



Maths Policy

Version	Document Title	Status	Author	Approved by	Date	Reviewed On	Next Review Date
0.1	Maths Policy	Final	Maths Lead	Principal/Vice Principal	Sep 2022	August 2026	August 2027
Regional Director		Principal			Vice Principal		
Head of Foundation Stage		Head of Primary			Head of Secondary		

1. Introduction and Policy Framework

1.1 Document Purpose

This policy outlines the whole-school framework for the teaching, learning, assessment, and progression of Mathematics at Newlands School, Dubai. It establishes a consistent, continuous, and high-quality approach across in the Primary, Secondary and Post-16 phases, ensuring all students experience an uninterrupted and progressive mathematical journey.

1.2 BSO Standards Alignment

In accordance with British Schools Overseas (BSO) standards, this policy guarantees:

- **Quality of Education Provided:** A curriculum based on the National Curriculum for England, adapted contextually for Dubai, ensuring high standards of fluency, reasoning, and problem-solving.
- **Spiritual, Moral, Social, and Cultural (SMSC) Development:** Cross-curricular links, including the UAE National Agenda and Moral Social Education (MSC), which prepare students for global and local citizenship.
- **Inclusion and Equality:** Equality of access to the curriculum for all learners, including those with Special Educational Needs and Disabilities (SEND), High Attainers (Academically More Able), and English as an Additional Language (EAL).

2. Whole-School Vision and Aims

2.1 Mission Statement

At Newlands School, Dubai, our mathematics teaching aims to build a solid foundation of skills, confidence, and lifelong enjoyment of mathematics. Our overarching goal is for students to develop clear, progressive calculation strategies that seamlessly bridge mental and written methods, empowering them to become mathematically literate, fluent, and analytical thinkers.

2.2 Whole-School Aims

- **Fluency & Competence:** To develop confident, resilient learners who build rapid recall, accurate calculation habits, and deep conceptual understanding through a cumulative, adaptive learning approach.
- **Reasoning & Communication:** To ensure students can articulate their thought processes, use sophisticated technical vocabulary, and justify their mathematical thinking confidently.
- **Problem-Solving Application:** To embed critical thinking and real-world application throughout the

curriculum, enabling students to break down complex, non-routine problems into logical, systematic steps.

- **High Outcomes for All:** To maintain a reflective, adaptive environment where scaffolded support and rigorous stretch ensure that all students, regardless of their starting points, achieve high outcomes and celebrate personal growth.

3. Primary Phase Framework (Key stage 1 to Key Stage 2)

3.1 Curriculum Mastery Scheme

The Primary Phase adopts the **White Rose Maths (WRM)** framework. This scheme organizes mathematical concepts into a structured, progressive sequence that builds a deep, long-term understanding of mathematical structures through Concrete, Pictorial, and Abstract (C-P-A) approaches.

3.2 Phase-Specific Aims

- To establish early numerical fluency through consistent concrete modeling and mathematical play.
- To transition students gradually from concrete apparatus to formal written calculation methods.
- To normalize verbal reasoning at an early stage by encouraging young learners to voice their thought processes.

3.3 Pedagogy, Lesson Structure, and Teaching Approach

Primary lessons prioritize real-time adaptation and active engagement:

- **High-Quality Modeling:** Teachers model new concepts by breaking down complex skills into visible, sequential steps, demonstrating *how* and *why* mathematical methods work.
- **Live Scaffolds & Interactive Working Walls:** Classrooms feature dynamic working walls that evolve alongside the learning journey. These display models, key vocabulary, and live examples, serving as real-time visual tools that students access independently during practice.
- **Retrieval Practice:** Regular retrieval activities open lessons to embed prior knowledge and strengthen long-term memory retention.
- **Adaptive Support:** Traditional differentiation is replaced by adaptive scaffolding. All students access the same high-level curriculum, with targeted support adjusted live to meet learners' immediate needs.
- **Calculation Continuity:** For specific calculation progressions, staff and parents must refer to the [White Rose Maths Calculation Policy](#).

