Mathematics Curriculum Statement

Thinking deeply. Solving problems. Securing success.

Department driver: problem solving

At Painsley, students learn mathematics as something to think through. Fluency, reasoning and problem solving are built together so pupils can explain ideas clearly and apply them confidently.

1 Our Intent

- **Secure fluency** across number, algebra, geometry, ratio, probability and statistics.
- **Conceptual understanding:** students know why methods work, not just what to do.
- **Reasoning and communication:** justify, conjecture, explain and critique with precision.
- **Problem solving for all:** not a bolt-on for the most able, but the driver of learning.
- **Resilience and confidence** through carefully chosen challenge.

2 Curriculum Sequencing

- **Years 7–8:** secure the core ideas that later mathematics depends on: number, algebra, geometry, ratio, proportion, data and probability.
- **Year 9:** revisit and deepen key ideas while beginning the transition into GCSE thinking.
- **Year 10:** study substantial GCSE content, including algebra, geometry, trigonometry, statistics, sequences and proportional reasoning.
- **Year 11:** finish essential content where needed, then use retrieval, specification sweeps, QLA, past papers and targeted revision.
- In Years 7 and 8, the support pathway provides access, while additional challenging inquiry questions provide challenge and depth. At Year 9, 10, and 11, core, additional and extend routes provide access, support, challenge, and depth.

3 Our Neriage Lesson Method

Students are first invited to think, notice, discuss and conjecture before formal methods are modelled and secured. The teacher curates emerging ideas, makes useful thinking visible and then formalises the mathematics.

1. Multiple-choice starter
2. Launch the inquiry
3. Neriage discussion
4. I do / We do / You do
5. A statement
6. Independent work
7. Return to the inquiry
8. Optional deep inquiry investigation

Observe → Discuss → Conjecture → Explain → Formalise

What teachers do

Listen carefully, select and connect useful ideas, question to develop thinking, and formalise the mathematics.

What students do

Think first, discuss with the mathematician next to them, represent and refine ideas, then practise independently.

Why it matters

Balances inquiry with explicit instruction and turns exploration into secure mathematical understanding.

4 How We Teach

- A coherent Year 7–11 curriculum adapted to the needs of our pupils.
- **Inquiry-led** lessons that move from exploration towards formal mathematical understanding.
- **Explicit** modelling, guided practice and independent practice.
- **Retrieval** and carefully sequenced practice to keep core knowledge alive.
- In Years 7 and 8, the support pathway provides access, while additional challenging inquiry questions provide challenge and depth.
- At Year 9, 10, and 11, core, additional and extend routes provide access, support, challenge, and depth.
- High expectations, precise language and mathematical talk.

5 How We Assess

- End-of-unit and cumulative assessments.
- Question-level analysis to identify strengths, misconceptions and next steps.
- Feedback that informs teaching and revision.
- Homework to build fluency and retention.
- Past-paper practice and targeted revision in Year 11.
- Assessment used to inform teaching, not simply to measure it.

6 The Impact

- Students become fluent, accurate and increasingly independent.
- Students reason, justify and communicate clearly.
- Students solve unfamiliar problems with confidence and resilience.
- Students are prepared for GCSE success and further study.
- Students experience mathematics as a subject they can understand, enjoy and use.