

Fluency Definition: What is Fluency in Maths?

At the implementation of the curriculum in 2014, one of the biggest changes in national teaching practice was a new-found focus on fluency.

The National Curriculum states that pupils should become fluent in the fundamentals of mathematics through **varied** and **frequent** practice. While a part of this is about knowing key mathematical facts and recalling them efficiently, fluency means so much more than this.

Fluency gives pupils the ability to delve deeper into their Maths; to develop number sense and choose the most appropriate method for the task at hand, in other words they are able to apply a known skill to a variety of contexts.

How Does Mathematical Fluency Fit with Reasoning and Problem Solving?

The curriculum for primary schools places problem solving at the heart of mathematics, with the main aim that every child can learn to solve more sophisticated problems in increasingly unfamiliar contexts.

To enable them to achieve this, pupils must develop their understanding, mathematical thinking and use of mathematical language. This is where fluency and reasoning come in.



How Fluency and Reasoning Work in Wallace Fields Junior School's Maths lessons...

Fluency in Maths in our school works through *intelligent practice* (rather than just repetition). Once a child has grasped a concept, the idea is that they are exposed to a variety of fluency activities, which develop and deepen their understanding.

These activities also require children to use verbal reasoning to justify and explain their thinking in order to solve problems in a variety of contexts.

Making this happen in the classroom is quite straightforward when teachers and children have time to focus on the unit they are teaching/learning.

However, frustrations can be felt when children are given problems that include applying skills that have been previously taught, which they are finding hard to recall – particularly when completing their homework. This has also been highlighted in recent research in relation to cognitive overload – if the children are spending too much time trying to decide on and calculate the facts, they will find the actual procedure of problem solving and reasoning difficult, they have too many things to consider – this is cognitive overload.

So how are we ensuring children don't forget the basics as they move from one unit of Maths to another? Simple – we are adding in some extra time every day or week to enable them to practise the recall skills that they have already been taught. We do this through repeated practise in Speedy Maths books – a five minute daily activity completed after afternoon register, varied fluency practise time in lessons throughout a unit of learning, regular homework and activities carried out using Time Tables Rockstars.

Through the increased use of speedy maths, varied fluency and TTRS, children are becoming more fluent in calculations and times tables and they are loving it!

Our curriculum has been developed to allow children additional practise time to become more confident in calculating and we refer to this 'fluency practise' in lessons so that they are becoming more aware of the differences and application of their fluency knowledge and the impact it has on their reasoning and problem solving. And, over the

last couple of years, we have witnessed how beneficial this can be for pupils, with a 3 year upward trend in the results we are obtaining at the end of Year 6.

One of the most important things we have witnessed over the last couple of years is how fluency in calculations has led to pupils tackling problems with greater confidence and resilience.

Because they are spending less time remembering 'how' to do the calculations needed, they are now able to put all their energy into 'how' to solve a problem.

How can you help your child if they are struggling with fluency in their calculation?

Good old fashioned practice!

Maths is a lot like learning a new language. To learn a new language, it is important to be exposed to native speakers, immersive techniques and lots of practice – the more a child uses their newly learned skills, the more proficient they will become. Daily maths practice at home could include:

- ❖ Practicing maths when shopping and buying items
- ❖ Practicing maths at the garage! (How much petrol can I buy for... If I buy 20L how much will my petrol cost)
- ❖ Using fractions while cooking and baking (cutting pizzas and cakes!)
- ❖ Play games that use maths (Snakes and Ladders, Battle ships, darts, Monopoly etc.)
- ❖ Building a daily routine that features regular maths practice (TTRS, Mathletics etc.)
- ❖ Building and measuring to create construction models or projects
- ❖ Use card games, dice or dominos to create new and engaging games

- ❖ Help your child create their own game. When children take ownership over an activity, they form a sense of pride. Also, teaching another friend, sibling, or family member the game is the best way to learn and retain new information.

Encourage your child to use Times Table Rockstars for short amounts of time, regularly – particularly in the lower school, so that we are ‘using it’ not ‘losing it’.

We have supplied a Mathletics log in for all of the children, as providing this through a school works out far cheaper for the members than parents paying for individual accounts (through the school it costs £5 per child per year, whilst it costs £39 for an annual subscription individually!) Mathletics have a vast array of activities that can really help your children focus on the areas that they are finding tricky. They also have links to workbooks that can be printed off (for free) for your children to work through if they prefer to work on paper.

There are many other games that can be played to help a child with their fluency in maths – Top Marks is a website that is full of games that are separated into subjects (not just maths), mathematical areas and key stages so that you can tailor the activity to the difficulty you feel your child may be facing. Some of the best ones for fluency are: ‘Hit the Button’ and ‘On Time’ which develop speed in multiplication tables and time – but there are many more available for your consideration.

If you require any further information about fluency and its impact on the children’s mathematical progress, please contact Mrs Crabb (Maths Lead)