3.4 Reflective Learning and Improvement (DIRT)

Reflective learning is central to the primary approach. Dedicated Improvement and Reflection Time (DIRT) is embedded into the routine to ensure students actively self-assess and progress. During DIRT, students:

- Address and correct misconceptions identified in formative assessments.
- Respond directly to targeted teacher feedback to make precise improvements.
- Develop a growth mindset by evaluating their own successes and tracking personal goals.

3.5 Assessment and Feedback

- **Formative Assessment:** Teachers utilize precise questioning, ongoing observations, and real-time Learning by Questions (LbQ) data to evaluate understanding instantly and adjust live scaffolds.
- **Summative Assessment:** Termly assessments provide a clear overview of student progress, identifying cohorts or individuals requiring specialized booster support or further cognitive challenge.
- **Feedback & Next Steps:** Feedback is timely and actionable, guiding students to spot errors independently, which fosters early accountability and academic resilience.

3.6 Inclusion and Support

- **SEND Framework:** Students with SEND are fully integrated into the daily mathematics lesson. Teachers align tasks with Individual Education Plans (IEPs), drawing from tailored National Curriculum and White Rose Maths objectives. Specialized, gap-filling intervention programs run parallel to regular instruction to maximize potential.
- **EAL Accommodations:** Language acquisition is supported via scaffolded visual aids, structured vocabulary dual-coding, and sentence stems.
- **Stretch & Challenge:** High-attaining primary pupils are extended through rich, deep problem-solving tasks and contextual variations, rather than being accelerated prematurely into new content.

4. Secondary & Post-16 Phase Framework (Key Stages 3, 4 & 5)

4.1 Curriculum Mastery Scheme

The Secondary and Post-16 Phase delivers the **National Curriculum for England (Key Stage 3)**, transitioning into the **Pearson Edexcel International GCSE (iGCSE) Specification A (Key Stage 4)**, and advanced statistical/algebraic qualifications at **Post-16 (Key Stage 5)**. Mathematics is taught for a minimum of 45 minutes per day or five hours per week.

4.2 Phase-Specific Aims

- **Conceptual Fluency:** Students must achieve accuracy (careful calculation with minimal careless errors), pace (quick recall of appropriate strategies), and long-term retention across complex domains.
- **Mathematical Reasoning:** Students follow lines of inquiry, conjecture relationships, formulate generalisations, and present rigorous mathematical proofs using exact technical language.
- **Independent Problem Solving:** Students build the capacity to break down sophisticated, multi-step, non-routine problems, choosing and combining relevant principles across interconnected mathematical topics.

4.3 Pedagogy, Lesson Structure, and Teaching Approach

Secondary lessons follow a rigorous, highly structured format designed to maximize cognitive engagement:

Mandatory 7-Part Lesson Structure

1. **Retrieval Practice:** A 3-question starter checking retention across three distinct tiers:
 - a. *Question 1:* From the previous lesson's learning.
 - b. *Question 2:* From the previous week's learning.
 - c. *Question 3:* From a previous month, term, or academic year.
2. **Learning Objective Introduction:** Explicit statement of the lesson's core academic focus.
3. **Differentiated Success Criteria:** Clear mapping of success pathways tailored to stretch and support different student starting points.
4. **Key Vocabulary Discussion:** Active introduction and unpacking of technical terms essential to the lesson.
5. **Direct Instruction (I DO):** High-quality teacher modeling of concepts and problem-solving pathways, incorporating continuous Assessment for Learning (AfL) to gauge student entry points.
6. **Collaborative Practice (WE DO):** Students work in pairs or groups to solve new questions. Grouping is fluid: *mixed-ability groups* are used when introducing a brand-new concept so peers can support each other, while *tiered groups* are deployed during differentiated application tasks to maximize peer challenge.
7. **Independent Application (YOU DO):** Students work independently in their copybooks. Digital learning tools may be utilized here to provide foundational clarity for lower-attaining students or advanced research/mastery pathways for higher-attaining individuals.

