

Mathematical Fluency - Number bonds to 10 and then to 20

A number bond is just a pair of numbers that add up to another number. For example, the number bonds for 6 are: 0+6, 1+5, 2+4 and 3+3. When you know these addition facts fluently, you can also see that if you reverse them to 6+0, 5+1 and 4+2 they will also add up to 6. Number bonds provide a mental picture or image of the relationship between 2 numbers. To work with mathematical fluency, children need to be able to draw upon these mental pictures or images to support them. Knowing addition number bonds means that your child will understand subtraction facts and apply them in their learning. If a child knows that $2+4=6$, they will quickly realise that when they see $6-4=?$, that the answer must be 2. The answer is 2 because '2' is the missing number in this number bond. Number bonds help children to see the relationship between addition and subtraction. They begin to notice number patterns and learn mathematical skills that they can apply, for example if $2+8=10$, then $12+8=20$, then $20+80=100$. Number bonds are the foundation blocks that enable children to progress with maths. Once they fluently know all the number bonds for 1-10, they know addition and subtraction facts to 10. They can then apply this knowledge to quickly realise number bonds to 20 and the corresponding addition and subtraction facts to 20.



The best way to teach number bonds is practically through games. Which games work the best does depend upon the age of individual children and their understanding of number. The more familiar with numbers that children are the easier it is for them to learn maths. Make numbers a part of your child's daily life, sing songs, count going up the stairs and count when sharing stories. Build numbers into play for example block play.

Number Bonds and Block Play

Using the number bond for 4 as an example. Lay out 4 blocks, encourage your child to recognise 4 without counting. Explain that you are going to move some blocks, move 3 to one side and ask your child how many you have moved. Next ask them how many blocks are left? Move the blocks together and ask your child 'How many blocks are in the pile now?' Using play such as this, you have just shown your child that $3+1=4$, and $4-3=1$. Repeat the process this time moving 1 block to the side, now you have reinforced the other part of the number bond that $1+3=4$ and $4-1=3$.

Other games for number bonds can be played using 2 dice. Roll 2 dice together and encourage children to add the numbers together to find the total. As children gain fluency with their number bonds you can play 'pairs' games where number cards lay face down on the table and you turn two cards over to make a total, e.g. 10. If the cards make 10 you can keep them, if they don't turn them back over!

There are opportunities to practise skills in everyday life, e.g. setting the table, 'How many more knives do we need?' How many more stairs do we need to climb until we reach the top?

There are several games online that you could play that support children when learning their number bonds including:

- Hit the Button - <https://www.topmarks.co.uk/mathsgames/hit-the-button>
- ICT Games Save the Whale - <https://www.ictgames.com/saveTheWhale/index.html>
- ICT Games Funky Mummy - <https://www.ictgames.com/mobilePage/funkyMummy/index.html>
- Education City also has lots of games you could play.