Aughton Town Green Primary School

Mathematics Policy

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Aims

At Town Green, we aim to develop lively, enquiring minds encouraging pupils to become self-motivated, confident and capable in order to solve problems that will become an integral part of their future.

The National Curriculum for mathematics aims to ensure that all pupils:

- Become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems.

- Can **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.

- Can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

1. Organisation

EYFS:

When children enter school in September, the baseline assessment, in conjunction with transition data, provides an overview of each child's individual prior learning. In EYFS, the children work towards achieving their Early Learning Goals for the specific area of mathematics, in both number and numerical patterns. Children are assessed termly using the non-statutory guidance 'Development Matters' (2020).

In Reception, children are taught Maths daily through a 15 minute direct teaching session. NCETM Mastering Number materials are used to plan this input. Following this, children access two activities (one outdoor, one indoor) either individually or in small groups led by an adult. The children have access to mathematical learning through continuous provision to consolidate their learning. This is changed weekly to reflect the current learning topic. All activities are very practical in their nature with opportunities for informal recording where appropriate.

In the Spring and Summer terms, children cover other mathematical areas from Lancashire Planning Documents (2020) to broaden their mathematical understanding and give additional experiences.

Years 1 - 6

The School has adopted the Red Rose Mastery Maths Scheme. This covers all objectives from the National Curriculum. Years 1-6 follow the sequence of learning, which ensures progression within each year group and across the school.

Maths takes place at 9am and each lesson is typically an hour long. For the mixed age classes, the children are split to ensure they are accessing the content for their year group. Additional teaching staff are used during this time and these children are taught in smaller half-class sized groups. All children have a pre-printed workbook to record work from the lesson. Any deeper learning tasks are stuck into and completed in a squared maths book.

The structure of a typical lesson is as follows:

- **Starter** (no more than 10 minutes) – revisits prior learning or a skill children will need within the lesson.

- **Initial problem** – teacher led discussion of initial problem to set a context for the lesson.
- **Guided learning** (this forms the bulk of the lesson) – practical learning and discussions led by the teacher within which children have an opportunity to use a wide range of practical equipment to develop their understanding. Following this children have a short guided learning task in their workbooks where teachers can assess their understanding.
- **Independent learning** – task in workbook for children to complete based on content of lesson.
- **Deeper learning problem** – a task that can be completed in maths book to extend and deepen learning for those who have fully grasped and completed independently.

The Red Rose Scheme is taught using the principles of a concrete – pictorial – abstract model. Children use maths 'kit boxes' that contain a range number and place value resources (e.g. base 10, place value counters, numberlines) to support their learning. These resources are available to all children and are accessible to use throughout the Maths lesson.

The National Curriculum states that '*pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in increasingly sophisticated problems*'. With this is mind, each Red Rose lesson starts with an initial problem that the lesson builds on. This gives all children opportunity to discuss and reason within the lesson.

The National Curriculum states that '*the expectation is that the majority of pupils will move through the programmes of study at broadly the same pace.*' The Red Rose Mastery approach is that all children within the year group access the same learning. Children who need additional support to achieve the lesson objective are identified within the lesson so that intervention can take place immediately or later that day. Any children identified as needing further support, receive intervention outside of the Maths lesson with focuses on any particular gaps in learning.

Key Skills/fluency

Children in Years 1 and 2 receive an additional 10 minute input outside of the Maths lesson. This focuses on areas of arithmetic proficiency such as composition, counting, ordinality and number facts. Planning for this is taken from NCETM 'Mastering Number' and is delivered four times each week in a whole class setting.

Children in Years 3 and 4 do daily times tables work on the 'times table booklets', as recommended by the local maths hub. This entails a 2 minute times table recall check followed by whole class chanting, which aids auditory memory for these facts. This is continued in Years 5 and 6 if teachers feel additional times tables practice is needed.

Children are encouraged to practice their times tables at home through the use of various activities including online games and TT Rockstars. To promote and reward the learning of times tables and division facts, children can earn their bronze, silver, gold and platinum badges.

2. Cross-Curricular Links

Throughout both Key Stage 1 and Key Stage 2, activities to apply their mathematics skills will be planned into foundation subject units of work (e.g. Science, History, Geography, DT).

3. Computing and ICT

ICT will be used in various ways to support teaching and motivate children's learning. Teachers will use the Interactive White Board (IWB) to support the delivery of Maths lessons. Children will be given opportunities and encouraged to use games on websites such as TT Rockstars and Topmarks to practice and improve their key skills.

4. Resources

Concrete resources to support the teaching of mathematics are available in every classroom and are accessible to children to support them in their learning. All classes have 'kit boxes' which contain a variety of number resources (e.g. place value counters, base 10, numberlines, place value charts etc). Opportunities to use these are built into the teaching sequence and all children are encouraged to use these to support their learning and to explain and prove their thinking.

Resources that are not used on a daily bases (e.g. small clocks, measuring equipment etc.) are kept in a central resource for teachers to access when a particular block is being taught.

5. Special Educational Needs

The vast majority of pupils should be actively involved and fully integrated with the rest of the class (see section on teaching and learning).

In very rare circumstances, a child with significant SEN may work within a differing age phase. These arrangements will be made on a case by case basis in consultation with the SEND coordinator and parents.

6. Assessment and Monitoring

Formative assessment opportunities are built into every lesson. Teachers will be able to gather evidence from workbooks, deeper learning tasks and discussion within a lesson to judge whether they have understood new learning. This will help inform teachers whether they can move the learning on or need to spend more time on a particular concept.

Learning checks are completed at the end of each Red Rose unit of learning. These will take place at least a week after the unit has finished to allow teachers to assess whether the learning has 'stuck'. For Key Stage 2 classes, these checks will be done as a starter session of the maths lesson.

Termly Red Rose arithmetic and reasoning tests are completed from Years 3 to 6 as summative assessments. Year 2 will complete the end of year Red Rose assessment. Years 2, 3 and 4 are able to use kit boxes and equipment during these tests. The results of these tests are monitored by Senior Leadership Team.

At the end of Year 1, children are assessed through short practical tasks based on NCETM and DfE Ready to Progress materials.

Years 5 and 6 complete additional arithmetic tests and practice SATs throughout the year to prepare them for the end of Key Stage 2 tests.

Monitoring takes place by the Subject Leaders and Senior Leadership Team throughout the year. Monitoring includes: discussions with staff, pupil interviews, walk through etc.

Review and Development

The Mathematics Leaders will attend Lancashire courses including subject leader network meetings as appropriate. The school is also part of the Abacas NW NCETM Maths Hub. As part of this, the school receives tailored support by a Primary Mastery Specialist and CPD opportunities through workshops with other schools.

(L Parker)