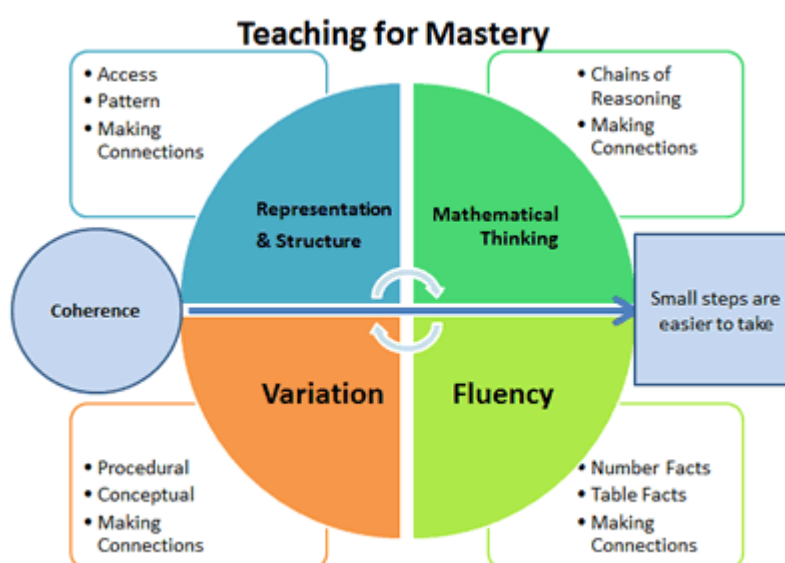


Mastering Maths at Talavera

"Well, maths is taught very differently these days," is a frequent phrase I hear from parents and it is certainly true at Talavera since we embarked upon our Maths Mastery journey about five years ago. We have transformed both our teaching of maths and the children's learning journey to ensure our children are now confident, skilled and proficient mathematicians, who understand not only a range of strategies but why and how those strategies connect across different areas of maths.



The Five Big Ideas of Maths Mastery

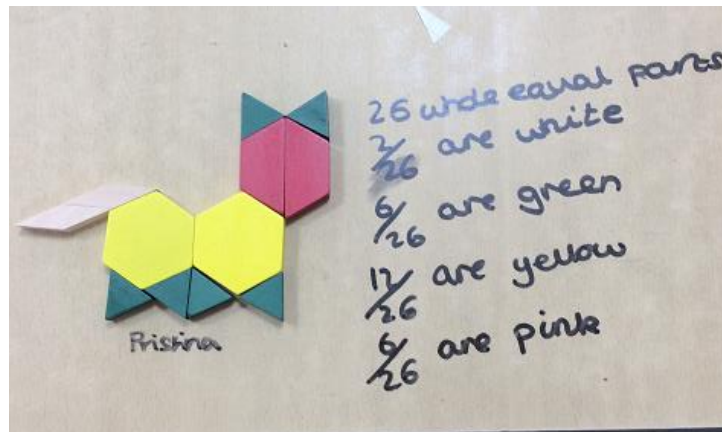
Overhauling our maths curriculum has involved adopting five key principles or "big ideas" of Maths mastery, which encourage the children to make connections and become more fluent, mental mathematicians. When planning sequences of lessons, we think very carefully about how we could represent the concepts in different ways or by using different structures including concrete, pictorial or abstract representations (also known as the CPA approach).

This means:

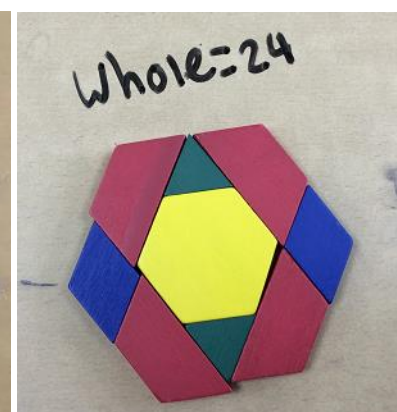
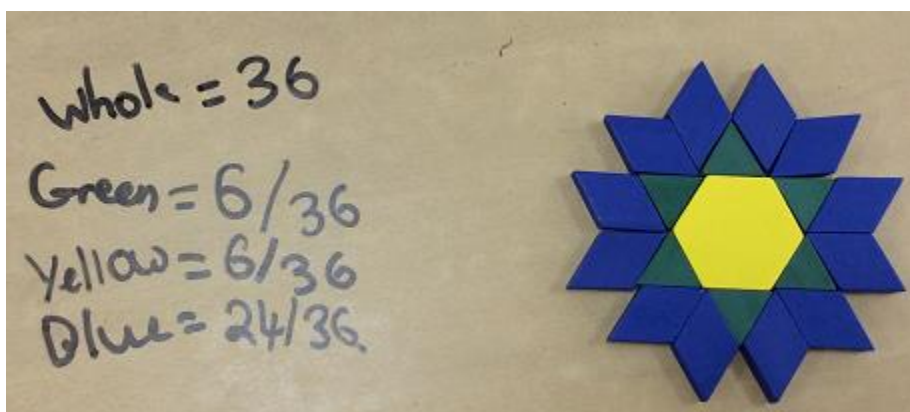
- Concrete - what equipment could the children use to show the maths, such as dienes, counters or everyday objects?
- Pictorial - how could the children draw their equation or use an image to show the maths, like drawing a number line or place value grid?

