A Parents' Guide to Helping Your Child with Mathematics

Introduction

This booklet is intended to clarify and explain some of the ways in which your child is taught to complete and write down calculations. You may be surprised to find your child's Mathematics book contains writing, pictures, diagrams, jottings or blank number lines as well as 'formal calculations'. Certainly, many of the methods your child uses may be very different from those that you learned at school and this can cause confusion when you are trying to support your child at home. From the very early years at school the emphasis on mathematics learning is upon children understanding and applying the skills they have learned rather than just learning by wrote a formal written method.

We have tried as simply as possible to aid you in understanding some of the strategies your children may use, to help you to help your children. You will be amazed at how many different ways there are to attempt the same idea!

The booklet contains the approaches your children may use to support their thinking when solving addition, subtraction, multiplication and division calculations. We have also included typical mathematical vocabulary your child may be acquiring and using at this stage.

This is a guide only; children will always progress at different speeds, however support from you will undoubtedly be of great benefit to them at all times. We have tried to make the strategies as clear as possible however if you are unsure of any ideas in the booklet please do not hesitate to ask.
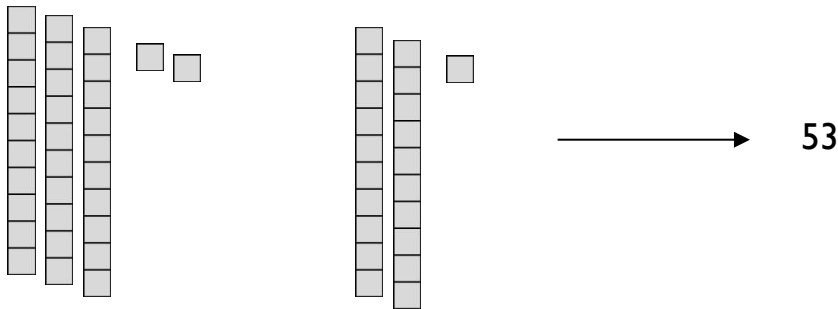
Addition

Key Vocabulary:
add, addition, more , less, sum, total , altogether, how many more, tens, units, ones, one more, how much more is, digit, partition, recombine

Children in Year 2 will build upon their experiences in Year 1 by continuing to complete lots of practical activities. They will continue to use the Base 10 equipment to support their calculations. For example, to calculate 32 + 21, they can make the individual amounts, counting the tens first and then count on the units.


53

When the units total more than 10, children should be encouraged to exchange 10 units/ones for 1 ten. This is the start of children understanding 'carrying' in vertical addition. For example, when calculating
35 + 27, they can represent the amounts using Base 10 as shown:

Then, identifying the fact that there are enough units/ones to exchange for a ten, they can carry out this exchange:
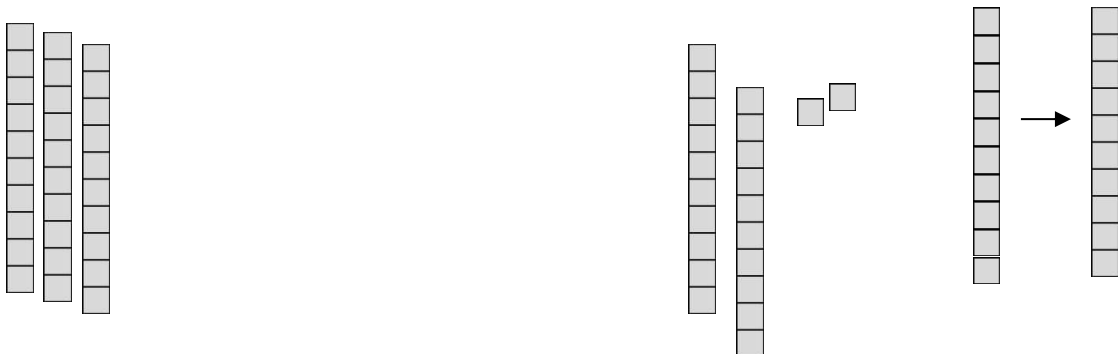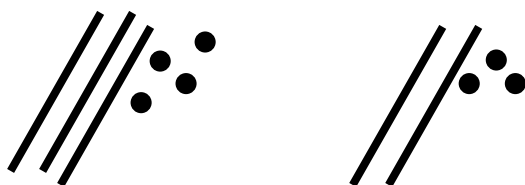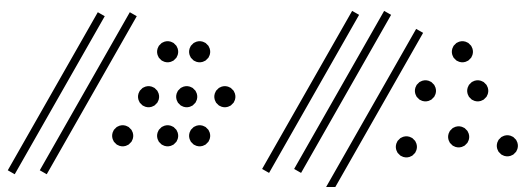

