

Thrapston Primary School

Intent, Implementation and Impact

Maths



Intent:

At Thrapston Primary School, we believe that mathematics is an incredibly important and valuable part of children's development throughout school right from an early age. We also recognise that mathematics underpins much of our daily lives within the 21st century and as such our maths curriculum, which is underpinned by our key drivers: engagement, creativity and challenge, is designed to provide extensive learning opportunities for all children so they can achieve their full potential and develop a life-long love of learning for the subject.

Through our daily maths teaching, we intend to:

- Provide stimulating, exciting and engaging maths lessons which cater for the needs of all individuals;
- Support all children, regardless of their previous learning opportunities and experiences, to explore and achieve their full potential and set them up with the necessary skills and knowledge for them to be successful in the future and within the real world;
- Support children to make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems, as well as give all children the confidence and resilience to achieve this;
- Provide equal and varied opportunities for our pupils to be able to apply their mathematical knowledge to science and across other subjects, as well as to real-world experiences and wider opportunities within the community;
- Give each child a chance to believe in themselves as mathematicians!

Implementation:

At Thrapston Primary School, our maths curriculum is designed to develop children's knowledge and understanding of mathematical concepts from Early Years Foundation Stage through to the end of Year 6. We use the expectations outlined in the National Curriculum to ensure coverage and progression in mathematical knowledge and skills across the school whilst always considering further, real-world opportunities to further embed the children's love and curiosity of the subject.

Teachers refer to the White Rose Maths Schemes of Learning as a guide to support planning and assessment, as well as various other avenues to ensure our curriculum is suited to and personalised for our school community.

At Thrapston Primary School, our maths curriculum is delivered through the following ways:

- Daily maths lessons delivered through quality-first teaching, which are engaging, fast-paced and challenging for all pupils as well as built upon prior learning;
- Learning tasks are clearly differentiated using our consistent school-wide colour coded system to ensure there is appropriate challenge for all learners. Children work at their own pace; all children select their level of challenge depending on their current knowledge and confidence (with adult guidance if appropriate), however all children understand and are encouraged to move forwards to

a more challenging task if they are secure with their learning or back to a more appropriate task if they need to consolidate the learning focus;

- A wide variety of assessment for learning (AfL) opportunities are embedded within maths lessons to regularly assess children's level of understanding and to move children on to appropriate challenges quickly;
- Opportunities to use concrete manipulatives and pictorial representations which are used to support conceptual understanding and to make links across topics; all children have access to concrete manipulatives should they need them;
- Clear modelling to support and develop knowledge and conceptual understanding of topics;
- Children's progress is regularly monitored through various assessment opportunities, both formative and summative and outcomes of these inform teacher's future planning;
- All year groups partake in three '10-minute maths' sessions a week, timetabled in the afternoons. One weekly session is aimed at developing mental maths skills whilst another weekly session is aimed at developing reasoning skills. These well-received 10-minute maths sessions provide further opportunities for children to consolidate previous learning and to continue to challenge themselves with suitable learning opportunities.
- Children engage with practising and learning their multiplication and division facts from Year 2 onwards. In Years 2-3, children complete weekly times table tests and progress through our carefully designed whole-school system to ensure that the children learn, retain and consequently apply their knowledge of multiplication and division facts to real life situations. In years 4 - 6, children continue to consolidate their multiplication and division facts through daily practice of the Times Table Rockstars programme. When they have completed this, they work on a daily grid which comprises of 100 questions to complete in under 4 minutes.

Furthermore, at Thrapston Primary School, we regularly encourage all children to reason mathematically and to problem solve to develop their conceptual understanding of maths concepts and to develop their resilience and determination when posed with a variety of problems. Our children can then apply these important skills to help to solve a range of problems they encounter in their everyday lives in a reasonable and appropriate manner.

