Maths at Pennyhill

Building confident, curious, and resilient mathematicians.

A guide for parents and carers.

Every child can succeed in mathematics

Keep up, rather than catch up.

We are committed to high expectations for all, providing timely support so that every child learns together.

Personalised Approach

Lessons adapted to support and challenge every child.

Coherent Progression

Learning carefully sequenced into small, manageable steps.

Deep Challenge

Pushing thinking further through reasoning and rich mathematical content, not just moving on to new topics.

The three pillars of our curriculum

Pillar 1: Fluency

Developing conceptual understanding to recall and apply knowledge rapidly and accurately through varied, frequent practice.

Pillar 2: Reasoning

Following a line of enquiry, finding relationships, and developing arguments or justifications using correct mathematical language.

Pillar 3: Problem Solving

Applying mathematics to both routine and non-routine problems, breaking them down into simpler steps, and persevering to find solutions.

Moving from memorisation to true mastery

We follow the National Centre for Excellence in the Teaching of Mathematics (NCETM) Mastery Approach.

What this means:
Acquiring a deep, long-term, secure, and adaptable understanding of the subject.

Rather than just learning how to calculate an answer, children learn why the maths works, giving them the best chances of mastering the subject for life.

The Five Big Ideas in Teaching for Mastery

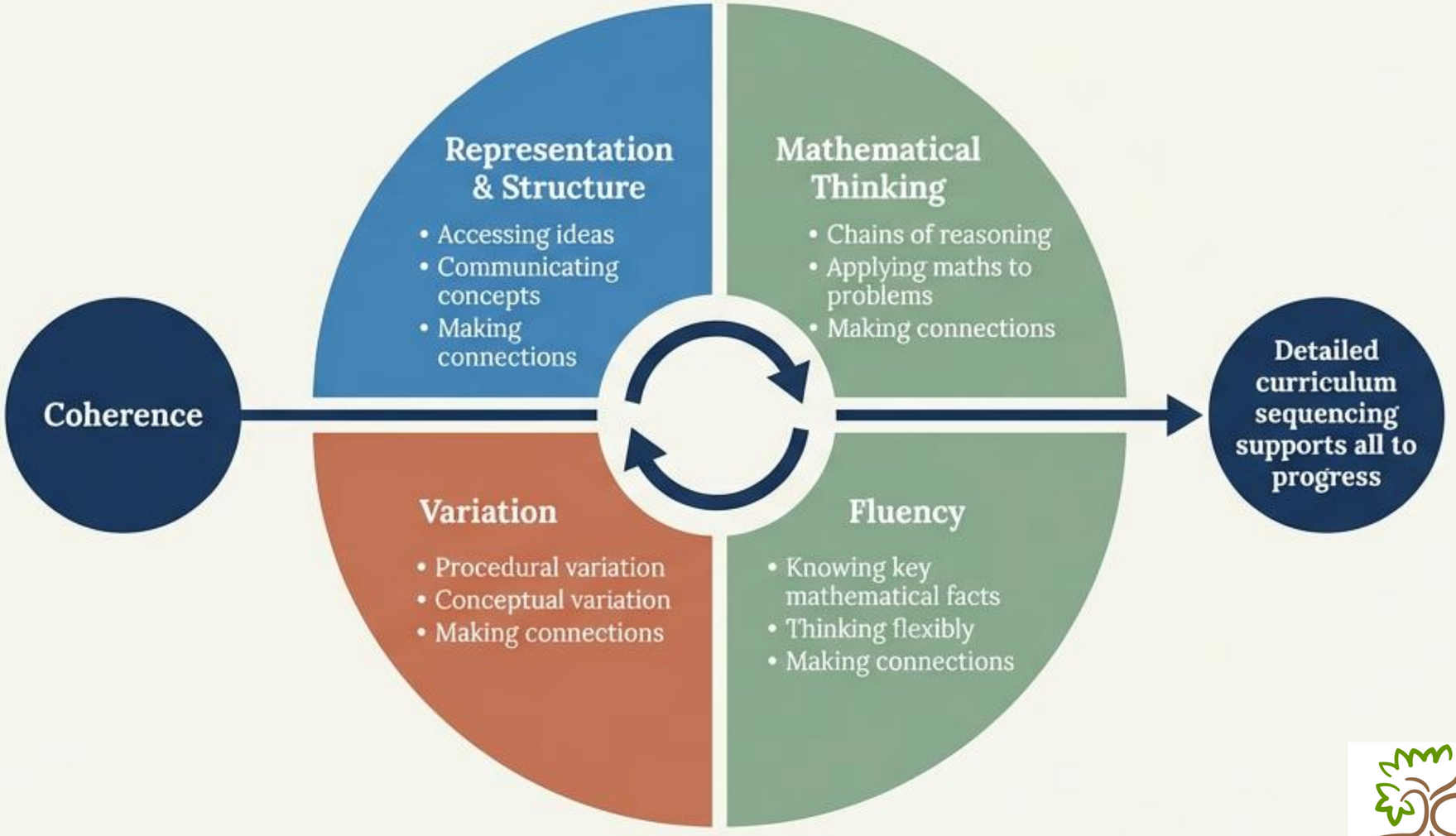
Coherence
Connecting new ideas to concepts that have already been understood.

