NORTHWOOD
PRIMARY SCHOOL
...growing success

Maths

At Northwood Primary School

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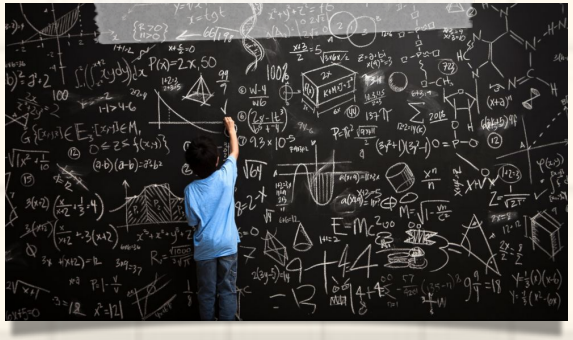
Vision

At Northwood Primary School, our vision is to give our children the opportunity to master mathematical skills which they can apply to become effective problem solvers.



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Intent

Because we strive to grow 'problem solving mathematicians' at Northwood, and we are aware of the need for a secure understanding, we employ a mastery approach towards the teaching of maths. This ensures that our pupils have the opportunity to master skills and gain a deeper understanding before moving on to other concepts. During lessons, we allow children ample opportunities to develop their fluency through being exposed to a range of representations as we want children to embrace mathematical questions, challenges and have a bank of strategies to solve these with. Once children are fluent, they are given the opportunity to 'apply' their knowledge and understanding through reasoning and problem solving.

Intent

Within maths lessons, we use concrete apparatus (objects pupils can touch and manipulate) and visual representations to support children with developing their understanding of mathematical ideas. By using the concrete and pictorial representations alongside abstract concepts, we hope that children gain the confidence needed to become independent learners and problem solvers. Throughout their mathematical journey at Northwood, we intend for our children to know that maths problem solving is a journey and the steps are as equally as important as the answer and our approach to maths will help support this.

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Implementation

In order for children to achieve these goals in maths, our pupils have regular opportunities to practise their written calculations in daily arithmetic sessions. As well as this, here at Northwood, we recognise how fundamental fluency of key number facts and recall of times tables is to later success in maths. Because of this, alongside arithmetic practice, our Early Years and Key Stage 1 follow the Number Sense Programme while Years 3 and 4 follow our times table strategy (link found here. These enable children to build a secure understanding of the fundamentals of maths and allows them to progress into confident mathematicians. To supplement the teaching of times tables, children across the school also have access to Times Tables Rockstars and engage in regular practice to ensure that times tables automaticity is reached. To ensure the profile and importance of times tables is shared, the school participates in inter-school competitions as well as trust-wide competitions! This ensures that children improve their recall speed while also battling fellow rockstars in the local area.

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Implementation

During lessons, children are given opportunities to deepen their understanding of maths and master concepts at a speed that is relevant to their needs. We achieve this by not only expecting children to answer questions, but analyse, explore and dissect the question in order to apply effective strategies. This allows children to build a greater understanding as well as confidence in new mathematical concepts. Additionally, within lessons we aim to use concrete resources to support children's understanding. If children are not secure with concepts, we aim to use same day/before next lesson intervention to provide scaffolding to support children to master mathematical ideas.

Times Tables Strategy

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Rationale and Intent

- While we acknowledge that memorising facts is important, we aim to ensure children build a deep understanding of times tables.
- We provide a wide range of representations to ensure learning is deeply embedded.
- Our approach ensures "automaticity"*

*Memorisation of basic facts usually refer to committing the result of operations to memory so that thinking is unnecessary……Teaching facts for automaticity in contrast relies on thinking. Answers to facts must be automatic, but thinking about the relationships among the facts is critical. A child can then think of 9x6 as (10x6)-6.

Component 1	Component 2
Regular retrieval practice to develop fluency (5/10 minutes 3 to 5 times per week) *Emphasis on saying (and hearing) the sound pattern of the place is important and can lead to verbal prediction and patterning – should include conceptual support.*	Three dedicated whole Maths lessons every half term (at least 40 minutes in length) *To explore each new times table – developing connections, exploring patterns and creating a deeper understanding of multiplicative reasoning with a specific focus on this new times table*
Structure	
Four pre-requisites and eight whole school steps (implementation strategy) Pre-requisites are what children must know about multiplication, before they embark on learning times tables and include: • Unitising • Understanding equal and unequal groups • Combining equal groups • Understanding the early relationship between repeated addition and the times sign	

Times Tables Strategy

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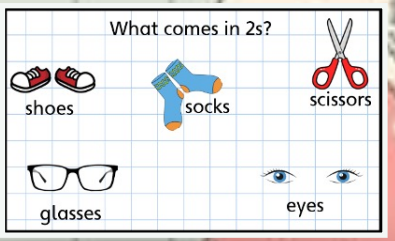

Steps to Success

- When introducing a new times table, it is imperative that links are made to the real world – e.g. "What comes in 2s?" shoes, socks, eyes, glasses, ears, etc.
- Where appropriate, use long term displays that are added to half-termly.
- Any new learning should regularly be built around children's prior knowledge – see brackets above for specific times table links (to help with commutativity of facts)
- Each times table to be presented as follows:

