TOWNVILLE ACADEMY
Head teacher: Caroline Burden

Aspire - Collaborate - Explore

'Together we learn – United we achieve'

Mathematics Curriculum

Intent

At Townville Academy, we aspire to offer the best possible early education for all our children in a happy, safe, inclusive environment.

Through our Mathematics curriculum we aim to ensure our children:

- *Are provided with a high-quality, broad and challenging mathematics curriculum.*
- *Become fluent in the fundamentals of mathematics though varied and frequent practice by undertaking a small-steps, progressive approach.*
- *Develop their conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.*
- *Reason mathematically by justifying, making links to known facts or providing proof using mathematical language.*
- *Develop understanding of concepts that will be challenged through applying their knowledge to a variety of problems with increasing sophistication, including breaking down problems into smaller steps and seeking solutions.*
- *Become confident, enthusiastic and competent mathematicians in preparation for their future schooling and lives.*
- *Develop a love for Mathematics that provides the tools to function and excel in all walks of life, developing the skills to tackle everyday problems.*

At Townville Academy, these skills are embedded within Mathematics lessons and developed consistently over time. We are committed to ensuring that children can recognise the importance of Mathematics in the wider world and that they are also able to use their mathematical skills and knowledge confidently in a range of different contexts.

This builds upon the children's prior knowledge gained through the foundation stage for mathematics where children:

- *A deep understanding of number to 10, including the composition of each number;*
- *Subitize up to 5;*
- *Automatically recall number bonds up to 5 and some number bonds to 10, including double facts.*
- *Verbally count beyond 20, recognising the pattern of the counting system;*
- *Compare quantities up to 10 in different contexts and recognise when one quantity is greater than, less than or the same as the other quantity*
- *Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.*

Our Key Stage One curriculum builds upon children's mathematical learning in the EYFS ensuring full coverage of National Curriculum programs of study through carefully constructed progression maps. Our curriculum design offers children the ability to revisit and build upon prior knowledge so that they know and remember more whilst gaining the key skills needed to continue their journeys as mathematicians through Townville Infants and beyond.
We want all children to enjoy Mathematics and to experience success in the subject. We are committed to developing children's curiosity about the subject, as well as an appreciation of Mathematics.

Implementation

At Townville Academy, we recognise that in order for pupils to progress to deeper and more complex problems, children need to be confident and fluent across each objective. We teach to ensure mastery in Maths is embedded across all our year group curriculums.

Our ACE curriculum drivers are lived and breathed during maths lessons and in the mathematical experiences our children are given.

Children are encouraged to verbalize their thoughts, ideas and understanding of Maths so that their knowledge and understanding can be shared with those around them. Through careful support and questioning, skilled staff are able to extend and develop children's ideas and knowledge, supporting them to articulate their learning effectively and make sense of the mathematical challenges they encounter.

Teachers carefully structure lessons to ensure children are given appropriate opportunities to explore their thinking and challenge their ideas through the use of concrete, pictorial and visual resources.

As early mathematicians, the children in our EYFS will be provided with exciting opportunities, through planned purposeful play and a mix of adult-led and child-initiated activities, to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces, and measure.

Throughout Key Stage 1, our mathematics planning is based on NCETM teaching for mastery documents to teach a broad and challenging curriculum. This is based on teaching the same objective to most of the children at the same time, taking small sequential steps to ensure children have a deep understanding of the concept being taught. Children will have opportunities to experience varied contexts to encourage confidence, fluency and efficiency with their mathematical problem solving. Children will explore mathematical concepts through concrete, pictorial and abstract methods to deepen their understanding.

We believe all children can achieve when they are supported through quality first class teaching, any misconceptions are addressed as quickly as possible through effective use of ongoing assessment and teacher led guided groups when needed. Where needed, teaching is adapted through individual support, immediate and effective intervention and through the use of varying manipulatives and resources.

All teachers use precise questioning in class to test conceptual and procedural knowledge and assess children regularly to identify those requiring intervention, so that all children keep up. 'Differentiation' may be evident with children working on differing complexities of problems within the same objective.

More able children will have challenging problems to solve to ensure that they continue to make progress through reasoning challenges, enquiry tasks and open-ended problem-solving opportunities for them to 'master the curriculum'.

