

MATHEMATICS

MEDIUM TERM PLAN – Y5



Concept	National Curriculum Objectives	Key Skills	Concrete Resources	Vocabulary
Number Place Value (Autumn Term)	<ul style="list-style-type: none"> • read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the above • read Roman numerals to 1000 (M) and recognise years written in Roman numerals. 	<ul style="list-style-type: none"> • Roman numerals to 1000 • Numbers to 10,000 • Numbers to 100,000 • Numbers to 1,000,000 • Read and write numbers to 1,000,000 • Powers of 10 • 10, 100, 1000, 10000, 100000 more or less • Partition numbers to 1000 000 • Number line to 1000000 • Compare and order numbers to 100,000 • Compare and order numbers to 1,000,000 • Round to the nearest 10, 100 or 1000 • Round within 100,000 • Round within 1,000,000 		number, numeral, equal to, more, less, consecutive, one, tens, hundred, thousands, ten thousands, millions, place value, represent, exchange, more, fewer, smaller, bigger, largest, compare, order, size, last, before, after, next, above, digit
Number Addition and Subtraction (Autumn Term)	<ul style="list-style-type: none"> • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • add and subtract numbers mentally with increasingly large numbers • 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. 	<ul style="list-style-type: none"> • Mental strategies • Add whole numbers with more than 4 digits • Subtract whole numbers with more than 4 digits • Round to check answers • Inverse operations (addition and subtraction) • Multi-step addition and subtraction problems • Compare calculations • Find missing numbers 		Addition, add, more, and, total, altogether, double, near double, half, halve, subtract, takeaway, how many are left?, fewer, difference between, equals, is the same as, number bonds/pairs/facts, missing number, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

<p>Number</p> <p>Multiplication and Division (1)</p> <p>(Autumn Term)</p>	<ul style="list-style-type: none"> • identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 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 • multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 • 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 	<ul style="list-style-type: none"> • Multiples • Common multiples • Factors • Common factors • Prime numbers • Square numbers • Cube numbers • Multiply by 10, 100 and 1000 • Divide by 10, 100, 1000 • Multiples of 10, 100, 1000 		<p>Multiplication, multiply, multiplied by, multiple, factor, groups of, times, product, array, rows, columns, repeated addition, division, dividing, divided into, left over, remainder, grouping, sharing, sharing equally, equal groups of, doubling, halving, number patterns, multiplication table, multiplication fact, division fact, inverse square, squared, cube, cubed</p>
<p>Number</p> <p>Fractions (1)</p> <p>(Autumn Term)</p>	<ul style="list-style-type: none"> • compare and order fractions whose denominators are all multiples of the same number • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] • add and subtract fractions with the same denominator and denominators that are multiples of the same number • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • 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, and as a decimal 	<ul style="list-style-type: none"> • Find fractions equivalent to a unit fraction • Find fractions equivalent to a non-unit fraction • Recognise equivalent fractions • Convert improper fractions to mixed numbers • Convert mixed numbers to improper fractions • Compare fractions less than 1 • Order fractions less than 1 • Compare and order fractions greater than 1 • Add and subtract fractions with the same denominator • Add fractions within 1 • Add fractions with total greater than 1 • Add to a mixed number • Add two mixed numbers • Subtract fractions • Subtract from a mixed number • Subtract from a mixed number - breaking the whole • Subtract two mixed numbers 		<p>Fraction, equivalent fraction, mixed number, numerator, denominator, equal part, equal grouping, equal sharing, parts of a whole, half, two halves, one of two equal parts, quarter, two quarters, three quarters, one of four equal parts, one third, two thirds, one of three equal parts, sixths, sevenths, eighths, tenths, hundredths, thousandths</p>

