Mathematics Policy

1. Vision and Intent

At our specialist school, we believe every student can achieve mathematical confidence and competence through high-quality, structured teaching. Our curriculum—underpinned by the White Rose Maths framework—is designed to be accessible, engaging, and challenging, using practical, pictorial, and symbolic methods to develop deep understanding and transferable skills.

2. Teaching and Learning Approach

2.1 Concrete-Pictorial-Abstract (CPA)

We follow a CPA approach to ensure all students can access and understand mathematical concepts:
- Practical (Concrete): Use of real objects and manipulatives (e.g. Numicon, Base 10) to model concepts.
- Pictorial: Transition to visual representations (bar models, number lines, diagrams).
- Symbolic (Abstract): Introduce mathematical notation and symbolic reasoning after conceptual understanding is secure.

2.2 White Rose Maths Structure

We use the White Rose Maths curriculum to provide:
- Small-step progression that builds on prior knowledge
- Regular opportunities to revisit and consolidate concepts
- Deep reasoning and problem-solving tasks integrated throughout

3. Language and Communication in Maths

Mathematical language is explicitly taught, modelled, and expected in student responses. We:
- Discussion scaffolds
- Encourage full sentence verbal reasoning and mathematical explanations
- Ensure students understand and use correct terms for operations, properties, and processes

4. Metacognition and Conceptual Connections

To build strong mathematical thinkers, we teach students how to think mathematically:
- Model metacognitive strategies (e.g. “What do I already know?” “How does this relate to previous learning?”)
- show links across units and topics
- Prompt students to verbalise their thought processes and reflect on strategies

5. Use of Technology

Technology is integrated purposefully to:
- Enhance engagement and visual understanding (e.g. Doodle Maths)
- Provide adaptive practice and instant feedback (e.g. Doodle maths, White Rose digital resources)

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- Encourage exploration, generalisation, and application of concepts (e.g. practical mathematical elements of the farm such as food ordering and paddock creation, spreadsheet modelling)

6. Questioning, Reasoning and Problem-Solving
We use tiered questioning to:
- Assess understanding (What do you notice? Can you explain why?)
- Promote reasoning (Is there another way? What happens if…?)
- Extend problem-solving (Can you apply this to a new situation? Can you create your own question?)

All lessons include:
- Opportunities for both guided and independent problem-solving
- Collaborative reasoning discussions

7. Assessment for Learning
Ongoing assessment includes:
- Diagnostic questioning
- Verbal responses and student explanations
- Use of White Rose end-of-block assessments
- Feedback that encourages reflection and metacognitive planning

8. Cross-Curricular and Generalisation
Students are supported in applying maths beyond the maths classroom:
- Real-world problem-solving tasks
- Mathematical links to science, technology, and other curriculum areas
- Projects that require data handling, measurement, spatial reasoning, or financial literacy

9. Inclusion and Support
All students receive access to high-quality maths education:
- Differentiated resources and scaffolded support
- Access to visual aids, manipulatives, and technology
- Targeted interventions using White Rose's diagnostic tools

10. Monitoring and Review
We regularly review curriculum delivery through:
- Book reviews and lesson observations
- Student voice and engagement surveys
- Ongoing CPD focusing on mastery, metacognition, and digital integration

Review
This policy will be reviewed on an annual basis as a minimum. Next review date 01.09.2027

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