

# Unit 1: Number and Manipulation

## T1 WK 1 to 4

Topic	Success Criteria	Maths Watch Clip
<b>The Four Operations</b>	<ul style="list-style-type: none"> <li>Add and subtract positive and negative numbers mentally and using written methods</li> <li>Multiply and divide positive and negative numbers mentally and using written methods and use written division methods in cases where the answer has up to two decimal places</li> <li>Solve multi-step problems involving addition, subtraction and/or multiplication and division</li> <li>Understand and use negative numbers when working with temperature and other contexts</li> </ul>	Clip 17- 20 Clip 75 Clip 23
<b>Calculations</b>	<ul style="list-style-type: none"> <li>Use priority of operations with positive and negative numbers (BIDMAS)</li> <li>Simplify calculations by cancelling</li> <li>Use inverse operations</li> </ul>	Clip 68 Clip 21
<b>Place value and decimal numbers</b>	<ul style="list-style-type: none"> <li>Write decimal numbers of millions</li> <li>Round to a given number of significant figures</li> <li>Estimate answers to calculations</li> <li>Use one calculation to find the answer to another</li> <li>Round to a given number of decimal places</li> <li>Order positive and negative decimals</li> <li>Add, Subtract, Multiply and divide decimal numbers</li> </ul>	Clip 90 Clip 91 Clip 92  Clip 3 Clip 17-18 Clip 66-67
<b>Standard form</b>	<ul style="list-style-type: none"> <li>Write big and small numbers in SF and vice versa.</li> <li>Using a calculator</li> <li><u>Calculate with numbers in standard form</u></li> </ul>	Clip 83
<b>Bounds</b>	<ul style="list-style-type: none"> <li>Error intervals and truncating.</li> <li><b>Calculate using upper and lower bounds</b></li> </ul>	Clip 155 Clip 132 Clip 206
<b>Primes, factors and Multiples</b>	<ul style="list-style-type: none"> <li>Recognise 2-digit prime numbers up to 50.</li> <li>Find factors and multiples of numbers</li> <li>Find common factors and common multiples of two numbers</li> <li>Find the HCF and LCM of two numbers by prime factor decomposition.</li> </ul>	Clip 78 Clip 79 Clip 80
<b>Squares, cubes, and Roots</b>	<ul style="list-style-type: none"> <li>Find square roots and cube roots</li> <li>Recognise powers of 2,3,4 and 5</li> </ul>	Clip 29 Clip 81
<b><u>Surds</u></b>	<ul style="list-style-type: none"> <li><b>Understand the difference between rational and irrational numbers</b></li> <li><b>Simplify expressions involving surds</b></li> <li><b>Expand expressions involving surds</b></li> <li><b>Rationalise the denominator of a fraction</b></li> </ul>	Clip 207a Clip 207b Clip 207c
<b>Keywords</b>	<ul style="list-style-type: none"> <li>Factor, Multiple, Integer, product, sum, difference, equivalent, bounds, significant figures, square numbers, root, standard form, surd, rational, irrational, rationalising the denominator</li> </ul>	

