

How do we teach Maths at Arrow Valley First School

At Arrow Valley First School we have adopted a mastery approach to Mathematics in order to deliver the three aims of the National Curriculum, fluency, reasoning and problem solving. Underpinning this pedagogy is a belief that all children can achieve in Maths. We believe in promoting sustained and deepening understanding by employing a variety of mastery strategies, with teaching for conceptual understanding at the heart of everything we do. Our approach aims to provide all children with full access to the curriculum, enabling them to develop independence, confidence and competence – ‘mastery’ in mathematics in order to be independent mathematicians who are well equipped to apply their learning to the wider world.

Children at Arrow Valley First School follow the Mathematics Mastery programme of learning in Reception to Year 4. The Mathematics Mastery curriculum is cumulative - each school year begins with focus on the concepts and skills that have the most connections, and this concept is then applied and connected throughout the school year to consolidate learning. This gives pupils the opportunity to ‘master maths’, by using previous learning throughout the school year. These skills are developed by applying the 3 Dimensions of Depth to teaching and learning:

1. Conceptual understanding
2. Language and communication
3. Mathematical thinking

With Problem solving at the heart of Mathematics teaching and learning.

These underpin the Mathematics Mastery approach because together they enable pupils to develop a deep understanding in mathematics. If a pupil has a meaningful understanding of the maths they are learning, they will be able to represent it in different ways, use mathematical language to communicate related ideas and think mathematically with the concept. This will enable them to apply their understanding to a new problem in an unfamiliar situation.

We help children to develop their Mathematical language and communication skills by encouraging all pupils to answer mathematical questions in full sentences with a focus on the correct mathematical vocabulary and through the use of sentence stems for mathematical reasoning. Mathematical vocabulary is shared at the start of each lesson with an expectation that this is used during ‘Talk Tasks’ with their peers and throughout the lesson. One of the reasons we explicitly teach mathematical language and insist on all pupils using it in sentences is because of the complexity of the language required to be a competent and confident mathematician. Mathematics has a precise formal language, which is distinct from everyday language.

Maths Meetings are a vital part of the Mathematics Mastery programme and are used to consolidate key learning outside of the maths lesson. Maths Meetings provide an opportunity to teach and revise ‘general knowledge maths’ which may not explicitly be

covered during the maths lesson. This enables pupils to practise applying concepts and skills on a regular basis, meaning they are continually building on their mastery of these concepts. These are taught in all classes at Arrow Valley First School either 10 minutes daily or 15 minutes three times per week.

At the centre of the mastery approach to the teaching of mathematics is the belief that all pupils have the potential to succeed. They should have access to the same curriculum content and, rather than being extended with new learning, they should deepen their conceptual understanding by tackling challenging and varied problems. Similarly, with calculation strategies, pupils must not simply rote learn procedures but demonstrate their understanding of these procedures through the use of concrete materials and pictorial representations.

Children show enthusiasm towards their Mathematics Learning and can talk confidently about their learning. They enjoy talk tasks and are able to explain their learning to both their peers and other adults.

Each Mathematics Mastery lesson, is provided in a six-part lesson structure. The Dimensions of Depth underpin the six-part lesson. Each part provides opportunities to focus on conceptual understanding, language and communication and mathematical thinking for the mathematical concept being covered. The six-part lesson consists of:

- Do Now: This is a quick five-minute task that all pupils can access without any teacher input as an introduction to the mathematics lesson.
- New Learning: The New Learning segment introduces the lesson's main mathematical concepts.
- Talk Task or Let's Explore: The Talk Task or Let's Explore is a chance for all pupils to practise using mathematical vocabulary related to the lesson's concept.
- Develop Learning: This segment builds on the New Learning and develops a deeper understanding of the maths concepts of that lesson. It also addresses misconceptions or inaccuracies discovered during the preceding segment.
- Independent Task: The Independent Task provides pupils with the opportunity to practise the learning from that lesson. This may be independently and/or in pairs/small groups.
- Plenary: The Plenary segment recaps on the lesson, checking understanding and celebrating success

At Arrow Valley First School, teachers may use a variety of these parts of the lesson, depending on the lesson being taught and the children's understanding and development. This may be anything from a 3-part to a 6-part lesson.