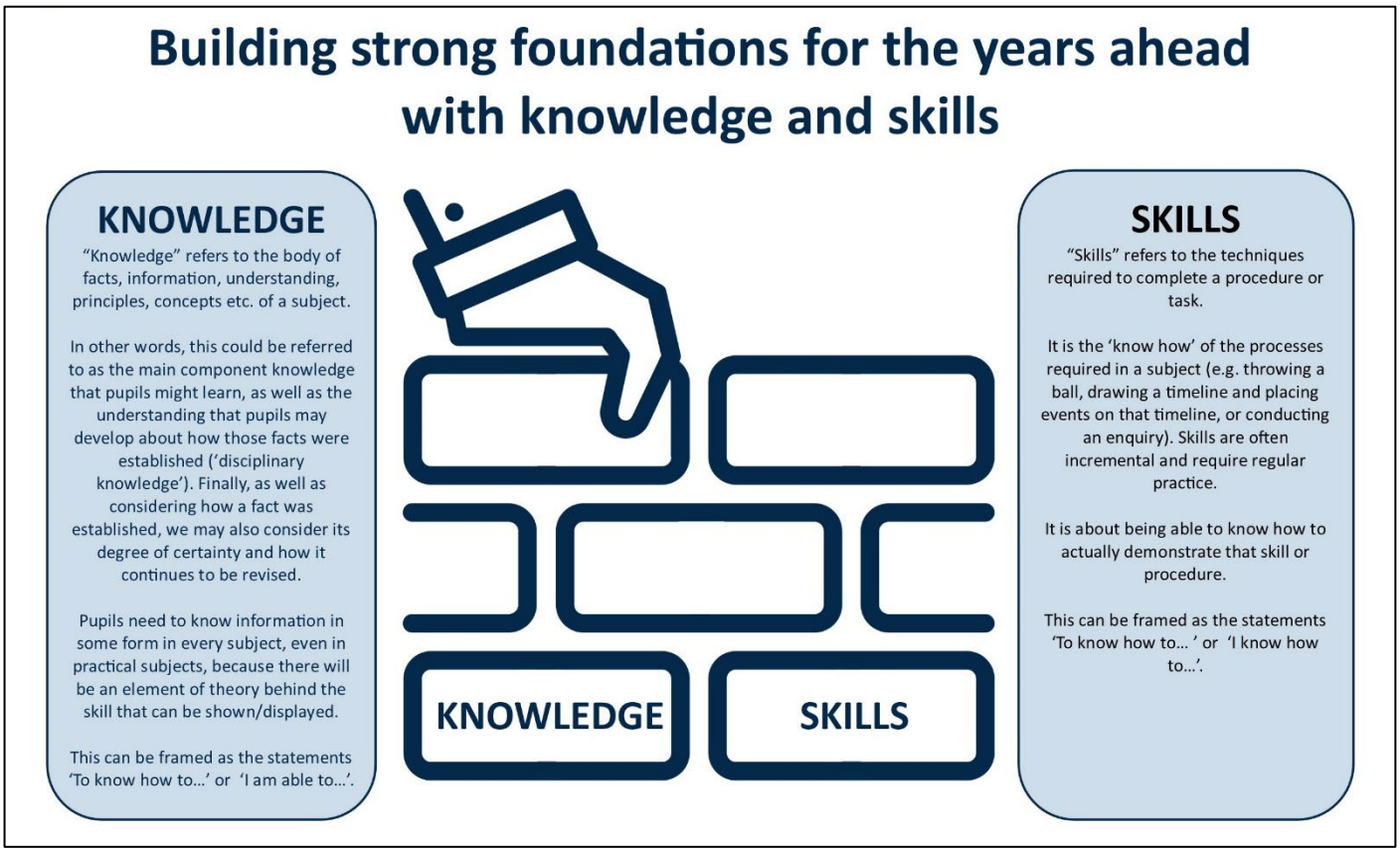
Knowledge and skills: Introduction

At Sonning, we first considered the concept of knowing more, doing more and remembering more. Therefore, from our research, we have a shared and consistent understanding of different types of knowledge. Each subject will have a different ratio of distribution for these types of knowledge, and the types of knowledge can (and most often do) intersect.

