MATHS AT DORCHESTER PRIMARY SCHOOL

At Dorchester our vision is that children will become fluent, confident mathematicians who can read and write mathematically, independently exploring a range of problems and using their knowledge and skills to generate and explain their solutions. Through the provision of a high quality mathematics education we aim for all children to use and understand mathematical language and recognise its importance as a language for communication and thinking providing them with powerful ways to describe, analyse and change the world.

Mathematics Curriculum

We have designed the mathematics curriculum at Dorchester so that children work through carefully crafted sequences of lessons which deepen their knowledge of key concepts and procedures, build their understanding and use of mathematical vocabulary and frequently revisit, apply and embed prior learning to develop fluency.

In EYFS Children will -

- Be introduced to the cardinality & value to 10
- Be exposed to number rhymes,songs & stories to build understanding of counting & pattern
- Learn the simple language of maths through playful experiences developing the founding concepts of number, shape & measure
- Build knowledge of numbers to 10 & extend to 20
- Be introduced to simple addition & subtraction building on FS1 understanding of comparison
- Be exposed to the reading & writing of mathematics via simple number sentences and diagrams
- Learn to solve problems independently through play that involve doubling, halving & sharing.
- Learn to use every day language to talk about shape, measures, time & patterns during their own play

In KS1 Children will—

Build on their learning at EYFS by:

- extending their understanding of cardinality of numbers to 100 and beyond
- developing counting skills to include steps of 2,5,10 and 3
- developing a knowledge of addition and subtraction within 100 with the use of concrete resources

Be introduced to:

- multiplication, division and fractions by building on their understanding of doubling, halving and sharing
- a widening range of representations and approaches to recording solutions
- standard units of measure to practically solve problems
- pattern seeking with numbers
- Learn to become factually fluent using number bonds to 20 and then to 100
- Learn the correct mathematical language to describe the properties of 3D and 2D shapes
- Develop basic geometry understanding by exploring position & direction inc. symmetry using vertical lines
- Learn how data can be presented in a range of ways including pictograms, tally charts, bar charts, diagrams and simple tables
- Begin to explain and justify their solutions

In Lower KS2 Children will—

- Become increasingly fluent and confident with the four operations, including number facts and the concept of place value extending to four digit numbers
- Further develop their use of efficient written methods by using formal procedures and mental methods
- Extend their fraction knowledge to equivalencies, non-unit fractions and relationship to decimals
- Become more confident in accurately working with increasingly larger whole numbers
- Be able to fluently recall times table facts to 12x12
- Build on their ability to reason and justify their answers using a widening mathematical vocabulary
- Learn to round numbers to the nearest 10,100, 1000 and to round decimals to the nearest whole
- Further develop their understanding of money, measures and time and use this knowledge to solve simple problems
- Develop their understanding of the concept of angles though the acquisition of specific geometry skills, knowledge and vocabulary
- Be introduced to the conversion of measures and the concept of area and perimeter
- Be introduced to exploration of position and movement on a 2d grid using coordinates in the first quadrant
- Solve problems by interpreting and presenting discrete and continuous data using appropriate graphical methods including bar charts and line graphs

In Upper KS2 Children will—

- Further extend their understanding of place value to include 8 digit whole numbers and decimals with 3 places; rounding, ordering, comparing and problem solving
- Will refine their procedural fluency with all 4 operations including justifying their choices and effectiveness
- Develop factual fluency to include factors, multiples, squared, cubed and prime numbers
- Be able to solve increasingly complex multistep problems using all 4 operations
- Become fluent in recognising and using the relationship between fractions decimals and percentages to solve problems
- Extend and refine knowledge of angles through measuring, drawing, comparing and problem solving
- Embed knowledge of properties of shape through further exploration of 3d shapes and their pictorial representations
- Further refine knowledge of measure through continued exploration of area, perimeter, length, mass time and extend to temperature and volume
- Begin to build the foundations of algebraic knowledge through the exploration of missing number problems in the context of shape, measure and number
- Continue solve problems by interpreting and presenting discrete and continuous data using a variety graphical methods extending to pie charts
- Learn to calculate the average of a data set
- Develop understanding of ratio and proportion and explore the concept of scaling
- Describe positions, draw, translate and reflect simple shapes on the full coordinate grid using all four quadrants

Support

- All pupils have opportunities to learn mathematics taking into consideration their own starting points and needs.
- All children are given work that is closely matched to their abilities which does not limit them from learning about a broad range of mathematical concepts.
- Small steps of progress are closely tracked using bespoke SEND tracking tools
- Children with complex needs follow a bespoke curriculum which includes providing opportunities for learning to take place within high interest contexts, for learning to be child-led and for a balance of direct teaching and independent exploration to take place

Sequence

- **Counting:** orientate to learning with oral counting activity
- **Starter:** review prior learning with a warm up activity
- **Exploration:** collaborative problem solving developing mathematical discussion and interaction
- **Guided practice:** direct teaching/modelling of key skill
- **Independent practice:** practice of key skill developing factual and procedural fluency as well as problem solving and reasoning
- **Reflect on learning:** oral reflection on learning