Riversdale Primary School

"A nurturing, ambitious and values led school."

Mathematics Policy

Date: 19th September 2025

Review Date: 19th September 2028

Article 28:
You have the right to education.

Article 29:
You have the right to education which develops your personality, respect for other's rights and the environment.

LEGAL FRAMEWORK

This policy has due regard to all relevant legislation and statutory guidance including, but not limited to, the following:

- DfE (2013) 'National curriculum in England: mathematics programmes of study'
- DfE (2017) 'Statutory framework for the early year's foundation stage'

INTENT

At Riversdale, mastering mathematics means pupils develop a deep, long-term, secure and adaptable understanding of the subject. Teachers plan small, coherent steps that build strong foundations, using precise mathematical language and retrieval practice to strengthen memory. Through the consistent use of the concrete–pictorial–abstract approach, all pupils are supported and challenged, with misconceptions anticipated and addressed, and high attainers extended through depth rather than acceleration. Teachers provide meaningful opportunities for problem solving in real-life contexts and across the wider curriculum, ensuring that mathematical knowledge is applied and connected. Reasoning is developed through carefully crafted questions, structured talk and comparison of strategies, enabling pupils to think critically and explain their ideas with confidence. Daily practice of key facts and efficient methods builds fluency so that pupils calculate accurately and efficiently, while always understanding the *why* as well as the *how*.

IMPLEMENTATION

At Riversdale, mathematics is taught daily using the *Maths — No Problem!* mastery programme in mainstream classes, which provides a consistent, research-informed approach across the school. Lessons follow a clear and structured format that supports deep conceptual understanding through exploration, guided practice, and independent work. Each *Maths — No Problem!* lesson begins with an open-ended Explore task designed to stimulate curiosity and discussion. Pupils are encouraged to reason, collaborate and articulate their thinking, with the teacher skilfully guiding the class through shared strategies. Vocabulary and mathematical language are modelled consistently, and visual representations such as bar models and number lines are embedded to support understanding.

Teachers have access to detailed planning documents, including topic progression maps, assessment guidance, and lesson guides that align with the National Curriculum. Ongoing assessment is used to identify gaps and inform responsive teaching, while the structure of the scheme ensures all pupils are exposed to age-appropriate content and opportunities for challenge. Regular CPD supports staff confidence and subject knowledge, ensuring high-quality delivery of the curriculum across all year groups.

<u>CURRICULUM PROGRESSION</u>

The progression of mathematical understanding is carefully structured through the *Maths — No Problem!* mastery curriculum. The scheme is fully aligned with the National Curriculum and builds knowledge incrementally from Reception to Year 6, ensuring that key concepts are revisited and deepened over time. Each unit builds systematically on prior learning, enabling all learners to make connections across topics, develop fluency, and reason with increasing sophistication. This consistent lesson structure promotes confidence, independence, and mathematical thinking, ensuring that progression is coherent both within and across year groups. Documentation is in place to clearly outline the progression of topics and the learning journey pupils will experience at Riversdale, ensuring curriculum continuity and transparency for teachers, leaders, and parents.

<u>TECHNICAL KNOWLEDGE DOMAINS</u>

The Concrete–Pictorial–Abstract (CPA) approach is a foundational instructional method in the *Maths — No Problem!* mastery framework, based on the work of psychologist Jerome Bruner. It's designed to help children develop deep, conceptual understanding of mathematics by moving through three stages:

Concrete Stage: "Doing"
This is the hands-on stage where children use physical objects (manipulatives) to explore mathematical concepts. It helps them understand what's happening in a tangible, sensory way.

Examples of concrete tools:

- Counters, cubes, base ten blocks, Numicon
- Real-life items (like cupcakes, marbles, or books)
- Ten frames, place value charts.

Children begin by *manipulating* real objects, which helps them build mental models of how maths works. For example, when learning addition, they might combine groups of objects physically before moving on to visual or abstract representations.

