



Intent

At Ferndale Primary School, we aim to teach children how to make sense of the world around them by developing their ability to calculate, reason and solve problems. We aim to support children by equipping them with a range of computational skills (fluency), problem solving skills (application) and reasoning skills (verbalise their understanding), in a variety of contexts, including real life scenarios.

Our aims in the teaching of mathematics are:

- to promote understanding of learning through our three step **CPA** (concrete, pictorial, abstract) approach to mathematics
- to develop confidence and competence with numbers and the number system, through frequent revisiting of place value
- to become fluent in the fundamentals of mathematics, through frequent practice with increasingly ability to recall and apply knowledge accurately
- to develop the ability to solve problems in a range of contexts
- to be able to make links between different contexts in maths and transfer skills
- to be given opportunities to reason mathematically, through 'Prove it, Deepen it and Diving Deeper' tasks.
- To develop a rich mathematical vocabulary, to support children with reasoning.
- To develop procedural fluency and place an emphasis on developing conceptual understanding.
- To develop positive attitudes within and towards mathematics and challenge any existing stereotypes to support wellbeing and children's attitudes towards maths.

Implementation

At our school, we teach mathematics to all children, whatever their ability or individual need. Some children may receive the curriculum in small group contexts or even on a 1: 1 basis, to allow them to make good/better than average process. Every child has an equal right to be taught mathematics, in daily lessons of approximately 1 hour.

We aim for children to master the key areas and domains in Mathematics. Children are given the opportunity to build on a domain by revisiting the skill throughout the academic year, in order for children to know more and remember more. We see this as a benefit as children are able to build on what they have previously learnt. The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress will always be based on the security of pupils' understanding and their readiness to progress to the next stage. The ready to progress criteria (RTP) is utilised by all teachers from Years 1-6 and children are provided with assessment questions to gain a further insight of their understanding of each of these skills. Teacher's complete analysis of this data and plan activities accordingly to address and close any necessary gaps. The activities provided in lessons offer the pupils fluidity to move between tasks, at their pace. We aim to challenge pupils who grasp concepts rapidly, to deepen their understanding by offering 'deepen it' and 'diving deeper' problems.

We believe that all students, when introduced to a key new concept, should have the opportunity to build competency in this topic by taking the concrete-pictorial-abstract approach- a universal language.

Concrete –opportunity to use concrete objects and manipulatives to help them understand what they are doing (during this stage, concepts may be reinforced through physical movements to help further embed understanding such as children representing digits shuffling when multiplying and dividing by 10,100 and 1000 or jumping up/crouching down whilst reinforcing rounding).

Pictorial – students should then build on this concrete approach by using pictorial representations.

Abstract – with the foundations firmly laid, students should be able to move to an abstract approach using numbers.

During our daily lessons we encourage children to practice fluency (Do it) and make links with previous learning through the use of ‘reviews’, before introducing them to problem solving/reasoning skills. As an interim assessment opportunity, we provide our students with ‘Hinge questions’ and ‘Stop and jot/Everybody Maths’ opportunities during the main teaching to be able to assess their understanding. We develop the children’s ability to represent problems using visualisation skills, including jottings and pictorial representations.

The Early Years Foundation Stage Curriculum feeds into the National Curriculum. In EYFS, Maths is split into two areas: Number & Numerical patterns. In Number, children are expected to have a deep understanding to 10, subitise up to 5 and automatically recall number bonds to 5 and some number bonds to 10. In Numerical patterns, children are expected to count beyond 20, compare quantities up to 10 and explore patterns within numbers to 10. These are the foundations for developing mathematical fluency and this continues to be embedded into KS1 and beyond with the use of Numbots/TTRS and daily fluency sessions along with daily challenges within mathematic lessons (do it tasks) which are aimed at embedding and developing fluency further. It is good practice to make use of cross curricular links to enable children to use their learning in a real-life context. Therefore, pupils are given plenty of opportunities within sessions to use and apply the mathematical skills and concepts they have learned. All classrooms will have a display area specifically for mathematics, to show the topic currently being taught. This is used more like a working wall in English where previous and new knowledge is displayed, to support the children’s understanding. It will also show key vocabulary relevant within that topic for children to use during their reasoning tasks.

Special Educational Needs Disability (SEND) / Pupil Premium / Higher Attainers

All children will have Quality First Teaching. Any children with identified SEND or in receipt of pupil premium funding may have work additional to and different from their peers in order to access the curriculum dependent upon their needs. As well as this, our school offers a demanding and varied curriculum, providing children with a range of opportunities in order for them to reach their full potential and consistently achieve highly from their starting points. SEND children are

also expected to undertake problem solving and reasoning challenges (where appropriate), so not to cap their learning. All children are exposed to reasoning opportunities on a daily basis.

Impact

Assessment for Learning is fundamental to raising standards and enabling children to reach their potential. Assessment in mathematics takes place daily using a range of strategies such as 'Review it' tasks, 'Flashback in 4', 'Rapid Reasoning', 'Learning Surgeries' and Hinge questions, all which are planned into the lesson challenges planned into the lesson. Live marking and verbal feedback with children are our most valued tool for assessing learning within the moment and acting accordingly. Where answers may not be correct, we allow children the opportunity to work on these instantly through verbal feedback and teacher modelling. If this is not possible, or a variety of children share the same misconception, this may be addressed through a 'Learning Surgery' which will take place the same day or the next time maths is taught. When children respond to any feedback, their responses are indicated in green pen.

Teachers use personalised termly assessments, which have been created by the school to match their current LTP (Long Term Plan) and topics covered, to inform their planning and map out the weekly learning journey. Teachers will also use the Ready to Progress assessment questions to ensure key concepts have been secured and embedded. Moderation of teacher's assessment is completed termly after formal moderation using end of year expectations, weekly and termly timetables scores as well as end of term assessment scores and RTP (Ready To Progress) tracking grids to ensure judgements are accurate. Children are formally tracked using our tracking grids (Insight). This data is used by the Mathematics Subject Leader, Senior Leadership team and Head teacher to review children against Age Related Expectations based on their Key Stage starting points. Children who are not on track are identified for intervention/target teaching on teachers' Provision Maps. This is then triangulated with Pupil Progress meetings, book scrutinises and observations/pop ins/coaching sessions to ensure the children's next steps are being catered for.

Pupil voice and teacher voice surveys are completed annually and accepted upon by the appropriate staff to ensure a positive attitude towards maths is fostered and encouraged.

Partnerships with parents

In Year 6, we hold a SAT's meeting to share dates and practices used within school to support children. Following this, we provide parents with the opportunity to purchase revision guides to support with the children's independent study. Parents are kept informed of topics that are being covered the following term, through a newsletter which is sent half-termly. During Parents' Evenings curricular targets are shared, and mid-term progress report is sent out in Spring 1, followed by a written report in the Summer Term.

Homework challenges are set through Times Tables Rockstars for Y2-6 and Numbots for Year 1. Year 6 also receive additional homework in the Spring term, which focusses on the current maths topic.

