Mathematics Curriculum: Purpose of study

Mathematics is a creative and highly inter-connected 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 most forms of employment. A high-quality mathematics education 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.

Mathematics Curriculum: Aims

The National Curriculum for Mathematics aims to ensure that all pupils:

- **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
- **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.

Progression in Calculation:

Key Skills

- Develop counting and the language of counting
- Develop understanding of the processes of counting and the number system
- Secure conceptual understanding of place value
- Use knowledge of known facts
- Develop confidence in mental calculation skills
- Understand operations and the relationships between them
- Foster mathematical thinking
- Develop skills in recording including jottings, while presentation of work is fit for purpose
- Value mistakes as part of the learning process

Counting Development

- **Enactive** – actions,practical,real life context
- **Iconic** – representation, models, images, pictures
- **Symbolic** – recording, numbers, letters

Steps

- Counting all
- Counting on
- Counting on from the first number
- Counting on from a larger number
- Using a known fact
- Using knowledge of place value

Preparing for Place Value – concrete to iconic to symbolic

- Use concrete objects, practical experiences and pictures to develop conceptual understanding of place value. Progression using models, images and pictures will secure symbolic understanding and secure knowledge of place value.

Towards Calculation

- Confidence in mental calculation skills – taught explicitly
- Conceptual understanding of place value is secure
- Practise and use the skill of estimation
- Understand the processes being used
- Compare and evaluate methods
- Develop a broad range of experiences in recording calculations –
  Can I do this in my head? Do I need a jotting? Do I need a written method?
- Problem-solving fosters mathematical thinking and discussion
- Make the maths real - link mathematics across the curriculum and to the outdoors

Assessment

Calculation methods will be taught progressively, following the steps outlined in the practical part of the calculations policy. Children will pass through the steps, while developing deep understanding of the concepts of addition, subtraction, multiplication and division. Children may spend longer on some steps than others and should not move on to the next step before being secure in the last. Individual pupil progression in calculation will be tracked and recorded throughout their time at Stilton.