1. Knowledge refers to the body of facts, information, understanding, principles and concepts etc. of a subject. In other words, this could be referred to as the main component knowledge that pupils might learn (e.g. multiplication facts), as well as the understanding that pupils may develop about how those facts were established (aka disciplinary knowledge). Finally, as well as considering how a fact was established, we may also consider its degree of certainty and how it continues to be revised. Pupils need to know information in some form in every subject, even in practical subjects, because there will be an element of theory behind the skill that can be shown/displayed.

2. Skills refers to the techniques required to complete a procedure or task. It is the 'know how' of the processes required in a subject (e.g. the actual skill of being able to use column method to add). Skills are often incremental and require regular practice. It is about being able to know how to actually demonstrate that skill or procedure.



Sonning's Infographic on Knowledge and Skills

Our vision

Maths at Sonning Church of England Primary School is a subject that is valued and understood to be part of children's everyday lives. We aim for all children to leave our school being confidently numerate and able to apply all areas of Maths to problems with deep understanding. We aim for children to view Maths not in terms of individual concepts, but as areas that interlink and ones that can be used to solve problems and explain and reason. Through carefully

planned lessons and resources, we ensure high quality teaching and experiences which equip children to utilise their skills across a variety of contexts.

Curriculum structure

Early Years Foundation Stage

The foundations for our maths curriculum at Sonning begin in our Early Years Foundation Stage (EYFS) class, where number and shape are explored through focused teaching and guided and independent play-based learning.

In EYFS, mathematics is woven into daily play and exploration, fostering a deep, practical understanding of number, shape, space and measures. Through hands-on experiences, songs, stories and problem-solving activities, children develop confidence and curiosity in mathematical thinking.

Number sense is nurtured through counting, comparing quantities, and recognising patterns in real-life contexts, helping children build a strong foundation for fluency in arithmetic. Shape, space, and measure concepts are introduced through playful investigations, such as building structures, exploring capacity in water play, and discussing positional language in everyday routines. These activities encourage mathematical reasoning and vocabulary development.

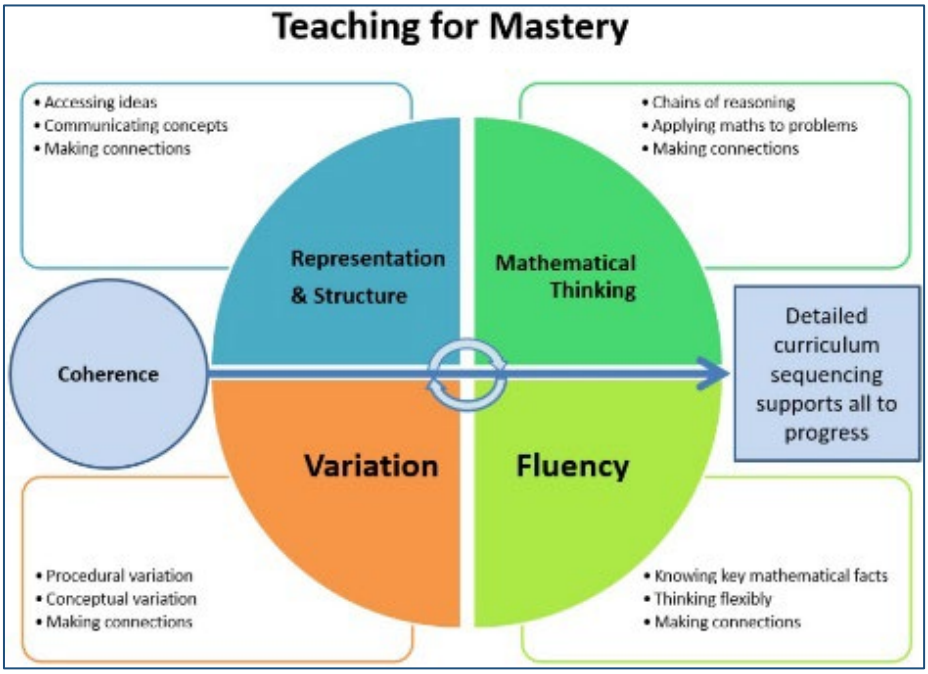
Mathematical learning in EYFS is deeply embedded in communication and language development, as children articulate their thinking, explain reasoning, and engage in collaborative problem-solving with peers. Through questioning, exploration, and discussion, they develop the ability to notice patterns, make predictions, and begin to apply mathematical concepts to the world around them.

