The Orchard Vision: *Inspiring Success*

Values: *Determination, Courage, Respect*

# The Orchard Mathematics Policy

# 2021

## 1. Aims

We aim to provide a rich and challenging mathematical environment whereby all the children:

- Master their learning with secure knowledge and confidence
- Meet the end of year expectations
- Are competent and confident in taking risks to apply mathematical knowledge, concepts and skills and vocabulary.
- Are fluent in appropriate number knowledge and can apply these to different contexts, making links across the Maths curriculum.
- Are able to use and apply their mathematical knowledge to solve problems, reason and think logically and systematically in a range of contexts
- Are able to work independently and in cooperation with others when undertaking investigative work and real problem solving.
- Work in a systematic way: thinking clearly, making links, developing strategies, reflecting and checking.
- See mathematics as an essential element of communication and are confident in their use of mathematical vocabulary.

## 2. Coverage

The Orchard school follows the EYFS and New National Curriculum and Programmes of Study of Maths (July 2020) We use the NCETM spines and the "GLF" scheme to implement these in very carefully planned micro steps. This is supplemented by the White Rose scheme.

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 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 nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

The programmes of study for mathematics are set out year-by-year. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study. Pupils are expected to have acquired all the skills, knowledge and concepts securely as outlined in the Key Stage 1 Programme of Study by the end of each key stage.

- Number & Place Value
- Addition & Subtraction
- Multiplication & Division
- Fractions
- Measurement
- Geometry
- Statistics

**Approach**

Mathematics forms an integral part of the curriculum. Children have dedicated maths lessons every day, which build upon their prior knowledge and experience. Links are made to other curriculum areas where this is relevant and meaningful. Lessons are planned using microscopic steps with practise, repetition, reasoning and problem solving integrated within this. Teachers also provide opportunities for mathematical exploration outside the dedicated maths lessons, for example from analysing science data to using calculations in everyday tasks. Concrete resources are always used to expose Mathematical concepts and to support and enhance the learning. Reasoning and problem-solving situations are all integrated within lessons.

a) Key Stage 1

Daily mathematics lessons now follow the Teaching for Mastery in Maths approach. All concepts are taught with planned microscopic steps, using the concrete-pictoral-abstract method. The lesson consists of teacher-led input, opportunities for learning and practising new skills, ( which may be in groups, pairs or as individuals), whole-class interactive activities, time for reflection and discussion, and time to think about next steps. There is an emphasis on Number and Place value and using recall of facts and strategies. Children are encouraged to use fluent recall of number facts and calculations and to identify patterns. The whole class progress together so all children are challenged and able to access all types of activities. Children are in mixed ability groups with an emphasis on achieving deep understanding of a concept before moving on to the next area of learning. Teachers and LSA's model the mathematics, provide carefully chosen resources, question and challenge the children. In all lessons there are opportunities for independent learning when Teachers and LSA staff will identify and correct any misconceptions.

b) Early Years Foundation Stage

Children in reception have a wide variety of experiences and learning opportunities in mathematics, which are all underpinned by the characteristics of effective learning: playing and exploring, active learning and creating and thinking critically. children move around these bays to ensure varied and balanced exposure to all learning opportunities. Children develop their mathematical skills and understanding through the following ways:

- Discreet daily maths session (about 10-15 mins) as a whole class – these are interactive and fun, often incorporating number rhymes or songs, interactive ICT games, KIRF practise or physical and mental challenges.

- Weekly group maths session (about 20 minutes) these are based on the key skill being developed and offer an opportunity for teachers to ask in depth questions based around an interactive and practical activity.

- Self-initiated learning time, in which children may choose different mathematical activities indoor or in the outdoor area. This allows time for reinforcing, practising and applying new skills or ideas, through play and active learning. Children can access the materials they have been introduced to in the maths bay, or can explore a wide range of accessible resources such as sand and water trays, construction, laptops, games, and a host of other practical activities.
- Songs, stories, games, puppets, visual displays – these are all integral in everyday tasks in Reception and are often used throughout the day to reinforce numbers or mathematical concepts.

## 3. Planning and Assessment

Class teachers are responsible for planning how the maths curriculum is delivered, with guidance from the Subject Leader and Head of Year Group, and within the context of the whole school framework. The school now follows the GLF programme based on NCETM for KS1. This is supplemented by White Rose. Early Years follow planning based on Mastery in the Early Years, supplemented by White Rose and adhering to the EYFS framework. Teachers use medium term plans to ensure balanced curriculum coverage, but constantly use formative assessments to refine weekly and daily plans to meet the children's needs. Assessments – through observation, discussion, asking questions, looking at children's work – ensure that planning can be targeted carefully according to the children's needs. Teachers also provide continuous verbal and written feedback for children, correcting misconceptions and encouraging them to know their own next steps and reflect on their own learning.