To leave:
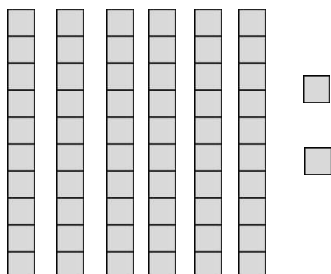
Children can also record the calculations using their own drawings of the Base 10 equipment (as slanted lines for the 10 rods and dots for the unit blocks).
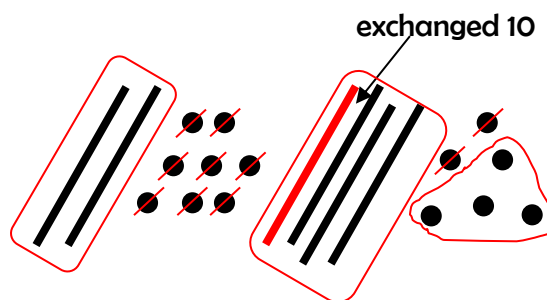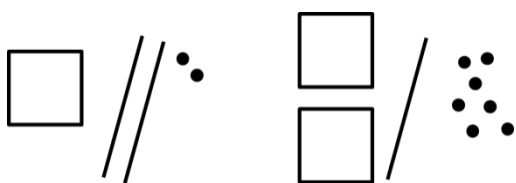e.g. 34 + 23 =

With exchange:
e.g. 28 + 36 =

will become

exchanged 10

so 28 + 36 = 64

It is important that children circle the remaining tens and units/ones after exchange to identify the amount remaining.
This method can also be used with adding three digit numbers, e.g. 122 + 217 using a square as the representation of 100.

Subtraction

End of Year Objective:
Subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers.

Key Vocabulary:
Subtract, minus, left, less, fewer, difference between, less than

Children will begin to use the Base 10 equipment to support their calculations, still using a take away, or removal, method. They need to understand that the number being subtracted does not appear as an amount on its own, but rather as part of the larger amount. For example, to calculate 54 - 23, children would count out 54 using the Base 10 equipment (5 tens and 4 units). They need to consider whether there are enough units/ones to remove 3, in this case there are, so they would remove 3 units and then two tens, counting up the answer of 3 tens and 1 unit to give 31.
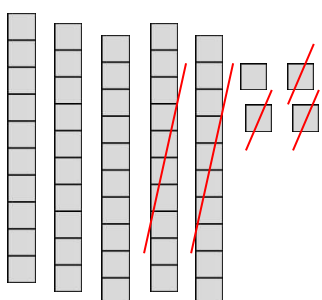
which leaves
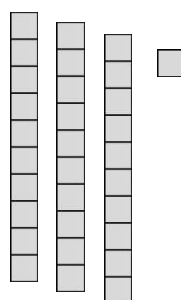
so 54 – 23 = 31

Children can also record the calculations using their own drawings of the Base 10 equipment (as slanted lines for the 10 rods and dots for the unit blocks), e.g. to calculate 39 – 17 children would draw 39 as 3 tens (lines) and 4 units (dots) and would cross out 7 units and then one ten, counting up the answer of 2 tens and 2 units to give 22.

Circling the tens and units that remain will help children to identify how many remain.

When the amount of units to be subtracted is greater than the units in the original number, an exchange method is required. This relies on children's understanding of ten units being an equivalent amount to one ten. To calculate 53 – 26, by using practical equipment, they would count out 53 using the tens and units, as in Step 1. They need to consider whether there are enough units/ones to remove 6. In this case there are not so they need to exchange a ten into ten ones to make sure that there are enough, as in step 2.
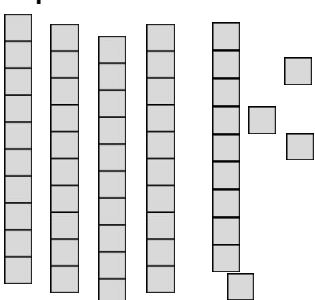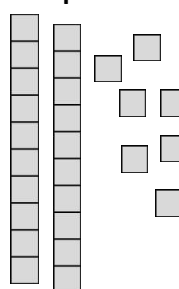
Step 1

