William Austin Junior School

Policy for Mathematics

Rationale

This policy outlines the aims and organisation for the teaching and learning of mathematics at William Austin Junior School. The implementation of this policy is the responsibility of the whole teaching staff.

Aims

Our objectives in the teaching of mathematics are:

- to promote enjoyment of learning through practical activity, exploration and discussion;
- to promote confidence and competence with numbers and the number system;
- to develop the ability to solve problems through decision-making and reasoning in a range of contexts;
- to develop a practical understanding of the ways in which information is gathered and presented;
- to explore features of shape and space, and develop measuring skills in a range of contexts;
- to help children understand the importance of mathematics in everyday life;
- to develop the cross-curricular use of mathematics in other subjects

Mathematics at William Austin Junior School

The study of mathematics is an important and well-liked part of daily life at William Austin Junior School. Children have a maths lesson with their class teacher each day as well as regular timetabled sessions to practise and learn other important facts and skills such as their multiplication tables.

We aim to make the teaching and learning of maths as effective as it can be and staff receive regular in-house and external professional development opportunities to develop their practice. In the 2017/2018 and 2018/2019 academic years, we participated in a primary mathematics Teaching for Mastery Research Group led by one of the Enigma Maths Hub's Mastery Specialists. Working closely with a small group of schools we have sought to introduce and develop approaches to teaching for mastery as well as developing policies and structures that would allow this to happen. As a result of involvement in the work group we took the informed decision to follow the White Rose Maths schemes of learning to help address the three aims of the National Curriculum – **Fluency – Reasoning – Problem Solving.** Since then, we have continued to work closely with the Enigma Hub as part of the Sustaining Teaching for Mastery group to support teachers in the development of their practice.

Approach

Our approach to the teaching and learning of mathematics:

- **Whole class together** – at William Austin we aim to nurture a Growth Mind-set ethos. We have high expectations of all children and believe that by working hard they can succeed in maths. Challenge is provided through rich and sophisticated problems in order to achieve a greater depth of understanding. We also recognise that some children may need longer to grasp concepts and require careful scaffolding or extra time and support.
- **Longer and deeper** – Longer time is spent on each topic. Each lesson focuses on one key conceptual idea and connections are made across mathematical topics. By breaking the learning down into manageable steps children should understand the concepts better.

- **Key learning points** – Are identified during planning and a clear journey through the maths will be reflected in lessons. Questions will probe pupil understanding throughout and responses are expected in full sentences, using precise mathematical vocabulary. Stem sentences will be used to identify key learning points in all lessons.
- **Potential misconceptions** – Are identified during the planning process and used as opportunities for learning. Children are then supported through these.
- **Fluency** – We recognise that 'fluency' is not just about remembering facts and aim to develop all aspects of fluency through lessons. We are however focussing on developing instant recall of key facts, such as multiplication tables, which are taught and practised regularly. This will allow the children to have a free working memory to solve more complex problems.
- **Procedural Fluency –** Conceptual understanding and written methods are developed and applied in tandem by following the school calculation policy (White Rose Maths).
- **Develop reasoning and deep understanding** – Problems are usually set in real-life contexts with carefully chosen representations (manipulatives and images) used by all to explore concepts. The use of practical resources, pictorial representations and recording takes place during every concept following the Concrete Pictorial Abstract approach (CPA).
- **Questions** – to challenge thinking are used throughout every lesson to check understanding. A variety of questions are used to foster different levels of thinking e.g. How do you know? Can you prove it? Are you sure? Is that right? What's the same/different about? Can you explain that? Questions are also used to further challenge children who have grasped the concept.
- **Practising –** All children will have the use of a jotter that they can use to explore their ideas and strategies without fear of making a mistake. Children may record models, diagrams, thoughts and explanations during any part of the lesson.
- **Feedback –** Every child will receive feedback in the lesson, either individually or as part of whole-class discussion. Teachers aim to 'circulate' during the lesson so that misconceptions can be addressed and appropriate instant feedback given.
- **Marking –** the marking policy follows the NCETM guidance published in April 2016. Children's work is marked by the teacher daily. When a slip occurs, the teacher will indicate with a green highlighter and the child should independently correct the answer at the start of the next lesson. If an error demonstrates a lack of understanding, the teacher will take a different course of action, such as giving the child 1 to 1 support before the next lesson, or providing conferencing time with a TA. There is no need for a 'moving on' prompt, as the next stage in the child's learning will be the next lesson the most valuable feedback will be given immediately, during lessons.

Organisation

We teach Mathematics in line with National Curriculum expectations. White Rose Maths schemes of learning are used to ensure coverage across the course of the year.

