



Mathematics Approach

David Livingstone Academy

At David Livingstone Academy, we take a mastery approach to the teaching and learning of mathematics. Fundamentally, this rests on the belief that all children can – and, indeed, must – be successful in the study of mathematics. We do not accept that ‘some people cannot do maths’; we do not accept that mathematical study is boring or unnecessary; we do not accept that prior attainment should limit what a child is capable of learning. Mathematics is for everyone at David Livingstone.

Planning

We plan our learning by designing coherent extended units of work in the medium term which take into account the relevant mathematical progression. This allows our children to master the area of mathematics being studied before moving on to new learning. To support us in our long and medium term planning, we use Mathematics Mastery plans from Reception to Year 3 and White Rose Maths Hub plans in Years 4 to 6. However, we adapt these plans to suit the needs of our children. We break our medium-term plans down into small steps which become our individual lessons.

Mixed- ability grouping

We do not set or stream by ability at David Livingstone. Similarly, we do not group children by their prior attainment, except for where significant gaps in learning exist. Nor do we use the language of high ability and low-ability children. Instead, we refer to faster or slower graspers, reflecting our belief that children may struggle with one area of mathematics initially, but with sufficient time and effective instruction can be successful. We never pre-decide the children who will excel at or struggle with a particular lesson. We expect all our children to grasp the learning of the lesson.

Meeting children’s needs

At David Livingstone, we aim for all children to move together through the learning in order to avoid gaps in understanding from forming. Such gaps serve to hold some children back in the future. Therefore, we do not differentiate by activity; we believe that this creates gaps in learning and sends a message that not all children need to learn the content of each lesson. It represents a cap on expectations. All children are given the same work initially. Slower graspers are provided with additional scaffolding, which could be adult support, concrete resources or adapted work in some cases. Faster graspers are given the opportunity to deepen their understanding through targeted questioning and tasks planned for this specific purpose.

Intervention

Children who do not meet the learning objective for a lesson are identified in the lesson and are given a same-day intervention where possible to ensure that they are ready to move on to the next day’s learning. If the majority of the class have struggled, our teachers would seek to identify if there was a step in the progression that had been missed, if a pre-requisite from earlier learning was not understood fully by the children, or if the learning objective of the lesson needed further honing. After a professional discussion with their year group colleagues, our teachers would then respond appropriately the next day. This fluidity in the short term allows us to respond precisely to the needs of our children.

Children's work and feedback

Work in books usually includes elements of fluency, reasoning and problem solving to ensure that our children are exposed to varied question and problem styles. We aim to use progressive questioning within lessons, starting with easier questions that are accessible, but finishing with questions that pose more of a challenge, but always based around the same piece of learning. Our teachers do not give our children endless calculations to solve, but use procedural variation in their question selection – the process of using fewer carefully-chosen questions which reveal mathematical structures to the children and deepen their understanding. Most of our feedback in mathematics is oral and at the point of learning, and written feedback supports this where it is useful.

Assessment

We assess maths in several ways at David Livingstone. Formative assessment takes place in every lesson and is integral to the teaching of maths. Our teachers quiz the children to test their understanding on a regular basis. Our Headstart progress tests allow our teachers to see how their children are progressing within a specific content domain. Finally, in terms of summative testing, PUMA and GL assessments are used to measure performance across the whole curriculum and teacher judgements are made for all children's mathematics attainment and progress.