# Shoreham Village Primary School

## Maths Intent Implementation and Impact Statement.

## Intent

At Shoreham Village School we believe that mathematical understanding is vital from an early age. Maths is a central part of everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment and is a fundamental part of a child's education. It is essential that we provide engaging and real life opportunities so that children are able to make sense of our world and become confident, curious and resilient mathematicians.

We meet and exceed **the statutory requirements of** The National Curriculum for mathematics which 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*
- *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 provide an ambitious, high quality Maths curriculum to equip all children with the relevant skills and knowledge that are required in all areas of mathematical understanding; we offer a broad and balanced approach in our quality first teaching so that the children:

- become fluent in the fundamentals of mathematics
- are fully engaged and enjoy maths
- can reason mathematically
- can solve problems by applying their mathematics.

At Shoreham Village School all children will approach maths with a "can do" attitude, so that they are able to experience a sense of joy, awe and wonder as they solve a problem, discover different solutions and make links between different concepts. Pupils will gain procedural knowledge through enriching experiences. All pupils will be encouraged to believe that by working hard, persevering and adopting a growth mindset approach to mathematics, including seeing the value of making mistakes and of learning from them, they can succeed in maths.

**Planning**

Lessons are planned and taught using White Rose Primary Schemes of Learning which break down what children need to learn each term to master the learning objectives laid out by the National Curriculum. Teachers ensure that enough time is spent on each area in order to enrich and embed ideas, enabling children to make connections. Each lesson and unit is carefully ordered to build upon prior learning in small, manageable steps. Whilst we teach Maths in progressive distinct domains (units of work) we recognise that Maths is an interconnected subject. Therefore, we encourage children to make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. Children also apply their mathematical knowledge across the curriculum, and particularly in Science.

## Implementation

Using the White Rose Schemes of Learning ensure consistency and progression throughout the school. This enables teachers to spark curiosity and excitement and help children to develop confidence in maths. All teachers reinforce our belief that all children 'can do' maths. Our staff are confident and feel empowered to deliver the maths curriculum, and have the resources and support they need to achieve this. Teaching sequences are based on small steps to ensure a good level of coherence, understanding, application of understanding and transference of skills to

a range of mathematic problems and contexts. Every maths lesson is based on our key principle that all children 'can do'.

**Lessons**

Children are taught in mixed age and mixed ability groups, enabling all children to be exposed to the same high quality opportunities and access the same quality first teaching and learning.

Each lesson begins with a recap of previous learning, this can and will include, previous learning from the day/ week /unit/ year before. This will exercise pupils' working memory and ensure they retain facts taught previously as well as making as many links as possible between new learning and prior learning. The learning intention (WALT) will be shared with the children at this point, allowing them to understand what they will be doing and see 'the bigger picture' (although at times the WALT may also be shared at the end of the lesson).

Fluency is learned in small steps (**KNOW IT**) during guided practice which provide the knowledge and skills that the children will need to be successful in their independent learning. A ping pong style approach may take place here with short bursts of pupils practising, interspersed with short bursts of teacher input and discussion.
The teaching of problem solving and reasoning will be modelled here, guiding children to how they apply their mathematics to a variety of problems, some which may be broken down into smaller steps. We will also be demonstrating how to be resilient in our approach. When reasoning we will be teaching the children to reason mathematically showing a line of enquiry conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. We expect all children to be using STEM sentences to explain their reasoning and use the correct mathematical vocabulary. Teachers will be modelling and sharing a vocabulary-rich environment during their whole class input, discussions with individuals and through classroom displays. Where appropriate the pre-teaching of vocabulary will take place.

Children will then be ready and prepared to complete their independent practice (**USE IT PROVE IT**), using appropriate manipulatives to support and enrich their learning. We are actively encouraging the children to solve problems each day
through the use of concrete resources, pictorial representations and abstract thinking (the C-P-A approach).
Children are taught using a CPA (concrete, pictorial, abstract) approach which builds on children's existing knowledge by introducing abstract concepts in a concrete and tangible way. It involves moving from concrete materials = The 'doing' stage – physically moving objects to explore a concept. This helps bring the maths to life. To the pictorial stage = The 'seeing' stage – images used to represent the objects. This stage encourages children to make a mental connection between the physical object they just handled and the abstract pictures, diagrams or models that represent the objects from the problem. To the abstract stage– symbols and numbers are used to model the problem or calculation. This helps children tackle concepts in a tangible and more comfortable way.

