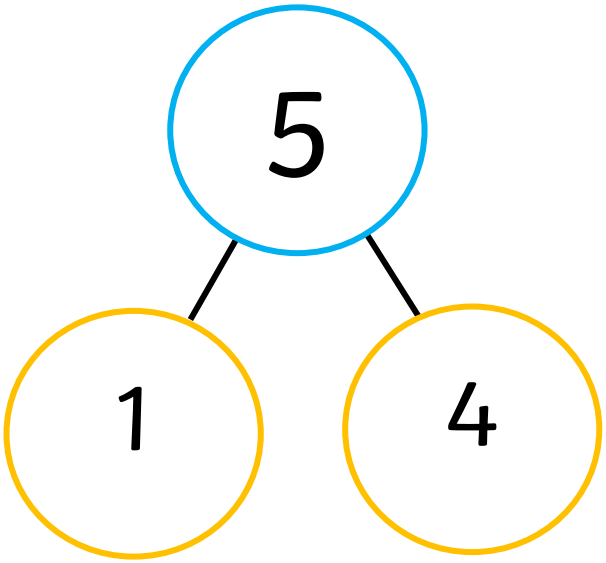
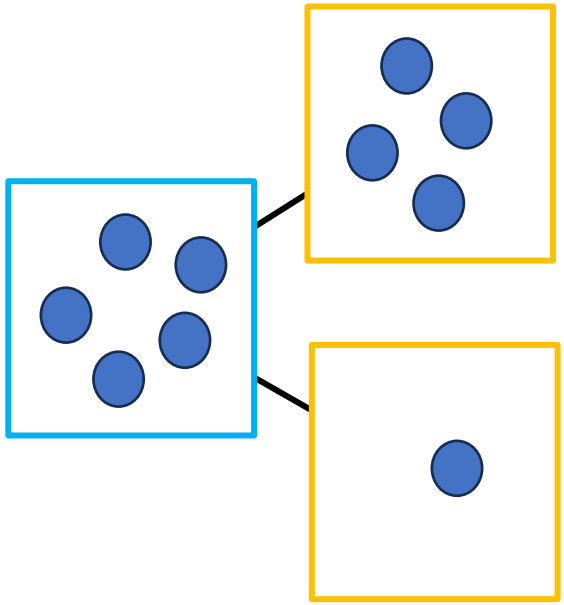
Part-whole model

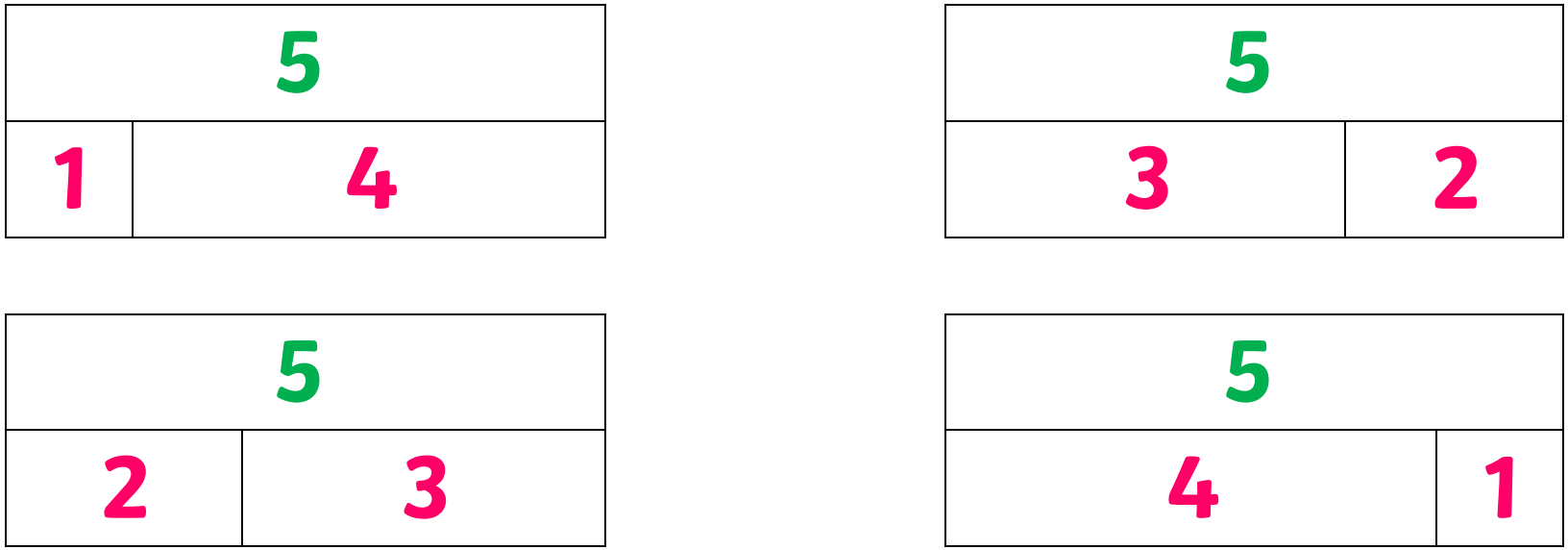




In a part-whole model, the '**whole**' represents a total. From the whole, the '**parts**' are separated using lines. The parts are two or more numbers that can be added together to equal the whole. This is useful when learning number bonds because part-whole models can be used to demonstrate the commutative law; the parts can be added in any order and still make the same total.

Try making your own physical part-whole model using hoops and use small toys to represent a number.

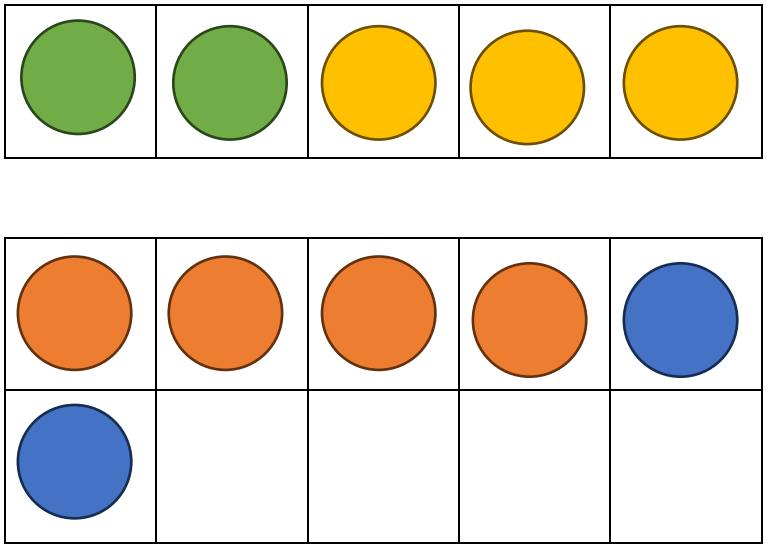
Bar model



Bar models are very similar to **part-whole** models, except that the parts are represented in a box that is demonstrative of its value in comparison to the other parts. For example, here you can see that the box the 4 is in is much larger than the box the 1 is in. However, both of the parts together are equal to the same size box as the whole. This model supports children in recognising the numbers as parts (or bonds) of the total.

Try using Lego pieces to make a bar model. Use one long piece as the 'whole' and see what size parts are needed to make a whole.

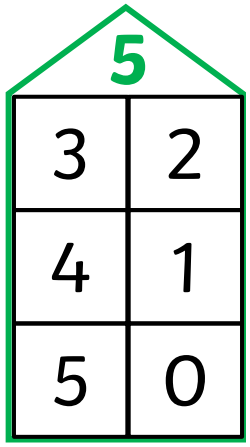
Five frame and ten frames



Five and ten frames are to support children's understanding of the composition of numbers. They can see clearly a structure that is called 'five and a bit' (e.g. 6 is 5 and 1, 7 is 5 and 2, etc.). They can also clearly see how many more are needed to reach 5 or 10. Counters or other objects can be used to show a number and multiple colours of counters can be used to show additions or subtractions.

Try drawing a ten frame and using objects to represent numbers. You could use pasta, small toys, coins, or anything else you can find.

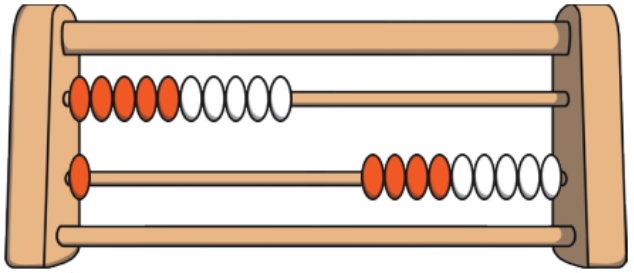
Fact family house



The number in the ‘roof’ of the house represents the total. The horizontal pairs of numbers below add to make the total. The fact family house shows all the number bonds that add to make a total.

Try making a paper fact family house where each number is hidden behind a door. Children should recall the pairs of numbers that add to make the total.

Rekenrek



Rekenreks represent a possible total of 20 but can also be used in a variety of other ways using the two bars with identical 5 red and 5 white beads on. The beads on the left are the area that children use to show a number. The beads on the right are the ones not in use. The children can show a number on a Rekenrek by pushing the beads from right to left. From the bead colours, they can see the 'five and a bit' structure (e.g. 6 = 5 and 1, 7 = 5 and 2, etc.).

Try making your own Rekenrek using coloured beads or hollow pasta and some string.

Bead String

Bead strings are very similar to a Rekenrek, except that the beads are in groups of ten before the colour changes. Bead strings can have 20 beads up to 100. Bead strings support children's understanding of the '10 and a bit' structure (e.g. 11 = 10 and 1, 12 = 10 and 2, etc.)

Try making your own bead string using coloured beads or hollow pasta and some string.