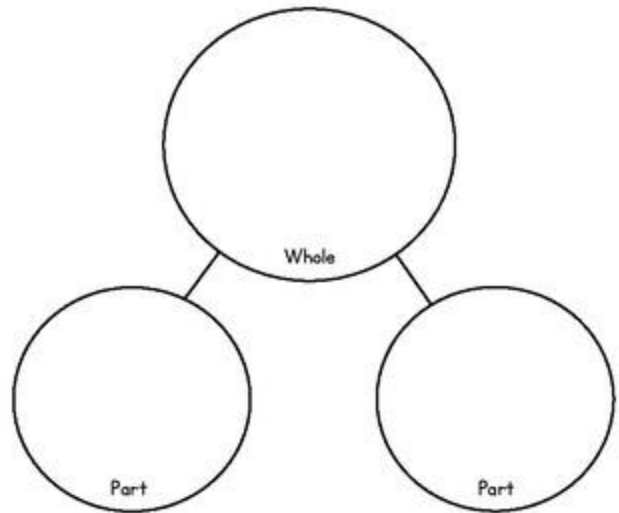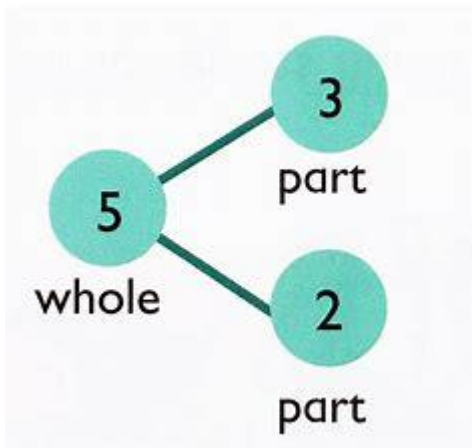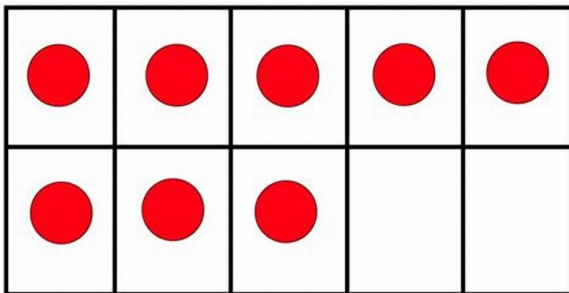### Part Part Whole Models

A Part part whole model is used to split a number into two different parts. The middle section of the model is where the whole number is. The other sections that branch off of the whole are the parts (these make up the whole number).

Tens frames

Tens frames are used to show a number, if the tens frame is full it will represent the number 10. The children should be able to subitise (know the number by just looking rather than counting the objects) numbers up to 10 using the tens frame. We can show any number. If would like to show a number between 11 and 20, I would need to use two tens frames.

Bar models

Bar models are similar to part part whole models. We show the whole number (how many you have altogether) in the largest section of the bar model. The parts and the sections which make up the whole number. In the example below, we can see the whole number is 20 and the part is 8. In Year 1 we look at the missing numbers, in this example the missing number is 12. We can write a number sentence to accompany this, it would be 12 + 8 = 20.
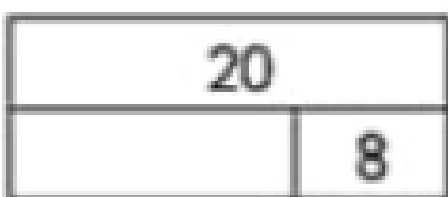
Number lines

Number lines are used to show the sequence of numbers. Number lines are often shown differently; these include small sections of a number line. Below are two examples of different number lines. Sometimes numbers will be missing on the number line.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

20 21 22 23 24 25 26 27 28 29 30
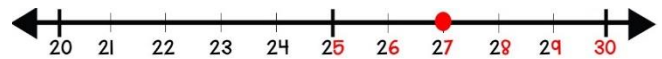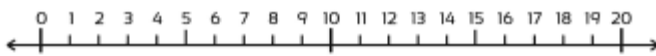
Number bonds

Number bonds are two numbers that are added together to make a total. By the end of Year 1, children should know their number bonds to 10 and their number bonds to 20. Please find the different number bonds which the children are required to know.

Rainbow to 10

0 1 2 3 4 5   10   5 6 7 8 9 10

0 + 10 = 10	10 + 0 = 10
1 + 9 = 10	9 + 1 = 10
2 + 8 = 10	8 + 2 = 10
3 + 7 = 10	7 + 3 = 10
4 + 6 = 10	6 + 4 = 10
5 + 5 = 10	5 + 5 = 10

0 1 2 3 4 5 6 7 8 9 10   20   10 11 12 13 14 15 16 17 18 19 20

0 + 20 = 20	10 + 10 = 20
1 + 19 = 20	11 + 9 = 20
2 + 18 = 20	12 + 8 = 20
3 + 17 = 20	13 + 7 = 20
4 + 16 = 20	14 + 6 = 20
5 + 15 = 20	15 + 5 = 20
6 + 14 = 20	16 + 4 = 20
7 + 13 = 20	17 + 3 = 20
8 + 12 = 20	18 + 2 = 20
9 + 11 = 20	19 + 1 = 20

Bead Strings

Bead strings usually look like the photo below, they come in two different sizes. The photo on the left shows the 20 bead string, the colours alternate they are always in groups of five. As the children begin to get more confident, they should be able to count in 5's   by the end of KS1. In the photo to the right, you will see the 100 bead string,   the colours alternate but they are always in groups of 10. We use   bead strings to add, subtract and identify patterns.

Number sentences

Number sentences can be shown in different ways. We encourage the children to represent number sentences in different ways. Please see an example of this below:

4 + 5 = 9   5 + 4 = 9   9 = 5 + 4   9 = 4 + 5

Inverse

The inverse is the process of using the opposite operation to check our calculations.

If we were using addition we could check our calculation by using subtraction e.g. 4 + 5 = 9

We could check this by doing 9 – 5 = 4   We can see that we are using the same numbers so we must be correct!

If we were using multiplication, we could check our answer using division e.g. 10 x 2 = 20

We could check this by doing 20 ÷ 2 = 10

Estimating

When we estimate, we make a good guess. If we were estimating (guessing) how many sweets are in the jar below I would make a good guess. I might say there are 7 sweets, this is a good guess as I can see that there are not more than 10 in the jar. However, if I said there were 20 sweets, this would not be a good estimate.

Mass

Mass is how heavier or light something is. We use scales to show this in Maths. The scales below show how we would show this on a set of scales.

The apple is heavier than the air.

The air is lighter than the apple.

The crayon is equal to the cubes.

The crayon weighs 5 cubes because they are equal in mass.