



David Ross Education Trust

Broadening Horizons

Our Approach to Teaching Mathematics - Teaching for Mastery

DRET primary academies use a **Teaching for Mastery** approach to support learning of mathematics.

Teaching for Mastery in our primary academies is based on 5 principles:

- Coherence
- Representation and Structure
- Mathematical Thinking
- Variation
- Fluency.

This is based on the NCETM model of Teaching for Mastery which has been developed through research into high performing education systems internationally, particularly those of east and south-east Asian countries such as Singapore, Japan, South Korea and China.

(If you would like to know more about a 'mastery' approach to maths you can read a very good article here: <https://www.ncetm.org.uk/resources/45776> The article was written by Charlie Stripp, who is the Director of the National Centre for Excellence in the Teaching of Mathematics.)

A key feature of this approach is to eliminate the use of ability groupings, and instead work with the assumption that all pupils are capable of achieving a high standard in mathematics. By doing this we are not putting a ceiling on the potential learning of any pupil and as such all of our pupils access the same curriculum at the same pace. Children who require more support are provided with additional structures to enable them to access the learning (such as working with concrete resources for longer or being provided with focused pre-teaching or same day intervention), and children who grasp concepts quickly will be challenged to think about particular aspects more deeply and to work on more challenging problems within the same curriculum content.

What will you see in a maths lesson at DRET primary academies?

Teaching is underpinned by methodical curriculum design and supported by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge.

Every lesson is different, but key features of the way we teach maths include:

- Teachers making effective use of projectors, whiteboards to model concepts to children using carefully designed teaching slides.
- Pupils are provided with carefully chosen concrete or iconic representations to support development of conceptual and procedural fluency, with the aim of moving towards working in the abstract.
- A big focus on developing children's mathematical vocabulary and language.
- Use of key questions to support development of mathematical thinking such as, 'How do you know?', 'Can you explain that in a different way?' and 'What's the same? What's different?'

- Lessons will often involve some short input from the teacher, followed by partner talk, followed by some additional short input from the teacher, followed by more partner talk or practice activities. We call this a 'Ping Pong' style of teaching. (You will not see teachers talking/teaching for 20 minutes in one go and then children working individually for the remainder of the lesson.)
- Teachers use precise questioning in class to test conceptual and procedural knowledge, and assess pupils regularly to identify those requiring intervention so that all pupils keep up.
- Tables are arranged so that all pupils can face the teacher and can work in their pairs.

How do we assess maths?

We assess maths in lots of ways.

During lessons we monitor what children are saying and doing throughout the lesson. Children are often given partner practice activities to do during lessons. 'Partner practice' activities are designed to give children supported practice in developing new skills/knowledge. The support comes from the other child and the adults in the classroom. All partner activities are key to the teacher gauging the children's readiness to attempt to work independently. We also assess through the marking of independent work.

At the end of maths topics, children will often take a short quiz to enable the teacher to get an idea of levels of understanding within a particular strand of maths. Teachers use this information to inform future teaching.

Pupils arithmetic skills are also tested termly to support accurate, informed teacher assessment.

We also assess against longer term goals linked to the National Curriculum as part of the reporting and assessment arrangements.