LOUDWATER COMBINED SCHOOL
Mathematics Policy

This policy should be read alongside the new National Curriculum (published September 2013), our Calculation Policies and our Marking and Feedback Policy.

What is the purpose of this policy?

To outline the teaching, organisation and management of the mathematics taught at Loudwater Combined School.

What are the aims of this policy?

To provide a clear overview of mathematics provision within the school.
To provide a consistent approach to mathematics teaching across the school.

What are the aims of our mathematics teaching?

The Purpose of Study outlined in the National Curriculum lies at the heart of our mathematics teaching:

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.

The aims of the National Curriculum are outlined below and are embedded in our daily teaching. We aim 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 develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **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.

To this end, we aim to develop:

- a positive attitude towards mathematics and an awareness of the fascination of mathematics.
- competence and confidence in mathematical knowledge, concepts and skills.
- an ability to solve problems, to reason, to think logically and to work systematically and accurately.
- initiative and an ability to work both independently and in cooperation with others.
- an ability to communicate mathematics.
- an ability to use and apply mathematics across the curriculum and in real life.
- an understanding of mathematics through a process of enquiry and experimentation.

What is the content of mathematics our maths teaching?

Teaching is based on the objectives set out in the National Curriculum. These objectives cover number and place value; addition and subtraction, multiplication and division, fractions, decimals and percentages; ratio and proportion; measurement; properties of shapes, position and direction; statistics and algebra.

Teachers in Years 1-6 use the Rising Stars scheme as the basis for their teaching. We also use a range of materials to enhance and extend the learning which includes materials published by the White Rose Maths Hub and NCETM (National Centre for Excellence in Teaching Mathematics). These provide a structure for the objectives taught in each term.

Calculations are taught in accordance with our Calculation Policies in order to ensure consistency across the school.

How long do we spend on mathematics teaching?

In the Foundation Stage mathematics takes place throughout the whole curriculum and therefore it is very difficult to specify a time.
In KS1 we teach at least 5 sessions of mathematics per week.
In KS2 we spend 5 hours per week teaching mathematics.
Teachers also look for as many other opportunities as possible to practise mathematical skills. This could be through additional short sessions where fluency can be developed, or by building opportunities for maths into other areas of the curriculum.

How is mathematics taught?

Our teaching in maths progresses through the use of concrete representations to pictorial representation to the abstract. This has been seen to be a highly effective approach to learning that develops a deep and sustainable understanding of maths.

Concrete

Children have opportunities to use concrete objects and manipulatives to help them understand what they are doing in maths.

Pictorial

Pupils build on the concrete approach by using pictorial representations these can then be used to support their problem solving

Abstract

When the foundations of understanding are firmly laid, pupils are then able to move to an abstract approach using numbers and key concepts with confidence.

Mathematics lessons are delivered as units of work that will cover a number of different objectives and areas of maths. Through careful planning and preparation we aim to ensure that throughout the school children are given opportunities for:

- mental mathematics;
- practical activities and mathematical games;
- problem solving and applying;
- opportunities to use mathematical skills in ‘real life’ situations;
- individual, group and whole class discussions and activities;
- a range of methods of calculating e.g. mental, pencil and paper and using a calculator;
- working with computers as a mathematical tool.

How do we ensure that all children have access to the mathematics curriculum?

We believe that all children should experience success in mathematics regardless of race, gender or ability. More able pupils are taught with their class and are stretched through differentiated group work and extra challenges. Less able pupils are also taught with their own class and their needs are catered for through differentiation. Individualised intervention programmes are available for those children who would benefit from them. Some pupils with specific needs may have mathematics targets as part of their provision maps.

How are mathematics resources organised?

Each classroom has a large variety of resources that are available for children to use to support their learning. These resources are kept in boxes where they can be accessed by both children and adults. Children are encouraged to help themselves to resources if they feel they would be useful. Resources are audited at the end of each academic year and replaced as necessary. There are some additional resources related to specific topics such as capacity or mass and are stored centrally in labelled boxes in the Resources Room.

How do we assess mathematics?

Assessment for learning is an integral part of each lesson to check children's knowledge and understanding. Future lessons are then adjusted to reflect this.
A variety of strategies are used to ensure that teachers have a clear understanding of each child's ideas:

- Success criteria are shared with the children every lesson. When appropriate the children may devise the success criteria with the teacher.
- Post-it notes are used for children to record their ideas and predictions.
- Opportunities are given for children to express their ideas orally and in writing. This gives teachers (and children) a chance to clarify ideas and correct any misconceptions.
- At times, homework is set which requires children to explain their learning to somebody at home.
- Active Assessment strategies are used, such as concept cartoons, in order to encourage children to share and justify their mathematical thinking.
- Learning through errors and misconceptions is integrated into lessons. A supportive environment that encourages the sharing of mistakes as an opportunity for learning is evident in all classes.
- Children self-assess their learning at the end of teach lesson by evaluating their progress towards the success criteria and completing their feedback 5 score

Marking of work is an essential part of the assessment process. It can be useful to provide constructive feedback to children, focusing on success and improvement needs against learning intentions. This enables children to become reflective learners and helps them to close the gap between what they can currently do and what we would like them to be able to do. There are clear expectations for how work should be marked in mathematics:

- Children are encouraged to mark their own work, or their peers' work, as often as possible. This ensures that the teacher's focus when marking is on providing constructive feedback.
- In upper KS2, children are asked to provide a comment about their learning. This provides an opportunity to reflect on their learning.

- If teachers write comments, these will be a response to the child's own ideas, and could also provide a focused suggestion which should help the child to 'close the gap' between what they have achieved and what they could have achieved.
- Stamps are used to show the children whether they have achieved the learning objective or whether they are working towards the learning objective.
- A red "Brilliant" stamp is used to show that the child has achieved the learning objective and has exceeded expectations in that particular lesson.
- Teachers make notes on the distance marking sheet to highlight any pupils who will require additional support in the next lesson.
- The symbol "S" used to show if a piece of work has been done with the support of a teacher or teaching assistant.
- The symbol VF means that verbal feedback has been given to the child.

Marking should generally take place after each lesson. Often, the teacher will simply use this time to assess which children have not yet met the learning intention. They will then plan support for the next lesson which addresses these needs. If this is the case, then detailed written comments are not necessary.

Children complete assessment tests on a half-termly basis and these are used to inform teacher assessments. Teacher assessments are recorded using Target Tracker and are updated on a half-termly basis.

How do we keep parents informed of their children's progress?

At the end of each year parents receive an annual report which details children's progress in mathematics and an indication of whether the child is achieving at, above or below for their year group. Parent evenings are held three times a year when achievement and progress can be discussed in more detail. Teachers will talk to parents if they have any concerns about a child's progress in mathematics throughout the year.

How do we monitor our mathematics teaching?

Mathematics is monitored every year in a number of ways:

- Planning is monitored on a regular basis.
- Lesson drop ins are carried out on a regular basis.
- There are termly lesson observations which will at certain times of the year focus on maths.
- A scrutiny of a sample of books from each class is carried out each term.
- Data about children's performance in tests is analysed each half term and this information is used to inform future planning and provision.
- We are currently reviewing the impact of our new maths scheme.

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To be reviewed within 2 years.