



Watlington Community Primary School

Rationale for Mathematics

Curriculum Intent

At Watlington, we aim for all pupils to develop a deep, long-term understanding of mathematics which provides them with the necessary skills and knowledge to become successful life-long mathematicians. We aspire to provide an outstanding mathematics curriculum which is built upon the principles of Teaching for Mastery and the National Curriculum. Through the application of the **Five Big ideas**, we hope to develop confident, resilient and independent learners who have the foundation of the functional skills required for adulthood. We believe that all children can achieve in mathematics and set high expectations to encourage this, alongside promoting growth mindsets and the idea that we learn more through challenges.

Our aim is for children to build on their prior learning and become **fluent** in the fundamentals of mathematics (as stated in the National Curriculum), applying this knowledge to a range of reasoning and problem-solving contexts. Learning should show clear and concise **cohesion** which allows children to develop their **mathematical thinking** and identify patterns and relationships. It is vital that key **representations and structures** are explored through the use of Concrete, Pictorial and Abstract (CPA) to elicit the mathematics and improve understanding. Children are encouraged to use stem sentences and appropriate mathematical vocabulary to aid their reasoning and convince others. Teachers set high expectations and provide children with a range of star challenges and Dong Nao Jin opportunities to further their understanding.

Implementation and Pedagogy

From EYFS through to Year 6, we follow White Rose Maths schemes of learning. This is to ensure that the cohesion of steps in learning have been considered to build on and progress the children's learning. This is based on the National Curriculum and considers the Teaching for Mastery Big Ideas. It is suggested that lessons are personalised to address the needs of all learners but ensure that coverage is maintained.

By personalising teaching sequences from the WRH, we are able to pose star challenges and Dong Nao Jin opportunities for children at the most appropriate times to allow them to 'use their head'. It also means that stem sentences can be incorporated to initially support children's knowledge, before building on these to create generalisation and conclusions. The children are equipped with the stem sentences to use and explain their thinking e.g. '**I know that..., I know how..., I know when...**'

Lesson Design

When planning a maths lesson, teachers are encouraged to consider the NCETM's 5 Big Ideas of Teaching for Mastery (see below). No formal lesson plans are required, rather, time should be spent creating PowerPoints as an aid for teaching. The 5 Big ideas, CPA and fluency, reasoning and problem solving should be evident within the slides to ensure that pupils have the opportunity to fully grasp the concept being taught.



Watlington Community Primary School

NCETM's Teaching for Mastery '5 Big Ideas'

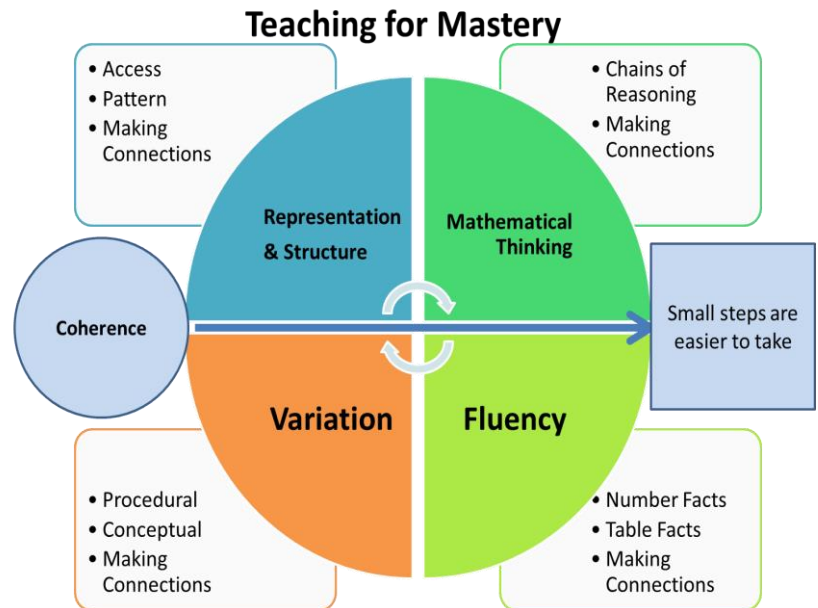
Teachers to ensure they plan according to the policy and share their plans regularly on Teams in the planning file. When planning and delivering the lesson, teachers will consider:

- Review at the start of the lesson-opportunity for pupils to apply their prior knowledge and for the staff to assess where additional support during the lesson may be required.
- L.O. and Success Criteria shared and discuss any new vocabulary.
- Fluency developed through several examples of **I do, we do before you do.**
- Ping pong – whole class teaching (we do) – independent work (you do) – discuss answers – repeat.
- Lots of discussion and opportunities for pupils to talk about the maths.
- Dong Nao Jin – use your head - could be at any point in the lesson but usually the end. This should be a problem which really makes the pupils consider and apply what has been taught, there may be several different possibilities (can you show me another way? And another?).
- Consider PACE!
- Use of CPA throughout the lesson.
- Star Challenges available for all pupils to attempt.
- Stem sentences. Encourage the use of: **'I know that... I know how... I know when...'**
- Word of the week – developing pupils' use and understanding of mathematical vocabulary.
- Opportunities for pupils to develop their reasoning by posing questions such as: what's the same/ what's different, convince me, how do you know?
- Questioning to develop a depth of understanding.
- Retrieval: regular retrieval through not only the review at the beginning of each lesson, but also FB4 (WRH) and mastering number each day outside of the maths lessons.
- Interleaving: by developing cross curricular links.
- Enjoyment: Maths family cafes and maths house events are organised to create enjoyment
- Parental engagement: Parents are engaged through regular workshops delivered by the subject leaders
- TAs (as in the mastery approach) support to pre-teach/post-teach and assess/feedback the pupils' work during the lessons.
- Maths after school tutoring is provided to those identified as need catch-up or to provide greater depth.

Mathematics books

Pupils work in their maths books on a daily basis (with few exceptions). However, if pupils are partaking in concrete / hands on learning, the teacher may feel that a photograph may be more appropriate to show the learning (as often evidenced in EYFS). Evidence in the books to show:

- Do not expect to see worksheets (unless required e.g. clock faces, coordinate axis etc.)
- A range of CPA used
- Presentation should be neat, use of rulers for all lines, one number per square, margins and writing neatly on the lines.
- Fluency (F1), Reasoning (R1) and Problem Solving (PS1) evident through labelling questions as
- Star challenges
- Bar modelling
- Pupils explaining themselves in their reasoning tasks
- Revision tasks to re-in force and support retrieval practice





Watlington Community Primary School

Daily Maths Meetings are used to consolidate mathematical skills and knowledge outside of the daily maths lesson. These could be in the form of **Flashback 4** from WRH or as **mastering number** sessions. The intention is for them to be fun, engaging short session which help children to build on their mathematical knowledge. They can also be used to address misconceptions as well as keeping the profile of all mathematical concepts in the forefront of children's minds.

Through our teaching we continuously monitor pupils' progress against expected attainment for their age. In every maths lesson, Teachers and Teaching Assistants circulate the room, making formative assessment and supporting children instantly. Learning will be support by the implementation of same day intervention (as to not disrupt the cohesion of learning) and pre-teaching. The DfE 'Teaching mathematics in primary schools' guidance document is used to support the pre-teaching of key concepts and prepare children for the learning within lessons. They are provided with post teaching sessions too in readiness for secondary school.

We continuously strive to better ourselves and frequently share ideas and things that have been particularly effective. We take part in training opportunities and regional networking events, such as the NCETM Work Groups and CPD sessions to develop the relevant subject knowledge or pedagogy as required. Subject leader oversees the CPD provided to the teachers and provides support to the new members of the staff.