Reflective Plenary

Every lesson concludes with an evaluation of understanding. Students complete a brief mathematical problem, solve a reasoning question, or create student-generated problems for their peers to solve. Challenge and critical thinking opportunities must be visible throughout.

4.4 Mathematical Talk and Technical Vocabulary

Secondary classrooms must be vibrant, talk-rich environments where the way students speak and write about mathematics transforms their cognitive understanding.

- **Stem Sentences:** Teachers introduce key concepts using structured sentence frameworks (stem sentences) to ensure students can articulate *how* they know an answer is correct before writing it down.
- **Structured Questioning:** Staff must provide regular, purposeful opportunities for verbal reasoning. Class debates are used in higher key stages to allow peers to challenge each other using logical proof. Standard prompts include:
 - *How do you think we are going to solve this problem?*
 - *Do you agree with the statement/method presented?*
 - *Why have you chosen this specific operation or method?*
 - *Can you provide a precise example of a positive correlation?*
- **Vocabulary Conventions:** Technical language must be exact. Key words must be displayed clearly. Teachers must emphasize the partitioning of complex roots (e.g., *Quadrilateral*: 'Quad' meaning four; 'lateral' meaning sides) to teach decoding skills. Staff must model sophisticated synonyms (e.g., *product* and *multiply* instead of *times*) and insist on the term '**calculation**' or '**problem**' rather than '**sum**' (which strictly means addition).

4.5 Problem-Solving Methodology (RNCA)

To decode word problems and multi-step examination questions systematically, the **RNCA** framework must be taught and explicitly applied by all students:

- **R – Read:** Read the question carefully, several times, isolating exactly what it is asking.
- **N – Note:** Note down and extract all critical numerical information, variables, and given data.
- **C – Calculate:** Calculate the solution, selecting logical strategies and operations. Students must show every step of their working out clearly.
- **A – Answer:** Formulate the final answer clearly and systematically check the working against the

original question constraints.

4.6 Written Calculations and Calculation Liberty

In alignment with Pearson Edexcel standards, the secondary phase recognizes that multiple logical pathways can lead to a correct solution. Teachers are expected to present alternative methods to solve a problem, highlighting the respective advantages and disadvantages of each. Students are permitted to use their preferred method, provided it is mathematically sound, logically correct, and consistently leads to the right solution.

4.7 Medium and Long-Term Planning

- **Long-Term Planning (Curriculum Maps):** Subject teachers construct annual Curriculum Maps in close consultation with the wider department, aligned strictly with the Newlands Secondary Mathematics Road Map. This ensures logical year-on-year transition with no content gaps or accidental repetition.
- **Medium-Term Planning (Unit Plans):** Teachers design comprehensive unit plans using the approved Newlands template. These plans must explicitly feature cross-curricular links, connections to UAE Culture, and applications to the **UAE National Agenda**. Unit plans are live documents; teachers must reflect on and modify them at the conclusion of each half-term based on student progress data and pacing requirements.

4.8 Textbooks and Digital Resources

Planning and resource selection must utilize high-quality, approved materials:

- **Key Stage 3 Textbooks:**
 - *Collins Maths Frameworking Pupil Book 1.3* (Year 7)
 - *Pupil Book 2.3* (Year 8)
 - *Pearson Edexcel IG Mathematics A Student Book 1* (Year 9)
- **Key Stage 4 Textbooks:**
 - Pearson Edexcel IG Mathematics A Student Book 1 & 2
 - Pearson Edexcel International GCSE (9–1) Further Pure Maths Student Book
- **Key Stage 5 Textbooks:**
 - Edexcel International A Level Mathematics Pure 1 Student Book – Y12
 - Edexcel International A Level Mathematics Pure 2 Student Book - Y12
 - Edexcel International A Level Mathematics Pure 3 Student Book - Y13

