

Maths

Our main aim is to achieve a positive attitude to maths. We want the children to love maths! So at William Levick we strive to deliver maths lessons that are both fun and enjoyable. We feel if a child enjoys maths then s/he is more likely to want to learn.

Another important aim is to differentiate lessons effectively to enable all types of learners, at all different stages, to make progress. We carry out regular assessments; observations and analysis of the children's work in order to gain important knowledge of what your child already knows, what s/he is learning quickly and what they need to work on to make progress. It is hoped that if a child can see that they are making progress then their confidence will improve also. Confidence is another key ingredient for success, we operate a 'can do' approach.

At William Levick we believe that a child's understanding and confidence in maths can be improved with the use of apparatus, models and images. We aim to make maths 'less abstract' and provide children with apparatus, models and images that make concepts easier to understand.

Numicon is one particular resource that William Levick has invested in. Numicon is a multi-sensory approach that gives children a tangible representation of number. It enables children to see and explore the relationships and patterns in number. We also make good use of Dienes and Cuisinaire rods and not to forget the free resource we all have – fingers!

Representing number

This is a key and crucial part of mathematical learning. Children need to 'see' number as an amount. They need to know that the printed figure has a value.

They need to see that when they are asked for a bigger number that this refers to a larger amount rather than a larger sized printed number. Seeing maths in concrete form helps to avoid the misconceptions that children have.

They need to know that numbers can be adapted and partitioned in different ways to make calculations, particularly mental ones, easier to complete. For example, we would want the children to understand that the number 5 is made up of 3 and 2 and so when 5 is added to 97 you can do: $97+3 = 100 + 2 = 102$, rather than holding 97 in their heads and counting on 5.

Subitising

Subitising is a term that means the ability to instantaneously recognise the number of objects in a small group without the need to count them. This can help with pictorial and mental calculations.

The National Curriculum

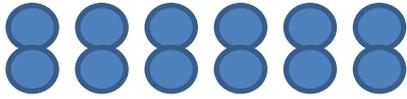
Each year group is given different objectives that need to be achieved by the end of the year in order to be assessed at the 'expected' level. These objectives include a mix of number, shape and measure. The particular objectives given to each year group for each of these elements of maths ensures that there is progression throughout the primary stage. (To see the list of objectives for each year group please refer to the National Curriculum 2014)

When teaching an objective there are three stages that the children need to achieve:

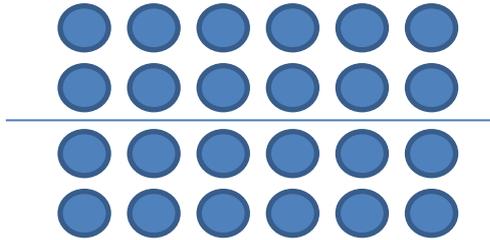
- 1. Fluency**
- 2. Reasoning**
- 3. Problem Solving**

- **Focus on mental and written methods**

The aim is to become *fluent*. Once the children have understood the concept of number, they need to remember and recall facts rapidly. They need to use their understanding of concrete representation to help them calculate new facts. For example, if they understand that $6 \times 2 = 12$



They can see that 6×4 is double the amount e.g. 24



The children also need to have a sound knowledge of place value and must be able to partition numbers. They need to understand the relationships between operations in order to check their answers e.g. perform inverse operations.

When completing written maths, the children need to be using a formal written method of calculation to support their answers for the four rules of number (see our Calculation policy). Even though we want children to use formal methods of calculating, we do not want to teach this by simply teaching 'rules'. We want the children to know what they are doing and be able to explain why they are doing it! By using concrete apparatus to aid these calculations, children often see and work out for themselves rules which they can adopt. By discovering these themselves, they are more likely to remember the rules because they will have a pictorial image in their heads that they can refer to if the rule is forgotten.

- **Focus on 'Reasoning'**

The children need to be making estimations and speculations about a mathematical idea using mathematical language. They need to give reasons why they believe something and develop an argument, with examples, to justify their reasons. This can be delivered, even to our youngest of children, by giving the children 'true or false' statements to consider. The task is not to simply guess 'true or false'; the children need to provide true statements to prove the answer is false, for example.

- **Focus on 'Problem Solving'**

Children need to be able to apply their knowledge to show understanding. They need to be able to break down problems into a series of more simple steps and persevere with finding solutions.