In addition to the daily Mathematics lessons, KS1 children take part in 'Number Sense' sessions. These sessions focus on ensuring pupils have the appropriate fluency within basic number and calculation therefore reducing their cognitive load when they encounter increasingly complex mathematical questions and/or scenarios. These sessions also provide an opportunity to revisit and review misconceptions and deepen previously taught content. This builds on the Mastering Number program children experience throughout their Reception year.

Strategies to support children with SEND

In Computing, we use the following five evidence-based strategies as recommended by the Education Endowment Foundations to ensure all pupils, including those with SEND, are successful. These principles are embedded within the White Rose Maths resources to ensure that everyone can improve and succeed in maths.

Explicit instruction

- *Teachers will give explicit instruction through the 'I do' phase of each lesson as they provide worked examples and model their thought processes out loud (TOL). This allows pupils the opportunity to develop their understanding of the core knowledge being taught.*
- *Pupils will be taught sentences stems and language structures to allow them to articulate processes and understanding.*
- *Pupils will be given specific opportunities to practice specific skills that are barriers to learning.*
- *Visual aids and concrete examples will be modelled using manipulatives by the teacher to embed and deepen understanding.*

Cognitive and metacognitive strategies

- *Tasks may be 'chunked' into smaller steps.*
- *Sentence stems and steps to success will be made visible to children to support independent work. Some children may be given this for their tabletop to aid use.*
- *Support may be given to avoid cognitive overload and enable pupils to focus on the core learning of the lesson.*
- *Memorization of key facts and processes will be encouraged and supported through an ethos of repetition.*
- *Pupils will learn specific strategies for problem solving to give them the tools to apply their knowledge and skills in different contexts.*
- *Depending on ability, children with SEND may be asked to evaluate their own progress and discuss what they can do to move their learning forward.*

Scaffolding

- *The Concrete, Pictorial, Abstract approach allows pupils to understand a concept through use of representations such as a ten frame, place value counters, base10, bead strings or part/whole model. When modelling using these representations, the teacher will make it clear that these are available to access, support and stretch understanding later on.*
- *Small, simple steps to success are modelled and displayed on the working wall to help children complete tasks independently and confidently.*
- *New material is presented in small steps and only proceeded from once mastered.*
- *Support to learn new vocabulary.*
- *Games/songs/stories may be used to support recall of key knowledge/vocabulary.*

All scaffolding follows a 'I do, we do, you do' approach.

Flexible grouping

- *Temporary groups may be established to support learning a particular concept.*
- *Pre-teaching and support with new processes, programs, vocabulary etc*
- *Teachers will reflect on the knowledge each pupil has to ensure they have the precursory knowledge needed to be successful with new learning. If necessary, this will be revisited before moving on.*

Use of technology

- *Technology provides many useful resources for providing visual stimuli for the concrete and pictorial approach, allowing pupils to interact directly with material while learning concepts. These included interactive whiteboard resources as well as website such as numbots to reinforce visual representations of number.*
- *A visualizer may be used to model use of manipulatives or showcase work.*
- *Online resources such as Numbersense or the OneBillion app are used to support with basic number fluency.*

Impact

As a result of our carefully and skillfully sequenced, planned and taught Mathematics curriculum, children will:

- *Receive high quality teaching, and well-planned sequences of learning to support and refine their maths skills to enable them to achieve end of year expectations.*
- *Be challenged appropriately to become fluent in all aspects of mathematics by using a range of resources and outdoor opportunities where possible. They will demonstrate confident and quick recall of number facts*
- *Be able to independently apply their knowledge to a range of increasingly complex problems and show good reasoning skills with increased confidence and accuracy.*
- *Be able to make links within their learning in order to talk about maths using appropriate vocabulary confidently and correctly.*
- *Understand the relevance and importance of what they are learning in relation to real world concepts.*
- *Aspire to know and learn more - have a positive view of Maths due to learning in an environment where Maths is promoted as being an exciting and enjoyable subject in which they can investigate and ask questions. They will show resilience when faced with a challenge.*
- *Be confident to 'have a go' and choose the equipment they need to help them to learn along with the strategies they think are best suited to each problem.*
- *Be engaged in their learning and make significant progress.*
- *Achieve age-related expectations.*

The outcomes and impact of our mathematics curriculum will be evidenced through clear progression within the children's books, pupil voice and ongoing assessment.