Key Stages 1 and 2

Our KS1 curriculum is structured to provide children with opportunities to build on these early skills and develop fluency and quick recall. Pupils receive further high-quality teaching in KS1 and KS2 which provide opportunities to explore and deepen their understanding of concepts and apply fluency skills to solve problems and reason. Mathematical vocabulary is explicitly taught with clear progression across the school.

At Sonning, we use the Abacus maths scheme which provides a robust planning framework with progression across all year groups. Lessons are adapted to suit each individual cohort with targeted questioning and scaffolding built in to ensure specific outcomes. Deep understanding of mathematical concepts and procedures is achieved through revisiting prior learning, teaching concepts in small steps and is underpinned by secure fluency skills. Planned and focused questioning requires children to answer in full sentences using correct mathematical vocabulary.

We teach following the Mastery Approach. Across EYFS, KS1 and KS2, concepts are revisited regularly to ensure secure understanding. Daily retrieval practice ensures links between concepts are established and recall of fluency skills is rapid. Concrete and pictorial representations are used before and alongside abstract and formal representation to ensure children understand and can expose the structure of the concept.



A visual journey of every classes' maths learning journey is annotated on a class Maths Wall, which helps make links between concepts explicit. This learning map provides a constant resource for children to refer to and is also used for retrieval practice.

Additional opportunities to apply mastered objectives at a deeper level and across a variety of contexts are provided for all children through a wide variety of resources e.g. NRich, Maths Hub, White Rose and I See Reasoning.

Lesson Pedagogy

At Sonning, the concept of knowing more, doing more and remembering more is embedded in all subjects and the pedagogical approaches we use to teach. From our research, we have a shared and consistent understanding of different types of knowledge. Each subject will have a different ratio of distribution for these types of knowledge, and the types of knowledge can (and most often do) intersect. Mathematical development involves acquiring skills, conceptual understanding and factual knowledge across a range of topic areas including quantity and number, operations, shape, and space. It involves forming connections between concepts.

Concepts are modelled in small steps through familiar pictorial representations and concrete resources which build on children's prior knowledge. Focused teaching ensures varied and frequent opportunities for exposure to rich mathematical vocabulary. Teachers plan additional retrieval practice sessions to allow children to access prior learning from their working and long-term memory and avoid cognitive overload.

We have an expectation that all children can succeed in maths, which we achieve through high-quality teaching and strong subject knowledge. Where appropriate, split inputs are delivered with specific focuses and outcomes for targeted groups. Children are taught using a mastery approach ensuring high engagement and motivation with a secure and sustainable understanding of mathematical concepts.

Children who master a concept quickly are expected to deepen their understanding by applying it to solve problems embedded in mathematical investigations or more complex contexts. Children who may struggle to master an objective are supported through same-day intervention, retrieval practice, home resources and targeted support in

daily lessons. Weekly pre-teaching sessions in small groups allow children who are at risk of not reaching ARE to receive additional exposure to upcoming objectives, methods and vocabulary.