Each term we assess and record children's attainment, establishing whether each child is "on track" to meet the end of year "Age related expectations" or is "working towards expectations" or is working within expectations "at greater depth". In the Early Years we record progress and attainment in relation to the Early Learning Goals and Development Matters age bands. This data is shared with the Year group Team leader, Head Teacher and Maths Subject Leader who analyse trends, areas for improvement and determine any actions required to support further improvement. Once each half term children who are not "on track" are identified for additional support through half termly pupil progress meetings.

Parents are informed of children's progress in mathematics through:

1. Sharing data and next steps once each term at parent consultation meetings.
2. Weekly maths race results and certificates.
3. Informal discussions throughout the term if any difficulty is identified or if a concern is raised
4. Annual report

## 4. Monitoring and Evaluation

Progress and achievement in maths is moderated regularly in year group and whole-school meetings. Samples of work are subject to 'blind' moderation by all teachers to ensure consistency and accuracy of assessments. Teachers are observed teaching by the Head Teacher and Subject Leader, and feedback given to ensure consistently high standards. Learning walks, lesson observations, planning and book scrutinies take place throughout the year to ensure consistency of teaching and learning across the school. The Subject Leader takes responsibility for gathering and analysing data and working with the Head Teacher to plan next steps, and implementing a Curriculum Action Plan.

## 5. Resources

Every classroom has a standard set of maths resources, including counting equipment, number lines and squares, rulers, number cards, number fans, Diennes, money, 2D shapes, multilink, dominoes, dice etc. All our resources are

based on NCETM guidance as can be seen in the Calculation Policy. All resources are openly available to the children in Reception and presented in an accessible, stimulating way. In KS1 resources are specifically chosen for a particular teaching point and directed in their use. Children then grow confident in using the particular resources and can apply their understanding to different concepts as the year goes on. Children are encouraged to take care of resources and be responsible for selecting, using and putting away any apparatus they need. Children are encouraged to use resources throughout their lessons, not just within the initial teaching. Manipulatives are used to expose the mathematical structure and the way the children use them provides essential immediate assessment information to the teacher about individual understanding.

Extra resources such as scales, large 3D shapes, clocks etc are kept within a central resource area within the school for teachers to borrow according to when they need them.

Classes have a Maths Learning wall. This has clear, relevant vocabulary which is reflected in its use in the classroom by staff and children. The learning wall also displays relevant visual prompts and guides to encourage independence.

**ICT**

Pupils have access to 'Mathletics' through their own username and password. 'Mathletics' is a web-based learning program that integrates home and school learning via the internet. This gives children access to a variety of mathematical games, resources and activities. 'Mathletics' is at times used within class and tasks are set as homework. 'Mathletic achievements' are celebrated with certificates.

## 6. SEND

Mastery ensures each lesson is planned with micros steps which enable most children to achieve in each lesson. Children who are struggling with a particular concept during a lesson are identified and supported during Maths the lesson. At times they will have a small intervention to ensure that a small step is understood before the next lesson.

If children have specific learning difficulties or gaps have been identified within maths, or if they are not making satisfactory progress, teachers identify suitable interventions for support. These may include access to particular apparatus or learning aids, targeted small group work or sometimes short sessions of group or 1:1 support, outside of the Maths lesson. Teachers liaise with the SENCo to decide on the most appropriate action. Some children may require an Individual Support Plan (ISP) either specifically for maths or for an area that affects their general learning/achievement and encompasses maths skills. ISPs are written by the class teacher in liaison with the SENCo and with parents.

## 7. EAL

Provision for children with EAL is made according to individual need, but children are given access to the same input and mathematical vocabulary as their peers. Teachers use visual prompts and signals as children learn the language, to support their understanding. Pre teaching of vocabulary and mathematics lesson material is carried out when required.

## 8. Equal opportunities

Each child's progress and achievement is regularly monitored to ensure that individual needs are being met. Resources are selected to promote equal opportunity, whether in supporting children with specific needs or promoting positive images of minority groups. The data for maths achievement and progress is analysed according

to gender and age within year group, and any trends or notable cases highlighted so appropriate action can be taken.

Updated May 2021