## Unit 2: Algebraic Manipulation

T1 WK 5 to 7 T2 WK 1 to 2

Topic	Success Criteria	Maths Watch
<b>Understanding Vocabulary</b>	<ul style="list-style-type: none"> <li>Understand and use the concepts and vocabulary of expressions, equations, formulae, identities, inequalities, terms and factors</li> <li>Use the identity symbol and the not equals symbol</li> </ul>	Clip 7 and 95
<b>Simplifying Expressions</b>	<ul style="list-style-type: none"> <li>Use correct algebraic notation</li> <li>Simplify an expression by collecting like terms</li> <li>Simplify expressions involving multiplication and division</li> </ul>	Clip 33 34,35
<b>Index notation</b>	<ul style="list-style-type: none"> <li>Use the laws of indices to simplify numeric and <u>algebraic expressions</u></li> <li><u>Use negative and fractional indices</u></li> </ul>	Clips 29, 82, 131, 154, 188
<b>Substitution</b>	<ul style="list-style-type: none"> <li>Substitute positive and negative number into expressions and formulae including brackets and powers,</li> </ul>	Clip 95
<b>Formulae</b>	<ul style="list-style-type: none"> <li>Substitute numbers into a simple formula</li> <li>Write expressions and simple formulae to solve problems</li> <li>Use maths and science formulae</li> <li><u>Rearrange simple</u> and <b>more challenging formulae</b></li> </ul>	Clip 137  Clip 136 Clip 190
<b>Expanding brackets</b>	<ul style="list-style-type: none"> <li>Expand brackets including double brackets.</li> <li><u>Expand three brackets</u></li> <li>Simplify expressions with brackets</li> </ul>	Clip 93 Clip 134 Clip 178
<b>Factorising</b>	<ul style="list-style-type: none"> <li>Recognise factors of algebraic terms</li> <li>Factorise algebraic expressions</li> <li><u>Factorise a double bracket</u></li> <li><u>Use the difference of two squares</u></li> </ul>	Clip 94  Clip 157 Clip 192
<b>Sequences</b>	<ul style="list-style-type: none"> <li>Describe the term-to-term rule</li> <li>Drawing patterns for sequences</li> <li>Generate a sequence from the nth term</li> <li>Find a general formula for the nth term of a linear sequence</li> <li>Determine whether a number is a term of a given arithmetic sequence</li> <li>Work out terms in Fibonacci-like sequences</li> <li><b>Solve problems using geometric sequences</b></li> <li><b>Find the nth term of a quadratic sequence</b></li> </ul>	Clip 102  Clip 104 Clip 141
<b><u>Algebraic proof</u></b>	<ul style="list-style-type: none"> <li><b>Know that <math>2n</math> is a general term for even numbers and <math>2n + 1</math> is a general term for odd numbers</b></li> <li><b>Argue mathematically to show algebraic expressions are equivalent</b></li> <li><b>Use algebra to support and construct arguments and proofs</b></li> </ul>	Clip 193
<b><u>Keywords</u></b>	Expression, equations, formulae, identities, inequalities, terms and factors, index/indices, Expand, factorise	

<b>Unit 3: Averages and Range</b>	<b>T2 WK 3 to 4</b>
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Topic	Success Criteria	Maths Watch
<b>Averages and Range</b>	<ul style="list-style-type: none"> <li>• Calculate the mean, mode, median and range from a list, a frequency table and a <u>grouped frequency table</u>.</li> <li>• Compare sets of data using mean and range</li> <li>• Find averages and range from a stem and leaf diagram</li> <li>• Identify outliers</li> <li>• Estimate the averages and range of <u>grouped data</u></li> <li>• Recognise the advantages of different averages and choose the best to use in a given situation</li> <li>• <u>Solve missing mean problems</u></li> </ul>	Clip 62 Clip 130a Clip 130b
<b>Sampling</b>	<ul style="list-style-type: none"> <li>• Understand the need for sampling</li> <li>• Understand how to avoid bias</li> </ul>	Clip 152 Clip 176
<b>Keywords</b>	Mean, mode, median, range, interquartile range, upper and lower quartile	

## Unit 4: Statistics

## T2 WK 4 to 6

Topic	Success Criteria	Maths Watch
Frequency tables	<ul style="list-style-type: none"> <li>Design tables and data collection sheets</li> </ul>	Clip 65a
Two-way tables	<ul style="list-style-type: none"> <li>Use data from tables</li> <li>Design and use two-way tables</li> </ul>	Clip 61
Representing data	<ul style="list-style-type: none"> <li>Draw and interpret pictograms</li> <li>Draw and interpret comparative and composite bar charts</li> <li>Interpret and compare data shown in bar charts, line graphs and frequency diagrams.</li> <li>Construct and use frequency polygons</li> <li><u>Draw and interpret cumulative frequency</u></li> <li><u>Draw and interpret box plots.</u></li> </ul>	Clip 15 Clip 16 Clip 65b Clip 186 Clip 187
Time series	<ul style="list-style-type: none"> <li>Plot and interpret time series graphs</li> <li><u>Use trends to predict what might happen in the future</u></li> </ul>	Clip 153
Stem and leaf diagrams	<ul style="list-style-type: none"> <li>Construct and interpret stem and leaf and back-to-back stem and leaf diagrams</li> </ul>	Clip 128b
Pie charts	<ul style="list-style-type: none"> <li>Draw and interpret pie charts</li> </ul>	Clip 128a
Scatter graphs	<ul style="list-style-type: none"> <li>Plot and interpret scatter graphs</li> <li>Determine whether there is a relationship between sets of data</li> <li>Draw a line of best fit</li> <li>Use the line of best fit to predict values</li> </ul>	Clip 129
<u>Describing Populations</u>	<ul style="list-style-type: none"> <li>Vocabulary of sampling, e.g.: population, random sample, bias, representative, <b>stratified sample</b>, etc.</li> <li><u>Sampling and estimating populations</u></li> <li><b>Capture/recapture problems</b></li> </ul>	Clip 152 Clip 176
Keywords	Frequency, cumulative frequency, correlation, stratified sampling, capture/recapture	