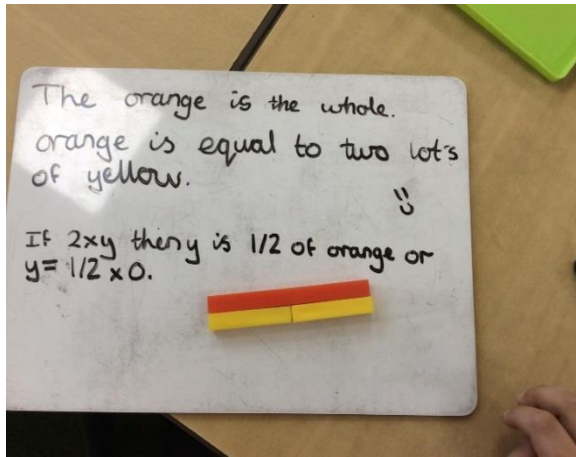
- Abstract - what equation or calculation could be written out and then solved?

Why, you may wonder, do we need to bother to teach all three steps? Practice in the classrooms demonstrates that it helps children to deepen their understanding of the value of numbers and how to build on their knowledge to solve problems involving new areas of maths. In fact, a favourite phrase of our teachers is, "Use what you know to work out what you don't know!" The CPA approach supports this.



These images demonstrate how wooden pieces have been used to model the part-whole model. This can be used to understand help children understand number; in this context, fractions. For example, there are 36 equal parts in the whole of the shape below. 6 equal parts are green.





These images show two different representations used to develop the children's understanding of two equal parts or one half of a whole. An important part of our learning journeys is helping the children understand a concept by showing them why something cannot be mathematically correct or accurate; in this case, they explored why some of the squares may not be in two equal parts or halves.

Lesson Structure

We offer very practical maths lessons, which include opportunities for:

- the teacher to demonstrate the skills or strategies being taught, which the children will need to demonstrate themselves during the maths unit of work. These skills may include: formal written methods to solve addition or multiplication problem; practical measuring activities, and mental fluency techniques;
- the children to practise these skills using a range of equipment, structures and representations in order to independently demonstrate what they have learnt.
- challenging the children to apply their knowledge and skills to further mathematical problems in different contexts to ensure they have been embedded.

Where possible, it is important to us that the maths is relevant to real-life contexts; many a time, I have been asked by a child what the point of learning area and perimeter or fractions (for example) is as they feel they will never use it beyond school. And many a time have we been able to investigate together the opportunities or occasions when they have indeed

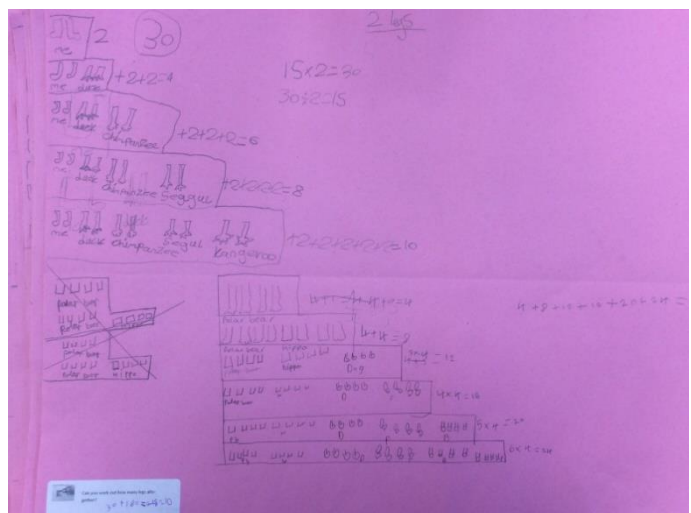
needed to use those skills to create their own bedroom design or produce a budget for a class trip.

Thanks also to a project we introduced to the school, at least once a term we use a picture book context for our Maths work (we do this for English, so why not Maths?), which again helps to give a context for the concepts to be applied to. Bonus: the maths is more fun engaging!



These are some of the books we've used within our maths lessons; some have been specifically written for maths learning and others are funny stories that our skilled teachers have chosen. Around these, they have designed and created mathematical tasks and investigations.

This shows how the children have used the book "How Many Legs?" to draw a pictorial representation of their working out of which characters had two or four legs. Using these images, we can then build on their knowledge of their 2x table to help them find the connections with the 4x table. We may then set them a challenge to make connections with their 8x table!



Working with others - our role in the local Maths Hub

As part of our on-going work as a leading maths school, we work closely with the National Centre for Excellence in the Teaching of Maths (NCETM) and our local Maths Hub, based across Surrey and North East Hampshire. Working so closely with these organisations enables us to:

- reflect on our own and our school's maths practice;
- share our experiences with and support other schools within the Hub on their Maths Mastery journeys;
- lead subject knowledge courses for Early Career Teachers, LSAs and other professional development opportunities for both our own staff and local schools.

Since beginning this journey at Talavera, my passion for teaching maths and supporting the children to have those "WOW" moments has turned me into a bit of a maths geek! I don't mind the label though, as it's all worthwhile when a child tells me that "their mind has just been blown" by a concept they have grasped or that a strategy they have been practising finally makes sense to them. After all, if maths is making sense, then they will be far better equipped to problem solve, budget and reason later on in life!

Allie Howard

Shadow Maths Lead

Talavera Junior School