

Subject Key Summary Points – North Petherwin and Werrington

Subject	Maths
Overall Curriculum	<p>Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge across the wider curriculum – for example, in science, DT, Computing and other subjects.</p>
Pedagogy	<p>The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. Decisions about when a child should progress should always be based on the security of pupils’ understanding and their readiness to progress to the next stage. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on. Pupils who grasp fluency concepts rapidly should be challenged through rich and sophisticated problems before any acceleration through new content to embed and deepen understanding. Our pedagogy is that children should learn facts (KIRFs), develop methods, and have strategies to equip them to tackle mathematics in abstract and real-life contexts. This process begins in the EYFS as we believe that early acquisition of mathematical knowledge leads to greater success as pupils move through the school.</p> <p>Support and scaffolding are provided in all mathematics lessons and is done in various ways, such as:</p> <ul style="list-style-type: none"> • the use of concrete, pictorial, and abstract representations; • small, differentiated target steps for all children to move through at a pace that suits their needs; • timely support, questioning and interventions; systematically and effectively checking pupils’ understanding throughout the lesson; • setting challenging age-related fluency, reasoning and problem-solving tasks based on systematic, accurate assessment of pupils’ prior skills, knowledge and understanding; • ensuring that marking and constructive feedback is personal, frequent and of a consistently high quality – enabling pupils to understand how to improve and develop their work - with planned in time for children to respond to feedback.
Assessment	<p>Assessment is regarded as an integral part of teaching and learning. It is the responsibility of the class teacher to assess all pupils in their class. Assessment is a continual process which takes place before, during and after the lesson through mini-plenaries, questioning, marking, T.A feedback and pupil self-assessment. This ensures every child’s learning need is being met.</p> <p>White Rose Mathematics pre-unit tests are used to analyse gaps in children’s knowledge and to inform a teacher planning and delivery. Post-unit tests assess the progress within the specific block of learning and allow identification of where further intervention is needed.</p> <p>Termly NTS standardised assessments are used to monitor attainment and progress.</p> <p>Weekly arithmetic tests (Test Base) are conducted and used to inform arithmetic lesson starters and monitor progress in written and mental calculation skills.</p> <p>Children are also tested on their multiplication knowledge and KIRFS to ensure pupils are developing their knowledge and can quickly and accurately recall the core facts which are essential in securing long term mathematical success.</p>

<p>Culture</p>	<p>Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology, and engineering, and necessary for financial literacy and all forms of employment. A high-quality education in mathematics, therefore, provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.</p> <p>Enrichment is planned for through DT, Science, Outdoor Learning etc. Year 5/6 have opportunities to be mathematics leaders and teach younger children.</p>
<p>Systems</p>	<p>The school follows the National Curriculum (2014) and teachers use the White Rose Mathematics scheme of learning as the basis for their planning. This is supplemented with other resources and in particular: Ready to Progress, KIRFs, Test Base and TTRS. We begin in the EYFS with a highly structured and carefully sequenced programme of mathematics, with a focus on core facts. Children will learn facts – and know why facts are linked (Declarative knowledge). They will learn methods – and know how methods work (Procedural knowledge) and they will develop strategies – and know why these strategies work (Conditional Knowledge).</p> <p>Our systems ensure pupils experience a detailed and carefully sequenced curriculum and within that regular, planned rehearsal and practice to ensure that they securely grasp the concepts taught.</p> <p>The aim is for our pupils to become 'free' mathematicians. Through equipping children with the ability to recall mathematical facts swiftly and accurately, and independently carry out mathematical calculations this will then lead to an automaticity and free up working memory for new learning.</p> <p>Interventions (informed through gap analysis from NTS Assessments) are used across school to support those where needed further develop their mathematical skills and understanding.</p>
<p>Policy</p>	<p>The Policy for mathematics aims to ensure that all pupils:</p> <ul style="list-style-type: none"> ▪ become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately; ▪ reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language; ▪ can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. We want pupils to be able to work systematically through problems without the need to rely on trial-and-error methods.

Perceptions

The monitoring of the standards of children's work and the quality of teaching and learning in mathematics is the shared responsibility of the S.L.T and the subject leader. The work of the subject leader also involves supporting colleagues in the teaching of mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. A named member of the school governing body is briefed to overview the teaching of mathematics in the school.

Monitoring of the subject shows the following of systems are strong and teachers are trying to strike a balance between doing and deriving. The areas to work on are:

- providing challenge for GDS;
- ensuring children are accessing problem solving/reasoning daily (for all pupils);
- Effective feedback and pace of moving learning on are also a continuing challenge. Teachers need to provide honest and useful feedback for our pupils to ensure that they are moved on in their learning when needed and avoid misconceptions becoming embedded.

At the last maths pupil survey:

In summary, positives are:

- 94% of children like Maths
- 97% pupils say they know what to get to help them - great resourcefulness (+2% since last year)
- 95% of pupils say they are a 'good problem solver' or that they think they're getting better.
- 99% children say their teachers show them pictures and equipment at least 'sometimes'.

Targets:

- 49% children say there are 'sometimes' challenges in their lessons - raise these so pupils feel they are challenged every lesson.
- Less pupils this year are confidently saying 'yes' they are a good problem solver. Ensure all children are accessing problem solving and taught skills which will equip them to work through such problems.