

Mathematics Intent

At Bedford Drive Primary School, we envision that our school prepares pupils with the confidence and resilience to tackle mathematical problems independently to function in a mathematical world. Children from Year 1 to Year 6, follow the mastery curriculum of Maths No Problem. Foundation Stage follow a Singapore style approach, introducing them to key concepts, which will be used in Year 1. The schemes of work are ambitious and engaging. Maths No Problem is a great way for children to understand basic principles in maths and to develop their mathematical reasoning and problem solving skills. It is carefully sequenced for clear progression and variation.

Regardless of age, children are encouraged to explore problems using concrete materials. Children work with each other to discuss the mathematical problem and find solutions between themselves. This develops children's curiosity and encourages all learners to think more independently.

After exploration, they complete an independent journal reflecting on what they have learnt during the lesson and then apply their knowledge to their workbook using pictorial representations to help with their understanding; before moving onto abstract signs, symbols and procedures; promoting a deeper understanding of number-sense.

Maths lessons empower pupils to explore and challenge mathematical ideas they encounter using a Growth Mind-set. Maths is an integral part at Bedford Drive Primary, with pupils accessing cross-curricular opportunities to apply their skills. At Bedford Drive, values are also a crucial element of the curriculum and these are woven into maths lesson, linking with our UNICEF Rights Respecting School status. We provide experiences within the maths curriculum to ensure the children can develop the values that are at the core of our curriculum, such as resilience, wellbeing, participation, relationships and self-esteem.

The use of thorough assessment is used on a regular basis. This is done in a number of ways, from daily formative assessment to formal summative testing. Regular interventions take place to ensure no child is left behind. Teaching of the highest standard is encouraged by regular sessions in which good practice is shared between staff and the expertise of the Wirral and Cheshire Maths Hub. Find out more from the Maths No Problem website.

Implementation

At Bedford Drive Primary, we have a strong approach to supporting and training our staff. We are determined that our pupils are taught by knowledgeable experts. All teachers have had Maths No Problem training and coaching by specialists. The school works with Wirral Maths Hub to keep staff informed on best practice. The implementation of Maths No Problem uses a Singapore Maths approach.

What is Singapore Maths?

Maths – No Problem is an approach to teaching maths developed in Singapore. Singapore established a new way of teaching maths following their poor performance in international league tables in the early 1980's. The Singapore Ministry of Education decided to take the best practice research findings from the West and applied them to the classroom with transformational results. Based on recommendations from notable experts, Singapore maths is a combination of global ideas delivered as a highly-effective programme of teaching maths. The effectiveness of this approach is demonstrated by Singapore's position at the top of the international benchmarking studies and explains why their programme is now used in over 40 countries including the United Kingdom and the United States.

What is so great about Singapore Maths?

Problem solving is at the heart of mathematics. The focus is not on rote procedures, rote memorisation or tedious calculations but on relational understanding. Pupils are encouraged to solve problems working with their core competencies, such as visualisation, generalisation and decision-making. In summary: Singapore consistently top the international benchmarking studies for maths teaching. It is a highly effective approach to teaching maths based on research and evidence. It builds students' mathematical fluency without the need for rote learning. It introduces new concepts using Bruner's Concrete Pictorial Abstract (CPA) approach. Pupils learn to think mathematically as opposed to reciting formulas they don't understand. Teaches mental strategies to solve problems such as drawing a bar model.

How are lessons taught?

Concepts merge from one chapter to the next. Chapters are then broken down into individual lessons. Lessons typically are broken into three parts and can last one or more days. Pupils master topics before moving on.

The three parts to a lesson are:

Anchor/FocusTask – the entire class spends time on a question guided by the teacher. The children are encouraged during this time to think of as many ways as possible to solve the question as possible. **Guided Practice** – practice new ideas in groups, pairs or individually guided by the teacher. **Independent Practice** – practice on your own. Once children have mastered the concept they use their reasoning and problem solving skills to develop their depth of learning.

What impact will Singapore Maths have on our children?

Children will have a greater conceptual understanding of number and calculation. They will be able to visualise and generalise more readily due to a more in-depth understanding. Struggling learners will be fully supported through accessing concrete equipment and use of visual models to support understanding. Confident learners will be challenged through exposure to unfamiliar problems, development of reasoning skills and by exploring multiple ways to manipulate numbers and solve problems. All learners will access teaching of content which matches the expectations of the new curriculum in England and be supported further, if needed, in order to access this. The resources match the expectations for formal written methods set out by the Government, alongside greater understanding.

Impact

At Bedford Drive, we want our children to know more and remember more. Therefore, we use formative and summative assessment information to inform planning.

Maths lessons are engaging and well resourced; with the understanding of the journey to finding an answer is the most important factor. Children can demonstrate quick recall of facts and procedures; this includes recollection of times tables. Children are developing their skills in being articulate and are able to reason verbally using abstract, pictorial and concrete methods. Our maths books evidence work of a high standard of which children clearly take pride; the range of activities demonstrate good coverage of fluency, reasoning and problem solving.

Our tracking system, Insight, allows staff to assess systematically what they children know as the unit of work progresses, which is then used to inform future planning. Staff can quickly see which child or group of children need further support within their mathematic topic. Invention and additional support is then implemented. Our formative assessments, then inform our summative assessment judgements, in each topic. Standardised tests further help teachers to identify how well children have embedded the knowledge and understanding. Small group interventions are quickly put in place to close any gaps and reviewed half termly.

As part of our monitoring cycle, SLT and Subject Leaders monitor all subjects over the academic year. Monitoring includes: books looks, learning walks/ observations, pupil voice and/or staff voice. Our Governors are also part of this process. Through this rigorous monitoring cycle, we have the opportunity to see the impact of our curriculum upon the children.

Evidence shows that pupils across school are making progress in order to be in line with National expectations by June 2022. Impact is measured through regular teacher assessment and standardised assessments.

At Bedford Drive, children have a love of maths and they can articulate this through discussion, recognising their own contribution and learning. They see the importance of maths in the modern world. Through our Math curriculum, we impact on how a child is feeling about themselves so that they feel confident and competent; ready to tackle any challenge that they may face. Children have a positive view of maths due to learning in an environment where maths is promoted as being an exciting and enjoyable subject in which they can investigate and ask questions; they know that it is OK to be 'wrong'. Children are confident to 'have a go' and choose the equipment they need to help them to learn along with the strategies they think are best suited to each problem. We place high priority on ensuring children's physical and mental well-being needs are being met, as well as building self-confidence and self- esteem through ensuring a sense of achievement and success. Our unique curriculum ensures that every child is given the opportunity to shine and flourish.

We will see:

Successful learners – as children confidently and passionately talk to us about Maths. Children who have a wide vocabulary and a knowledge of methodology. Basic skills taught each year will enable children to move to the next stage of their learning and knowledge will equip our children to be good citizens in a multi-cultural Britain.

Confident individuals – who enjoy coming into school and are invested with their learning, showing a resilient, can do attitude through problem-solving.

Responsible citizens – who confidently talk about a difference they can make for **themselves**; through learning about how to be a good learner and a kind friend; our **society** through projects such as 'STEMTERPRISE' where all children learn about designing, making and marketing a product in order to raise money to improve an aspect of local life; and **globally**, where all children learn about how great mathematicians have improved and shaped the world we live in today.