

Pinewood Infant School and Foundation Unit

Mathematics Policy

SCHOOL AIM

To make learning irresistible.

VISION STATEMENT

Together we give children the roots to grow and the wings to fly.

Introduction

We aim to help children to develop a positive attitude towards Mathematics with a 'can do' attitude and a confidence to use mathematics to solve problems and explain their processes and thinking. We recognise that mathematics is a core subject within the national curriculum and deliver our teaching encompassing fluency, problem solving and reasoning. We believe all children can learn the mathematical skills they require to solve calculations and problems in daily life. Children's knowledge, skills and understanding in mathematics develop as they use it in practical activities, to solve relevant and meaningful problems and explore the patterns and relationships between numbers. Learning to talk about mathematics and explain our thinking, ideas and methods is an important aspect of learning to understand and use mathematics to tackle problems. Developing the ability and confidence to use mathematics in this way enables other important qualities such as perseverance, resilience, self-belief, a positive attitude to challenges and team working skills.

Aims

At Pinewood we aim to:

- Raise standards throughout the school.
- Encourage positive attitudes and enjoyment of mathematics and develop the children's understanding of its relevance for life.
- Improve children's knowledge, skills and understanding in using and applying numbers, measures, shape and space and data handling.
- Develop children's skills in fluency and mental calculation.
- Teach children the skills they require for problem solving and mathematical reasoning.
- Give all pupils equal opportunity to experience all areas of the Mathematics Curriculum using the mastery approach.
- Encourage children to develop the ability to choose methods and strategies to solve problems.

Curriculum

At Key Stage 1 Mathematics in the National Curriculum is broken down into the following areas which are taught over each year

- Number – number and place value
- Number – addition and subtraction
- Number – multiplication and division

- Number – fractions
- Measurement
- Geometry – properties of shape
- Geometry – position and direction
- Statistics

In the Foundation Stage it is split into the following 2 areas which are part of children's daily experiences/learning through play and taught sessions

- Numbers
- Numerical patterns

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

- Become **fluent** in the basic skills of mathematics, such as number bonds, times tables and mental calculations.
- **Reason mathematically** by following a line of enquiry, understanding relationships, patterns and generalisations, and explaining their thinking using mathematical language.
- Can **solve problems** by applying their mathematics to a variety of problems with increasing confidence, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Time Allocation of Learning and Teaching at Key Stage 1

- There is a Mathematics lesson each day in Yr1/Y2 classes. In Foundation all children have daily taught maths sessions as well as maths activities set up in their continuous provision both indoors and outdoors.
- A range of teaching and learning strategies including maths talk, direct teaching with guided practise followed up by explanations and independent practise.
- There are opportunities for children to practise mental skills including counting, rapid recall, newly learned facts and calculation strategies.
- Children are also given opportunities for: practical activities, using a range of hands-on resources and representations, fluency tasks, reasoning, mathematical investigations, problem solving and mind workouts.
- There is a strong emphasis on mental calculation, encouraging the children where possible to solve problems mentally and use the mathematical language they have been taught and which is displayed around the classrooms.
- There is a designated section of the maths lesson called maths talk where children are encouraged to respond to a problem or question and talk to a partner about it. They then feedback their responses, explanations and reasoning with the rest of the class.
- Children's recording of work varies between year groups. The younger children are expected to record less than the older children. Mostly informal recordings are used, but become more formal as the children reach a certain level where written methods are needed to help them to work out problems.
- We provide opportunities for children to solve problems, see patterns, make predictions, present information clearly and interpret data.
- We provide opportunities for children to give oral explanations of their strategies and methods.

- We try and link their mathematics work to other curriculum areas, and provide realistic situations wherever possible.

Teaching for Mastery

As a school we took part in the 2 year Teaching for Mastery Program (2018-2020) supporting our aim to give all pupils an equal opportunity to experience all areas of the mathematics curriculum using the mastery approach. This developed the way we teach maths across school.

The key principles of mastery teaching in maths are:

- Spending longer on a concept so that learning can go deeper.
- Whole class is taught the same small step, the next step is for everyone. Children work in mixed ability pairs.
- Carefully crafted lessons consider misconceptions children may have as well as contexts for their learning.
- CPA (Concrete, Pictorial, Abstract) is at the heart of the teaching and learning and manipulatives are used to introduce new concepts to all children.
- Maths talk including reasoning, use of stem sentences and a focus in key vocabulary will be evident.
- Children's learning is scaffolded and challenged through questioning, outcome, use of resources, intervention, going deeper and mind workout challenges. Children will not be accelerated into another year's curriculum content but will have opportunities to apply their learning through problems solving and reasoning.
- Connections between areas of maths are explicit and the curriculum overview reflects this.

