**The Trent Rylands Federation**

**Trent Vale Infant and Nursery School *and* Beeston Rylands Junior School**

Mathematics Policy

This policy has been developed in line with the 2014 National Curriculum

**THE IMPORTANCE OF MATHEMATICS**

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history’s most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore 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.

**National Curriculum in England**

Intent

At the Trent Rylands Federation, we believe mathematics is an important part of children’s development throughout school, right from an early age. We intend on delivering a curriculum which:

* Allows children to be a part of creative, fun and engaging lessons that will give them a range of opportunities to explore mathematics following a mastery curriculum approach.
* Gives each pupil a chance to believein themselves as mathematicians and develop the power of resilience, perseverance and curiosity when faced with mathematical challenges.
* Involves all children and entitles them to the same quality of teaching and learning opportunities, so that each child can achievetheir full potential.
* Builds upon previous learning to make rich connections across mathematical ideas so that all children develop fluency in the fundamentals of mathematics, secure mathematical reasoning skills and develop competence when solving problems.
* Enables children to recognise the importance of Maths in the wider world so that they are able to use their mathematical skills and knowledge confidently across the curriculum and also in their current and future lives in a range of different contexts.
* Is in line with the expectations in the National Curriculum 2014 :
* become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
* **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 non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

As the Education Inspection Framework puts it

“A great mathematics curriculum should, help pupils to ‘gain enjoyment through a growing self-confidence in their ability’. Maths ‘nurtures the development of a logical and methodical mindset’ and gives us incredible tools to help us to understand the world. It can open doors for our pupils in a dazzling array of fields, such as engineering, physics, architecture, medicine and business, and literally transform lives.”

This philosophy underpins our mathematical intent in the Trent Rylands Federation.

Implementation

The EYFS uses the Statutory EYFS framework 2021 alongside the Development Matters Document 2021 to ensure that the children have built firm foundation for future maths learning. In Key Stage 1 and 2 The New National Curriculum 2014 for mathematics describes what must be taught in each key stage. This ensures continuity and progression in the teaching of mathematics.

In F1, we focus our learning through play and direct teaching, on laying the foundations for mathematical understanding. We focus on the 4 principles of counting, along with the language involved with wider shape and space areas of learning. Teachers plan lessons and interactions achieving an end goal, through thorough day-to-day assessment for learning.

From F2 through to year 6 , we follow the White Rose Schemes of Work, to support teachers with their planning and assessment. The emphasis on number skills (place value, the four operations and fractions) are taught first, carefully ordered, throughout the primary curriculum. For some other topics, the order isn’t as crucial, e.g. Shapes and Statistics come after number, but don’t depend on each other. We try to mix these so pupils have as wide a variety of mathematical experiences as possible in each term and year.

Alongside this, The Calculation Policies for Addition and Subtraction, and Multiplication and Division are used within the federation to ensure a consistent approach to teaching the four operations over time

Mathematics is important in everyday life; with this is mind, the purpose of Mathematics at The Trent Rylands Federation is to develop an ability to solve problems, to reason, to think logically and to work systematically and accurately. All children are challenged and encouraged to excel in Maths. New mathematical concepts are introduced using a ‘Concrete, Pictorial and Abstract’ approach; enabling all children to experience hands-on learning when discovering new mathematical topics, and allows them to have clear models and images to aid their understanding.

Arithmetic and basic maths skills are regularly practised to ensure key mathematical concepts are embedded and children can recall this information to see the links between topics in Maths. We encourage resilience and acceptance that struggle is often a necessary step in learning. Children are encouraged to challenge themselves through carefully planned reasoning and problem solving activities through a range of strategies which includes direct teaching, questioning , demonstrating, modelling and discussing. We offer a whole class, mixed ability approach to teaching and learning, which provides opportunities for whole class teaching , group work, paired work and individual work .

In Summary

* Lessons use a Concrete, Pictorial and Abstract approach to guide children through their understanding of mathematical processes.
* Maths interventions are used to support children who have gaps in their learning/ understanding or who have misconceptions. These range from 1:1 tutoring to small group intervention both within and outside the daily lesson.
* Children who show their understanding at a deeper level within a unit, have opportunities to apply these skills in greater depth activities. These are challenging and ensure the children are using more than just one skill to be able to answer the mathematical problems.
* Children with additional needs are included in whole class lessons and their teacher provides scaffolding and relevant support as necessary. For those children who are working outside of the year group curriculum, individual learning activities are provided to ensure their progress.
* Pre and post assessments are used to ensure teaching is delivered at the point of “need.” Consolidation lessons are used to revisit previous learning and ensure Maths skills are embedded.
* At Beeston Rylands Junior School homework is set via the online learning platform Mathletics to develop and review children’s learning.
* Where possible, links are made with other subjects across the curriculum.

Trent Vale Infant School and Nursery

Mathematics is presented as an enjoyable and interesting activity, involving enquiry and experimentation. Lessons are intended to be as interactive as possible with strategies included for the visual, kinaesthetic and auditory learning styles of pupils. Wherever possible the work will focus on real situations so children are aware of the relevance of mathematics.

