Mathematics (EYFS) – Intent, Implementation and Impact

CONTEXT (Why maths is a priority)

Rugeley John Taylor School is a STEM specialist school. In EYFS, mathematics is a foundational strand of STEM: children learn to notice, describe, represent and reason about the world through number, pattern, shape and measure.

The EYFS statutory framework emphasises that developing a strong grounding in number provides the building blocks to excel mathematically. Children should count confidently, develop a deep understanding of numbers to 10, the relationships between them and the patterns within those numbers. The curriculum must also include rich opportunities to develop spatial reasoning across shape, space and measures, alongside positive attitudes to maths, 'have a go' mindsets and being unafraid to make mistakes.

Nationally (EYFSP 2024/25), the percentage of children at the expected level is 79.3% for Number and 78.7% for Numerical Patterns. We use these as reference points when evaluating cohort outcomes and planning improvement.

1) INTENT (What we want children to know and be able to do)

Our intent is that every child becomes a confident, curious and resilient mathematician who can use number, pattern, shape and measure to make sense of the world. We want children to enjoy maths, take risks, explain their thinking, and build secure foundations for later STEM learning.

Core mathematical intent (EYFS endpoints)

- Develop a deep understanding of numbers to 10, including the composition of each number (part–whole relationships).
- Subitise (recognise quantities without counting) up to 5 and use structured patterns to "see" numbers within numbers.
- Count confidently: understand stable order, one-to-one correspondence and cardinality; count beyond 20 and notice the pattern of the counting system.
- Compare quantities up to 10 in different contexts (more than / fewer than / equal), and explore numerical patterns (including doubles, odds/evens and how quantities can be distributed equally).
- Develop spatial reasoning explicitly across all areas of mathematics (shape, space and measures), including composing/decomposing shapes and describing position, movement and measures using accurate language.
- Use mathematical language to reason, justify, and make connections; learn through purposeful talk and attentive listening.

STEM identity, Rugeley John Taylor values and mission

- Respectful mathematicians: children listen to others' strategies, use talk stems to respond kindly, and share resources fairly during collaborative maths.
- Resilient mathematicians: children persevere, practise, and are not afraid to make mistakes; they use errors as learning opportunities.
- Ready mathematicians: children leave Reception with secure number sense to 10, early spatial reasoning, and positive dispositions to tackle STEM challenges.
- Powered by knowledge and driven by ambition: we aim for all children—regardless of starting point—to access a strong maths curriculum that builds long-term success.

Characteristics of Effective Learning (how children learn maths)

- Playing and exploring: children investigate quantities, shapes and patterns through hands-on play and first-hand experiences indoors and outdoors.
- Active learning: children practise, repeat and refine strategies (subitising, counting, composition) and build fluency through games and routines.
- Creating and thinking critically: children notice patterns, make connections, explain their reasoning and choose efficient strategies (metacognition).

2) IMPLEMENTATION (How we teach maths)

Our implementation draws on evidence-informed practice: dedicated maths teaching time plus opportunities across the day; consistent use of manipulatives and representations; building on prior knowledge; careful vocabulary and talk; and high-quality targeted support for pupils who need more practice. Teaching is sequenced in small steps, with structured variation and deliberate practice, so children build secure, connected understanding.

A. Nursery

In Nursery we build number sense through meaningful contexts, irresistible provision and talk-rich interactions. Adults deliberately make maths visible in everyday routines and play so children experience maths as useful, enjoyable and achievable.

Nursery key approaches

- Talk-first maths: adults model language and ask "What do you notice?" "What's the same/different?" and "Tell me what you can see" to develop reasoning and mathematical vocabulary.
- Subitising foundations: spot patterns with fingers, dice/domino arrangements and '3 or not 3' style games; link quantities to language before numerals.

- Counting in context: snack time, tidying, lining up, 'give me…' requests, counting actions/sounds, and songs and rhymes to develop stable order, 1:1 correspondence and cardinality.
- Composition through play: part–whole with real objects (food, loose parts, toys). Adults narrate the maths story (e.g., "2 and 2 is equal to 4").
- Spatial reasoning and measures: children build, compare and describe shape/space/measure through blocks, sand/water, outdoor construction and movement play.
- Mark-making and representations: children draw, make marks, and use simple pictures to represent quantity and compare sets in play.

B. Reception

In Reception we teach number sense systematically through the NCETM Mastering Number programme, alongside explicit teaching of the six key areas of early mathematics learning (cardinality & counting, comparison, composition, pattern, shape & space, measures). Mastering Number provides four short sessions per week and is embedded into continuous provision and routines. Spatial reasoning and measures are taught explicitly and revisited through provision.

