



Mathematics at Wootton Primary School

Aims

Mathematics empowers children to make sense of the world around them through developing their ability to calculate, reason and solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. At Wootton Community Primary School, our aim is to develop:

- Enjoyment and enthusiasm for mathematics and an awareness of the fascination of mathematics.
- Initiative and the ability to work both independently and in cooperation with others.
- Confidence and fluency in mathematical knowledge, concepts and skills.
- The ability to solve problems by applying their skills to a variety of real-life situations
- The ability to reason, think logically and work systematically and accurately, explaining relationships using mathematical language
- The ability to use and apply mathematics across the curriculum and in real life.

Linked to our School Values – **Respect, Empowerment, Aspiration and Perseverance** - Maths teaching at Wootton Community Primary School enables pupils to develop a growth mind set. Pupils are encouraged to: recognise that making mistakes leads to new learning; use grit and determination to persevere; and learn together with resilience, creativity and responsibility.



Curriculum

Curriculum Design: In line with National requirements, our Mathematics curriculum at Wootton focuses on three key areas: Fluency, Problem Solving, and Reasoning.

Our school ethos is that **“all pupils can achieve success”**; all pupils are given opportunities to be fluent, problem solve and reason at their own level of understanding.

Throughout each year group and across the whole school, pupils are taught the building blocks to be successful in Maths. This forms a spiral curriculum where knowledge, concepts and skills are continually refreshed and built upon to ensure readiness for their next stage of learning.

Fluency aims:

Pupils are given the skills and knowledge to be able to calculate quickly, accurately and efficiently. They make use of a wide range of mental strategies for calculation, and can represent core concepts in different ways, with an especial focus on the number line. Pupils are given frequent opportunities to practise and apply learnt skills through varied fluency exercises, including recognising and using a range of representations. Pupils in all year groups are guided through a Concrete, Pictorial, Abstract approach to fully embed understanding of core concepts and skills (see below for more detail).

Problem solving aims:

Pupils are challenged by the use of real-life, purposeful problems based on core concepts. They are asked to apply their skills to range of rich tasks, which are extended, deepened and reimagined to enable all pupils to access and achieve each small step of learning. Pupils develop their comprehension of word problems through reading tasks, numberless word problems, and “spot the difference” problems. Pupils deepen their understanding through varied rich tasks including “What if...” questions which may change the value, the context or the structure of the problem. Pupils achieving at a greater depth are challenged by more complex starting points to the same small step of learning. All pupils are taught to unpick multi-step problems by representing the problem structure, and then calculating.

Reasoning aims:

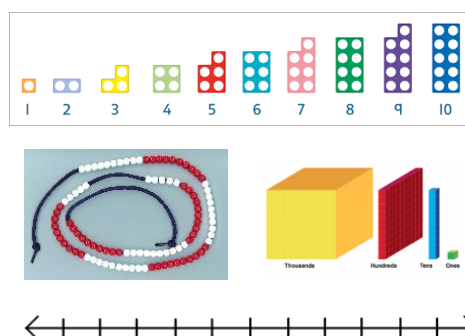
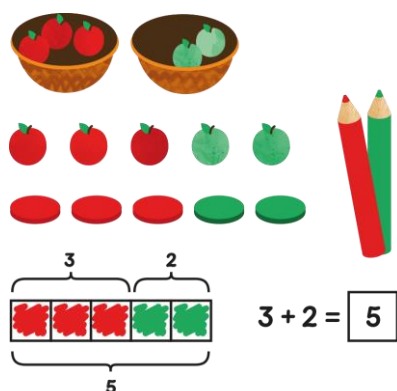
Pupils demonstrate their deep understanding of core concepts through responding to reasoning questions. They show their understanding of why certain representations are more useful for specific types of calculations and explain their thinking explicitly using precise mathematical language. The modelling of explicit and precise responses and use of sentence stems enables pupils to deepen their understanding and provide meticulous mathematical proofs with examples. Pupils are encouraged to spot mathematical patterns, and explore new ideas in a range of different ways, using varied representations. They develop their understanding of the importance of working systematically to find all possibilities.

Our aim is to develop learners who can move fluently between mathematical ideas from different domains, making rich connections to further develop their mathematical understanding.

Concrete, Pictorial, Abstract approach

Here at Wootton we use a **Concrete, Pictorial, Abstract (CPA)** approach, guiding pupils through a range of different representations of core concepts to underpin conceptual/structural understanding. In each classroom concrete resources are available to children at all times. We also guide pupils through the Concrete, Pictorial, Abstract approach via our Maths Working Walls, which display the journey through each unit of work, and provide different representations of core concepts alongside strategy reminders, and new learning.