Pictorial Stage: "Seeing"
In this stage, learners transition from real objects to pictures, diagrams, or drawings that represent those objects. It bridges the gap between the tangible and the symbolic.

Examples of pictorial tools:

- Drawn bar models
- Number bonds and part-whole diagrams
- Visual representations of ten frames or number lines

This stage allows pupils to *visualise* mathematical ideas and make sense of the relationships between numbers or operations. They begin to understand that abstract numbers can represent something concrete.

Abstract Stage: "Symbolic"
Here, students use symbols and numbers (e.g., 8 + 4 = 12) to represent problems. They've built a strong enough understanding through the earlier stages that they can now work purely with abstract notation.

Key features:

- Use of number sentences, symbols, and algebra
- Formal written methods for calculations

The abstract stage is essential for fluency and problem solving. But if pupils move here too quickly — without the conceptual foundations built in the concrete and pictorial stages — they may end up relying on rote procedures without truly understanding the maths.

<u>CURRICULUM PLANNING</u>

At Riversdale, our mathematics curriculum is carefully planned using the *Maths — No Problem!* scheme to ensure full coverage of the National Curriculum and coherent progression across year groups. Long-term and medium-term planning documents outline the sequence of topics and the learning journey from Reception to Year 6, ensuring consistency, depth, and continuity throughout the school.

Each year group follows a structured sequence of chapters and lessons that systematically build on prior knowledge, enabling pupils to make meaningful connections between mathematical concepts. Planning ensures that time is allocated for deep exploration of key topics rather than surface-level coverage, and units are revisited at increasing levels of complexity to support long-term retention.

Teachers use detailed lesson guides, assessment checkpoints, and progression maps to inform weekly and daily planning. These resources ensure that all pupils are supported and challenged appropriately using scaffolding, questioning, and opportunities for mastery from reasoning-based questions. Planning also considers the needs of all learners, including those with SEND and those working at greater depth.

Collaborative planning and regular professional development further strengthen curriculum delivery, ensuring consistency in teaching approaches and shared understanding of progression across the school.

LESSON STRUCTURE

At Riversdale, every mathematics lesson across the school follows a consistent and research-informed structure aligned with the *Maths — No Problem!* mastery approach. This structure ensures that all pupils are supported to develop fluency, conceptual understanding, and reasoning skills in a carefully sequenced and inclusive way. Lessons typically include the following components:

Fluency
The lesson begins with a short fluency activity designed to activate prior knowledge and promote retrieval of previously taught concepts. Pupils self-mark their work using purple pen, providing immediate feedback. Teachers use this time to circulate and assess understanding, identifying pupils who may require additional support later in the day.

Learning Review & Introduce Key Vocabulary
Key vocabulary relevant to the lesson is shared using the bullet-pointed list from the *Maths — No Problem!* chapter consolidation. This ensures that pupils are familiar with essential mathematical terms and prepared for the concepts being introduced.

Explore Task
Pupils are introduced to a rich problem that encourages them to explore new concepts. Teachers model mathematical thinking, the use of manipulatives, and precise mathematical language. Adaptive questioning is used to engage all learners, assess understanding, and unpick misconceptions. Pupils are encouraged to reason verbally and share strategies.

Guided Practice
Worked examples are completed collaboratively, with pupils supported by the teacher or a partner. These examples are printed and glued into red books. Manipulatives remain available to support understanding. Pupils mark and self-correct in purple pen while teachers circulate to address misconceptions individually or collectively as needed.

Independent Tasks
Pupils apply what they have learned in their *Maths — No Problem!* workbooks. Teachers may conduct one-to-one or small group conferencing using a green pen, providing targeted support or extension. Pupils continue to self-mark in purple pen to reflect on their learning and accuracy.

Deepening and Reasoning
All pupils are offered opportunities to deepen their thinking through reasoning questions linked to the learning objective. Sentence stems are used to scaffold responses and develop metacognitive awareness. Teachers are encouraged to design or adapt high-quality reasoning tasks (e.g., using AI tools) to meet pupils' needs more effectively than generic worksheets. Misconceptions are addressed as they arise.

