



To Care

MATHEMATICS EDUCATION AT PICKERING COMMUNITY JUNIOR SCHOOL



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INTENT: At Pickering Community Junior School, we work together to ensure that all children are engaged in a creative and interconnected mathematics curriculum which enables pupils to make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. We believe that mathematics is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. We therefore aim to provide a high-quality mathematics education which 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. All children will be provided with a broad and balanced curriculum which reflects the equality and diversity policies and practice in our school.

IMPLEMENTATION:

The skills and concepts in maths are broadly under the headings of Number, Place Value, Addition and Subtraction/Multiplication and Division, Fractions, Measurement, Geometry, Statistics. These are further divided into Fluency of mathematical basics within each section as well as Reasoning and Problem Solving. These are taught following the teaching for mastery approach and CPA (Concrete, Pictorial, Abstract) framework. This encourages the children to firstly understand mathematics through physical representations before linking this to different visual/pictorial representations and finally to grasp the abstract nature of the numbers or problem that they have encountered. Our Teaching for Mastery approach seeks to build flexible learners with a depth of understanding that allows them to access a range of problems that are presented in a variety of formats.

The principles and features that characterise our approach are:

- Lesson design links to prior learning to ensure all can access the new learning and identifies carefully sequenced steps in progression to build secure understanding.
- Examples, representations and models are carefully selected to expose the structure of mathematical concepts and emphasise connections, enabling pupils to develop a deep knowledge of mathematics.
- Procedural fluency and conceptual understanding are developed in tandem because each supports the development of the other.
- It is recognised that practice is a vital part of learning, but the practice must be designed to both reinforce pupils' procedural fluency and develop their conceptual understanding.
- Pupils are taught through whole-class interactive teaching, enabling all to master the concepts necessary for the next part of the curriculum sequence.
- In a typical lesson, the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration, and discussion, enabling pupils to think, reason and apply their knowledge to solve problems.
- Use of precise mathematical language enables all pupils to communicate their reasoning and thinking effectively.
- If a pupil fails to grasp a concept or procedure, this is identified quickly, and gaps in understanding are addressed systematically to prevent them falling behind.
- Significant time is spent developing deep understanding of the key ideas that are needed to underpin future learning.
- Key number facts are learnt to automaticity, and other key mathematical facts are learned deeply and practised regularly, to avoid cognitive overload in working memory and enable pupils to focus on new learning.



IMPACT: By the end of Year 6, our pupils will have developed a bank of efficient and accurate skills that can be used to calculate effectively. These will have been underpinned by the C-P-A process so children understand rather than just do, which ultimately will allow children to identify when answers do not make mathematical sense. Children will be able to apply these calculation skills and understanding of other areas to become confident and resilient problem-solvers with the ability to reason and articulate their ideas mathematically. Children will have the language to be able to justify, reason and explain their answers. Our pupils will leave Pickering Community Junior School with the skills required that helps to prepare them for their KS3 studies and with a positive attitude towards maths due to the culture that permeates throughout our school of everyone can do maths.



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MATHEMATICS EDUCATION PEDAGOGY ON A PAGE



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Mathematics Supporting Aspects

Cultural Capital

- TO CARE values embedded throughout lessons
- Whole school assemblies focusing on maths in everyday life
- Whole school competitions
- Maths clubs
- Real life examples provided in Discover and Share
- Cross curricular links

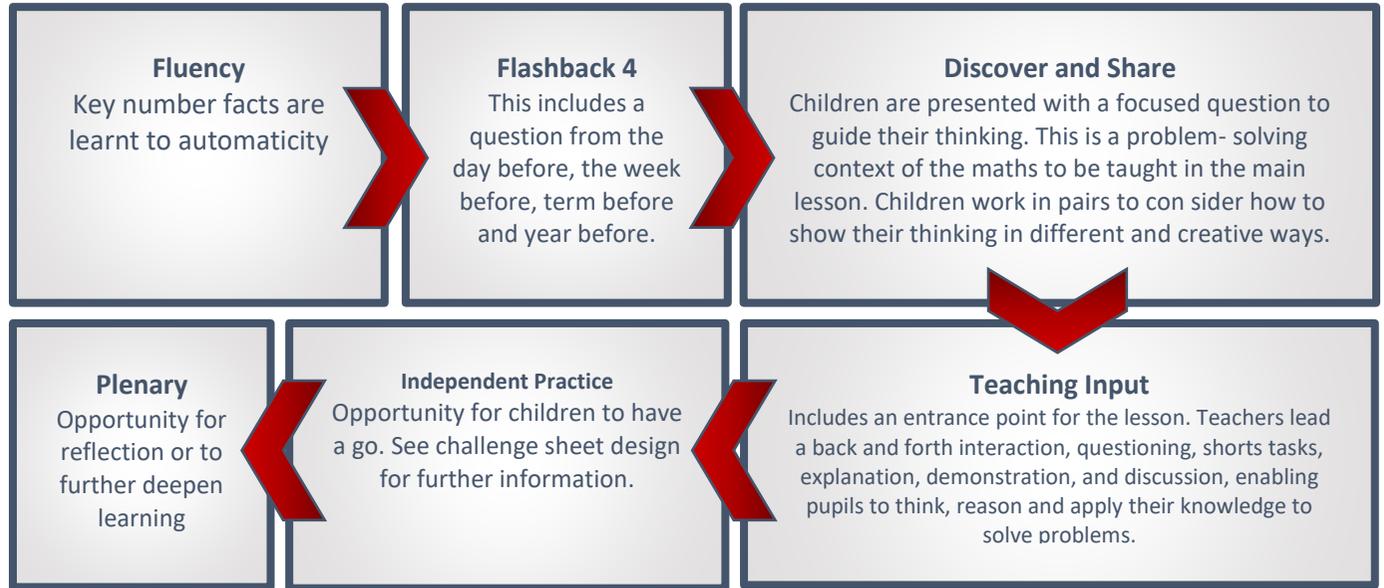
School/British values and SMSC

- Real life examples as part of the Discover and Share
- Children encouraged to deepen their learning and look at problems in different ways, conversing their ideas.
- Discussion encouraged around most efficient methods
- Group work and encouragement of peer support
- Children are responsible for their own learning, through 'self-checking' aspect of self-assessment within each lesson

Learning outside the classroom

- Opportunities for cross curricular links with, for example, PE (shape), Geography (Position and Direction) and Science (statistics)
- Real life opportunities to practice mathematics skills learnt, for example, measurement in Cookery within a different classroom environment

Mathematics Lesson structure and pedagogy



Core Principles to support the Mathematics Pedagogy

- Fluency, reasoning and problem solving are at the core of all lessons.
- Key mathematical facts are learned deeply and practiced regularly, to avoid cognitive overload in working memory and enable pupils to focus on new learning.
- Modelling of correct mathematical terminology is essential throughout all aspect of the lesson design.
- C-P-A approach is prioritized in developing understanding and real-life contexts are provided to support understanding the relevance of the maths in problem solving situations.
- Opportunities are provided for children to read, discuss and see maths in different forms, utilizing peer discussion.
- It is recognized that practice is a vital part of learning, but the practice must be designed to both reinforce pupils' procedural fluency and develop their conceptual understanding.