## Unit 5: FDP

## T3 WK 1 to 5

Topic	Success Criteria	Maths Watch
<b>Working with fractions</b>	<ul style="list-style-type: none"> <li>• Simplify calculations by cancelling and finding equivalent fractions</li> <li>• Compare fractions</li> <li>• Use fractions to solve problems</li> <li>• Write one number as a fraction of another</li> </ul>	Clip 25 Clip 26 Clip 70
<b>Operations with fractions</b>	<ul style="list-style-type: none"> <li>• Add and subtract fractions with <u>mixed numbers</u></li> <li>• Multiply fractions</li> <li>• Divide a whole number by a fraction</li> <li>• Dividing fractions</li> <li>• Find a fraction of a quantity or measurement</li> <li>• Use fractions to solve problems</li> <li>• <u>Find the reciprocal of an integer, decimal or fraction</u></li> </ul>	Clip 71a Clip 72 Clip 73 Clip 74  Clip 76
<b>FDP</b>	<ul style="list-style-type: none"> <li>• Convert FDP</li> <li>• Order and compare FDP, including positive and negative</li> <li>• Use FDP to find quantities of amounts</li> <li>• <b>Convert a recurring decimal to a fraction</b></li> </ul>	Clip 84 Clip 85  Clip 177
<b>Calculating percentages 1</b>	<ul style="list-style-type: none"> <li>• Write one number as a percentage of another</li> <li>• Use percentages to solve problems</li> <li>• Calculate simple interest</li> <li>• Calculate percentage increases and decreases with and without calculators</li> </ul>	Clip 86 Clip 87 Clip 108 Clip 111
<b>Calculating percentages 2</b>	<ul style="list-style-type: none"> <li>• <u>Calculate reverse percentage</u></li> <li>• <u>Calculate a percentage change</u></li> <li>• <u>Calculate compound/depreciation</u></li> <li>• <b>Calculate the interest rate in compound problems.</b></li> <li>• Use percentages in real-life situations</li> </ul>	Clip 110 Clip 109  Clip 164
<b>Keywords</b>	Equivalent, recurring, terminating decimal, percentage change, appreciation, depreciation, growth, decay, interest,	

## Unit 6: Equations and Inequalities

T3 WK 6

T4 WK 1 to 3

Topic	Success Criteria	Maths Watch
<b>Solving equations</b>	<ul style="list-style-type: none"> <li>• Understand and use inverse operations</li> <li>• Rearrange simple linear equations</li> <li>• Solve two-step equations</li> <li>• Solve linear equations with brackets</li> <li>• Solve equations with unknowns on both sides</li> </ul>	Clip 135a Clip 136
<b>Introducing inequalities</b>	<ul style="list-style-type: none"> <li>• Use correct notation to show inclusive and exclusive inequalities</li> <li>• Represent inequalities on a number line</li> <li>• Write down whole numbers which satisfy an inequality</li> <li>• Solve simple linear inequalities and show on a number line.</li> <li>• <u>Solve a linear inequality with negative variables.</u></li> <li>• <u>Solve two-sided inequalities and three part inequalities</u></li> </ul>	Clip 138 Clip 139
<b><u>Solving quadratic equations</u></b>	<ul style="list-style-type: none"> <li>• <u>Find the roots of quadratic functions by factorising</u></li> <li>• <u>Rearrange and solve simple quadratic equations</u></li> <li>• <b>Solve more complex quadratic equations</b></li> <li>• <b>Use the quadratic formula to solve a quadratic equation</b></li> </ul>	Clip 157 Clip 191
<b><u>Simultaneous Equations</u></b>	<ul style="list-style-type: none"> <li>• <u>Solve simple simultaneous equations</u></li> <li>• <u>Solve simple simultaneous equations for real-life situations and more complex scenarios.</u></li> <li>• <b>Solve linear simultaneous equations where both equations are multiplied</b></li> </ul>	Clip 162
<b>Keywords</b>	Variables, inequality, equation, quadratic roots, intercept, simultaneous	