Representation & Structure
Showing the maths in different ways to make it accessible.

Mathematical Thinking
Working on ideas, not just passively receiving them.

Fluency
Efficiently recalling facts to free up brain space.

Variation
Carefully changing questions to draw attention to mathematical relationships.



Inside a Pennyhill maths lesson

Small Step Learning

Lessons are broken down into small, manageable steps so that every child can succeed and build confidence.

Whole Class Teaching

All children learn the same key objective together through discussion, representation, and questioning.

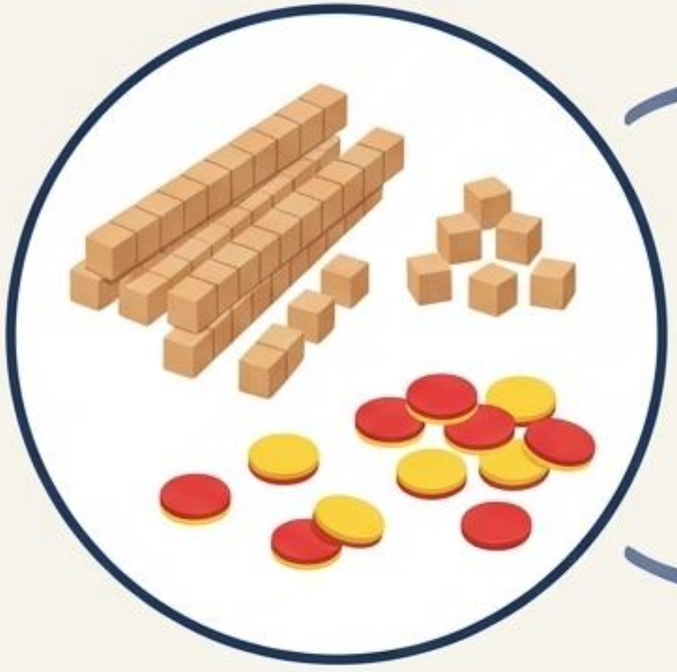
Mathematical Talk

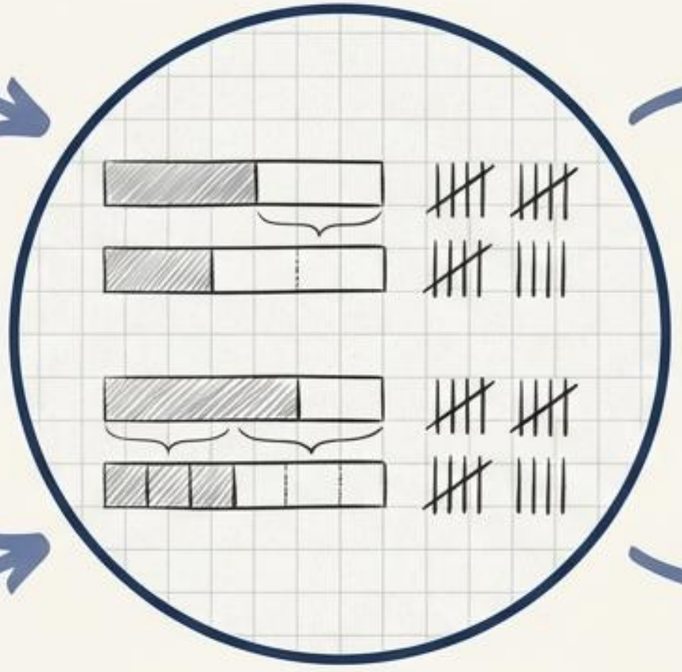
Children explain their thinking using full sentences and correct mathematical vocabulary. We use 'sentence stems' to help them articulate their reasoning clearly.

