Edale Rise Primary and Nursery School Maths Policy

Aims and Objectives

Mathematics teaches children how to make sense of the world through developing a child's ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives.

At Edale Rise we aim to:

- promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion along with independent, theoretical learning
- promote confidence and competence with numbers and the number system
- ensure children are capable of calculating efficiently and with fluency
- develop the ability to solve problems through decision making and reasoning and using both mental and written methods
- develop a practical understanding of the ways in which information is gathered and presented
- explore features of shape and space and develop measuring skills
- understand the importance of maths in everyday life through cross curricular learning opportunities

Fundamentals of Mastery Teaching in Mathematics at Edale Rise

This is a brief summary of the fundamentals of mastery teaching in mathematics. Staff have been trained in these principles and are confident in implementing them in their teaching sequences.

The Use of Varied Representations

Staff consider carefully the representations they use when teaching a concept. They consider carefully what has been used before and make explicit the links between representations. For example, when children are ordering fractions in Year 6, teachers make explicit links between fractions walls, which are used in Years 3, 4 and 5, to other more abstract representations such as number lines.

The C-P-A Approach

Staff are aware of the importance of manipulatives in mathematics. Staff are aware that children of all attainment bands should have access to relevant manipulatives to aid their learning. Staff also make explicit links between concrete, pictorial and abstract representations when teaching concepts. It is understood that working in the abstract is the ultimate goal for the child, but the C-P-A approach is not a linear model.

Questioning & Feedback

At all points during the teaching sequence, teachers will be asking children a range of questions to assess understanding and then to adapt instruction from this feedback. Teachers use a range of techniques to involve the whole class in responding.

These include

1. Tell your talking partner / Solve with your partner
2. Summarise the main idea and share with your partner
3. Write the answer on a whiteboard and then hold it up
4. Raise their hand if they know the answer
5. Raise their hand if they agree with an answer
6. Class choral response

Feedback & Adaptive Instruction

Teachers monitor learning closely both within lessons and when analysing the children's work post-lesson. Teachers adapt their instruction based on this feedback. Within lessons, teachers may choose to re-teach material to the whole class or to groups/individuals if they feel there has been a misunderstanding.

Maths in the Early Years Foundation Stage

The Early Years Foundation Stage follow a mastery approach to maths using the NCETM progression maps for the 4c's, Numberblocks (Cbeebies) and 'White Rose Maths' (Reception only). Maths instruction follows a 'revise, teach, practice, apply' structure (Rosenshine's principle of instruction) and the use of concrete-pictorial-abstract approaches.

In Nursery, the children are taught discreet maths sessions 3 times a week. The children engage with maths in meaningful contexts such as using number rhymes, role play and everyday life scenarios. Children are taught key mathematical vocabulary and experience early problem solving skills in the following areas;

Number

Counting and cardinality; children develop skills in rote counting, 1:1 correspondence (including physical actions), knowing the last number said is how many in a set, early subitising, early numeral recognition and matching to small quantities, conservation of number; knowing that items can be arranged in different ways but the total remains the same.

Comparison – Experience of comparing groups of objects and using language of *more* and *fewer* to compare them. They begin to build an understanding of the relationship between numbers.

Pattern

Children develop the skills they need to be able to read simple AB patterns, spot errors in AB patterns, continue them and begin to create their own. Children will explore the concepts learned through play such as in creative activities, creating musical patterns, body percussion patterns etc.

Shape, Space and Measure

Children are explicitly taught vocabulary to describe the properties of 2D shapes and the size of objects. Links with the world around them and everyday life uses of shape and measure are taught. This is then practiced by the children in playful contexts such as using construction, box modelling, measuring photo frames, sand and water play and using playdough.

In Reception, children are taught daily discreet maths sessions. They focus on a number for 2 weeks and explore the 4c's of *Counting and cardinality*, *comparison*, *composition* and *change* in-depth. There is a large focus on children exploring a variety of representations of number and developing fluency in subitising and using manipulatives. *Cbeebies Numberblocks* is used as a teaching resource (endorsed by the NCETM) to support children's understanding of number. Children will continue to build on the skills learned in nursery for pattern and shape, space and measures using the NCETM progression maps and Early Years Development Matters outcomes. Children engage in a focus activity each week which will explore an aspect of the 4c's or shape, space and measures outcomes that has been taught discreetly, allowing children to revisit and have guided and independent practice of that particular concept in a small group.

The Early Years learning environment is carefully planned to provide continuous provision that supports children in exploring mathematical concepts such as the 4c's independently. Resources are varied and capture children's mathematical interests and explorations. Staff skillfully support play through sustained shared thinking to develop mathematical thinking through play.