## Unit 7: Graphs

T4 WK 4 to 6

Topic	Success Criteria	Maths Watch
<b>Coordinates</b>	<ul style="list-style-type: none"> <li>Identify the four quadrants of a grid and be able to identify and plot points on a grid</li> <li>Find the midpoint of a line</li> <li>Recognise, name and plot graphs parallel to the axes</li> <li>Recognise, name and plot the graphs of <math>y=x</math> and <math>y=-x</math></li> </ul>	Clip 8 Clip 133
<b>Linear Graphs</b>	<ul style="list-style-type: none"> <li>Generate and plot coordinates from a rule</li> <li>Plot straight-line graphs from a table of values</li> <li>Draw graphs to represent relationships</li> <li>Plot graphs with equations <math>y=mx + c</math></li> <li><b>Plot graphs with equations <math>ax + by = c</math></b></li> <li><u>Compare two graphs from their equations</u></li> </ul>	Clip 96 Clip 159a Clip 159b
<b>Equation of a line</b>	<ul style="list-style-type: none"> <li><u>Find the gradient of a line</u></li> <li><u>Understand that parallel lines have the same gradient</u></li> <li><u>Understand what <math>m</math> and <math>c</math> represent in <math>y=mx+c</math></u></li> <li><u>Find the equations of straight-line graphs</u></li> <li><b>Find the equation of a line through two points</b></li> <li><b>Find the equations of lines parallel or perpendicular to a given line</b></li> </ul>	Clip 97 Clip 159b Clip 208
<b>Real life Graphs</b>	<ul style="list-style-type: none"> <li>Draw and interpret graphs from real data</li> <li>Use distance-time graphs to solve problems</li> <li><u>Calculate average speed</u></li> <li><u>Draw distance-time graphs</u></li> <li><b>Interpret rate of change on graphs</b></li> <li><b>Use velocity-time graphs</b></li> <li><b>Draw and interpret a range of graphs</b></li> <li>Understand when predictions are reliable</li> </ul>	Clip 143 Clip 216a
<b><u>Quadratic Graphs</u></b>	<ul style="list-style-type: none"> <li><u>Draw quadratic graphs</u></li> <li><u>Solve quadratic equations graphically</u></li> <li><u>Identify the line of symmetry</u></li> <li><u>Find turning points and roots of equations graphically</u></li> </ul>	Clip 98 Clip 160
<b>Key words</b>	Coordinates, gradient, y-intercept, x-intercept, velocity, rate of change, reciprocal, exponential, turning point,	

## Unit 8: Angles

T5 WK 1 to 3

Topic	Success Criteria	Maths Watch
Conventional Terms	<ul style="list-style-type: none"> <li>Use conventional terms and notation: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and; use the standard conventions for labelling and referring to the sides and angles of triangles; draw diagrams from written description</li> </ul>	Clip 43
Angles in triangles and quadrilaterals	<ul style="list-style-type: none"> <li>Solve angle problems in triangles and quadrilaterals</li> <li><u>Understand angle proofs about triangles</u></li> <li><u>Understand angle proofs about quadrilaterals</u></li> </ul>	Clip 121
Properties of angles and shapes	<ul style="list-style-type: none"> <li>Know and use basic angle properties to solve for missing angles</li> <li>Solve geometric problems using side and angle properties of quadrilaterals</li> <li>Identify congruent shapes</li> </ul>	Clip 12b
Angles in parallel lines	<ul style="list-style-type: none"> <li>Understand and use the angle properties of parallel lines</li> <li>Find missing angles using co-interior, corresponding and alternate angles</li> </ul>	Clip 120
Bearings	<ul style="list-style-type: none"> <li>Be able to use a protractor and compasses</li> <li>To know full, half and quarter turns</li> <li>Be able to measure and write bearings</li> <li>Construct a scale diagram involving bearings</li> <li>Use bearings to solved geometrical problems</li> <li><u>Find back bearings</u></li> </ul>	
Exterior and interior angles	<ul style="list-style-type: none"> <li>Calculate the interior and exterior angles of regular polygons</li> <li><u>Calculate the interior and exterior angles of polygons</u></li> <li><u>Explain why some polygons fit together and other do not</u></li> </ul>	Clip 123
Geometric problems	<ul style="list-style-type: none"> <li><u>Solve angle problems using equations</u></li> <li>Solve geometric problems showing reasoning</li> </ul>	Clip 137
Keywords	All above in terms Polygon, quadrilateral, interior, exterior,	

## Unit 9: Pythagoras and Trigonometry

T5 WK 4 to 6

Pythagoras	<ul style="list-style-type: none"> <li>• <u>Calculate the length of the hypotenuse</u></li> <li>• <u>Calculate the length of a shorter side</u></li> <li>• <u>Solve problems using Pythagoras' theorem</u></li> </ul>	Clip 150b Clip 150c
Trigonometry	<ul style="list-style-type: none"> <li>• Use trigonometric ratios to find lengths</li> <li>• Use trigonometric ratios to solve problems</li> <li>• Use trigonometric ratios to calculate an angle</li> <li>• Find angles of elevation and angles of depression</li> </ul>	Clip 168
Exact Trigonometric Values	<ul style="list-style-type: none"> <li>• Know the exact values of the sine, cosine and tangent of some angles</li> <li>• Know <math>\sin 30 = 0.5</math> and <math>\cos 60 = 0.5</math></li> </ul>	Clip 173
Key words	Hypotenuse, Opposite, Adjacent, sine, cosine, tangent, trigonometry	

