

## The Teaching of Maths at Newfield

This policy describes practice in the teaching of Maths at Newfield school for semi-formal and formal learners up to the age of 16.

Prior to embarking on a semi-formal pathway, pre-formal learners at Newfield develop skills in cognition and learning, communication, physical and sensory and independence skills. This enables them to learn through exploration and play, giving them transferable skills for if and when they are ready to move onto the semi-formal curriculum.

### Aims

Quality teaching of Maths *“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.” (Maths National Curriculum)*

The teaching of Maths at Newfield School is therefore designed to be engaging and accessible to all our semi-formal learners from EYFS to key stage 4. We aim to build on skills and knowledge guided by the National Curriculum and use resources from the White Rose Maths scheme, visual supports and practical activities to capture our learners’ attention and aid their understanding.

By building on prior knowledge and skills each year we aim to develop skills in fluency across all areas of Maths and via cross-curricular links. Our aim is that over time our learners will become confident with their ability to apply reasoning skills and problem solve to complete Functional Skills Examinations and solve problems in everyday situations as they prepare for adulthood.

### Planning and the curriculum

Lesson planning is modelled on the work of the 2014 National curriculum and EYFS framework, taking elements from the White Rose Maths scheme of learning.

Due to the varying and often complex needs of learners at Newfield School, pupils follow individual schemes of work throughout their education with us to ensure sequential and progressive building of knowledge and skills at all ages and phases of their education, rather than setting out expected outcomes by age. Maths is taught as a discrete subject throughout the key stages, but is approached in an age appropriate way throughout.

We teach the three main areas of Maths through the year, with the addition of statistics, breaking each area down appropriately, these are;

#### **Number**

Number and Place Value

Addition and Subtraction

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Multiplication and Division

Fractions

### Measurement

Time

Money

Size

Volume and Capacity

Weight and Mass

Temperature

### Geometry

2D and 3D shapes

Patterns

Position and Direction

## What does Maths look like at Newfield School?

### EYFS

At Newfield School we acknowledge and celebrate the differences in the needs and learning styles of our younger children. As such the pedagogical approach taken during the formative years is an eclectic mix approach designed to optimise success for all our children.

Staff practice the three principles of effective teaching and learning;

- playing and exploring
- active learning
- creating and thinking critically

In Maths, teachers apply the above strategies to all of the Maths areas ensuring that they develop “a strong grounding in number” (EYFS Framework), learning to count where achievable. They are also provided with the opportunities to develop a foundation of knowledge across all of the key Maths areas.

Number- learning to count confidently and develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. They will develop a secure base of knowledge and vocabulary where achievable.

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Geometry and Measurement- children should develop skills in spatial reasoning in shape, space and measure and will explore patterns, spotting connections and 'having a go'.

### Key Stages 1-3

During key stages 1-3, learners begin more teacher led lessons with elements of the EYFS strategies still in place, ensuring that the discrete Maths lessons remain developmentally engaging and age appropriate. Mathematical concepts and mathematical language are introduced at appropriate stages matched to each learner's ability, particularly as the learner moves towards a more formal curriculum.

Teachers build on prior knowledge and ensure that skills are embedded in order to promote fluency across all the key maths areas.

We aim to:

- Develop fluency with whole numbers- learning to count, read and write numbers where appropriate, using symbols where required.
- Develop understanding of mathematical language (e.g. less/more) and identify using symbols or speech.
- Begin to understand mathematical symbols (+ - =) and apply these appropriately
- Begin sharing and grouping objects, moving on to doubling and recognising simple fractions (half, quarter)
- Begin to compare length and heights, learning language and symbols (big, small, tall, long, short)
- Learn language and symbols linked to mass/weight and capacity/volume (more, less, heavy, light, full, empty, more, less)
- Develop knowledge of appropriate measuring tools, using them to measure all of the above
- Develop knowledge of time and chronology by building on the ability to sequence daily events and comment on day, night, quick, slow, first, next, before, after etc.
- Learn the days of the week and months and what may happen on these days (often represented on a class timetable)
- Begin to tell the time (to the hour and half past the hour)
- Recognise coins and begin to understand value
- Develop fluency with recognising and naming 2D and 3D shapes
- Learn language and symbols to describe the position and direction of an object

As learners cross over into formal learning, they will develop a deeper understanding of the above areas, with a greater emphasis on problem solving and the ability to apply Mathematical reasoning when answering questions.