There is a Mathematics lesson every day. In year 6 children have one additional lesson a week where they focus on arithmetic skills.

Children in year 3 will have a daily times table session where they learn and practise the multiplication tables and associated division facts with their teacher. We use the Times Tables Rock-Stars website to support the children in practising and learning their multiplication tables, both at home and in school. Children in years 3, 4, and 5 will have an additional 30-minute session, once a week, where they will review key facts that they have been practising for homework that week.

Each lesson will have:

- Retrieval practice to consolidate prior learning
- Class counting to develop an understanding of the number system and promote fluency

- A section where the teacher will introduce a problem (often in context) to the children. The teacher will model methods on the board, organise ideas, and introduce key vocabulary/stem sentences
- Reflection time during 'Guided Practice' where children practise skills, with talk partner – working through examples to move from concrete/pictorial to abstract
- Time to practise skills independently

Teaching and Learning Environment

In the National Curriculum, there are 3 aims central to everything within the Mathematics content. These are:

Reasoning – following a line of enquiry, conjecturing ideas, and developing an argument, justification or proof using mathematical language;

Fluency – being able to make connections and use what they know to find out what they don't know, so that pupils develop conceptual understanding;

Problem solving – applying their skills to a variety of problems, breaking them down into smaller steps in order to solve them.

Planning

We carry out planning in mathematics in three phases (long-term, medium-term and short-term).
Our medium-term mathematics plans, which come from the White Rose Maths Hub, are divided into blocks of different lengths - each block exploring a different area of mathematics. The guidance for each block details the main concepts to be taught and indicates models and images that may support the teaching. Each block is further broken down into small steps so that there is a clear journey through the concept. It is the responsibility of each individual teacher to plan and prepare the delivery (smart screen, resources etc) of each small step in the classroom.

Equal Opportunities

In all classes, children have a wide range of mathematical abilities. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies and in organising the children to work in pairs or groups on open-ended problems, activities or games. Some children who have specific individual needs have an IEP with objectives that are monitored and reviewed.

Assessment

We use various assessment methods and practices through which we ensure pupils are making appropriate progress and that the activities that they take part in are suitably matched to their ability and level of development.

- *Formative Assessment* – the ongoing marking of pupils' work carried out by teachers on a regular basis, as well as oral feedback in lessons.
- *Summative assessment* – In years 3 – 5, children complete NTS standardised tests once a term. The purpose of the tests is to identify any gaps in understanding to inform future planning, and to monitor the progress of different groups of children.
- *Assessment activities* –regular low stakes quizzes are used at the teachers' discretion to aid long term memory and identify gaps in understanding. Arithmetic practice is carried out regularly with pupils being made aware of their areas for development.
- *Self Assessment* – Pupils are given the chance to regularly self-assess against the learning intention and success criteria, giving them a sense of success. Teachers aim to mark work from the lessons in class so that children can make judgements about their level of success and reflect on any mistakes.
- *Statutory tests* - at the end of KS2 are undertaken by all pupils in Year 6 who meet the requirements. Throughout Year 6, regular SATs practice tests take place to indicate pupils' progress towards their targets as well as strengths and areas for development. In the summer term, year 4 children complete the statutory online multiplication check to measure their recall of tables facts.

- *Teacher Assessments* – Teachers use a host of assessment information to make 'professional predictions as to whether children will meet year group expectations by the end of the year. Teachers discuss these judgements with senior management each half term during pupil progress meetings.

Monitoring

The quality of teaching and learning in mathematics is monitored and evaluated as part of the school's agreed cycle of monitoring.

Monitoring of pupils' progress begins with pupil progress meetings but continues with the subject leader evaluating further evidence to ensure children are making progress. Achievement Leaders are responsible for monitoring the progress of mathematics across the year group. This monitoring happens through examination of work in books, pupil interviews, planning monitoring, analysis of assessment results and lesson observations. Local Authority monitoring of targets through ASPIRE meetings are used by the SMT and Subject Co-ordinator to monitor progress.

Learning at Home

We aim to consolidate and extend learning in the classroom by giving a piece of homework each week. Pupils also have access to the following subscription websites to promote a love of the subject and develop in confidence:

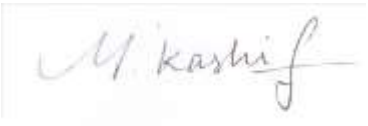
- My Maths
- Times Tables Rock-stars

This policy will be monitored and reviewed by the Maths Co-Ordinator on an annual basis.

Policy updated: January 2023

Staff responsible: Andrew McMulkin

This policy was ratified by the Governing body/Local Authority on: 8th February 2023



Signed on behalf of the Governing Body: (signature)

M. Kashif - Chair of Governors

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