 squares, rulers and practical equipment where children can physically move items away are ideal to help children solve the problems. We encourage the children to look for the number bonds to help them.

Simple subtraction sentences

Eg.

$$18 - 7 =$$

- Put 18 in your head and count back 7. Children will be encouraged from Reception to use their fingers, holding 7 up and folding 1 down every time they count back. As they go through the school they will begin to use 100 squares and rulers to jump back on.
- Alternatively the children could draw their own number line to count back on.



- The children will also have access to cubes where they can physically take 7 cubes away.



Finding the difference between 2 numbers can be done as an addition or as a subtraction.

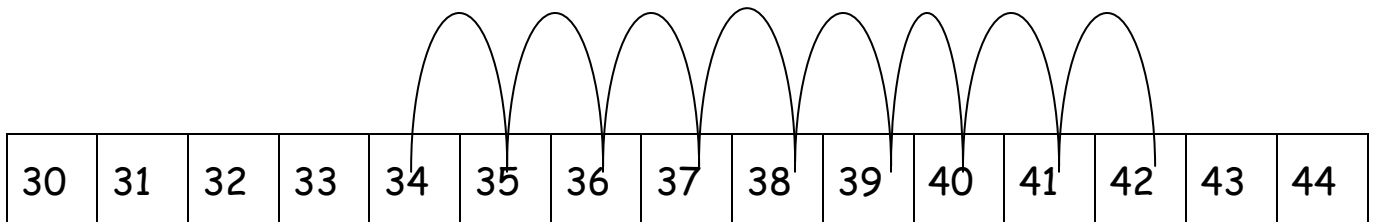
Eg.

Find the difference between 34 and 42

$$34 + \underline{\quad} = 42$$

$$42 - \underline{\quad} = 34$$

The 3 ways above are all asking you to do the same thing. They can start at 34 and count on until they get to 42. They can start at 42 and count backwards until they reach 34. Either way will give them the same answer!



Subtracting 10 is introduced to children by jumping backwards 10. As the children become more confident with this they will use a 100 square. When they move onto this they will be asked questions about what they notice when they jump back 10. Finally the children will be able to see that when you subtract 10 you can look at the number above. Children in year 2 will use this to help them subtract bigger numbers.

Eg.

$$78 - 37 =$$

Children will partition 37 into 30 and 7. This will help them see that they can jump up 3 10's and then backwards 7.

Multiplication

Children are taught multiplication from reception. It begins with simple counting in 2's, 5's and 10's. As they progress through the school they are introduced to the words multiply, multiple, doubling, lots of and sets of.

When children are counting in multiples of 2's, 5's and 10's they will be given lots of opportunities grouping objects into the right amount and finding out how much they have altogether. This can be done with cubes, counters, 2p's, 5p's, 10p's and objects around the classroom.

Matching cards to the correct amount and putting them in the right order is done both as a practical activity and a recorded activity. Children will be asked to spot the pattern. Children need the experience of counting in 2's, 5's and 10's using other numbers as well.

Eg.

1, 3, 5, 7, 9 (counting in 2's but using the odd numbers)

3, 8, 13, 18, 23, 28 (counting in 5's starting at 3)

49, 59, 69, 79 (counting in 10's starting at 49)

Children will be asked to find missing numbers in the number sentence.

Eg.

$$\underline{\quad} \times 2 = 14$$

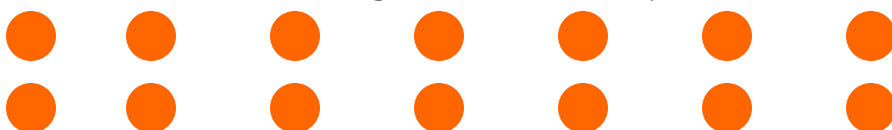
can be read as:

Something times 2 equals 14.

So many sets of 2 equals 14.

How many lots of 2 equals 14?

Children will be encouraged to draw shapes/lines to help them work it out.

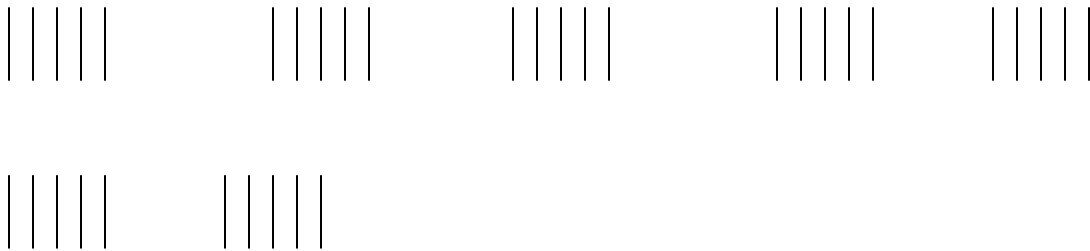


From the diagram above the children will be able to see that 7 sets of 2 make 14.

Similarly with a question when the answer is needed, the children will be shown ways of recording their workings out to help them.

Eg.

$7 \times 5 = \underline{\quad}$ children can mark out 7 groups of 5.



Using this method you can clearly see how many lines you have altogether.

Doubling is a method we teach the children as a beginning to multiplication. This starts in Year 1 using smaller numbers. The children are introduced to doubling larger number as they become more confident with maths work (generally year 1 double up to 10 and year 2 double up to 20)

Eg.

Double 1. This is the same as $1 + 1$. If you have 1 smiley face and you double it, what have you got?



Double 2. This is the same as $2 + 2$. If you have 2 smiley faces and you add the same amount again, how many have you got?



Like all areas in maths, this can be done easily when you are out shopping. Bringing maths into real life situations makes it more fun for the children and they are less aware of working!

Division

Division

At Crosshall Infant School the children are given lots of experience of dividing from reception. They may not realise that is what they are doing! The language of division is introduced during year 1 and built on as they progress in year 2. They are taught division, groups of, sets of