Planning & Assessment

- Key Stage 1 teachers follow the White Rose Scheme for the planning of Maths.
- Our medium term planning takes the 2 or 3 units for the 1/2 term and shows how long each unit will last and they are broken down into weekly and/or daily sessions.
- Our short term planning involves the use of weekly timetables where teaching objectives are set out for each day along with the activities needed to achieve these objectives.
- Assessment is ongoing and teachers keep their own records of each child's progress.
- End of unit or term assessments show whether children are attaining age related expectations in the work they have learnt during that unit/term. Questions are presented in a range of ways and questions that require a depth of understanding are also used. Children's attainment and progress is monitored against the 'Knowledge Progression Overviews'.

- In Year 2, a past SATS assessment is also taken halfway through the year to assess progress.
- Children in Year 2 undertake Mathematics SATs in May each year. During these end of Key Stage assessment tests, special arrangements are used to support individual pupils with special educational needs. The levels they achieve are :
 - PKS (not yet working at age related expectations)
 - WTS (children are meeting several age related expectations but there are still gaps in their understanding and knowledge)
 - EXP (meeting age related expectations)
 - GDS (makes links, connections and can apply what they have learnt to more complex questions/problems and shows a deeper understanding)

These stages will then be reported to parents in the end of year reports.

Marking and responding to pupil's work

As the class broadly work together, next steps will not usually be indicated as all children will be taught the step in the next lesson.

Work should indicate whether it has been completed:

- I – independently
- WS – with support
- WLS – with little support
- P/G – as a pair or group

A green, orange stamp indicates whether the objective has been achieved, partially achieved or not achieved. As children move through school they are encouraged to self-assess their work by drawing a traffic light circle next to the learning objective with green representing objective achieved, orange – partly achieved and red – needing more support. Children are given opportunities to complete some corrections using a purple pen to show where support has been needed and progress has been made.

Equal opportunities

Our School ensures that all children cover the statutory content of the programmes of study within the national curriculum. Children access the appropriate level and are provided with suitable resources and learning environments to enable children to access the learning required.

- Support staff undertake activities as directed by the teaching staff.
- Children with SEND may undertake activities centred around the development of vocabulary, sufficient repetition and reinforcement, small steps and practical work in a meaningful context.
- GDS children are challenged by using investigations, open ended questions, and appropriate extension work as deemed relevant.
- Positive attitudes are encouraged in both boys and girls towards mathematics. It is hoped they will develop an enjoyment of the subject and see it is relevant and meaningful.

Special educational needs

- All children have full access to Mathematics sessions. Any additional support that is required will take place, either during the independent part of the session or at another time in the day.
- Activities are differentiated for children to build up and extend their learning.
- Teaching assistants are used to support targeted children either individually or on a group basis.
- Parents are kept informed and encouraged to assist in helping their child.

Monitoring and Evaluation

- Mathematics teaching is monitored through the year with observations by the Head/ Maths Lead Teacher.
- School tracking statistics are analysed termly and any areas for concern are addressed.
- We moderate across year groups and with other schools to ensure our judgements are accurate and consistent.
- Monitoring of planning
- Children's book scrutiny

Role of the Mathematics Lead Teacher

The lead Teacher along with the Head Teacher will;

- Set targets for the end of Key Stage 1 alongside the class teachers.
- Have a clear understanding of the school's performance against the national picture and take action about trends in data
- To support staff and help to build their confidence in teaching the subject.
- Monitor the teaching of mathematics and assessment through lesson observations and work scrutiny.
- Keep up-to-date with subject developments.
- To act as a Mathematics consultant sharing ideas about activities and skills and Cascade training back to staff in staff meetings.
- To create an annual action plan
- Audit resources and purchase where necessary.

Role of Governors

Governors are informed about standards in Mathematics, the interventions we provide and about the targets we set.

The Role of the Head Teacher

- The Head Teacher ensures that there is a whole school approach and keeps Governors, staff and parents well informed.
- The Head Teacher discusses with the Mathematics Lead Teacher what needs to be done and provides the necessary support and resources.
- The Head Teacher and Lead teacher use assessment and other data to set statutory and school targets.
- The Head Teacher and Lead teacher monitor the quality of teaching through observations and discussions.

Partnership with Parents

We aim to:-

- Keep parents informed about children's progress including what they are good at and what they need to do to improve.

Review

The Head teacher and staff will review this policy annually to take into account changes within the teaching of mathematics.

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