

Frome Valley First School
Statement of Intent for Mathematics

We aim for all pupils to:

- Become **fluent** in the fundamentals of mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- To be able to **solve problems** by applying their 'basic' mathematical skills to a variety of problems, including in unfamiliar contexts and to model real-life scenarios.
- **Reason mathematically** by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.

At Frome Valley School, we teach numeracy through a maths mastery approach. This approach means that teaching focuses on children mastering key concepts and building on their knowledge each year (a spiral curriculum!). Maths Mastery focuses on a child's ability to reason about a concept and make connections to other concepts. It also focuses on procedural fluency with conceptual understanding, i.e. the understanding of how and why something in maths works.

Key Components of Maths Mastery

All children working on the same focus: children work on the same focus but with different support provided to enable all children to access the mathematics independently. Books/folders show pupils working on the same mathematics representing their thinking and understanding in different ways (including with diagrams, models, symbols and writing) rather than pupils working through many different examples. This may result in less in the books (especially for younger pupils and pupils with SEND) and no obvious differentiation by task.

Vocabulary: the use of subject-specific vocabulary by all adults and pupils in the school from EYFS onwards. Vocabulary is a key focus during mathematics lessons and can be seen displayed around the classrooms.

Talking mathematics:

- Articulating their thinking
- Taking responsibility for asking questions of others to clarify understanding
- Agreeing and disagreeing and justifying their thinking
- Responding in full sentences with the intention that everyone understands them

Stem sentences: these are often sentence starters which help children explain their thinking. Children can then use stem sentences to answer a question in a maths lesson.

Concrete, pictorial and abstract (CPA): this focuses on children learning new concepts through concrete resources (e.g. cubes, rekenreks, coins etc...) before they move to a pictorial representation of the concept. Finally, they explore the concept in a more abstract way.

Variation: for a child to understand a concept, they need to see variations of that concept. They need to see examples (e.g. different examples of a triangle) but also non-examples (e.g. shapes that are not a triangle and the reason why).

Fluency: it is important that children can recall mathematical facts and concepts without thinking. In particular, this includes number bonds (e.g. $4+2$; $7-9$; $12-4$; $14+6$), subitising (to recall mathematics facts and concepts without thinking) and times tables. With fluency, children can use their number sense to solve problems. Fluency is knowledge in the long term memory which then frees up the working memory to solve problems in maths.

Early number knowledge: we use NCETM Mastering Number Programme and Numberblocks to support children's understanding of number and, in particular, number bonds.

How Numeracy Links to our Whole School Curriculum Learning Model

Retrieval Practice: For knowledge to be learnt on our long term memory, we need to keep recalling that knowledge. All numeracy lessons begin with a Flashback Five (or Flashback 3 in EYFS), As part of these Flashbacks, children recall knowledge from a day ago, a week ago, a month ago or longer across the range of different topic areas within numeracy.

Cognitive Load & Working Memory: Our working memory is different to our long term memory. We use our working memory to work on current information. For each child (and adult!) , our working memory is limited. When we learn something new in numeracy, we take into account the limitations of our working memory and we learn the basics of the new knowledge before using problem solving skills and investigative or application skills. In this way, we are giving children the best opportunity for children to learn new concepts and ideas.

Assessment: We do not assess learning within a lesson but over time. Questioning within a lesson would help to draw out misconceptions or learners who are struggling on a concept at that time but not their understanding overall.