- Edexcel International A Level Mathematics Pure 4 Student Book - Y13
- Pearson Edexcel International A Level Mathematics Mechanics 1 Student Book- Y12/13
- Pearson Edexcel International A Level Mathematics Statistics 1 Student Book- Y12/13
- IAL Decision Mathematics D1 (Publisher: Pearson Education Limited)
- **Digital Platforms & Applications:** Twinkl Secondary Maths, CorbettMaths, Maths Genie, Dr Frost Maths, Dr Austin Maths, Geogebra, Save My Exams, Whiteboard.fi.

4.9 Recording of Learning

- All student learning must be evidenced in individual square-paged Maths Exercise Books every lesson.
- Presentation must reflect high pride and age-appropriate neatness.
- The date must be consistently written in numerical figures (e.g., 05.07.18).
- The Learning Objective must be positioned clearly at the top-left of the page (either handwritten or typed).
- All question sheets or printed graphs must be neatly trimmed before being stuck into the books.
- Students must write their working out in blue ink; all diagrams, geometric shapes, and graphs must be drawn in pencil with a ruler.

4.10 Assessment, Data Systems, and Intervention

- **Formative Assessment:** Monitored via precise teacher questioning, written book work, retrieval accuracy, and regular interactive digital tools (e.g., Doodle, Kahoot, Blooket).
- **Summative Assessment Schedule:**
 - *Baseline Tests:* Administered at the start of each academic year across all year groups.
 - *End-of-Unit Tests:* Completed approximately every two weeks, incorporating spaced-retrieval questions from prior units.
 - *End-of-Term Assessments:* Comprehensive exams covering cumulative content.
 - *External Benchmark Exams:* Annual **GL Assessments**, **TIMSS** (Year 9), and formal **International GCSEs**(Years 11–13).
- **Data Recording & Analysis:** All summative outcomes must be inputted directly into **Paradigm**. At the conclusion of each term, teachers must attend a **Pupil Progress Meeting** to review the data tracker. Any student identified as tracking 'off-target' on SIMS must immediately be placed into an targeted Intervention/Booster group with a clearly defined, measurable **SMART target**. One full

lesson prior to any end-of-unit assessment must be dedicated to targeted revision.

4.11 Inclusion and Support

- **Academically More Able (High Attainers):** Highly capable students are taught alongside their peers but stretched through sophisticated group tasks, advanced problem variations, and targeted, higher-order questioning during whole-class instruction. If a student grasps a concept rapidly, they must be offered rich, deep critical thinking problems before any acceleration into new content is considered.
- **SEND and Lower Attainers:** Teachers ensure accessibility by introducing concrete apparatus, adjusting language parameters, and using targeted technology paths to clarify core concepts. Individual profiles link directly to National Curriculum and WRM benchmarks, supported by structural intervention blocks to close learning gaps.

4.12 Secondary Classroom Environment Expectations

Every Mathematics classroom must maintain a high-quality environment for learning:

- Concrete learning apparatus and relevant mathematical instruments must be readily available for student reference.
- Key technical vocabulary, pictorial models, and abstract representations must be clearly visible on displays.
- Each room must feature a "**Question of the Week**" board showcasing a challenging topic-related problem (including authentic iGCSE style questions for Upper Secondary) where students post their solutions using sticky notes.

5. Whole-School Cross-Curricular Integration

To maximize the transfer of skills—a common area of cognitive difficulty for learners—Mathematics at Newlands School is integrated across all subject domains. The Mathematics Department delivers core knowledge via a problem-solving approach, while non-specialist departments reinforce these skills using identical, consistent calculation techniques.

5.1 Expectations for the Mathematics Department

- Provide clear support and advice to other departments using the whole-school Numeracy and Calculations Policy to maintain cross-phase consistency.
- Share clear data with other subject teachers regarding age-appropriate numeracy expectations and common student misconceptions.

