Unit 1: Number and Manipulation

Topic	Success Criteria	Maths Watch Clip
The Four Operations	• Add and subtract positive and negative numbers mentally and using written methods • 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 • Solve multi-step problems involving addition, subtraction and/or multiplication and division • Understand and use negative numbers when working with temperature and other contexts	Clip 17- 20 Clip 75 Clip 23
Calculations	• Use priority of operations with positive and negative numbers (BIDMAS) • Simplify calculations by cancelling • Use inverse operations	Clip 68 Clip 21
Place value and decimal numbers	• Write decimal numbers of millions • Round to a given number of significant figures • Estimate answers to calculations • Use one calculation to find the answer to another • Round to a given number of decimal places • Order positive and negative decimals • Add, Subtract, Multiply and divide decimal numbers	Clip 90 Clip 91 Clip 92 Clip 3 Clip 17-18 Clip 66-67
Standard form	• Write big and small numbers in SF and vice versa. • Using a calculator • <u>Calculate with numbers in standard form</u>	Clip 83
Bounds	• Error intervals and truncating. • **Calculate using upper and lower bounds**	Clip 155 Clip 132 Clip 206
Primes, factors and Multiples	• Recognise 2-digit prime numbers up to 50. • Find factors and multiples of numbers • Find common factors and common multiples of two numbers • Find the HCF and LCM of two numbers by prime factor decomposition.	Clip 78 Clip 79 Clip 80
Squares, cubes, and Roots	• Find square roots and cube roots • Recognise powers of 2,3,4 and 5	Clip 29 Clip 81
Surds	• **Understand the difference between rational and irrational numbers** • **Simplify expressions involving surds** • **Expand expressions involving surds** • **Rationalise the denominator of a fraction**	Clip 207a Clip 207b Clip 207c
Keywords	• Factor, Multiple, Integer, product, sum, difference, equivalent, bounds, significant figures, square numbers, root, standard form, surd, rational, irrational, rationalising the denominator	

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Unit 2: Algebraic Manipulation

Topic	Success Criteria	Maths Watch
Understanding Vocabulary	• Understand and use the concepts and vocabulary of expressions, equations, formulae, identities, inequalities, terms and factors • Use the identity symbol and the not equals symbol	Clip 7 and 95
Simplifying Expressions	• Use correct algebraic notation • Simplify an expression by collecting like terms • Simplify expressiosn involving multiplication and division	Clip 33 34,35
Index notation	• Use the laws of indices to simplify numeric and <u>algebraic expressions</u> • <u>Use negative and</u> **fractional indices**	Clips 29, 82, 131, 154, 188
Substitution	• Substitute positive and negative no.s into expressions and formulae including brackets and powers,	Clip 95
Formulae	• Substitute numbers into a simple formula • Write expressions and simple formulae to solve problems • Use maths and science formulae • <u>Rearrange simple</u> and **more challenging formulae**	Clip 137 Clip 136 Clip 190
Expanding brackets	• Expand brackets including double brackets. • <u>Expand three brackets</u> • Simplify expressions with brackets	Clip 93 Clip 134 Clip 178
Factorising	• Recognise factors of algebraic terms • Factorise algebraic expressions • <u>Factorise a double bracket</u> • <u>Use the difference of two squares</u>	Clip 94 Clip 157 Clip 192
Sequences	• Describe the term-to-term rule • Drawing patterns for sequences • Generate a sequence from the nth term • Find a general formula for the nth term of a linear sequence • Determine whether a number is a term of a given arithmetic sequence • Work out terms in Fibonacci-like sequences • **Solve problems using geometric sequences** • **Find the nth term of a quadratic sequence**	Clip 102 Clip 104 Clip 141

Algebraic proof	• **Know that 2n is a general term for even no.s and 2n + 1 is a general term for odd no.s** • **Argue mathematically to show algebraic expressions are equivalent** • **Use algebra to support and construct arguments and proofs**	Clip 193
Keywords	Expression, equations, formulae, identities, inequalities, terms and factors, index/indices, Expand, factorise	

Unit 3: Statistics

Topic	Success Criteria	Maths Watch
Frequency tables	• Design tables and data collection sheets	Clip 65a
Two-way tables	• Use data from tables • Design and use two-way tables	Clip 61
Representing data	• Draw and interpret pictograms • Draw and interpret comparative and composite bar charts • Interpret and compare data shown in bar charts, line graphs and frequency diagrams. • Construct and use frequency polygons • **Draw and interpret cumulative frequency** • **Draw and interpret box plots.**	Clip 15 Clip 16 Clip 65b Clip 186 Clip 187
Time series	• Plot and interpret time series graphs • <u>Use trends to predict what might happen in the future</u>	Clip 153
Stem and leaf diagrams	• Construct and interpret stem and leaf and back-to-back stem and leaf diagrams	Clip 128b
Pie charts	• Draw and interpret pie charts	Clip 128a
Scatter graphs	• Plot and interpret scatter graphs • Determine whether there is a relationship between sets of data	Clip 129

