

Maths Curriculum Rationale



INTENT



Alignment to National Curriculum

At Cornfield our Maths curriculum provides a foundation for understanding the world and the life skills needed to be successful, inspiring a sense of enjoyment and curiosity about the subject. We aim for all pupils to become fluent in the fundamentals of mathematics and apply them to real world situations, reason mathematically by following a line of enquiry and solve problems with increasing sophistication.



End Points

Summative assessments are used at the close of each topic area. These culminate in the first end point at Stage 9 where students complete their Entry Level 3 examinations, these are followed by Level 1 and Level 2 during stage 10 and 11 respectively. These end points are used as a precursor to students GCSE examination before leaving Cornfield.



Sequencing

The Math's Curriculum is designed as a spiral curriculum interleaving key elements through the learning stages to ensure students reinforce and extend their knowledge and understanding throughout their learning journey. Each stage recalls and builds on knowledge formulated in previous stages encouraging fluency in understanding and building mathematical reasoning across the topic areas. Students are provided increasingly more sophisticated problems to solve both in language and applicable knowledge.



Addressing Social Disadvantage

We recognise that students come to our school with varying fundamental knowledge. Therefore the scheme is formed of two closely related overlapping strands designed to maximise progression and allow flexibility for our learners. We are aspirational in our curriculum design and firmly believe our students can achieve, while challenging the curriculum is fully supported for learners needing intervention. The introduction and retrieval of Tier 3 vocabulary is considered and taught explicitly throughout each topic area along with Tier 2 vocabulary that students will encounter in written text.

IMPLEMENTATION



Pedagogical Approaches

Maths at Cornfield employs a maths mastery approach which emphasizes depth of understanding over acceleration. This approach facilitates an environment where students build a secure understanding, through its links to prior learning and carefully sequenced steps. Carefully selected models expose the structure of concepts and emphasise connections. Procedural fluency and conceptual understanding and developed in tandem through meaningful and applied practices.



Promoting Discussion and Understanding

The Math's curriculum follows the recommendations of EEF (2022) and uses 4 key principles to encourage productive talk:
T: Take Part – everyone is actively involved.
O: Opportunities – planned ways to facilitate.
L: Links – effective questioning links students own ideas with those of their peers.
D: Debate – it is vital for pupils to share and explain opinions and viewpoints (Howe et al. 2019).



Knowing More and Remembering More

Each topic section is broken down into small steps designed to initially retrieve previous learning, build on that understanding and provide the foundation for deeper learning to take place. Retrieval practices are included in every math's lessons to ensure the transference of knowledge to long-term memory. Along with diagnostic questions to ensure any gaps and misconceptions can be addressed in a comprehensive manner.



Teacher Assessment

Student understanding is measured through a synthesis of techniques. Consistent, effective verbal feedback between staff and students allows for learning dialogue to be observable throughout all lessons. Utilisation of questioning techniques promotes more profound responses from students. The use of 'TOLD' principles for productive talk in mathematics ensures meaningful discussion in planned activities. Summative assessment is utilised to exemplify and explicate the progress made for students to fully understand their learning journey.

IMPACT



Approach to Assessment

Using formative assessment throughout lessons and the use of retrieval and recall strategies will support the teacher to monitor students understanding on the knowledge and skills taught. End of topic assessments can be used to help provide summative judgements at the end of each stage of learning.



Progress Data

Evidence collected through assessment live in class and recorded in student books informs the recording of progress data. This progress can then be shared through the EarWig system. Reports can be produced and shared with parents and carers throughout the year.



Students' Work

Students work (paper or online) will be used as a way of securing and showing learning and not simply a record of activities done in class as this does not necessarily evidence the learning that has taken place. Students have workbooks that can be used to evidence their learning. Worksheets should only be used when they are the most efficient way of teaching a concept. The use of worksheets can provide students with too much scaffolding, therefore not providing the opportunity to apply their knowledge.



Feedback to Students

Students will receive constant immediate verbal feedback within all lessons. This feedback will be used as a more instant way of providing feedback over writing long descriptive pieces of feedback in books. Professional practice reviews will analyse the impact of the verbal feedback, alongside talking to teachers and students. Students will be asked what they know now that they didn't know before to identify if the knowledge has been understood and transferred to the long-term memory.