Step 2

becomes
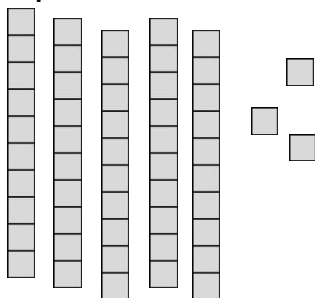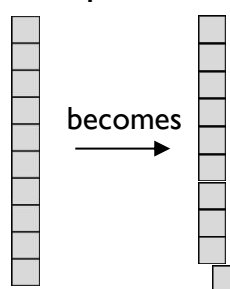
The children can now see the 53 represented as 40 and 13, still the same total, but partitioned in a different way, as in step 3 and can go on to take away the 26 from the calculation to leave 27 remaining, as in Step 4.
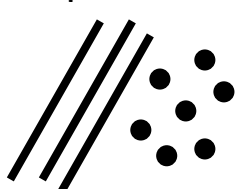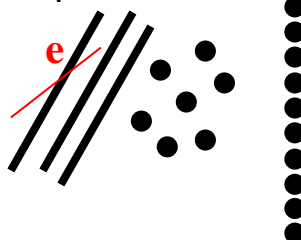
Step 3

Step 4

When recording their own drawings, when calculating 37 – 19, children would cross out a ten and exchange for ten units. The exchanged ten is denoted with an **e** so children recognise this has not been subtracted. Drawing the units in a vertical line, as in Step 2, ensures that children create ten ones and do not get them confused with the units that were already in place.

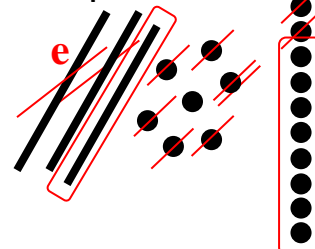Circling the tens and units that remain will help children to identify how many remain.

Step 1

Step 2

e

**Step 3**

e

Multiplication

End of Year Objective:
Calculate mathematical statements for multiplication *(using repeated addition)* and write them using the multiplication (x) and equals (=) signs.

Key Vocabulary:
times, multiply, lots of, repeated, addition, array, double, groups of

Children should understand and be able to calculate multiplication as repeated addition, supported by the use of practical apparatus such as counters or cubes. e.g.

5 x 3 can be shown as five groups of three with counters, either grouped in a random pattern, as below:
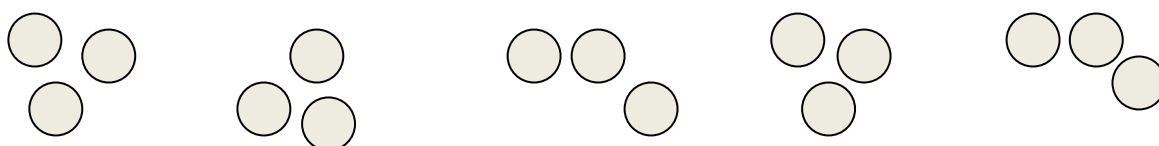
or in a more ordered pattern, with the groups of three indicated by the border outline:
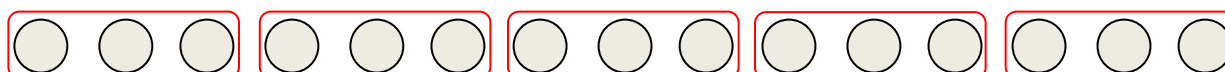
Children should then develop this knowledge to show how multiplication calculations can be represented by an array, (this knowledge will support with the development of the grid method in the future). Again, children should be encouraged to use practical apparatus and jottings to support their understanding, e.g.

5 x 3* can be represented as an array in two forms (as it has commutativity):

5 + 5 + 5 = 15

3 + 3 + 3 + 3 + 3 = 15
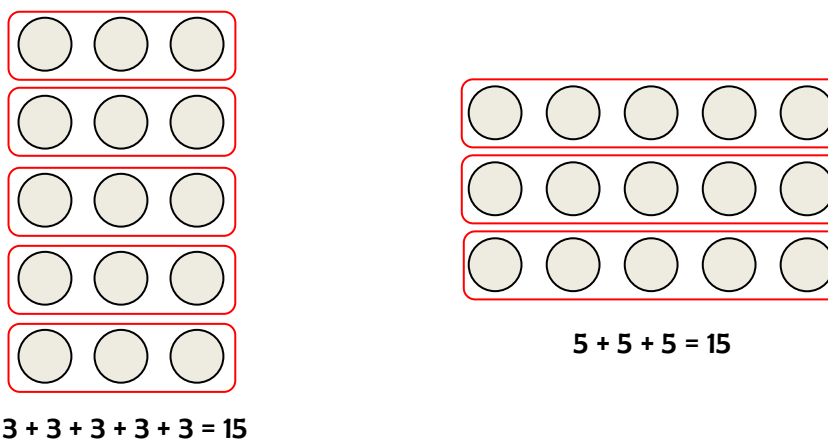
*For mathematical accuracy 5 x 3 is represented by the second example above, rather than the first as it is five, three times. However, because we use terms such as 'groups of' or 'lots of', children are more familiar with the initial notation. Once children understand the commutative order of multiplication the order is irrelevant).

