TEACHING MENTAL ADDITION STRATEGIES- 1

When children first learn to add numbers, they use visual displays such as pictures or concrete materials that they can touch. Initially they learn to 'count all'. This means that if there were two groups containing three and four objects respectively, the child would count the group of three, count the group of four, then put both groups together and count every single object again to find the total. Each time, the child goes back and starts counting from the number one. During this process, children need to learn to 'trust the count'. This means that they have to develop an understanding that the final number said, represents the total amount of objects in the group.

Another important skill that young children are taught early on in their schooling is the ability to subitise. 'Subitising' is being able to recognise a number of objects in a small group, simply by looking at them. This means that if there were five objects in a group, the child could recognise this without having to count the individual objects. Learning how to 'trust the count' and 'subitise', can assist children to move past the 'count all' stage and onto using the 'count on' strategy.

The 'count on' strategy involves more complex thinking and a deeper understanding of counting than 'count all'. It requires children to use 'interrupted counting', which is when the counting starts at a number other than zero or one. If a child were to use the 'count on' strategy to work out the total of two groups containing six and two objects, they would start counting at (6) and count on two more times… 7, 8.

When this strategy is initially introduced, concrete materials can assist the child in keeping track of how many they are counting on by. Once children become more competent with using the 'count on' strategy, materials can be removed and the child can use their fingers to keep track of the count. The 'count on' strategy is most efficient when the number being added is small, such as one, two or three. If the number is too big, a child can lose track of how many numbers they are counting on. Once children become proficient with the 'count on' strategy, they can be introduced to 'commutativity'.

'Commutativity' is the understanding that when you add two numbers together, the order in which they are added is not important. Therefore, 2+6 is the same as 6+2. For the child who is using the 'count on' strategy, this means that they can start at the biggest number and count on the smaller amount. For example, it is a lot easier to count on 6+2 (6) 7, 8 than 2+6 (2) 3, 4, 5, 6, 7, 8. There is less chance of a child making a mistake when counting on two more than if they were counting on six.

Just as gaining an understanding of 'commutativity' can help a child to become more efficient at adding, so does the knowledge of how to partition numbers. 'Partitioning' is the ability to break a quantity into parts. For example, if you have the number five you could break it into 4+1, 3+2, 2+3 or 1+4. Addition is not the only area of Maths, in which young children are introduced to 'partitioning'. As they explore two-digit numbers, children are taught to partition these into 'tens' and 'ones/units'. For example, the number 56 can be partitioned into 5 tens and 6 ones or 50+6. The ability to partition numbers can help to create a good foundation, which can be built upon when a child is required to mentally calculate more complex addition problems.

Acquiring an understanding of the 'count on' strategy, 'commutativity' and 'partitioning', can provide a foundation for children to build upon. From here they can move onto learning a range of strategies that can assist them to mentally calculate a variety of addition problems. If a child does not progress beyond this knowledge and instead relies heavily on the 'count on' strategy, their growth will be hindered and it will restrict their ability to calculate more difficult addition problems efficiently. In my next article, I will discuss some mental addition strategies that children can be taught, which help to build a platform for the efficient calculation of more complicated addition problems.