

St Edward's Academy, Mathematics and Mastery

Every year organisations such as PISA and TIMSS analyse the performance of pupils across the world and compare the achievements. Countries in the Far East, China, Hong Kong, Singapore, Korea etc., outperform British children, whilst there are significant differences between these countries and the English system the government are now looking at what their pupils achieve, their methods of teaching and assessing and considering how this can be used to improve teaching of maths in English schools. St Edward's Academy is involved in this project with support from the NCETM and is adopting and adapting the ideas of mastery in mathematics

The Essence of Maths Teaching for Mastery (NCETM)

Maths teaching for mastery rejects the idea that a large proportion of people 'just can't do maths'.

All pupils are encouraged by the belief that by working hard at maths they can succeed.

Pupils are taught through whole-class interactive teaching, where the focus is on all pupils working together on the same lesson content at the same time, as happens in Shanghai and several other regions that teach maths successfully. This ensures that all can master concepts before moving to the next part of the curriculum sequence, allowing no pupil to be left behind.

If a pupil fails to grasp a concept or procedure, this is identified quickly and intervention ensures the pupil is ready to move forward with the whole class in the next lesson.

Lesson design identifies the new mathematics that is to be taught, the key points, the difficult points and a carefully sequenced journey through the learning. In a typical lesson pupils sit facing the teacher and the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration, and discussion.

Procedural fluency and conceptual understanding are developed in tandem because each supports the development of the other.

It is recognised that practice is a vital part of learning, but the practice used is intelligent practice that both reinforces pupils' procedural fluency and develops their conceptual understanding.

Significant time is spent developing deep knowledge of the key ideas that are needed to underpin future learning. The structure and connections within the mathematics are emphasised, so that pupils develop deep learning that can be sustained.

Key facts such as multiplication tables and addition facts within 20 are learnt to automaticity to avoid cognitive overload in the working memory and enable pupils to focus on new concepts.

What is different in the classroom?

Our aim continues to be for every child to enjoy and achieve understanding in mathematics, however some things may seem different.

The yearly plan will show that several weeks in a block are devoted to addition and subtraction; this is the focus of new learning for those TIMSS however children will continue to consolidate that knowledge within all the other units.

Children are expected to be able to give the answer to questions like $7 + 19$ or 6×7 quickly without the need to count in order to achieve this they will be set a weekly learning target which needs to be practised until your child can answer the questions quickly, the teacher will test the pupils weekly and retest until they have developed the required fluency.

Children will use more diagrams and pictures to support their learning

Children will not be accelerated into the work for the next year group, those that grasp ideas quickly will be given tasks to broaden and deepen their understanding. (The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. NC 2014)

Children will continue to work on the content of the previous year group if they have not yet mastered it fully. (Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on. NC 2014)