Newton International Academy, Barwa

Mathematics Policy (EYFS & Primary)

An International Community of Learners, Striving for Excellence and Celebrating Success

NEWTON INTERNATIONAL ACADEMY | BARWA

Our vision, mission and values:

Vision: An international community of learners striving for excellence and celebrating success.

Mission: We aim to provide the highest quality of education possible for students of all abilities. In doing so, we aim to positively encourage each student to achieve academic excellence at their level, enjoy creative diversity, develop critical thinking skills, and become lifelong learners and responsible citizens.

Values

Rationale

The Mathematics Policy at Newton International Academy Barwa City is designed to ensure that all pupils receive a high-quality education that is engaging, inclusive, and adaptive. This policy is aligned with our commitment to providing outstanding teaching and learning, promoting global citizenship, and prioritising the wellbeing of our pupils. By integrating innovative practises, including the use of artificial intelligence and CPA principles, we aim to prepare our pupils to thrive in a complex, interconnected world. This policy will guide all staff in their teaching practises and will be regularly reviewed to ensure its effectiveness in meeting the diverse needs of our pupils.

Aims

The aims of the Teaching and Learning Policy are to:

1. Enhance the Quality of Teaching: Provide a framework for delivering high-quality teaching that engages and inspires pupils.
2. Promote Active Learning: Encourage pupils to take an active role in their learning, fostering independence and critical thinking skills.
3. Support Inclusivity: Ensure that all pupils, regardless of their background or ability, have access to a rich and diverse curriculum.
4. Foster Global Citizenship: Equip pupils with the knowledge and skills to become responsible global citizens who can contribute positively to society.
5. Prioritise Wellbeing: Create a supportive environment that promotes the emotional, social, and physical wellbeing of all pupils.
6. Integrate Technology: Use innovative tools, including artificial intelligence, to enhance personalised learning experiences.
7. Encourage Sustainability: Instil a sense of responsibility towards the environment and promote sustainable practises within the school community.

At Newton International Academy, we believe that mathematics is a vital foundation for understanding the world, fostering logical reasoning, and equipping our students with essential life skills. In line with the expectations of the British National Curriculum, our intent is to deliver a high-quality mathematics education that is ambitious, inclusive, and coherently sequenced to ensure all learners achieve fluency, reasoning, and problem-solving proficiency.

Our teaching and learning of mathematics is underpinned by the White Rose Maths scheme, which provides a structured, evidence-based progression model from Early Years through Key Stages 1 to 4. White Rose promotes a mastery approach that allows children to develop a deep, sustainable understanding of mathematical concepts. By following this approach, we aim to nurture confident, resilient mathematicians who are not only capable of achieving success in examinations but are also prepared to apply mathematical thinking to real-world scenarios.

A key element of our practice is the CPA (Concrete–Pictorial–Abstract) approach, which ensures that students build strong conceptual understanding by progressing through three interconnected stages of learning:

Concrete: Pupils begin by using physical objects and manipulatives (e.g., Numicon, Dienes blocks, counters) to model mathematical ideas. This hands-on stage is crucial in helping learners explore and internalize abstract concepts in a tangible way.

Pictorial: Once confident with concrete resources, students move to drawing or interpreting diagrams and visual representations (e.g., bar models, number lines, part-whole models). This stage bridges the gap between concrete understanding and abstract thinking.

Abstract: Pupils are then guided to use formal mathematical notation and symbolic representations (e.g., numerals, equations, algebra) to solve problems independently and fluently.

Our intent is to ensure all children, regardless of background or prior attainment, are given the opportunity to access high-quality mathematical learning experiences. Through differentiation, scaffolding, targeted support, and challenge, we seek to meet the needs of all learners, including EAL students, those with SEND, and more able mathematicians.

Furthermore, mathematics lessons at Newton International Academy are designed to be engaging, inquiry-based, and discussion-rich. We place a strong emphasis on mathematical language and reasoning, encouraging pupils to articulate their thinking, justify their answers, and explore multiple strategies. This supports metacognition and helps embed a positive mindset towards problem-solving and challenge.