* Numeracy is taught through daily through a one-hour session in KS1 and shorter sessions an in F2 .
* Lessons are well structured, lively and delivered at a good pace
* There will be whole class and group directed teaching and interactive oral work.
* Learning objectives will be shared with the children.
* The ability to calculate mentally lies at the heart of numeracy. Thus, the teaching and learning of mental methods is emphasised throughout the school. Pupils are taught a variety of mental calculation strategies.
* Teachers use and expect pupils to use correct mathematical vocabulary. The use of mathematical language will enable the children to talk and reason about their work, explain their methods and strategies and to work through difficulties.
* Lessons are based on a problem solving approach.
* Teaching follows a sequence of practical, concrete and then abstract learning to ensure all children have a full understanding of the concepts being taught.
* The children are encouraged to explore ways of showing their findings and reason about their maths by use of a maths jottings book.
* Children will be encouraged to record their work in a range of ways, using carefully sequenced worksheets alongside squared and plain paper.
* Children will be offered regular challenge questions or activities to consolidate and extend application and reasoning skills.
* Teachers will teach Mathematics as a set of inter-related ideas, not a set of separate elements which can be taught in isolation from one another.
* A range of teaching strategies will be used as appropriate and may include:-

exposition by the teacher   
discussion and questioning between teacher and children and between children themselves   
appropriate practical work  
consolidation and practice of fundamental skills  
problem solving  
modeling and demonstration to children

* Pupils are given regular opportunities to do investigative work and open-ended activities, which give the children opportunities to consolidate and apply their learning and to record it in a meaningful way for them.
* Children are given regular opportunities to practice key maths concepts, such as counting, addition and subtraction through target work in the morning and independent learning.
* Children in F2 are given regular opportunity to learn and revise early maths concepts
* Where appropriate cross-curricular links with Mathematics are encouraged as part of putting Mathematics into an every-day life context and to develop Numeracy as a key skill further.
* ICT is used when it is felt that it will add value, effectiveness and enjoyment to a maths lesson.

Beeston Ryland Junior School

* Pre and post learning tasks maximise learning opportunities building on gaps in learning rather than teaching what is already known.
* The subject is presented as an enjoyable and interesting activity, involving enquiry and experimentation and the children are encouraged to give oral explanations of their strategies and methods being expected to “Prove-it” or explain “Why?” Mathematics contributes to many subjects and it is important the children are given opportunities to apply and use mathematics within other areas of the curriculum and in real life contexts.
* If an open ended investigation, longer reasoning or cross curricular approach which includes a mathematical element is taught, blocked time is planned in to ensure maximum learning gains.
* Lessons are well structured, lively and delivered at a good pace
* Learning objectives are shared with the children.
* The ability to calculate both mentally and methodically is a principle aim of Mathematics. The teaching and learning of these methods and associated strategies is emphasised, practised and consolidated throughout the school.
* Teachers use and expect pupils to use correct mathematical vocabulary. The use of mathematical language will enable the children to talk about their work, explain their methods and strategies and to work through difficulties.
* Calculations are taught in line with the Trent Rylands Federation Calculation Policy. Once these are mastered the skills are then applied to a problem solving and reasoning approach. Fluency, reasoning and problem solving activities are planned for within each block of learning.
* The children are expected to show their working out using the most appropriate method for their year group or their own individual stage of learning.
* We encourage the children to record their work in a range of ways, using appropriate worksheets, white boards or their daily maths book.
* Teachers will teach Mathematics as a set of inter-related ideas, not a set of separate elements which can be taught in isolation from one another.
* A range of teaching strategies will be used as appropriate and may include:-

exposition by the teacher

discussion and questioning between teacher and children and between children themselves

appropriate practical work

consolidation and practice of fundamental skills

problem solving

modelling and demonstration to children, and also children modelling between themselves

* Pupils are given regular opportunities to do investigative work and open-ended activities, which give them opportunities to consolidate and apply their learning and to record it in a meaningful way.
* Where appropriate, cross-curricular links with Mathematics are encouraged putting Mathematics into an every-day life context and to develop numeracy as a further life skill.
* ICT is used when it is felt that it will add value, effectiveness and enjoyment to a maths lesson.

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**ROLE OF THE SUBJECT LEADER**

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The subject leaders will monitor planning to ensure coverage of the National Curriculum. They will undertake observations and book scrutiny to quality assure the teaching and learning of the subject.

**ASSESSMENT FOR LEARNING**

This is in accordance with the school’s Assessment for Learning policy.

**MONITORING AND EVALUATION**

This is in accordance with the school’s Monitoring and Evaluation policy.

**PUPILS WITH ADDITIONAL LEARNING NEEDS (including SEND)**

This is in accordance with the school’s Special Educational Needs policy and EAL policy.

**EQUAL OPPORTUNITIES**

This is in accordance with the school’s Equal Opportunities policy and Equality policy

** THIS DOCUMENT IS** a statement of the aims, principles and strategies for the teaching and learning of mathematics at The Trent Rylands Federation

** IT WAS DEVELOPED** in **IT WAS DEVELOPED** in 2014 following the introduction of the National Curriculum in England and through a process of consultation with teaching staff

** IT WILL BE** continuously reviewed, updated and approved by the Governing Bodies, Headteacher and Mathematics Subject Leaders

** This policy will be REVIEWED ANNUALLY**

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| Date of review | Autumn 2022 | Autumn 2023 | Autumn 2024 |
| Signed |  |  |  |

**OTHER POLICY DOCUMENTS THAT UNDERPIN THIS POLICY FOR SCIENCE**

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| * EQUAL OPPORTUNITIES POLICY * EQUALITY POLICY * ASSESSMENT FOR LEARNING POLICY * SPECIAL EDUCATIONALNEEDS POLICY * GIFTED, TALENTED AND ABLE POLICY * EAL POLICY | * CURRICULUM POLICY AND FRAMEWORK * TEACHING AND LEARNING POLICY * CURRICULUM PLANNING POLICY * MARKING AND FEEDBACK POLICY * MONITORING AND EVALUATION POLICY * HOMEWORK POLICY |