1 x 6 = 6
2 x 6 = 12
3 x 6 = 18
4 x 6 = 24
5 x 6 = 30
6 x 6 = 36
7 x 6 = 42
8 x 6 = 48
9 x 6 = 54
10 x 6 = 60
11 x 6 = 66
12 x 6 = 72

- Explicit teaching and retrieval practise 3-5 times per week (5-10 minutes per session)
- Ensure Concrete-Pictorial-Abstract approach is followed for all children, using arrays as a key model to help children visualise their learning
- Revisit prior learning to explore patterns between facts and sequences, linking to other calculations e.g. 4 x 7 = 28 therefore 4 x 70 = 280

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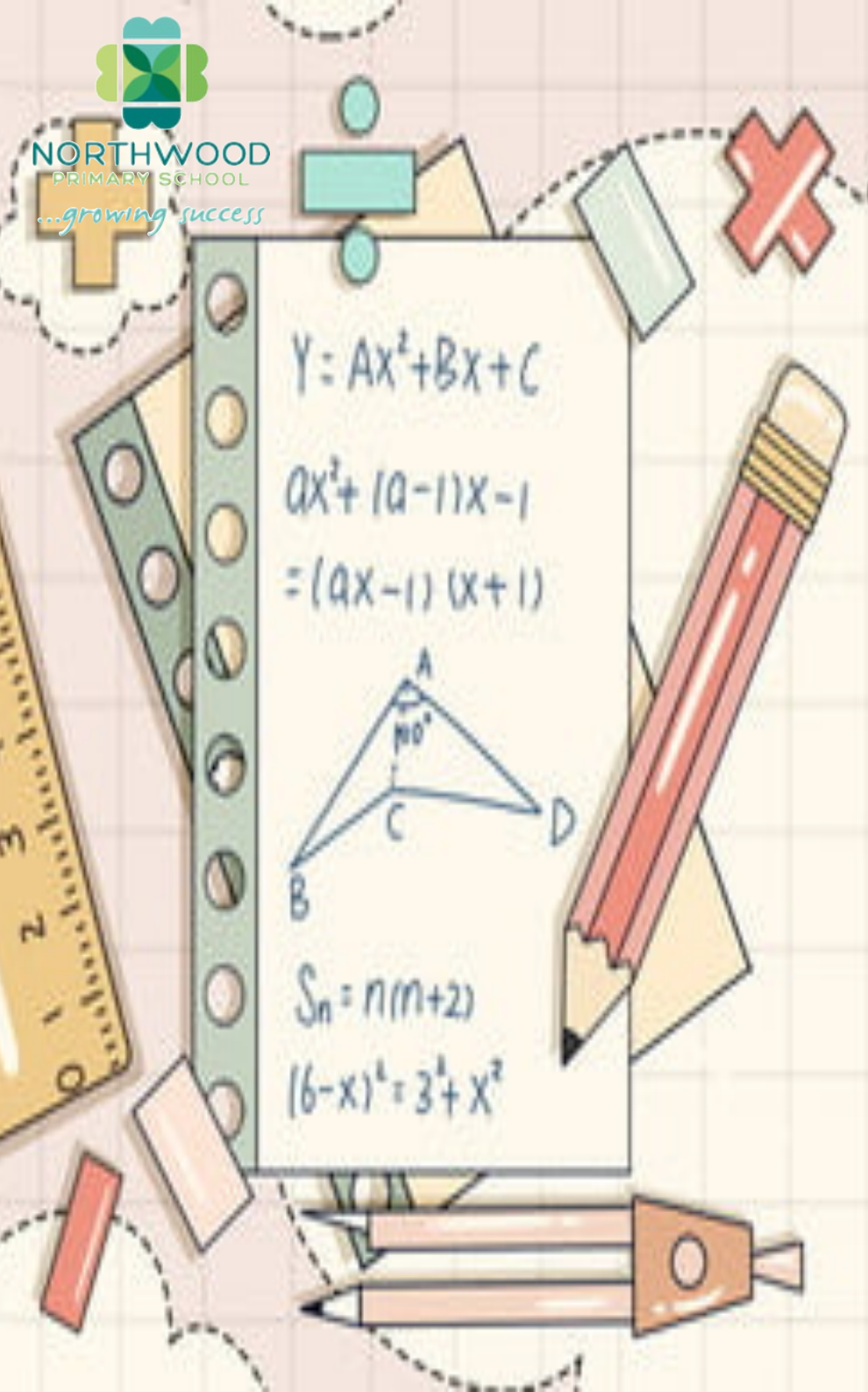

Impact

The impact of the teaching and learning of mathematics at Northwood Primary school will result in children becoming more confident in approaching mathematics. They will enjoy and develop a passion for the subject because of their growing confidence and profile it is given across the school. As they will become fluent in the fundamentals of maths, they will be able to reason mathematically by following a line of enquiry, identifying links and relationships and justify their ideas using mathematical vocabulary. Because of this depth of understanding, they will be able to rely on a range of strategies and mathematical understanding to solve problems, showing the school virtue of resilience.