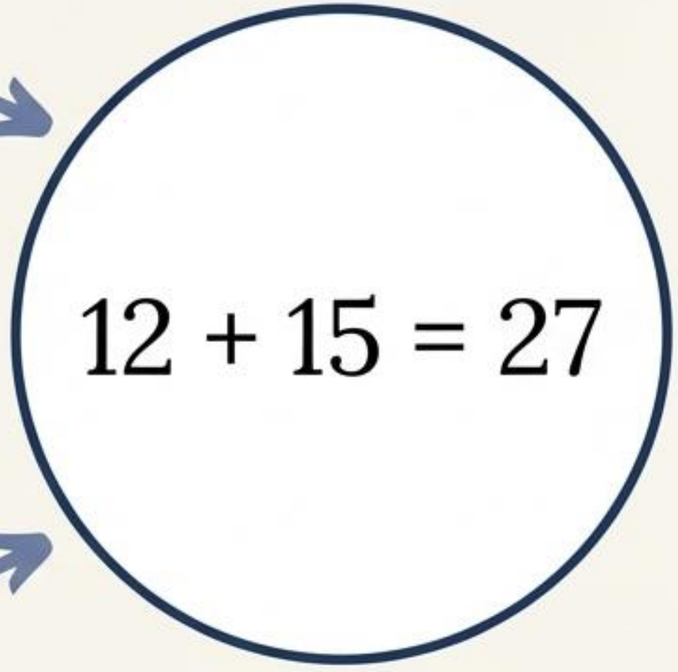
Challenge for All

Deepening understanding for everyone through rich problems, open-ended tasks, multiple representations, or explaining and proving answers.

Exposing the structure of maths







Step 1: Concrete

Using physical resources to feel and manipulate the maths (e.g., counters, cubes, place value charts).

Step 2: Pictorial

Drawing diagrams and using visual representations to map out the physical objects.