Reception key approaches

- Mastering Number sessions (4 per week): structured small-step teaching of subitising, counting principles, comparison and composition, with deliberate practice and variation.
- Representations and manipulatives: Numicon, counters, cubes, five- and ten-frames, part–whole models, rekenreks (where used), number lines/tracks and dot patterns to reveal structure.
- Numberblocks and story contexts: use Numberblocks episodes/clips, maths stories, puppets and songs to strengthen fluency, attention and motivation; connect maths to narrative and language.
- Oracy in maths: planned talk structures (think–pair–share, sentence stems, partner talk) so children explain and justify strategies and make connections.
- Spatial reasoning mapped and taught: explicit teaching of shape composition/decomposition, position and movement language, and measure comparisons (length, weight, capacity, time) across indoor and outdoor learning.
- Routine maths: self-registration , calendar maths, daily counting collections, snack-time comparison, attendance totals, 'how many altogether?' opportunities across the day.

C. Teaching pedagogy (across Nursery and Reception)

- I do → We do → You do: adults model strategies and think aloud, practise together, then children apply independently in provision and games.
- Shared sustained thinking: adults listen carefully and extend learning with prompts that deepen reasoning and connections.

- Clear learning intention: adults know the mathematical concept each activity is developing (e.g., subitising vs counting; composition vs comparison).
- Positive maths culture: mistakes are normal and useful; effort, strategies and improvement are celebrated; children are encouraged to “have a go”.
- Executive function support: short, frequent practice; routines; visual prompts; manageable task demands to support attention and working memory.

D. Enabling environment: continuous provision, enhanced provision, and direct teaching

Continuous provision (always available)

- Indoors: maths manipulatives (blocks, counters, Numicon, 5/10 frames, dice/dominoes), pattern resources, sorting/collection baskets, maths storybooks, number lines/tracks, mark-making for recording, shape/space construction.
- Outdoors: large construction, den building, measuring tools (tape measures, containers), number trails, chalk mark-making for patterns/quantities, sand/water capacity exploration, counting collections in nature.

Enhanced provision (planned add-ons)

- Anchor tasks linked to current learning (e.g., subitising spot patterns, ‘make 5’ challenges, ‘5 and a bit’ compositions, compare sets games).
- Maths missions in role play (shop, café, post office): purposeful counting, totals, sharing, ordering, and measures.
- Focused spatial reasoning challenges (compose shapes to make pictures, build bridges, rotate and fit).
- Digital/interactive resources used purposefully (number games/visualisers) to rehearse fluency where appropriate.

Direct teaching and group work

- Daily/weekly dedicated lesson time: Reception Mastering Number; Nursery short focused maths interactions (number sense, subitising, counting, comparison).
- Small-group guided maths: targeted practice on next steps (e.g., 1:1 counting, subitising, composition to 5, comparing sets).
- Collaborative games: board games and track games to support counting, comparison and number relationships.

E. Assessment, monitoring and targeted support

- Assessment is continuous and proportionate: observation in provision, dialogue evidence, photographs, children’s drawings/marks, and short check-ins (subitising, counting, composition).

- Next steps planning: adults use observations to adapt provision and plan enhancements; misconceptions are addressed immediately.
- Reception monitoring: Mastering Number assessments/checkpoints inform grouping, extra practice and keep-up support.
- Targeted interventions: additional small-group/1:1 practice for children at risk of falling behind, using consistent representations and routines (keep up, not catch up).
- Staff subject knowledge: adults are supported to maintain secure maths knowledge, vocabulary, and understanding of typical development progressions.

F. Parental engagement

- We share practical ways families can support number sense at home: counting in routines, playing board games, spotting patterns, and using maths language.
- We provide simple home activities aligned to taught learning (e.g., subitising games, “make 5/10” with household objects, Numberblocks links), ensuring practice is joyful and achievable.

3) IMPACT (What difference this makes)

A. Children achieve strong number sense and positive maths identities

- Children count confidently and understand the ‘how-manyness’ (cardinality) of number, rather than relying on counting as their only tool.
- Children subitise and use structured patterns to see numbers within numbers, supporting early calculation and composition.
- Children explain their thinking, listen to others and use mathematical language to reason and make connections.
- Children develop secure spatial reasoning across shape, space and measures, enabling later geometry and measurement success.
- Children show positive attitudes to maths: they have a go, take risks, persevere, and are not afraid to make mistakes.

B. Impact is measurable and used to drive improvement

We evaluate impact through:

- EYFSP outcomes for Mathematics ELGs: Number and Numerical Patterns.
- National reference points (EYFSP 2024/25): Number 79.3% expected; Numerical Patterns 78.7% expected.
- Ongoing internal monitoring of subitising, counting, composition to 5 and 10, comparison language, and spatial reasoning milestones.

- Pupil voice and learning behaviours: children's confidence, willingness to talk, and resilience in problem solving.

C. Readiness for Key Stage 1 and wider STEM learning

- Children leave Reception ready for KS1 maths because they have secure foundations in number sense, fluency and flexibility with numbers to 10, and early spatial reasoning.
- Children can apply maths across contexts (stories, games, routines, and STEM exploration), supporting later science and computing learning.