Mathematics rationale:

At Pensilva we believe that a high-quality maths education provides a foundation for understanding the world. Our aim is for all children to develop a love for maths underpinned by curiosity and enjoyment about the subject.

Our maths curriculum focuses on the Mastery approach to Mathematics which aims to provide all pupils with a deep, long-term, secure and adaptable understanding of the subject, mastering one topic securely enough to move on and build on it with another more advanced topic.

We focus on 3 main areas of Learning across all our lessons and key stages:

Fluency: for pupils to become confident and fluent in the fundamentals of mathematics including number bonds, times tables and place value. These concepts provide the basics for all the maths that we do, so that once pupils are proficient in these they will be able to approach more complicated mathematical concepts with confidence.

Reasoning: for pupils to learn how to talk about the maths that they are doing in a critical and thoughtful manner asking questions such as: What do we notice? What do we expect to happen? How can I begin solving this? How could I prove my answer?

Our aim at Pensilva is that all of our pupils can think mathematically and begin to transfer their understanding to new contexts.

Problem solving: For pupils to apply their fluency and reasoning skills to solving a variety of problems which will increase in complexity as they become more proficient and confident.

Our maths throughout the school follows a cyclical approach with children returning to and building on topics each year.

KS1 pupils will learn:

- Number and place value including: Counting to and from 100, reading and writing numbers to 100, finding one more and one less, representing numbers using objects and pictorials, counting in steps of 2, 3 and 5, comparing numbers using <, > and = signs and using place value and number facts to solve problems.
- Addition and subtraction (with a focus on using concrete objects and pictures to support this)
- Multiplication and division including: multiplication and division facts for 2,5 and 10 multiplication tables, odd and even numbers, using x ÷ and = signs and using arrays.
- Fractions of shapes, set of objects, quantity and numbers.
- Measurement including: Using standard units to measure length, height, mass, temperature and capacity. Money and time to 5 minutes.
- Geometry including: properties and names of 2d and 3d shapes, patterns and sequences, position and direction.
- Statistics including: interpreting and constructing pictograms, tally charts, block diagrams and tables, asking and answering questions.

Our **KS2** pupils will build and expand on all this knowledge. Our **Lower KS2** curriculum focuses on ensuring that pupils become increasingly fluent with whole numbers and the 4 operations. Pupils will learn to develop efficient written and mental methods to perform calculations accurately. Pupils in this age range will spend time increasing their confidence solving a wide range of problems including those with fractions and decimal place value. In shape pupils will be expected to describe and compare shapes with increasing accuracy.

By the end of year 4 pupils learn rapid recall of multiplication facts up to the 12 times table.

Our **Upper Key Stage 2** curriculum introduces pupils to an increasingly complex range of problems and challenges them to use all the skills that they have been developing over their time at Pensilva.

By the **end of Key Stage 2** pupils will have studied:

- Number and place value including: read, write and compare numbers to 10,000,000, rounding numbers, using negative numbers and solving problems using all of the above.
- Addition, subtraction, multiplication and division including: using the formal written methods, performing mental calculations, identifying common factors, multiples and prime numbers and using estimation to check answers.
- Fractions including decimals and percentages.
- Ratio and proportion including a variety of problem solving.
- Algebra – using simple formulae and expressing missing numbers algebraically, finding pairs of numbers to satisfy an equation.
- Measurement including calculating the area and perimeters of shapes.
- Geometry including: name parts of a circle (radius, diameter, circumference), recognise and find angles, draw and translate shapes onto a coordinate plane.
- Statistics: interpret and construct pie charts and line graphs, calculate and interpret the mean as an average.