Key Stage 1 and 2 Planning

The Primary Curriculum 2014 document is the starting point for all our planning. Teachers use a variety of resources to plan work relating to objectives, which support children in achieving end-of-year expectations in Number and Calculation, Fractions, Geometry and Measures (including Ratio and Proportion and Statistics in Upper KS2). Teachers use the White Rose Medium Term Planning Document and other resources such as I See Reasoning, NCTEM and Maths No Problem.

All teachers plan lessons using the maths mastery approach, which clearly identifies the National Curriculum objectives to be covered, what the potential barriers to learning are and how these are going to be addressed in the

lesson. In addition to the daily maths lesson, each class has a daily 15 minute Mathics (KS1) or arithmetic (KS2) session to focus on fluency in number.

Maths Mastery Teaching Sequence - Edale Rise Primary and Nursery School

Teachers use this guide in year 1 to 6 to structure their teaching sequences for maths. 'Maths No Problem' 'White Rose Maths' and the 'Rosenshine Principles of Instruction' have been used to develop this model.

	**Review** A quick review is used to strengthen the connections between today's learning and previous learning. This alleviates the burden on the child's working memory when engaging with new material and leads to greater automaticity. The 'review' could take place during morning register as the DO NOW activity.
	**In Focus** The 'In Focus' task is used to hook children in. The task should have a low-threshold and high ceiling to allow for children of all attainment bands to interact with it. At this stage in the sequence, children should be in mixed attainment pairs. There should be an element of reasoning incorporated to encourage discussion, which could be as simple as a 'convince me' element.
	**Let's Learn** The teacher uses whatever methods they deem the most appropriate to teach the concept. At Edale Rise, teachers are aware of and consider carefully the 'Fundamentals of Mastery Teaching' outlined on the reverse of this document.
	**Guided Practice** The teacher provides a range of questions for children to try under the guidance of the teacher. The teacher should model examples and encourage pupil participation. Children should attempt a range of questions including lots of varied fluency but also reasoning and problem solving questions. Teachers should intervene if children appear to be struggling and re-teach material if required.
	**Independent Practice** Once children have demonstrated competence with an objective, they are given the opportunity to practise the concept being taught independently. Teachers should provide children with a range of questions to allow for effective assessment. Teachers should tour the room intervening as necessary. It may be appropriate for some children to work in pairs.
	**Deepening** Each teaching sequence should have a deepening task. This task is for those children who demonstrate competence in the objective being taught early on in the teaching sequence and when it is clear further instruction is not required for them to complete the independent practice effectively. There is no expectation that all children will attempt the deepening task
	**Use and Apply** This is the plenary of the sequence and is used for teachers to assess the understanding in their class. A hinge-point question is provided and children should attempt to answer this question independently.

Teaching and Learning is monitored by Phase leaders and the Maths Subject Leader termly to ensure a breadth of coverage and consistency of approach. Individual and generic feedback is given and where appropriate, support and guidance provided.

Governors

Governors receive reports on teaching and learning priorities linked to the School Development Plan each term, including maths. Where Maths is a key priority, governors will be involved in monitoring which may involve learning walks, pupil voice and work scrutinies.

Assessment and Recording

Teachers assess children's understanding by using the school's marking and feedback policy (see separate policy). Feedback sheets are filled in to help support and challenge children that need it. At the end of every term, children in Key Stage 1 and 2 complete a standardised test. Teachers and support staff also collect evidence throughout the year to support judgements by using evidence in books. The children's individual assessment tracker records are completed termly and monitored by the Maths Leader and members of the SLT.

Progress is monitored termly by the Head Teacher, Assessment Lead and Class Teacher at pupil progress meetings and by the Inclusion Lead at Class Conferences. Children are targeted accordingly and may be given small group intervention work with a Teacher or TA if necessary. Teachers are expected to provide opportunities for all learners to make good progress within lessons.

Resources

Resources are audited each year by the maths coordinator and updated accordingly. Each class has an extensive set of resources to use in lessons. Teachers have access to a range of manipulatives to enhance their Maths teaching including: Cuisenaire rods, Numicon, 10s frames, double-sided counters. Children are encouraged to use these independently in lessons to help them with their learning.

Monitoring and Review

Monitoring of the standards of children's work and the quality of teaching in maths is the responsibility of the maths Subject Leader and the Senior Leadership Team. Work sampling is carried out termly with all staff and feedback is given by the Maths Subject Leader who also monitors Teaching and Learning termly and feeds back to the Leadership Team. The work of the Maths Subject Leader also involves supporting colleagues in the teaching of Maths, being informed about current development in the subject and providing a strategic lead and direction for the subject in the school.

Date of next review: January 2022