<p>Number</p> <p>Multiplication and Division (2)</p> <p>(Spring Term)</p>	<ul style="list-style-type: none"> 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 multiply and divide numbers mentally, drawing upon known facts 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 	<ul style="list-style-type: none"> Multiply up to 3 digits by 1 digit Multiply 4 digits by 1 digit Multiply 2 digits (area model) Multiply 2 digits by 2 digits Multiply 3 digits by 2 digits Multiply 4 digits by 2 digits Divide 3 digits by 1 digit Divide 4 digits by 1 digit Divide with remainders 		<p>Multiplication, multiply, multiplied by, multiple, factor, groups of, times, product, array, rows, columns, repeated addition, division, dividing, divided into, left over, remainder, grouping, sharing, sharing equally, equal groups of, doubling, halving, number patterns, multiplication table, multiplication fact, division fact, inverse square, squared, cube, cubed</p>
<p>Number</p> <p>Fractions (2)</p> <p>(Spring Term)</p>	<ul style="list-style-type: none"> compare and order fractions whose denominators are all multiples of the same number identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] add and subtract fractions with the same denominator and denominators that are multiples of the same number multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams 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, and as a decimal 	<p>See Fractions (1) from the Autumn Term to recap key skills</p> <ul style="list-style-type: none"> Multiply unit fractions by an integer Multiply non-unit fractions by an integer Multiply mixed numbers by integers Calculate fractions of a quantity Fractions of amount Using fractions as operators 		<p>Fraction, equivalent fraction, mixed number, numerator, denominator, equal part, equal grouping, equal sharing, parts of a whole, half, two halves, one of two equal parts, quarter, two quarters, three quarters, one of four equal parts, one third, two thirds, one of three equal parts, sixths, sevenths, eighths, tenths, hundredths, thousandths</p>

<p>Number</p> <p>Decimals and Percentage</p> <p>(Spring Term)</p>	<ul style="list-style-type: none"> • read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal places • solve problems involving number up to three decimal places • 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, and as a decimal • solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$ and those fractions with a denominator of a multiple of 10 or 25. 	<ul style="list-style-type: none"> • Decimals up to 2 d.p • Decimals as fractions • Understand thousandths • Thousandths as decimals • Rounding decimals • Order and compare decimals • Understand percentages • Percentages as fractions and decimals • Equivalent F.D.P 		<p>Decimal, decimal fraction , decimal point, decimal place, decimal equivalent, ones, tenths, hundredths, value, digit, represents, proportion, in every, for every, percentage, per cent, %</p>
<p>Measurement</p> <p>Perimeter and Area</p> <p>(Spring Term)</p>	<ul style="list-style-type: none"> • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes 	<ul style="list-style-type: none"> • Measure perimeter • Perimeter on a grid • Perimeter of rectilinear shapes • Calculate perimeter • Area of rectangles • Area of compound shapes • Area of irregular shapes 		<p>Millilitre, centimetre, metre, kilometre, length, height, width, long, short, tall, high, low, wide, narrow, thick, thin, longer, shorter, taller, higher, longest, shortest, tallest, highest, far, furthest, near, close distance apart, perimeter, ruler, metre stick, tape measure, area, covers, squared centimetre</p>
<p>Statistics</p> <p>(Spring Term)</p>	<ul style="list-style-type: none"> • solve comparison, sum and difference problems using information presented in a line graph • complete, read and interpret information in tables, including timetables. 	<ul style="list-style-type: none"> • Interpret charts • Line graphs • Read and interpret line graphs • Draw line graphs • Use line graphs to solve problems • Read and interpret tables • Two way tables • Timetables 		<p>Count, tally, sort, vote, graph, represent block graph, pictogram, group, set, list, table, chart, bar chart, frequency table, Carroll diagram , Venn diagram, label title, axis, axes, diagram, most popular, least popular, most common, least common, maximum , minimum value, outcome</p>