Impact

Assessment

Formative Assessment

Staff (Teacher/TA) within the maths lesson rotate around the room addressing any misconceptions, questions and supporting the pupils' learning throughout the lesson. Any gaps which are identified in the lesson, are either developed through questioning and worked examples within the lesson, or by same day intervention which is to be delivered during the afternoon, if not, before the next maths lesson.

Summative Assessment

All classes are expected to complete the White Rose 'End of block assessments' which can be self-marked using a different colour, and collated as well as logged into the tracking systems to inform future planning of support and intervention. This information can then be used to inform any additional intervention which may be required or topics which could be included in daily maths meetings. At the end of each term, pupils will sit the White Rose End of Term Assessments.

Teaching staff will need to regularly provide the SLT with Teacher Assessments following the school's assessment calendar.

At the end of each year we expect children to have achieved Age Related Expectations for their year group. Some children will have progressed further and achieved Greater Depth Standard. Those who have gaps in their knowledge receive appropriate support and intervention. Following the Teaching for Mastery approach, we aim for all children secure long-term, deep and adaptable understanding of maths which they can apply in different contexts.

Pupils use acquired vocabulary in maths lessons, especially through the use of stem sentences, to their reasoning and problem-solving tasks. They develop the skills to use a range of methods for the four operations independently and show resilience when tackling more complex problems. Children show a high level of pride in the presentation and understanding of their work. Pupils show an ability to recognise relationships and make connections within their maths, aided by the use of key representations.



Watlington Community Primary School

<u>Priority</u>	<u>Actions to be taken</u>	<u>Who by:</u>	<u>When:</u>	<u>Success criteria</u>
1. Develop the SL role of the ECT	Regular meetings after school with the ECT to <ul style="list-style-type: none"> • Share rationale and action plans as SL (SA) • Monitor working walls (LW) • Monitor lessons/plans (SA) • Feedback from CPD (LW) • Develop strategic overview through questions (SA) 	SA/LW	2/3 hours SLT time as allocated per rota each half term After school meetings (once each half term)	ECT to shadow and present the session jointly to the governors with SA (April 2023)
2. Develop the vision, rationale and action plan for Maths	Take an overview of the subject from the previous year, develop the future vision and draw up an action plan accordingly.	SA/LW	2 hours SLT time each half term	Rationale and action plan to be shared with the HT and governors (April 2023)
3. CPD for all staff	<ul style="list-style-type: none"> • LW to attend NCETM mastery training sessions • RM to attend maths hub CPD and feedback • Planning support for new members (SA to support MVT with the planning format) • Update and review daily maths teaching practice 	LW/RM/SA	Various dates	RM and LW to share the CPD after each session with SA and teachers via notes or staff meetings. RM to complete the PD lead accreditation course.
4. Monitor the progress of the pupils	<ul style="list-style-type: none"> • Track the progress of the pupils in each class • Lesson observations • Observe FB4 and mastery number sessions 	SA/HT	Various days	Data analysed by SA and to be shared with HT and governors (Spring/Summer 2023)
5. Enjoyment for the pupils to learn maths	<ul style="list-style-type: none"> • Times table app (Emile) to be used to practise times tables on tablets by KS2 pupils • STEAM Day (Maths fun session) 	HT/NS/LW	Various days	Pupil voice (Summer term 2023)



Watlington Community Primary School

	<ul style="list-style-type: none"> • Maths Day (House event) • Family cafes 	LW All staff Teachers		
6. Engagement with parents through the workshops and website	Parental workshops for <ul style="list-style-type: none"> • KS1/EYFS: RM • LKS2: LW • UKS2: SA Develop the school website page for maths and include: <ul style="list-style-type: none"> • video explanations articulated by the children for various concepts • Links for the parents to do home tasks and play maths games 	RM/LW/SA	Summer term 2023/Autumn term 2023	Parent voice (Autumn term 2023)