ADAPTIVE STRATEGIES

Pre- and Post- Teaching for Misconceptions
At Riversdale, identifying and addressing misconceptions is an integral part of the lesson cycle. Teachers and supporting adults use assessment opportunities within fluency and guided practice to determine which pupils may benefit from additional support.

- Pre-teaching: may be provided for pupils who are likely to find upcoming content challenging, offering them a first exposure to key vocabulary, manipulatives, or methods in a smaller group setting to build confidence.
- Post-teaching: occurs when misconceptions are identified during lessons. Support staff or teachers revisit key concepts with individuals or small groups later in the day, using concrete resources and targeted questioning to close gaps in understanding.

This approach ensures that misconceptions are addressed in a timely and responsive manner, helping all pupils keep up with age-related expectations and continue progressing with confidence.

ALTERNATIVE PROVISION RESOURCE

At Riversdale, we are committed to ensuring that all pupils, including those with SEND and Education, Health and Care Plans (EHCPs), have access to high-quality mathematics teaching. In our resource provision, designated for pupils with

Speech, Language and Communication Needs (SLCN) and Autism Spectrum Condition (ASC), teaching is adapted to provide a more structured and scaffolded approach. Using Power Maths, pupils develop functional, hands-on mathematical skills through practical tasks, real-life contexts and carefully sequenced small steps, building confidence, independence and long-term retention.

Provision is planned in consultation with the SENCO, class teacher and support staff, ensuring alignment with each pupil's EHCP outcomes while maintaining high expectations. Unlike mainstream lessons, where pupils work through a series of tasks in their Maths – No Problem! workbooks, pupils in the resource provision explore one question at a time in their maths journals before moving on. This reduces cognitive load, supports secure understanding, and allows pupils to access their Power Maths workbook with confidence at a later time.

ASSESSMENT

At Riversdale, assessment in mathematics is ongoing, purposeful, and used to inform teaching and learning at every stage. We use a combination of formative and summative approaches to ensure all pupils make good progress and develop a secure understanding of mathematical concepts.

Formative assessment takes place continuously throughout lessons. Teachers use questioning, observation, pupil responses, and marking to identify misconceptions and adjust instruction accordingly. These informal assessments guide decisions about in-the-moment support, groupings, and the use of pre- or post-teaching interventions.

Summative assessment is carried out biannually using the *Maths — No Problem!* Assessment Tools. These assessments are closely aligned with the lesson content and progression of the *Maths — No Problem!* scheme and the National Curriculum. They provide a reliable measure of pupil understanding and highlight areas of strength and development across topics.

Outcomes from the assessments are used to:

- Inform medium- and short-term planning.
- Adapt future lessons to address gaps in knowledge.
- Ensure full coverage of the curriculum.
- Identify pupils who require targeted support or additional challenge.
- Track progress over time across cohorts and individuals.

Teachers use assessment information to tailor the pace and focus of lessons, ensuring that all pupils are supported to master the content at the expected level. The assessments also support discussions during pupil progress meetings and contribute to teacher judgements for end-of-year reporting.

This robust and responsive approach to assessment helps us ensure that every child receives the support they need to succeed in mathematics and builds confidence in their ability to reason, problem-solve, and apply their learning independently.

INCLUSION

The school is committed to ensuring pupils of all backgrounds and abilities can access the curriculum. The subject leader will review the content of the curriculum and any relevant assessment or teaching practices, and make sure any necessary reasonable adjustments are arranged, so that all pupils can access the learning.

- Tasks are adapted to ensure pupils of all abilities are challenged.
- Reasonable adjustments are made by the class teacher and subject leader in collaboration with the SENCo and other relevant members of staff.
- The SENCo will review reasonable adjustments on a termly basis to ensure they remain suitable for pupils.
- Reasonable adjustments are carried out in accordance with the school's Equal Opportunities Policy, SEND Policy and EAL Policy.