Reasoning and problem-solving skills are developed through the following ways:

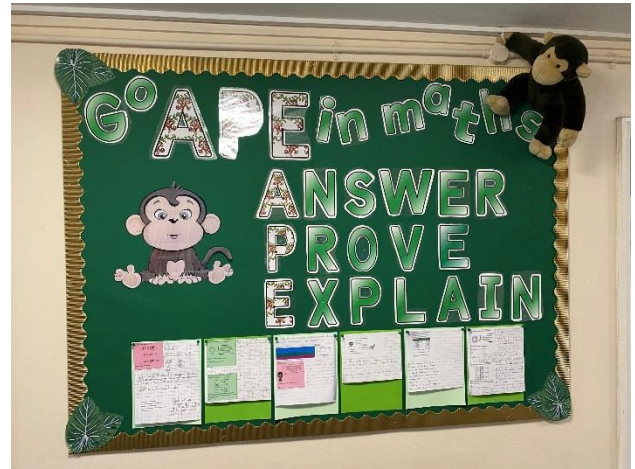
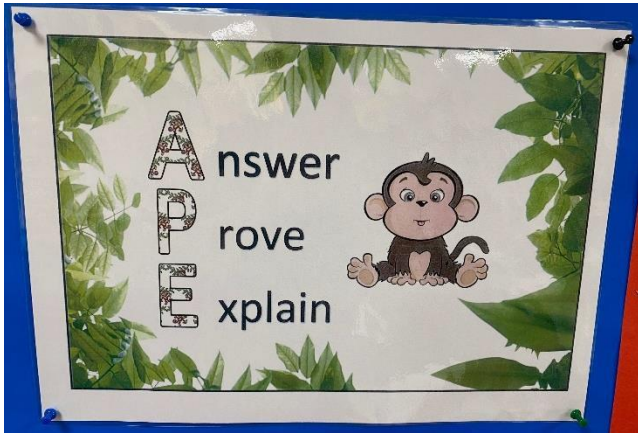
- Reasoning and problem-solving opportunities are provided for all children during maths lessons to consolidate their learning and to apply what they have learnt in new situations. These verbal and written opportunities may be completed independently, within a guided group or as a whole class activity. Ample

9a. Molly has been rounding 3.608. She says, 3.608 rounded to the nearest tenth is 3.7. 3.608 rounded to the nearest whole number is 4. Is she correct? Prove it.

She is incorrect. I know this because 3.608 rounded to the nearest tenth is actually 3.6 as the hundredths digit is 0. However, 3.608 to the nearest whole is 4. Therefore, she is incorrect.

opportunity is given to feedback and ensure a clear understanding;

- Children are taught how to effectively use our school-wide approach, APE (Answer, Prove, Explain) to support their mathematical thinking when tackling problems. Children are familiar with this strategy and understand how it supports them when reasoning mathematically and solving problems;



- One of the three 10-minute maths sessions a week is planned to enable children to further develop their reasoning skills and to support our children in their development of reasoning mathematically;

10 minute maths Session 2 Adding Fractions Solve a reasoning problem using APE

6b. Hafsa and Cian are finding missing numbers in a calculation.

$$\square + \frac{3}{10} + \square = \frac{15}{10}$$

Hafsa: $\frac{5}{10}$ and $\frac{7}{10}$ are missing.

Cian: $\frac{6}{10}$ and $\frac{7}{10}$ are missing.

Who is correct? Explain how you know.

6. Sabrina and Salem are solving the calculation below.

$$\frac{3}{4} + \frac{3}{16} = ?$$

Sabrina: I think the answer is $\frac{15}{16}$.

Salem: I think the answer is $\frac{6}{16}$.