They will also build on prior knowledge by:

- Expanding understanding of number and place value, counting in multiples, comparing and ordering numbers to 1000.
- Becoming increasingly fluent in the 4 operations (addition, subtraction, multiplication and division)
- Extending knowledge of fractions by recognising, writing and calculating
- Developing a deeper understanding of measure and how to apply these to answer problems by using length, mass, volume and capacity

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- Telling the time for meaning using an analogue clock
- Using money to complete calculations
- Becoming increasingly fluent in 2D and 3D shapes and their properties
- Using statistics to interpret and present data using bar charts, pictograms and tables, answering questions about the data presented

If any of our pupils were to work beyond these skills, teachers will refer to the national curriculum document in Maths for the next stages of learning.

## Key Stage 4

Semi-formal and formal learners at Newfield begin to work towards accreditation in Maths from Key Stage 4, they have the opportunity to take the Entry 1 Functional Skills Exam by the end of key stage where appropriate.

Our Key Stage 4 rationale states that:

*From this stage adults increasingly become facilitators of learning and the intention is for the students to lead the direction of their learning experiences.*

*The curriculum offers an increase in emphasis on a personalised timetable of accreditation and option choices based around destination and outcome led planning. The pupils from the ages of 14 to 16 work through a curriculum that is age appropriate and based on consolidating and generalising skills into more adult based, real-life settings, following the principles of preparation for adulthood.*

As part of our Maths curriculum, these learners will develop skills required to answer questions at Entry Level. They also develop their ability to apply Mathematical knowledge to more age appropriate scenarios.

Some examples of expectations of our students at Key Stage 4 include:

- Using number practically to solve a range of problems
- Using money in a functional e.g. by going shopping or running a tuck shop
- Understanding and describing shapes in the environment
- Problem solving using measurement
- Learning how to tell the time and using this functionally
- Understanding and giving instructions including position and direction

Interventions also take place for the students working towards Entry Level Exams who may require additional support.

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## Assessment

We believe in the importance of immediate, personalised feedback. Most marking is done by teachers during lessons. Being next to the child and having conversations in the moment about their work has far more impact and is more meaningful for our learners than written feedback that some may struggle to access. Adults create learning environments where this dialogue and feedback is possible.

Formative Assessment	Summative Assessment
On-going: <ul style="list-style-type: none"> <li>• Teacher and EHCA observation</li> <li>• Photos</li> <li>• Discussion and questioning *</li> <li>• Self and peer-assessments *</li> <li>• Written feedback in pupil workbooks*</li> </ul>	<ul style="list-style-type: none"> <li>• Termly BSquared Assessments- Progression Steps</li> <li>• Pre-Key Stage Standards (end of Key Stage)</li> <li>• EYFS Key skills assessment</li> <li>• Functional Skill Exams (KS4) *</li> </ul>

\*where relevant and appropriate

## Home Learning and Parental Engagement

If so desired, parents and carers are able to support pupils' learning at home, they are able to do so by accessing RMEasi Maths, an online Maths program designed for students. This can be used both in school and at home.

Maths progression is shared with home via our Evidence for Learning program on a termly basis, with photographs and written comments regarding pupil progress. This information is also shared via parent consultation meetings and annual reviews.

### Reference List

National Curriculum in England: mathematics programmes of study

<https://www.gov.uk/government/publications/national-curriculum-in-england-mathematics-programmes-of-study>

Early years foundation stage (EYFS) statutory framework

<https://www.gov.uk/government/publications/early-years-foundation-stage-framework--2>

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