



Work Together

Love to Learn

Reach for the Stars!

NEWPORT PRIMARY SCHOOL

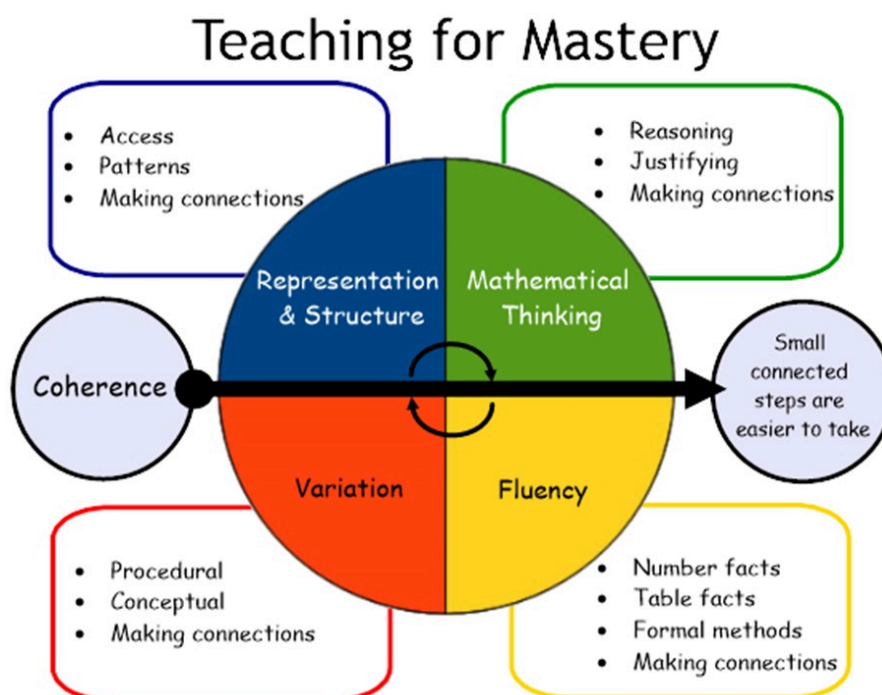
MATHEMATICS POLICY

Introduction

This policy should be read in conjunction with the following school policies:

1. White Rose Calculation Policy
2. Assessment Policy
3. Marking Policy
4. SEND Policy
5. Equality Policy

Teaching for Mastery



FLUENCY INVOLVES:

1. Quick recall of facts and procedures
2. The flexibility and fluidity to move between different contexts and representations of mathematics.
3. The ability to recognise relationships and make connections in mathematics

REPRESENTATION & STRUCTURE

Mathematical structures are the key patterns and generalisations that underpin sets of numbers – they are the laws and relationships that we want children to

spot. Using different representations can help children to 'see' these laws and relationships.

VARIATION

1. Procedural variation – This is a deliberate change in the type of examples used and questions set, to draw attention to certain features.
2. Conceptual variation – When a concept is presented in different ways, to show what a concept is, in all of its different forms

MATHEMATICAL THINKING INVOLVES:

1. Looking for pattern and relationships
2. Logical Reasoning
3. Making Connections

COHERENCE

1. Teachers should develop detailed knowledge of the curriculum in order to break the mathematics down into small steps to develop mastery and address all aspects in a logical progression. This will ensure deep and sustainable learning for all pupils.
2. As a result of teaching and learning in mathematics, our aim is that pupils will be able to meet the key aims of the National Curriculum for maths.
3. In our school we aim to promote children's curiosity and enable them to safely take risks and learn from first hand experience wherever necessary
4. Our primary focus is to support the children to become fluent in mathematical understanding from the most basic level so that they can build upon their own understanding.
5. We aim to enable our children to develop conceptual understanding, recall of number facts and patterns and apply their knowledge rapidly and accurately.
6. We aim to promote children's ability to reason through opportunities to discuss their thinking and understanding. This emphasis may result in less written work but much deeper understanding.
7. We promote problem solving and solution finding. This is not only true in mathematical learning but in almost all aspects of school life.



8. We aim to support children to make progress at their own pace. Often misconceptions cause greater difficulties at a later stage of learning. We will promote smaller group learning opportunities whenever possible and encourage children to revisit their thinking to ensure they feel secure in their understanding and able to move confidently on to next steps and challenges.

EYFS

Mathematics within the EYFS is developed through purposeful, play-based experiences and will be represented throughout the indoor and outdoor provision. The learning will be based on pupil's interests and current themes and will focus on the expectations from Development Matters / Early Years Outcomes. Mathematical understanding can be developed through stories, songs, games, imaginative play, child initiated learning and structured teaching. As pupils progress, they will be encouraged to record their mathematical thinking in a more formal way. As children become more confident with different concepts, they will be assigned maths tasks on Mathletics as well as using other technological apps on our iPads.