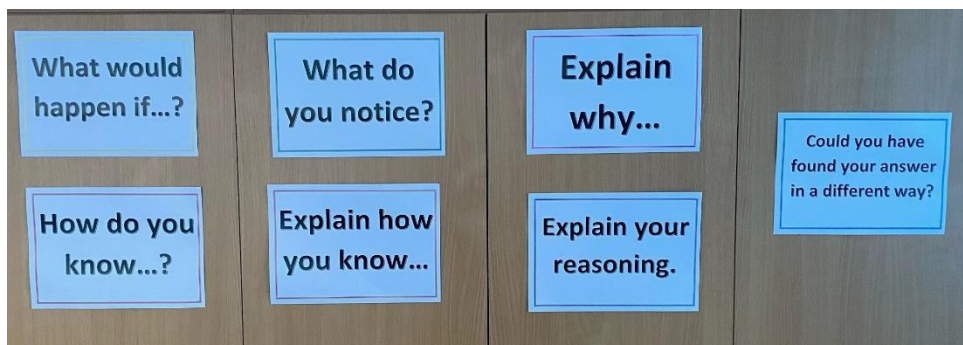
Who is correct? Explain your answer.

4b. Lara has added three fractions. Is she correct?

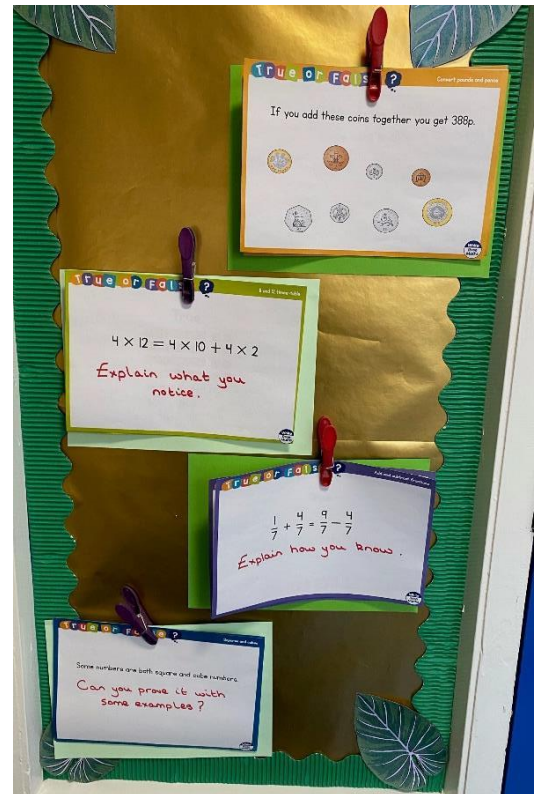
$$\frac{3}{9} + \frac{2}{3} + \frac{12}{18} = \frac{25}{18}$$

Explain your answer.

- All children are familiar with a range of stem sentences which encourage mathematical reasoning and problem solving. Various examples are displayed around the school building and are referred to regularly;



- When moving around school, children are also given opportunities to reason mathematically and to problem solve, which encourages children to consider their learning outside of maths lessons and furthermore helps to promote a sustained love of learning;



Impact:

The impact of our school maths curriculum can be seen in children's books, in learning outcomes and in discussion with our children.

Furthermore, the impact of our maths curriculum is demonstrated by the children:

- Mastering and applying mathematical concepts and skills, demonstrated when they can show a particular concept in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations;
- Demonstrating a quick recall of facts and procedures, including multiplication and division facts, and applying this knowledge and understanding to real life situations with ease;
- Using appropriate mathematical vocabulary in maths lessons with confidence, ease and accuracy;
- Demonstrating a secure understanding of how to reason mathematically, using stem sentences to support them with their answer and explanation;
- Demonstrating a secure understanding of how to problem solve, using appropriate methods and demonstrating resilience
- Recognising mathematical relationships and making connections within concepts;
- Speaking enthusiastically about their maths lessons and about how they love learning about maths. They can articulate the context in which maths is being taught and relate this to real life purposes;
- Showing a high level of pride in the presentation and understanding of their work;
- Understand how and why maths is used in the outside world; they know about different ways that maths can be used to support their future potential.