



MATHS CONSTRUCT

“The only way to learn mathematics is to do mathematics.” Paul Halmos

Aims and Objectives

Mathematics is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. Therefore, we recognise the importance of a high-quality mathematics curriculum that prepares our pupils for the next stage in their educational journey. The aims of the National Curriculum, and the knowledge and skills identified within it, form the foundation of our curriculum content. The organisation of this content and the way in which we implement it within our classrooms demonstrates our wider aims for our pupils' mathematical capabilities.

We aim to:

- provide a coherent journey of mathematical learning within and across year groups so that pupils are continually building on their prior knowledge and identifying connections between mathematical concepts
- ensure that pupils become fluent in the fundamentals of mathematics so that they are able to recall and apply their knowledge rapidly and accurately
- develop pupils' deep and secure understanding of mathematical concepts alongside their procedural accuracy so that they can reason mathematically
- transfer and retrieve knowledge and skills into and from pupils' long-term memory to ensure depth of learning
- develop pupils' metacognition and understanding of their learning needs within different lessons
- provide challenge to all learners
- promote enjoyment and enthusiasm for learning maths and an understanding of the importance of Maths in everyday life

What Maths looks like at Dowson

Planning

To ensure a coherent and connected learning journey, we use the Lancashire Grid to structure and sequence the yearly maths objectives into a long-term plan. We use the Lancashire Grid as a basis for structuring the year as it provides a cohesive and progressive sequence within and between years; opportunities to revisit and build on objectives and it highlights where learning connections between different mathematical ideas can be made. Teachers will then use their ongoing formative and summative assessments to support their medium and short-term planning, paying particular attention to the children's acquisition of the Ready to Progress Criteria; teachers are able to deliver the curriculum with a degree of flexibility so that it matches the needs of their learners.

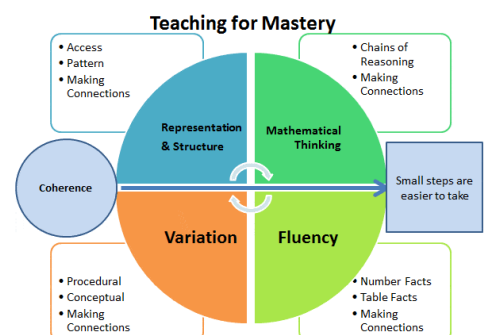
Individual lessons are planned by teachers and will incorporate key Dowson pedagogies. In addition, teachers are involved in the collaborative process of developing and refining progressions for different strands of Maths in order to ensure even greater coherence for pupils. Teachers are responsible for lesson design, including how they will teach the mathematical concept and the activities the pupils will complete. To support their planning, teachers have access to a range of resources that they can judiciously select from.

Teaching

At Dowson, we have a mastery approach to teaching maths. Assessment of children's prior knowledge and skills, including through the use of diagnostic assessments, informs the content, pitch and challenge of the lessons. This is supported by the use of flexible grouping which allows pupils to access support or challenge at an appropriate level.

Lesson structure

- Lessons begin with our 'Four From Before' approach which poses four questions that require the pupils to recall their prior learning; this approach is designed to provide assessment opportunities for the teachers; give pupils a chance to retrieve prior knowledge and to help them make connections to their new learning within the session.





- Concepts are taught in small and coherent steps with opportunities for purposeful practise. We value the importance of deep conceptual understanding and therefore we use concrete and pictorial representations to explore mathematical structures; we deliberately plan to address misconceptions and we often use inductive methodology to support pupils' deeper acquisition of knowledge. Once conceptual understanding has been achieved and pupils are showing fluency with the knowledge or skill, they are given the opportunity to reason with and apply their knowledge. Concrete resources and other scaffolds to support learning are available within lessons and gradually removed when appropriate.
- A 'Challenge by Choice' approach to tasks is used to support, scaffold and stretch learners. Teachers use the objective of the session to plan up to three challenges for their pupils. Challenge 1 allows pupils to practise their learning or access the year group curriculum with additional support/scaffolding. Challenge 2 allows children to demonstrate their learning at the age-related standard. Challenge 3 allows pupils to explore the objective more deeply through rich and sophisticated problems. Teachers plan opportunities for reasoning mathematically within the different challenge levels. Children are guided to choose the challenge that is appropriate to them during the lesson based on their understanding of the concept being taught. Pupils can fluidly move up or down the challenge levels based on their performance and understanding.

Assessment

In order to establish an accurate understanding of pupils' knowledge and skills, teachers create assessment opportunities prior to planning their learning sequences. Assessment information helps to determine the starting points of lessons, which pupils may need a pre-learn or scaffold and appropriate levels of challenge. Formative assessment of pupils' responses, including their marked work, informs planning, teaching and intervention on a daily basis. Teacher assessments are recorded on Bromcom and success towards the different objectives translates to an overall judgement at key points during the year. Assessment is also supported by the delivery of progress tests. See the Assessment Strategy for more information.

Intervention

The expectation is that the majority of children will engage in the objectives specified in the National Curriculum for their year group and move through the programmes of study at broadly the same pace. Where this is not possible due to the needs of the learner, teachers are expected to provide an appropriate alternative curriculum. Teachers intervene on a daily basis and provide support, scaffold or additional practise where necessary in line with our 'Keep Up' strategy. Where pupils are unable to 'keep up' and fall significantly behind, they take part in 'Catch Up' intervention with a focus on fluency, place value and the other Ready to Progress Criteria in the first instance. See the Assessment Strategy for more information.

Homework

To support our focus on fluency, we provide pupils with Challenge Cards as part of our homework system as we believe that parents can make a big difference to this area through continued home practise. Challenge Cards begin in the Early Years and are focused on developing pupils' automaticity with addition and subtraction facts and their times tables in line with the standard of their year group. The final challenge card expects pupils to have automatic recall of all the times tables up to 12 x 12.