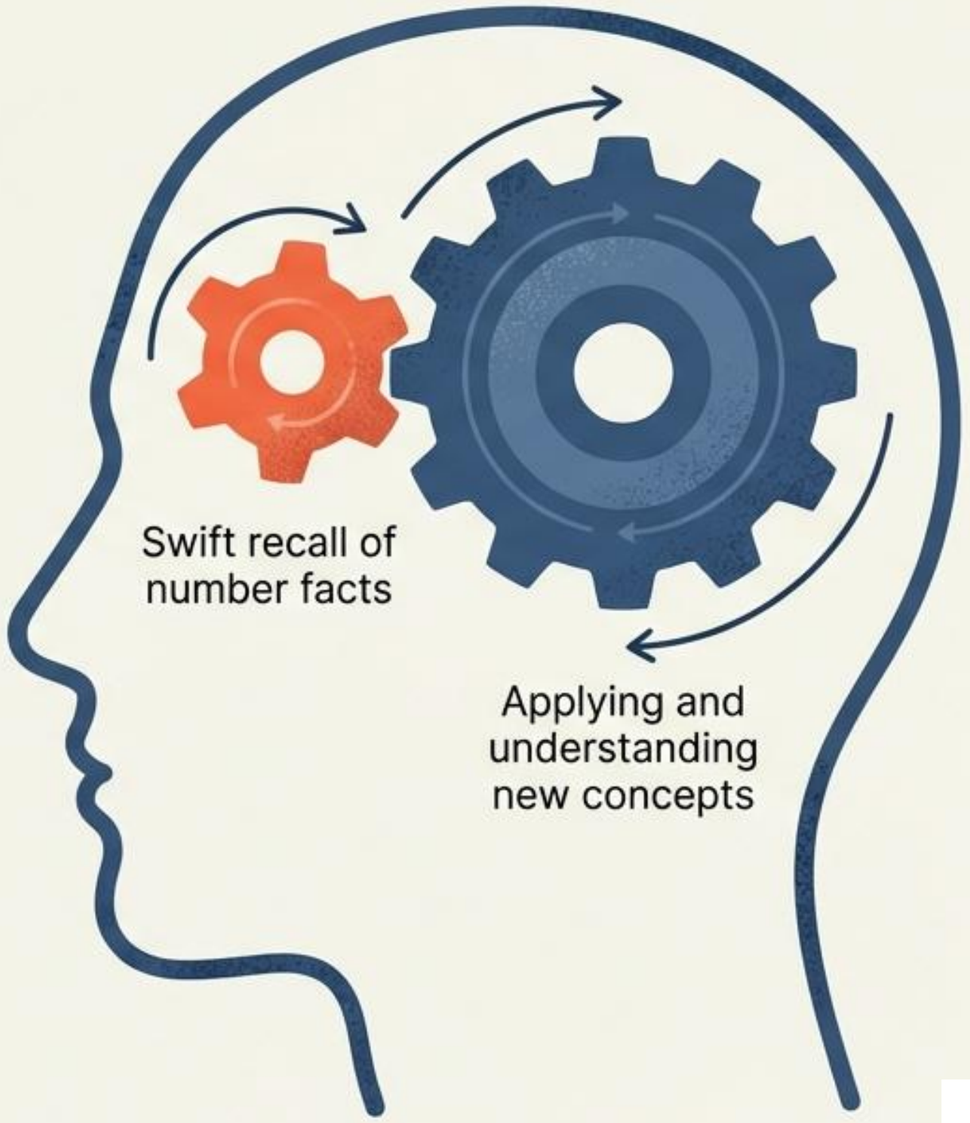
Step 3: Abstract

Using formal numbers, notation, and symbols once the concept is fully understood.

This progression ensures children fully understand concepts rather than simply memorising disconnected rul

Freeing up working memory through Mastering Number

- Pennyhill has partnered with the NCETM to embed the Mastering Number programme from EYFS through to Year 5.
- **The Goal:** Ensure all children leave their key stage with sound, flexible number sense and secure age-related number facts.
- **The Science:** Swift recall of foundational facts **significantly reduces a child's cognitive load**. This **frees up their working memory**, allowing them to focus entirely on understanding and applying new, complex concepts.



The impact of our approach

Deep Understanding

Children demonstrate secure and adaptable grasp of complex mathematical concepts.

Accuracy & Efficiency

Rapid and reliable recall of key number facts.

Confident Communication

Confident and accurate use of mathematical vocabulary to explain reasoning.

Positive Attitudes

A deeply ingrained belief that they can succeed in maths, leading to high enthusiasm.

As a result, chidren leave Pennyhill with the resilience needed for the next stage of their education.

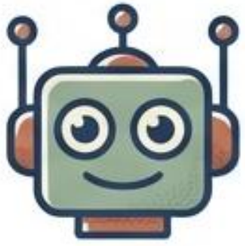
The home-school partnership

Parents and carers play a vital role in supporting children to become confident and fluent mathematicians. In line with the NCETM principles, we know that regular practice, mathematical discussion, and the retrieval of key knowledge at home significantly strengthen long-term understanding.

The following pages outline our recommended toolkit for home support.

Digital Toolkit: Building rapid recall

Best for: Early fluency



Numbots

- Focus: Number bonds, addition, and subtraction fluency.
- Method: “Little and often” practice to secure mental calculation skills.
- Link provided via school communications.

Best for: Speed & accuracy

Times Tables Rock Stars (TTRS)

- Focus: Rapid recall of multiplication and division facts.
- Time Commitment: 5-10 minutes, 3-4 times a week.
- Goal: Improve speed while maintaining accuracy.
- Parent Tip: Teachers can provide ‘heatmaps’ to help you focus your child on their specific target facts.

Digital Toolkit: Consolidating classroom learning

DoodleMaths

- **Focus:** Personalised practice spanning fluency, reasoning, and problem-solving across the entire primary curriculum.
- **How it works:** Tailors questions directly to your child's current strengths and identified next steps.
- **Time Commitment:** Just 10 minutes a day.
- **Impact:** Actively helps to consolidate what was learned in the classroom that day and addresses specific misconceptions.

Links provided via school communications.

Practical maths in everyday life

Consistent, short practice sessions are always more effective than occasional longer ones.

- **Everyday Opportunities**: Bring maths into shopping, cooking, measuring, and telling the time.
- **The Golden Question:** Frequently ask your child, ‘How did you work that out?’ This promotes reasoning over simply getting the right answer.
- **Keep Practising:** Regularly retrieve number bonds and times tables facts outside of digital apps (e.g., during car journeys or walks).

Further support and useful links

White Rose Maths Hubs
(Comprehensive home learning support for parents)

BBC Bitesize
(Targeted SATs support across KS1 and KS2 maths)

A message from our team:

If you are ever unsure about the specific calculation methods taught in school, please contact your class teacher.

We are always happy to help ensure you feel confident supporting your child's mathematical journey.