Key Stage 1 Maths

The principal focus of mathematics teaching in Key Stage 1 is to ensure pupils develop confidence and mental fluency. The essential idea behind the mastery approach is that all children have a deep understanding so that future learning continues to build on solid foundations. If the subject is represented using concrete materials, pictorial representations and abstract symbols (CPA), it will allow children to visualise maths in varied ways, see connections and to independently explore and investigate a topic. Practical activities and resources offer the children a deeper mathematical understanding of more complex concepts. Providing children with visual representations also offers a scaffold when developing a more robust understanding of maths. Throughout Key Stage 1, it is important that children gain a secure knowledge of number and place value and become confident when using the four operations in both formal methods as well as problem solving where often the approach is not immediately evident.



Alongside number work, pupils begin to identify fractions using shapes, objects and quantities and make connections to equal sharing and grouping. Pupils are taught to count to ten in fractions, recognise equivalent fractions and develop their understanding of fractions on a number line. At this stage, pupils will also



develop their ability to recognise, describe, draw, compare and sort different shapes. Pupils have the opportunity to use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money and are expected to use related vocabulary for all topics. Other subjects may have strong links to some maths topics allowing cross-curricular teaching. For example, shape through art or computing, measures through science or coordinates in geography. This is to ensure we continually maximise learning opportunities for all pupils across an entire curriculum.

Key Stage 2 Maths

Lower Key Stage 2 – Years 3/4 (Chestnut) and Y4/5 (Willow) is taught using the White Rose Mixed Age Planning. The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with



increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with



accuracy and make connections between measure and number. By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. Daily practice is given to both classes using TTRockstars.

Upper Key Stage 2 – Year 5/6 (Poplar). The principal focus of mathematics teaching in upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and

division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Parental Involvement

At Newport Primary, we encourage parents to be involved by:

1. Inviting them into school three times yearly to discuss the progress of their child.
2. Providing parents with a booklet with current targets, an interim report and a yearly report outlining their child's achievements.

3. Holding workshops for parents.
4. Sending homework activities weekly to be completed by or with their child.
5. Learning is shared with parents at our Community Cupcakes events each month.

Inclusion

Teaching maths for mastery allows all of our pupils access to the full maths curriculum. This inclusive approach, and its emphasis on promoting multiple methods of solving a problem, builds self-confidence and resilience in pupils. Though the whole class goes through the same content at the same pace, there is still plenty of opportunity for differentiation. Taking a mastery approach, differentiation occurs in the support and intervention provided to different pupils, not in the topics taught, particularly at earlier stages. There is no differentiation in content taught, but the questioning and scaffolding individual pupils receive in class as they work through problems will differ, with higher attaining children, or those pupils who grasp concepts quickly, challenged through more demanding problems which deepen their knowledge of the same content. Those children who are not sufficiently fluent are provided additional support to consolidate their understanding before moving on. Pupils' difficulties and misconceptions are identified through immediate formative assessment and addressed with intervention – commonly through individual or small group support later the same day.

Organisation

1. All children receive a daily maths lesson and an additional key skill session with daily multiplication practice for Chestnut and Willow Classes. Mathematical skills run through many other areas of the curriculum.
2. Each lesson focuses on one clear learning objective which all children are expected to master; extension activities enable those children who grasp the objective rapidly to extend their learning by exploring it at greater depth.
3. Each lesson includes elements of: fluency, to practise skills; reasoning, to deepen understanding; and problem solving, to apply skills

4. Teachers use the White Rose Mastery planning and other resources to draw up medium term plans for each term, and a daily lesson plan is produced to incorporate the above elements
5. Whole class teaching is adopted and children work in mixed ability groups OR children are placed into ability sets within their year groups.
6. All classrooms have mathematics displays with key vocabulary clearly displayed.
7. Every classroom has a range of practical apparatus to support children's learning, with additional resources stored centrally.

Monitoring

Children are assessed on an ongoing basis, and then this is formally recorded at termly intervals, reports are written 3 times a year and there are 3 parents evenings. Ongoing assessments are discussed with the SLT. The Maths Co-ordinator does observations, talks to the pupils to record Pupil Voice and performs book scrutinies with the whole team. The children's confidence in the subject is measured through these strategies. Additional support is adapted and intervention groups are assessed, to ensure we are supporting the needs of the children.

Matthew Torn - Maths Lead