MATHEMATICS AT SPRINGFIELD

INTENT - IMPLEMENTATION - IMPACT

The purpose of this document is to clarify our intent, our implementation and how we monitor the impact of mathematics at Springfield. This is to be used by staff to clarify expectations and to ensure that a high-quality mathematics curriculum is being taught to all.

Intent

At Springfield Primary School, we strive to ensure that our pupils become confident, competent, resilient and knowledgeable mathematicians who enjoy learning and develop a can-do attitude. We believe that all pupils can succeed in mathematics and they should achieve their full potential. The skills and knowledge they learn should support them in their next stage of their education and equip them with key skills to help them in everyday life.

At Springfield we aim to ensure all our pupils:

- Become fluent in the fundamentals of mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- Reason mathematically by following a line of enquiry and developing an argument, justification or proof using mathematical language
- Can solve problems by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.
- Understand the importance of mathematics in everyday life
- Develop and apply mathematical skills and knowledge beyond the daily mathematics lesson

Our school values of independence, teamwork, creativity and resilience help to underpin our mathematical intent.

We teach mathematics through a mastery approach. This means that we are teaching our pupils to have a deeper understanding. Being able to explain how they got an answer, why that answer is right and what might happen if a particular variable was changed are the hallmarks of a mathematician.

A mathematician needs:

- To be analytical – able to spot similarities and differences
- To be critical – able to identify problems and mistakes
- To be a problem solver – resilient enough to approach a problem from different angles
- To be inquisitive and curious – want to know why and how things work
- To be precise – able to understand precisely what is and what is not
- To be a risk-taker – not afraid to make mistakes as they are part of the learning process

At Springfield, we endeavour to practise and strengthen these skills throughout our pupils' primary education.

Implementation

Planning

At Springfield, we dedicate a daily session to the teaching of mathematics which follows a consistent structure across the school.

In order for our pupils to master key concepts and gain a deep understanding, confidence and competence in mathematics, we teach in unit blocks which vary in length throughout the year. Units are blocked in a particular sequence so that new knowledge and skills build on what has been taught before. The expectation is that the majority of pupils will move through 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. Pupils who grasp concepts rapidly will be challenged to deepen their understanding by being offered rich and sophisticated problems and not accelerate through to new content. The unit blocks are broken down into manageable small steps that are sequential and build on prior knowledge. To achieve this, we follow the robust scheme of learning available from White Rose from EYFS to Year 6. While we appreciate that the White Rose planning structures have been informed by world-class research and maths experts, teaching staff at Springfield adapt the planning to suit the needs of the pupils in their class. When planning a unit block, teachers use the resources available from White Rose to support them. Staff also refer to the school Calculation Policy when teaching formal methods, understanding that sometimes children find their own efficient methods along the way. Reasoning and problem solving opportunities should be planned throughout each unit.

Teaching and Learning Expectations

Mastery approaches are used throughout the school to deepen pupils' knowledge of mathematical concepts and improve teaching and learning of mathematics. Some of these are outlined below.

Pupils are encouraged to use different representations of new concepts to challenge their thinking and allow them to make connections and links between mathematical ideas. Objects and pictures are used to demonstrate and visualise abstract ideas, alongside numbers and symbols.

Concrete is the 'doing' stage, using concrete objects and manipulatives to help them understand what they are doing. **Pictorial** is the 'seeing' stage, using representations of the objects to model problems. This stage encourages children to make a mental connection between the physical object and abstract levels of understanding by drawing or looking at pictures, diagrams or models which represent the objects in the problem. **Abstract** is the 'symbolic' stage, where children are able to use abstract symbols to model problems.

Each week, a times tables focus in planned to give pupils the opportunity to practise and improve their rapid recall skills. Pupils are expected to complete a times tables practice three times per week, however counting and recalling time tables should be incorporated throughout a mathematics lesson and throughout the day if possible. All pupils also have access to their own personal account of 'Times Tables Rockstars' where they can practise these skills at home.