Regular formative and summative assessments guide our planning and intervention, ensuring responsive teaching and appropriate progression for every learner. We also promote cross-curricular opportunities where mathematics enhances learning in subjects such as science, geography, and computing, reinforcing its practical relevance.

In essence, our mathematics provision at Newton International Academy is driven by a shared commitment to excellence, equity, and curiosity. Through our consistent use of the White Rose Maths scheme and the CPA approach, we aim to inspire learners to become confident mathematicians who are well-prepared for future academic and life challenges.

Implementation Statement for Mathematics at Newton International Academy

At Newton International Academy, the delivery of our mathematics curriculum is carefully structured to ensure progression, mastery, and meaningful learning for all pupils. Our implementation model follows the White Rose Maths scheme of learning, underpinned by a consistent application of the CPA (Concrete–Pictorial–Abstract) approach across all year groups. The implementation practices outlined below are designed to support teachers in identifying and addressing gaps in learning, monitoring progress effectively, and ensuring pupils are actively engaged in their mathematical development.

1. Block Planning and Pre-Assessment

- Prior to the start of each new block, teachers will administer the end-of-block assessment from the previous year group as a diagnostic pretest.
- This diagnostic is not graded but serves to highlight gaps in prerequisite knowledge, misconceptions, and areas requiring reinforcement.
- The information gathered will inform differentiated planning, small group instruction, and appropriate scaffolding to ensure pupils are ready to access the new learning objectives.

2. Assessment for Learning and Mastery

- At the end of each block, teachers will use the White Rose End-of-Block Assessment B to check for understanding and evaluate mastery of concepts taught.
- Outcomes from these assessments will guide remedial instruction, extension tasks, and planning of next steps.
- In addition to formal assessments, teachers will continuously assess pupils' understanding through ongoing marking, pupil discussions, whiteboard work, and class observations.

3. Target Setting and Pupil Self-Assessment

- Child-friendly maths targets will be created for each pupil based on curriculum objectives and assessment data.
- These targets will be stuck into the front of each pupil's maths workbook and revisited regularly.
- Pupils will be encouraged to self-assess their progress against each target using simple indicators (e.g., smiley faces, check marks, or traffic lights) to foster ownership and reflection.

4. Recording Work and Presentation Expectations

- All pupils will write the short date at the top of each new piece of work.
- WALT (We Are Learning To) statements will be short, simple, and age-appropriate, clearly outlining the lesson focus.
- As per school policy, pens are not allowed in mathematics workbooks; pupils will use pencils only to complete all tasks.

5. Use of Workbooks and White Rose Materials

- Year 1:
  - All maths work will be completed in individual maths workbooks.
  - White Rose textbooks will be assigned as homework practice, reinforcing classroom learning.
- Year 2:
  - The White Rose books will serve as pictorial scaffolds and sources of abstract challenge.
  - Selected tasks may be completed directly in these books when appropriate; however, the majority of written work will be recorded in workbooks.
  - A balance between concrete activities and written evidence will be maintained, and evidence of concrete work (e.g., through photos, drawings, teacher annotation) will be included in the workbooks.
- Years 3 to 6:
  - All work will be completed in maths workbooks, with a clear emphasis on independent recording, reasoning, and problem-solving.
  - While manipulatives and visual models may still be used as support tools, evidence will be captured in the written work to document understanding.

6. Concrete Evidence Across Key Stages

- In Years 1 and 2, concrete resources (e.g., counters, base ten blocks, number lines) will be an essential part of daily lessons.
- Pupils' workbooks will include evidence of these concrete activities, either through photos, sketches, or teacher notes documenting verbal responses or demonstrations.
- This ensures alignment with the CPA approach and supports long-term retention and conceptual understanding.

7. Marking and Feedback

- All marking and feedback for maths will follow the whole-school Marking Policy, ensuring consistency across year groups.
- Feedback will focus on next steps, misconceptions, and pupil understanding, and will be actionable, age-appropriate, and supportive.
- Teachers are expected to provide timely feedback that enables pupils to reflect, improve, and celebrate their mathematical successes.