Regular and high-quality CPD is delivered to both teaching and support staff via the Mobius Maths Hub and their online sessions, lesson observations and courses.

We ensure children are fluent in mathematical number facts by rehearsing these systematically at school and at home. In Years 2-6, children are engaged and motivated by the Times Table Rock Stars platform which simultaneously provides opportunities for fluency and quick recall whilst being fun and inclusive. In Year 1, EYFS number knowledge is built upon through the NumBots program which develops quick recall of number facts, subitising and value of numbers. Weekly certificates for TTRS and NumBots reward effort, success and encourage all to play regularly at home.

Assessment

When assessing progress, we use a range of methods and opportunities:

Formative assessment

Teachers use AFL strategies on a daily basis so that misconceptions can be identified and addressed at the earliest point. Pupils are regularly given the opportunity for self or peer assessment which will then be used to inform planning, preparation, adaptations and address misconceptions within that lesson, or for the next lesson.

Children are given opportunities to retrieve information and to demonstrate their learning throughout each concept. Daily opportunities for retrieval practice are used to reinforce and revisit both learning and vocabulary. Focused questions are also used as part of retrieval practice and prior learning is revisited at the beginning of every maths lesson.

Summative assessment

Abacus half-termly assessments and the QLA that comes from this, inform future planning and retrieval practice opportunities. September baseline and termly assessments of key year group objectives provide us with the data to internally track pupils, set targets and monitor progress of all pupils and groups of pupils.

Internal and external moderation of maths gives staff an opportunity to share good practice with other schools and refine methods of teaching, planning and assessing.

Measuring impact

We measure the effectiveness of our curriculum in the following ways:

- Pupil data tracking (Sonar and other internal tracking methods)
- Work scrutiny
- Monitoring of lessons and planning (including from SLT, governors and external validation, e.g. TKAT)
- Pupil conferencing.

When evaluating our maths curriculum, we also ask ourselves the following questions:

Do we provide a high-quality curriculum which inspires pupils?

- To what extent do our children show independence, resilience and high aspirations in the subject?
- To what extent does our curriculum provide new experiences and challenges?
- To what extent do the children engage with high quality resources?

Do we ensure pupils know more, do more and remember more?

- To what extent do children retain the knowledge and skills learnt?
- To what extent does the curriculum build over time?
- To what extent do children make progress over time?

Does our curriculum allow oracy development and the opportunity for pupils to collaborate?

- To what extent does our curriculum use/teach high quality language?
- To what extent does the curriculum provide opportunities to work collaboratively?
- To what extent does the curriculum support children with oracy skills?

Is our curriculum inclusive?

- How well is learning broken down, explained and scaffolded/adapted appropriately in the subject?
- How well are assessment forms used to inform planning in the subject?
- To what extent does the curriculum meet the needs of all learners including SEND/ EAL etc?

Do we help our pupils become better people in the wider world and prepare them for life in Modern Britain?

- To what extent does the curriculum allow children to take responsibility for their learning?
- To what extent does our curriculum allow for diversity?
- To what extent does the curriculum offer opportunities to present work in creative ways?
- To what extent does the curriculum offer opportunities to discuss content and/or questions and consider them in an open forum?
- To what extent does offer opportunities to utilise the skills of the wider community?

Supplementary support

Building strong foundations through experiences

To complement the curriculum, we organise visits from experts, themed class events and educational visits, all of which enhance pupils' understanding and provide varied learning experiences.

We utilise the following support within our curriculum for this subject:

- TKAT subject network meetings
- Maths Competitions: Piggott Maths Challenge and the KEYS Academy Trust Maths Challenge.
- Enrichment Days: Maths Problem Solving workshops
- Times Table Rockstars: England Rocks and Battle of the Bands competitions provide opportunities to compete against other classes and local and national schools.
- NRich, Mobius Maths Hub, White Rose and I See Reasoning.