We want learning to become deeply embedded in pupils' memories. Therefore, pupils are given opportunities to revisit previously learned knowledge, concepts and procedures through our 'Can you still?' quizzes, which asks four questions to pupils based on any content learnt previously.

With arithmetic underpinning many areas of mathematics, pupils practise these methods at least once a week at the start of a mathematics lesson.

Other

- Teachers will explicitly teacher number bonds and times tables so pupils can understand the concepts and identify patterns and links between them.

- All classrooms will have a display area specifically for mathematics. This will display items that children need to support and develop the unit's learning.
- Vocabulary is shared at the beginning of every lesson as we place an importance on this and encourage children to use it accurately.
- Teachers will model and encourage pupils to speak in full sentences to help clarify thinking and understanding, support all learners in the classroom and to contexualise the learning.
- Teachers will plan in relevant opportunities for children to apply their mathematical understanding in subjects across the curriculum.
- Teachers are offered CPD where needed and teachers who are new to the school will be supported to understand our approach to mathematics.
- Where possible, links to real life will be made explicit in order for pupils to see how mathematics is used in everyday life.
- All children in EYFS and KS1 participate in a daily number session as well as their maths lesson. This programme written by the NCETM will enable children to leave KS1 with increased fluency in calculation and a confidence and flexibility with number.

Skills and knowledge that pupils are taught are set out in the school's progression maps. The progression maps are structured using the topic headings as they appear in the National Curriculum and are used so that staff can see what has been taught and what will be taught.

EYFS

All pupils in the Foundation Stage have short daily mathematical sessions as well as opportunities primarily through play to develop their mathematical understanding. Pupils are assessed against the criteria in Development Matters. The strands of mathematics taught in EYFS are Numbers and Numerical Patterns.

SEND/Pupil Premium

All pupils will have Quality First Teaching. Any pupils with an 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.

Assessment

See Feedback Policy for how we use marking and feedback in lessons. Pupils in Year Two through to Year Five complete termly published NTS assessments and Year Six pupils complete mock SATs. Teachers can use the White Rose end of unit assessments to help them identify what has been learnt and what has not been learnt. Teachers use this assessment information to inform planning and consolidation weeks are incorporated throughout the year to address the gaps identified from the assessments and to revisit previously learned knowledge, concepts and procedures. Teachers submit termly attainment data for Mathematics. Termly data is analysed and all teachers contribute to a termly class review meeting where the data is discussed and next steps are identified, in particular for those children who are not on track based on their starting points. Provision maps and intervention timetables are drawn up to reflect the outcomes of the class data review meetings.

Parents

Parents are informed about their child's mathematics curriculum via the school website. Weekly Maths homework is planned every other half term which relates to the curriculum content being taught or taught previously. On occasions, mathematics workshops are held to further inform parents of strategies to support their child's learning in mathematics. Termly parents' evenings and end of year reports ensure parents are given up to date information about their child's attainment and progress.

Impact

At Springfield, we expect that by the end of Year Six our pupils:

- Become **fluent** in the fundamentals of mathematics
- **Reason** mathematically
- **Solve problems** by applying their mathematics to a variety of problems with increasing sophistication

In order for this to happen, the quality of teaching and learning is monitored by the Mathematics Lead and Senior Leadership Team in a range of ways throughout the year. The mathematics action plan identifies actions intended to raise standards.

Assessment and feedback is fundamental to raising standards and enabling pupils to reach their potential. These take place using a range of strategies and this is monitored through book looks, lesson observations, learning walks, pupil conversations and data analysis.

Following data analysis and class reviews when targets and next steps are identified, including interventions, the impact of these are then monitored throughout the term and following the next data drop.

A named member of the governing body is briefed to oversee the teaching and learning of mathematics and takes part in monitoring with the Mathematics Lead.