- Collaborate with other departments to ensure students possess the necessary mathematical skills *before* those skills are required in secondary subject applications.
- Actively incorporate contextual data, problems, and authentic exam questions from other subjects into daily mathematics lessons.

5.2 Expectations for Non-Mathematics Staff

- Familiarize themselves with correct mathematical language, notation, and conventions specific to their subject, enforcing their correct usage among students.
- Maintain a clear understanding of age-appropriate numeracy skills and potential student learning friction points.
- Provide the Mathematics Department with advance notice regarding when specific numerical skills will be needed in their curriculum schemes.
- Share subject-specific numerical resources and applications with math teachers to assist in contextual problem planning.
- Maintain full awareness of active interventions and numeracy strategies deployed by the Mathematics Department to ensure school-wide alignment.

5.3 Matrix of Cross-Curricular Mathematical Links:

Department	Specific Curriculum Mathematical Applications and Skills Required
Science	Classifying, counting, measuring, and estimating; ordering decimals; calculating means and percentages; using negative numbers (temperatures); substituting values into formulas; rearranging algebraic equations; selecting, plotting, and interpreting complex data graphs.
Computing	Applying logic via programming algorithms; executing directional sequences and instruction inputs (e.g., Flowol); data modeling using spreadsheets (formulas, averages, sums, logic operators: more than, less than, equals to); converting between binary and hexadecimal bases; database logging; building precise Boolean search syntax.
Geography	Collecting, presenting, and analyzing primary/secondary data;

	establishing consistency in data handling; reading grid references (6-figure references), manipulating map scales, and calculating compass bearings.
Art & Technology	Executing precise spatial measurements; applying geometric properties of shapes and symmetry to design constructions; scaling, expanding, or reducing layouts utilizing ratio and proportion.
Food Technology	Managing precise ingredient measurements and weight metrics; tracking and calculating preparation timelines; adapting recipes by scaling quantities and ratios to feed varying group sizes; conducting detailed ingredient cost calculations.
PE	Measuring height, distance, time, and speed metrics; calculating performance averages; generating and analyzing graphical charts to track athletic improvement; applying position, angle, and direction during dance, gymnastics, and competitive ball games.
Moral Social Education (MSC)	Utilizing and analyzing primary and secondary data sets; evaluating graphs, charts, and financial tables detailing social issues; formulating reasoned decisions based on statistical facts; identifying data bias and misleading graphic scales; solving financial literacy and workplace mathematics problems.
History	Analyzing and presenting historical data sets via graphical forms; constructing and calculating intervals across chronological timelines to measure the passage of time between historic events.
English	Teaching structural text-decoding strategies to help students successfully identify and isolate key information within dense word problems and word-heavy examination questions.
Modern Foreign Languages (MFL)	Exploring and applying basic mathematical operations, currency conversions, counting, financial systems, and time/date structures within the target language.
Music	Unpacking time structures, complex rhythms, and time signatures; analyzing the mathematical relationship of the musical scale using

	ratio and frequency.
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6. Policy Monitoring and Review

6.1 Accountability Matrix

- **Head of Secondary & Post-16 / Primary Leadership:** Conduct regular learning walks, book scrutinies, and lesson observations to ensure compliance with this policy and evaluate the impact of adaptive teaching methodologies.
- **Head of Mathematics Department:** Oversees the vertical continuity of curriculum maps, leads internal moderation of Paradigm data, and coordinates cross-curricular numeracy initiatives.
- **Classroom Teachers / Subject Specialists:** Responsible for the daily execution of the 7-part lesson structure, updating interactive working walls, administering the formal assessment cycle, and delivering timely feedback.

6.2 Review Schedule

This policy is a live document. It will be reviewed annually by the Senior Leadership Team (SLT) and the Head of Mathematics to incorporate updated BSO guidelines, KHDA expectations, and ongoing curriculum updates.