## Unit 10: Ratio and Proportion

T6 WK 1 to 2

Topic	Success Criteria	Maths Watch
Writing ratios	<ul style="list-style-type: none"> <li>• Use ratio notation</li> <li>• Write a ratio in its simplest form</li> <li>• <u>Write ratios in the form 1:n or n:1</u></li> </ul>	Clip 38
Using ratios	<ul style="list-style-type: none"> <li>• Compare and Solve simple problems using ratio</li> <li>• Divide a quantity into 2 or 3 parts in a given ratio</li> <li>• Solve word problems using ratio</li> <li>• <u>Problems involving A:B and B:C.</u></li> </ul>	Clip 106
Comparing using ratio	<ul style="list-style-type: none"> <li>• Interchange between Ratios and FDP</li> <li>• Compare ratios</li> </ul>	
Using proportion	<ul style="list-style-type: none"> <li>• Use methods to solve proportion problems</li> <li>• Solve proportion problems in words</li> <li>• Work out which product is better value for money</li> <li>• Convert between currencies and measures</li> </ul>	Clip 39 Clip 42
Proportion problems	<ul style="list-style-type: none"> <li>• Recognise different types of proportion</li> <li>• Solve simple problems involving direct and inverse proportion</li> <li>• <b>Solve inverse/direct proportion e.g. <math>y = kx</math></b></li> </ul>	Clip 199
Keywords	Ratio, direct, inverse, constant	

## Unit 11: Perimeter, Area and Volume

T6 WK 3 to 7

Topic	Success Criteria	Maths Watch
<b>Rectangle, parallelograms, triangles and trapezia</b>	<ul style="list-style-type: none"> <li>• Calculate the perimeter and area of rectangles, parallelograms and triangles</li> <li>• Calculate a missing length, given the area</li> <li>• Calculate the area and perimeter of trapezia</li> <li>• Find the height of a trapezium given its area</li> <li>• Convert between area measures for any shape.</li> </ul>	Clip 52 Clip 53 Clip 54 Clip 55 Clip 56 Clip 112
<b>Circle Definitions</b>	<ul style="list-style-type: none"> <li>• Understand and use maths language for circles</li> </ul>	Clip 116
<b><u>Circumference and Area of a circle</u></b>	<ul style="list-style-type: none"> <li>• Calculate the area and circumference of a circle</li> <li>• <b>Calculate the area and circumference of a circle in terms of <math>\pi</math></b></li> </ul>	Clip 117 Clip 118
<b><u>Sectors of circles</u></b>	<ul style="list-style-type: none"> <li>• <u>Calculate the perimeter and area of semicircles and quarter circles</u></li> <li>• <b>Calculate arc lengths, angles and areas of sectors</b></li> </ul>	Clip 167
<b>Volume and surface area</b>	<ul style="list-style-type: none"> <li>• Calculate the surface area of prisms</li> <li>• Calculate the volume of a cuboid</li> <li>• Calculate the volume of a prism</li> <li>• Solve problems involving surface area and volume</li> </ul>	Clip 115 Clip 119 Clip 200
<b><u>Cylinders and Spheres</u></b>	<ul style="list-style-type: none"> <li>• <u>Calculate volume and surface area of a cylinder and a sphere</u></li> <li>• <u>Solve problems involving volumes and surface areas</u></li> </ul>	Clip 169
<b><u>Pyramids and Cones</u></b>	<ul style="list-style-type: none"> <li>• <b>Calculate volume and surface area of pyramids and cones</b></li> <li>• <b>Solve problems involving pyramid and cones</b></li> </ul>	Clip 170 Clip 171
<b>Estimating</b>	<ul style="list-style-type: none"> <li>• Estimate lengths, areas and costs</li> </ul>	Clip 91
<b>Units of measure</b>	<ul style="list-style-type: none"> <li>• Convert between metric units of area and volume</li> <li>• <b>Calculate the maximum and minimum possible values of a measurement</b></li> </ul>	Clip 200
<b>Keywords</b>	Area, perimeter, circumference, sector, segment, tangent, radius, diameter, prism, frustum,	