Calculate mathematical statements for division within the multiplication tables and write them using the division (÷) and equals (=) signs.

Key Vocabulary:
share. group, divide, half, array, divided by, share equally

Children will utilise practical equipment to represent division calculations as grouping (repeated subtraction) and use jottings to support their calculation, e.g.
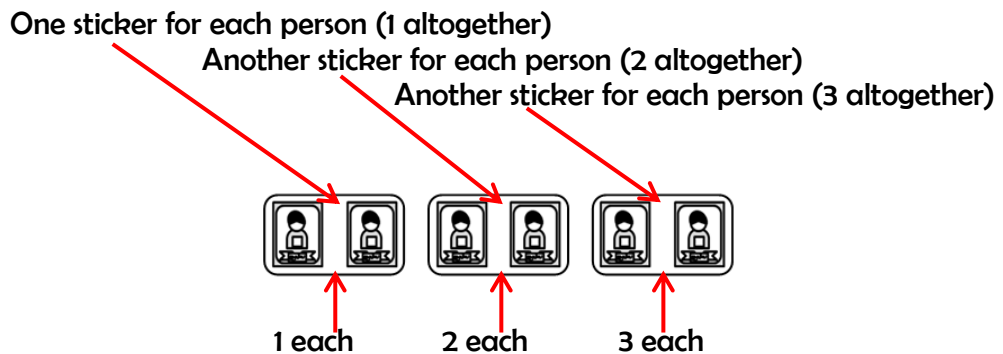
12 ÷ 3 =

Children need to understand that this calculation reads as 'How many groups of 3 are there in 12?'

The link between sharing and grouping can be modelled in the following way:

To solve the problem 'If six football stickers are shared between two people, how many do they each get?'

Place the football stickers in a bag or box and ask the children how many stickers would need to be taken out of the box to give each person one sticker each (i.e. 2) and exemplify this by putting the cards in groups of 2 until all cards have been removed from the bag.

One sticker for each person (1 altogether)
Another sticker for each person (2 altogether)
Another sticker for each person (3 altogether)

Or: 1 each   2 each   3 each

Children should also continue to develop their knowledge of division with remainders, e.g.

13 ÷ 4 =
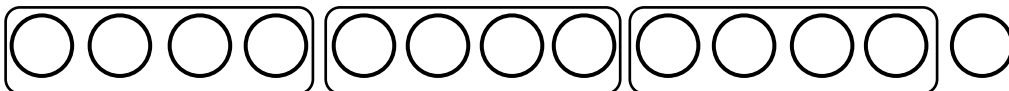
13 ÷ 4 = 3 remainder 1

Children need to be able to make decisions about what to do with remainders after division and round up or down accordingly. In the calculation 13 ÷ 4, the answer is 3 remainder 1, but whether the answer should be rounded up to 4 or rounded down to 3 depends on the context, as in the examples below:

I have £13. Books are £4 each. How many can I buy?
Answer: 3 (the remaining £1 is not enough to buy another book)

Apples are packed into boxes of 4. There are 13 apples. How many boxes are needed?
Answer: 4 (the remaining 1 apple still need to be placed into a box)

WEBSITES

Here are some web sites you could use with your child to help them with their maths.

www.mathszone.co.uk
www.mathsisfun.com
www.ictgames.com
www.woodlands-junior.kent.sch.uk/maths

TOP TIPS

Here are some other top tips that may help:

- Talk to your child about maths
- Be positive about Maths!! Let your child know that everyone can learn maths. Be positive about your own maths abilities.
- Let your child know that you think maths is important and fun.
- When your child is trying to solve a problem ask what he or she is thinking. If your child seems puzzled, ask him or her to tell you what doesn't make sense. (Talking about their ideas and how they reach solutions helps children learn to reason mathematically.)
- Treat errors as opportunities to help your child learn something new. We all learn from mistakes.
- Make maths part of your child's day: Include your child in everyday activities that involve maths – making purchases, measuring ingredients, counting out plates and utensils for dinner.