Their independent tasks are adapted to the level that suits them, where tasks may be scaffolded for those that need it, or deeper questioning is included to enrich higher attaining children. The questions at the beginning of the lesson follow the same fluency approach as the starting activity in the independent task, which will equip children who lack confidence, to engage in questions that have been modelled prior to working independently, before moving onto specific questions involving problem solving and reasoning. Those higher attaining children may be asked to move straight onto the latter, before being offered rich and sophisticated problems that require digging deeper to answer related questions, and well as exploring and carrying out related investigations.

**Feedback**

Throughout the lesson teachers and support staff provide children with immediate feedback and support if required. Children will also have opportunities throughout the lesson to mark their own work, enabling them to see any misconceptions in their own learning and then complete any corrections if necessary. This allows mini plenaries to take place if there are common misconceptions within the class.
We do not provide written feedback in books after the lesson, and research shows, and we agree that verbal feedback at the time is far more beneficial in moving children's learning on.

**Homework**

Children complete a unit in their mental maths book. These books are allocated according to ability.

**Assessment**

Teachers and support staff assess daily by looking at the children's work in the lesson, use of questioning, mini quizzes, peer assessment, oral feedback, and looking at/ listening to the children's self evaluations. End of unit assessments are tweaked and delivered during the normal class lesson, so not to take away the essential teaching time. At the end of every term we use relevant questioning, practical activities, set challenges and problems for pupils to apply previously taught objectives to enable staff to see whether or not the learning has been retained. We use this evidence, together with our teacher assessment to keep track of pupil's progress and attainment. If pupils require extra support same-day 'intervention' may happen here with children that have struggled to grasp learning of the main input. Pupils' difficulties and misconceptions are identified through immediate formative assessment and addressed with rapid intervention – commonly through individual or small group support later the same day: there are very few "closing the gap" strategies, because there are very few gaps to close.

**Moderation**

Every term, moderation is conducted during staff meetings and Support staff meetings. The Maths lead will also conduct learning walks, pupil voice meetings, book looks and will talk with staff about their planning etc
Pupil progress meetings are held every term with the Head and SENDCo.

## Impact

As our Mastery approach to Maths continues we will expect to see all children developing a growth mindset, and a 'can do' approach. As teachers and support staff become more confident in the pedagogy of the mastery approach and this will result in all children becoming increasing engaged in their maths learning and talk passionately about their lessons, making relevant links to other areas of the curriculum. We will see them confidently approach mathematical challenges with resilience and curiosity. We will have children that use rich vocabulary to articulate their thought process when approaching tasks, and discussing these with peers. Accelerated progress will be evident as a result of the carefully structured lessons, and the immediate feedback given, and where necessary, precise interventions to take place. All children will achieve their full potential.

**EYFS**

**By the end of EYFS, we expect the vast majority of our children to achieve the ELGs in Number and Shape, Space and Measure.**

**Number ELG:** Count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing. Shape, Space and **Measure ELG:** Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

**KS1**

**By the end of KS1 we expect the vast majority of our children** to have developed confidence and mental fluency with whole numbers, counting and place value including working with numerals, words and the four operations.

**LKS2**

**By the end of Year 4 we expect the vast majority of our children to have:**

- Become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value.
- Developed efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.
- Developed their ability to solve a range of problems, including with simple fractions and decimal place value.
- Memorised their multiplication tables up to and including the 12-multiplication table and show precision and fluency in their work.

**UKS2**

**By the end of Year 6, we expect the vast majority of our children to:**

- Be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.
- Have deep conceptual understanding and the ability to recall and apply mathematical knowledge rapidly and accurately.
- Reason mathematically by following a line of enquiry, using their knowledge of relationships and generalisations, and justify using mathematical language
- Solve problems by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions