St Mary's C of E (VA) Primary School

Mathematics Scheme of Work – YEAR 6

Mathematics Strand	NC Requirement	Resources/Time	Success Criteria (Outcome)
NUMBER **Number and place value**	**By the end of Year 6:** • read, write, order and compare numbers up to 1 000 000 and determine the value of each digit • round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across zero • solve number and practical problems that involve all of the above.	• Number cards – 1 000 000 • Place value cards (THTO) • Base 10	• Children fluently order and compare to 1 000 000. • Determine value of each number to 1 000 000. • To use and calculate using negative numbers. • To round whole numbers to required degree of accuracy.
Addition, subtraction, multiplication and division	• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • perform mental calculations, including with mixed operations and large numbers. • identify common factors, common multiples and prime numbers • use their knowledge of the order of operations to carry out calculations involving the four operations • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • solve problems involving addition, subtraction, multiplication and division • use estimation to check answers to calculations and determine, in the	• Number cards, • Hundred squares. • Numicon • Place value cards (THTO) • Base 10	• Multiply & divide up to 4 digit numbers by 1 & 2 digit numbers using various written methods. • Interpret and understand remainders. • Secure using mental maths skills for mixed calculations including larger numbers. • Identify common factors multiples and prime numbers. • Solve multi-step problems choosing correct operation. • Choose correct order to solve calculations using all operations. • Estimate to check accuracy of calculations.

	context of a problem, levels of accuracy.		
Fractions (including decimals and percentages)	• use common factors to simplify fractions; use common multiples to express fractions in the same denomination • compare and order fractions, including fractions >1 • add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. 1/4 × 1/2 = 1/8) • divide proper fractions by whole numbers (e.g. 1/3 ÷ 2 = 1/6) • associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8) • identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places • multiply one-digit numbers with up to two decimal places by whole numbers • use written division methods in cases where the answer has up to two decimal places • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	• Fraction fans/boards • Base 10	• Simplify fractions using common factors. • Compare and order fractions including negatives. • Use knowledge of equivalent fractions to add and subtract fractions with different denominators and mixed numbers. • To multiply and simplify proper fractions. • To divide proper fractions by whole numbers. • To calculate decimal fractions equivalents using division. • To understand numbers to 3 decimal places and divide by multiples of 10 to 1000. • To multiply decimal numbers with whole numbers. • Use written methods to solve division calculations resulting in decimal numbers. • Solve problems involving rounding to a specified degree of accuracy. • Identify equivalences between fractions, percentages and decimals.

RATIO AND PROPORTION	• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • solve problems involving the calculation of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	• ?	• Use integer multiplication and division facts to find missing values in problems. • Calculate percentages of amounts and compare. • Use the known scale factor to solve problems involving similar shapes. • Use multiples and fractions to solve problems involving unequal sharing and grouping.
ALGEBRA	• express missing number problems algebraically • use simple formulae expressed in words • generate and describe linear number sequences • find pairs of numbers that satisfy number sentences involving two unknowns • enumerate all possibilities of combinations of two variables.	• ?	• Use algebra to solve missing number problems. • To express simple formulas in words. • Describe and create linear number sentences. • Solve number sentences including 2 knowns using pairs of numbers. • List all possibilities when combining two variables.
MEASUREMENT	• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate • use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places • convert between miles and kilometres • recognise that shapes with the same areas can have different perimeters and vice versa	• Metre rulers • Rulers • Tape measures • Scales • Balance scales – metric and imperial • Measuring jugs/tubes • Numicon • 3D shapes/Nets	• To convert and calculate units of measurement to solve problems. • Convert between miles and kilometres. • Identify equivalences between metric and imperial units. • To read, write and convert various standard units from smaller to larger units and vice versa. • Understand shapes with the same area can have

	• recognise when it is possible to use formulae for area and volume of shapes • calculate the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm3) and cubic metres (m3), and extending to other units such as mm3 and km3.		different perimeters. • Use formulas to identify area and volume of shapes. • To use all operations to solve measure based problems including decimal notation. • Understand and solve volume based problems including cubes and cuboids.
GEOMETRY **Properties of shapes**	• draw 2-D shapes using given dimensions and angles • recognise, describe and build simple 3-D shapes, including making nets • compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	• 2D/3D shapes • 3D nets • Protractors • Compasses	• Use given dimentions and angles to draw 2D shapes. • Identify, describe and build 3D shapes. • To compare and classify properties of geometric shapes. • To find unknown angles in 2D shapes. • To understand measurements relating to circles. • To identify and compare angles within shapes. •
Position and direction	• describe positions on the full coordinate grid (all four quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes.	• 2D shapes	• To secure understanding of positions using co-ordinates. • Reflect simple shapes on an axis.
STATISTICS	• interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average.	• Laptops/iPads • Rulers • Colouring pencils • Timetables	• To collect and interpret data in different ways including pie charts. • To identify the mean.