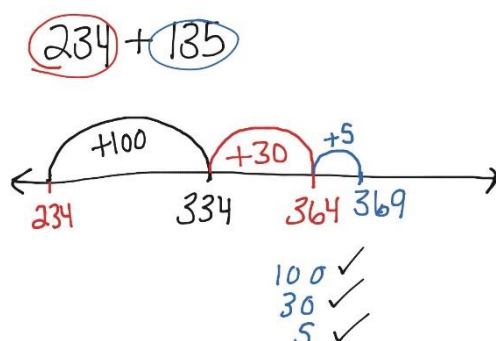
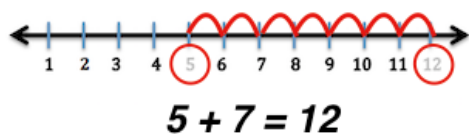
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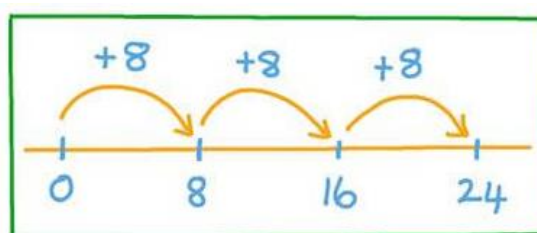
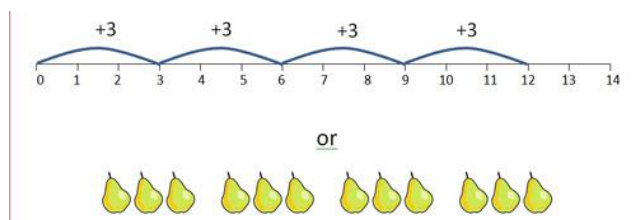
Teachers ensure that they vary the apparatus used to support pupils to make connections between different models and representations.

Wootton Community Primary school has developed its own bespoke documents covering **Calculation Progression** across the school, and a more detailed **Mental Strategy Progression** which focuses on the Number Line as the main representation.

Addition examples



Multiplication examples



Assessment

Teachers are constantly engaged in formatively assessing their pupils and swiftly addressing misconceptions and gaps in learning. During lessons, teachers employ flexible teaching methods which enable pupils to be regrouped as necessary, and ensure all pupils move on in their learning at an effective pace. Marking and feedback is in line with the school policy. Formative assessment also takes place across sequences of lessons, as plans are adapted and made bespoke to the needs to the class, groups and individuals on a daily basis.

Pupils with SEND and/or EHCPs are provided for during the daily mathematics lessons. Teachers plan structured activities to support pupils who find maths challenging to allow them to take part at their own level through appropriate task design, resources, scaffolding and adult support where appropriate. Alongside this exposure to new learning (at their own level), pupils will take part in structured intervention programmes which focus on embedding core concepts and learning from previous year groups and units.

Pupils working at a Greater Depth are also provided for during daily mathematics lessons. Teachers plan challenging activities to stretch and deepen the thinking of these pupils within the same small step of learning, through appropriate task design, more complex problems, resources, scaffolding and adult support where appropriate.

Disadvantaged groups are likewise provided for during the daily mathematics lessons. Teachers plan relevant activities to embed learning through appropriate task design, resources, scaffolding and adult support where appropriate. Pupils in these groups may experience pre and post lesson group teaching, more frequent “check ins” during a lesson, and more frequent pupil conferencing to ensure their progress continues.

Summative assessments are made at three points, or Milestones, within the academic year. Teachers assess whether pupils are on-track to meet the Age Related Expectations (ARE) for their year group by the end of the year. At each Milestone, teachers identify specific domains, and objectives of weakness for their class, groups and individual pupils. Whole class teaching, group and individual work and interventions are then carefully planned to meet the needs of each specific cohort. During and at the end of the next Milestone, these pupils and objectives are monitored to review the impact of the adaptations made by teachers. Pupils who are not closing the gap are identified and further support is planned.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress will always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material will consolidate their understanding, including additional practice, before moving on.

Evaluation

The impact of our approach to Mathematics is assessed at key points during the school year, taking into account pupil outcomes, pupil attitudes towards their Maths learning, and wider monitoring of teaching and learning.

- The impact of the work of the Maths leader is reviewed termly by the Maths leader and the SLT. Previous actions are evaluated and continuing or new priorities are identified.
- Pupil progress is reviewed by the class teacher, Maths leader and the SLT at each Milestone. The impact of whole-class teaching and of group and individual interventions is assessed and then adapted accordingly. Where required, the SENDco is included in these discussions and decisions.
- Frequent CPD is provided for all staff to ensure a consistent and effective approach to Mathematics teaching and learning.