CHURCHWOOD PRIMARY ACADEMY

At Churchwood Everyone Can

Mathematics Overview – Year Five

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
W 1	Place value	Multiplication facts and Fractions	Place value and Decimals	Written multiplication and division	Money	Multiplication and division and Fractions
W 2	Mental addition and subtraction	Multiplication and division	Mental addition and subtraction	Multiplication and division and Fractions	Multiplication and Fractions	Written multiplication and division
W 3	Decimals	Geometry (angles)	Multiplication and division	2D shapes and measures (incl. conversions)	Place value (decimals) and Negative numbers	Area and Perimeter and Volume and Capacity
W 4	Time and Length (calculating and measuring)	Fractions and Decimals	Measures (incl. conversions)	Fractions	Geometry (reflection and translation) and shapes	Percentages (relationships with fractions and decimals)
W 5	Subtraction (mental and written strategies)	Problem solving strategies	Addition and subtraction	Written addition and subtraction	Written addition and subtraction	Measures and Statistics
W 6	Assess and review week	Assess and review week	Assess and review week	Assess and review week	Assess and review week	Assess and review week

Mathematics Objectives Year Five

	Mathematics Objectives I can...
Number and Place Value	• interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • read, write, order and compare numbers to at least 1000 000 and determine the value of each digit • read Roman numerals to 1 000 (M) and recognise years

	written in Roman numerals. • round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000 • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (replicated in Fractions) • round decimals with two decimal places to the nearest whole number and to one decimal place (replicated in Fractions) • solve number problems and practical problems that involve all of the above
Addition and subtraction	• add and subtract numbers mentally with increasingly large numbers • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
Multiplication and division	• count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 (replicated in Number and Place Value) • multiply and divide numbers mentally drawing upon known facts • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 • multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers • divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19

	• recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) • solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates
Fractions	• recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • compare and order fractions whose denominators are all multiples of the same number • read, write, order and compare numbers with up to three decimal places • round decimals with two decimal places to the nearest whole number and to one decimal place • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • read and write decimal numbers as fractions (e.g. 0.71 = $^{71}/_{100}$) • recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator 100 as a decimal fraction • add and subtract fractions with the same denominator and multiples of the same number • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $^2/_5 + {}^4/_5 = {}^6/_5 = 1{}^1/_5$) • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • solve problems involving numbers up to three decimal places • solve problems which require knowing percentage and decimal equivalents of $^1/_2$, $^1/_4$, $^1/_5$, $^2/_5$, $^4/_5$ and those with a denominator of a multiple of 10 or 25

Algebra	• use the properties of rectangles to deduce related facts and find missing lengths and angles (replicated in Geometry: Properties of Shapes)
Measurement	• calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes (also included in measuring) • estimate volume (e.g. using 1 cm^3 blocks to build cubes and cuboids) and capacity (e.g. using water) • use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling. • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes • recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) (replicated in Multiplication and Division) • solve problems involving converting between units of time • convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) • solve problems involving converting between units of time • understand and use equivalences between metric units and common imperial units such as inches, pounds and pints
Geometry – Properties of shapes	• identify 3-D shapes, including cubes and other cuboids, from 2-D representations • draw given angles, and measure them in degrees (^{o}) • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles • know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles

	• identify: - angles at a point and one whole turn (total 360°) - angles at a point on a straight line and ½ a turn (total 180°) - other multiples of 90°
Geometry – Position and direction	• identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed
Statistics	• complete, read and interpret information in tables, including timetables • solve comparison, sum and difference problems using information presented in a line graph