Monitoring and Quality Assurance

To ensure high standards in teaching and learning, maths coordinators and middle leaders will:

- Monitor workbooks across year groups to ensure consistency in recording and presentation.
- Support teachers in analyzing assessment outcomes and planning targeted interventions.
- Provide ongoing professional development on the effective use of the CPA approach, White Rose resources, and mastery teaching techniques.

At Newton International Academy, we evaluate the impact of our mathematics curriculum through a multifaceted lens that prioritizes depth of understanding, progress over time, and pupil confidence in mathematical thinking. Our ambition is not only for students to attain excellent academic results but also to develop a lasting appreciation for the value and application of mathematics in everyday life and future learning.

The impact of our maths curriculum, delivered through the White Rose Maths scheme and grounded in the CPA approach, is evident in the following key areas:

1. Progress and Attainment
   - Pupils demonstrate sustained and measurable progress over time, both within and across academic years, as evidenced through our internal tracking systems, formative assessment records, end-of-block White Rose assessments, and national benchmarking tools such as GL Assessments and SATs.
   - Outcomes are tracked rigorously to identify individuals and cohorts requiring targeted support or extension. We expect a high proportion of pupils to achieve age-related expectations (ARE) and a growing number to exceed them, especially as mastery teaching becomes fully embedded across all phases.
2. Fluency, Reasoning, and Problem Solving
   - Pupils display fluency in fundamental mathematical procedures (e.g., number bonds, multiplication tables, mental arithmetic), enabling them to tackle more complex problems efficiently and accurately.
   - Through regular exposure to varied question types and open-ended tasks, pupils develop confidence in mathematical reasoning. They can explain their methods, compare strategies, use appropriate vocabulary, and justify their conclusions, both orally and in written form.
   - Our students become adept problem-solvers, applying their mathematical knowledge to unfamiliar contexts, including real-world scenarios and cross-curricular applications.
3. Depth Over Acceleration
   - Pupils are given the opportunity to develop a deep, conceptual understanding of mathematics rather than merely accelerating through content. The mastery approach ensures that students who grasp concepts quickly are challenged through rich and sophisticated problems, not rushed through new content.
   - Regular revisiting and consolidation of key ideas promotes long-term retention and reduces misconceptions. The consistent use of the CPA approach further reinforces this conceptual depth by making abstract ideas more accessible and durable.

4. Equity and Inclusivity
   - All learners, regardless of starting point or background, make meaningful progress. We monitor the achievement of key groups (e.g., EAL, SEND, low prior attainers, more able) to ensure that the curriculum is inclusive and that teaching strategies are adaptive to individual needs.
   - The CPA method provides multiple entry points into each lesson, ensuring that all pupils can access learning and build confidence in their ability to "do" maths.
5. Pupil Voice and Confidence
   - Regular pupil voice surveys, learning walks, and book scrutinies reveal that students are enthusiastic about mathematics and see themselves as capable learners.
   - Pupils articulate mathematical thinking with increasing clarity and independence. They value the structure and predictability of the White Rose scheme, and they enjoy using manipulatives and pictorial representations as tools for exploration and understanding.
6. Teacher Development and Consistency
   - Teachers demonstrate increased subject knowledge and pedagogical confidence in line with CPD tied to White Rose Maths and CPA principles. This leads to greater consistency in mathematical delivery across year groups and phases.
   - Regular internal moderation and collaborative planning ensure that staff share best practices and uphold high expectations for all pupils.
7. Preparation for the Future
   - Our pupils leave each key stage, and ultimately Newton International Academy, well-prepared for the next phase of their mathematical journey—whether transitioning into more complex secondary mathematics or applying numeracy skills in vocational and real-life contexts.
   - The cumulative impact of our approach fosters mathematically literate individuals who can think critically, solve problems creatively, and engage confidently with the quantitative demands of modern life.

In conclusion, the impact of our mathematics curriculum at Newton International Academy is reflected in confident, capable, and curious learners who approach mathematics with enthusiasm and resilience. Through the structured use of the White Rose Maths scheme and the CPA approach, our pupils build deep conceptual understanding, achieve strong academic outcomes, and are well-equipped with the skills needed for future learning and everyday problem-solving.