<p>Geometry</p> <p>Shape</p> <p>(Summer Term)</p>	<ul style="list-style-type: none"> • identify 3-D shapes, including cubes and other cuboids, from 2-D representations • know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • draw given angles, and measure them in degrees ($^{\circ}$) • identify: • 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. 	<ul style="list-style-type: none"> • Measure angles in degrees • Measuring with a protractor • Drawing lines and angles accurately • Calculating angles on a straight line • Calculating angles around a point • Calculating lengths and angles in shapes • Regular and irregular polygons • Reasoning and 3D shapes 	<p>Shape, pattern, flat, curved, straight, round, hollow, solid, surface, size, symmetry, corner, side, point, rectangle (including square), rectangular, circle, circular, triangle, triangular, pentagon, pentagonal, hexagon, hexagonal, octagon, octagonal, quadrilateral, right-angled, equilateral triangle, isosceles triangle, scalene triangle, heptagon, octagon, x-axis, y-axis, quadrant, parallel, perpendicular, face, edge, vertex, vertices, cube, cuboid, pyramid, sphere, hemisphere, cone, cylinder, prism, triangular prism, tetrahedron, polyhedron, regular, irregular, polygon, right-angled, perpendicular, parallel</p>
<p>Geometry</p> <p>Position and Direction</p> <p>(Summer Term)</p>	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Position in the first quadrant • Translation • Translation with coordinates • Lines of symmetry • Complete with a symmetric figure • Reflection • Reflection with coordinates 	<p>Position, over, under, above, below, top, bottom, side, on, in outside, inside, around, in front, behind, front, back, beside, next to, opposite, apart, between middle, edge, centre, corner, direction, journey, route, left, right, up, down, higher, lower, forwards, backwards, sideways, across, next to, close, along, through, to, from, towards, away from, clockwise, anti-clockwise, compass point, North, South, East, West, North-East, North-West, South-</p>

				East, South-West, horizontal, vertical, diagonal, translate, translation, degree movement, whole turn, translate, half turn, quarter turn, three-quarter turn, rotate, rotation, right angle, acute angle, obtuse angle, reflection, straight line, ruler, set square, angle measurer, protractor, compass
Number Decimals (Summer Term)	<ul style="list-style-type: none"> read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents round decimals with two decimal places to the nearest whole number and to one decimal place read, write, order and compare numbers with up to three decimal places solve problems involving number up to three decimal places 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, and as a decimal solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$ and those fractions with a denominator of a multiple of 10 or 25. 	<ul style="list-style-type: none"> Adding decimals within 1 Subtracting decimals within 1 Complements to 1 Adding decimals - crossing the whole Adding decimals with the same number of decimal places Subtracting decimals with the same number of decimal places Adding decimals with a different number of decimal places Subtracting decimals with a different number of decimal places Adding and subtracting wholes and decimals Decimal sequences Multiplying decimals by 10, 100, 1000 Dividing decimals by 10, 100, 1000 		Decimal, decimal fraction, decimal point, decimal place, decimal equivalent, ones, tenths, hundredths, value, digit, represents, proportion, in every, for every, percentage, per cent, %
Number Negative Numbers (Summer Term)	<ul style="list-style-type: none"> interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero 	<ul style="list-style-type: none"> What are negative numbers? Negative numbers on a number line Negative numbers in a context 		number line, negative numbers, integer, positive, negative, value, represents

Measurement Converting Units (Summer Term)	<ul style="list-style-type: none"> • convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • solve problems involving converting between units of time • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. 	<ul style="list-style-type: none"> • Kilometres • Kilograms and kilometres • Millimetres and millilitres • Metric units • Imperial units • Converting units of time • Timetables 		mass, weight, equal to, equals, the same as, big, bigger, small, smaller, metric, imperial, kilometre, miles, metres, centimetres, gram, pounds, inches, pints, tonnes, gallons
Measurement Volume (Summer Term)	<ul style="list-style-type: none"> • estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water] 	<ul style="list-style-type: none"> • What is volume ? • Compare volume • Estimate volume • Estimate capacity 		Volume, capacity, cubic, cubic centimetres, cubic metres, cubic millilitres, cubic kilometres, length, width, height