HEALTH AND SAFETY

At Riversdale, health and safety considerations are incorporated into all aspects of mathematics teaching, particularly during the use of physical manipulatives and practical activities. Staff are responsible for ensuring that all equipment

— such as cubes, counters, base ten blocks, number lines, and other resources — is used safely, appropriately, and is regularly checked for damage or wear.

Pupils are taught to handle resources respectfully and to use them in a purposeful manner. Any resources that pose a choking hazard or risk to younger pupils are only used under direct supervision. Clear routines are established for the distribution, collection, and storage of manipulatives to ensure a safe and orderly learning environment.

When activities involve movement around the classroom or working in groups, teachers ensure the learning space is organised to minimise trip hazards and maintain a safe working environment. Any practical work that involves outdoor learning or cross-curricular activities is risk assessed in line with the school's health and safety policy.

All staff follow the school's safeguarding, behaviour, and health and safety policies to maintain a secure and inclusive environment for all learners during mathematics lessons.

IMPACT

The impact of our mathematics approach at Riversdale is that all pupils become confident, fluent and resilient mathematicians with a deep conceptual understanding of number, operations, and problem-solving strategies. Through the consistent use of the *Maths — No Problem!* mastery programme, pupils develop strong reasoning and critical thinking skills that enable them to articulate their mathematical thinking with precision and clarity.

Pupils are equipped to apply their mathematical knowledge in a variety of contexts, both within and beyond the classroom. They are able to make meaningful connections between topics and demonstrate a secure understanding of key concepts through the Concrete–Pictorial–Abstract (CPA) approach. Regular opportunities to explain, justify, and reflect on their thinking foster a culture of metacognition and collaborative learning.

Biannual assessment data, lesson observations, and pupil voice evidence a strong trajectory of progress for all learners, including those with SEND and those working at greater depth. Misconceptions are identified and addressed swiftly, ensuring no child is left behind. The consistent lesson structure and use of high-quality resources provide equity and challenge for every learner.

By the end of Key Stage 2, pupils at Riversdale are well-prepared for the next stage of their mathematical education. They leave with secure number sense, confidence in using formal methods, and the ability to reason and problem-solve independently—empowered not just to succeed in tests, but to see themselves as capable mathematicians.

ROLES AND RESPONSIBILITIES

Governors

- Ensuring a broad and balanced mathematical curriculum is implemented in the school.
- Ensuring the school's mathematics curriculum is accessible to all pupils.

Headteacher/Deputy Headteacher (Quality of Education)

- The overall implementation of this policy.
- Ensuring the school's mathematics curriculum is implemented consistently.
- Ensuring appropriate resources are allocated to the mathematics curriculum.
- Ensuring all pupils are appropriately supported.
- Appointing a member of staff to lead on the school's approach to teaching mathematics.

Subject Leader

- Preparing policy documents, curriculum plans and schemes of work for mathematics.
- Reviewing changes to the national curriculum/Maths – No Problem! Framework and advising on their implementation.
- Monitoring the learning and teaching of mathematics, providing support for staff where necessary.
- Monitoring the learning and presentational development of mathematics, providing support for staff where necessary.

- Keeping up to date with developments in mathematics y education, passing this on to other members of staff. This could include leading staff meetings and providing staff members with the appropriate training, working alongside colleagues etc…
- Monitoring and evaluating progress in mathematics and liaising with senior management on any action necessary.
- Liaising with appropriate bodies, e.g., Maths Teaching Hubs concerning matters relating to mathematics.

Teacher

- Acting in accordance with this policy.
- Liaising with the mathematics lead about key topics, resources and supporting individual pupils.
- Ensuring that all relevant statutory content is covered within the school year.
- Monitoring the progress of pupils in their class and reporting this on an annual basis to parents.
- Reporting any concerns regarding the teaching of the subject to the mathematics lead or a member of the SLT.
- Undertaking any training that is necessary to teach the subject effectively.

MONITORING & REVIEW

This policy is monitored and reviewed by the mathematics subject leader.

This policy will be reviewed at least every three years.