	• Draw a line of best fit • Use the line of best fit to predict values	
<u>Describing</u> <u>Populations</u>	• Vocabulary of sampling, eg: population, random sample, bias, representative, **stratified sample,** etc. • <u>Sampling and estimating populations</u> • **Capture/recapture problems**	Clip 152 Clip 176
Keywords	Frequency, cumulative frequency, correlation, stratified sampling, capture/recapture	

Unit 4: Averages and Range

Topic	Success Criteria	Maths Watch
Averages and Range	• Calculate the mean, mode, median and range from a list, a frequency table and a <u>grouped frequency table.</u> • Compare sets of data using mean and range • Find averages and range from a stem and leaf diagram • Identify outliers • Estimate the averages and range of <u>grouped data</u> • Recognise the advantages of different averages and choose the best to use in a given situation • <u>Solve missing mean problems</u>	Clip 62 Clip 130a Clip 130b
Sampling	• Understand the need for sampling • Understand how to avoid bias	Clip 152 Clip 176
Keywords	Mean, mode, median, range, interquartile range, upper and lower quartile	

Unit 5: FDP

Topic	Success Criteria	Maths Watch
Working with fractions	• Simplify calculations by cancelling and finding equivalent fractions • Compare fractions • Use fractions to solve problems • Write one number as a fraction of another	Clip 25 Clip 26 Clip 70
Operations with fractions	• Add and subtract fractions with <u>mixed numbers</u> • Multiply fractions • Divide a whole number by a fraction • Dividing fractions • Find a fraction of a quantity or measurement • Use fractions to solve problems • <u>Find the reciprocal of an integer, decimal or fraction</u>	Clip 71a Clip 72 Clip 73 Clip 74 Clip 76
FDP	• Convert FDP • Order and compare FDP, including positive and negative • Use FDP to find quantities of amounts • **Convert a recurring decimal to a fraction**	Clip 84 Clip 85 Clip 177
Calculating percentages 1	• Write one number as a percentage of another • Use percentages to solve problems • Calculate simple interest • Calculate percentage increases and decreases with and without calculators	Clip 86 Clip 87 Clip 108 Clip 111
Calculating percentages 2	• <u>Calculate reverse percentage</u> • <u>Calculate a percentage change</u> • <u>Calculate compound/depreciation</u> • **Calculate the interest rate in compound problems.** • Use percentages in real-life situations	Clip 110 Clip 109 Clip 164
Keywords	Equivalent, recurring, terminating decimal, percentage change, appreciation, depreciation, growth, decay, interest,	

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Unit 6: Equations and Inequalities

Topic	Success Criteria	Maths Watch
Solving equations	- Understand and use inverse operations - Rearrange simple linear equations - Solve two-step equations - Solve linear equations with brackets - Solve equations with unknowns on both sides	Clip 135a Clip 136
Introducing inequalities	- Use correct notation to show inclusive and exclusive inequalities - Represent inequalities on a number line - Write down whole numbers which satisfy an inequality - Solve simple linear inequalities and show on a number line. - <u>Solve a linear inequality with negative variables.</u> - <u>Solve two-sided inequalities</u> **and three part inequalities**	Clip 138 Clip 139
<u>**Solving quadratic equations**</u>	- <u>Find the roots of quadratic functions by factorising</u> - <u>Rearrange and solve simple quadratic equations</u> **Solve more complex quadratic equations** **Use the quadratic formula to solve a quadratic equation**	Clip 157 Clip 191
<u>**Simultaneous Equations**</u>	- <u>Solve simple simultaneous equations</u> - <u>Solve simple simultaneous equations for real-life situations</u> **and more complex scenarios.** **Solve linear simultaneous equations where both equations are multiplied**	Clip 162
Keywords	Variables, inequality, equation, quadratic roots, intercept, simultaneous	

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Unit 7: Graphs

Topic	Success Criteria	Maths Watch
Coordinates	• Identify the four quadrants of a grid and be able to identify and plot points on a grid • Find the midpoint of a line • Recognise, name and plot graphs parallel to the axes • Recognise, name and plot the graphs of y=x and y=-x	Clip 8 Clip 133
Linear Graphs	• Generate and plot coordinates from a rule • Plot straight-line graphs from a table of values • Draw graphs to represent relationships • Plot graphs with equations y=mx + c • **Plot graphs with equations ax + by = c** • <u>Compare two graphs from their equations</u>	Clip 96 Clip 159a Clip 159b
Equation of a line	• <u>Find the gradient of a line</u> • <u>Understand that parallel lines have the same gradient</u> • <u>Understand what *m* and *c* represent in y=mx+c</u> • <u>Find the equations of straight-line graphs</u> • **Find the equation of a line through two points** • **Find the equations of lines parallel or perpendicular to a given line**	Clip 97 Clip 159b Clip 208
Real life Graphs	• Draw and interpret graphs from real data • Use distance-time graphs to solve problems • <u>Calculate average speed</u> • <u>Draw distance-time graphs</u> • **Interpret rate of change on graphs** • **Use velocity-time graphs** • **Draw and interpret a range of graphs** • Understand when predictions are reliable	Clip 143 Clip 216a

Quadratic Graphs	• Draw quadratic graphs • Solve quadratic equations graphically • Identify the line of symmetry • Find turning points and roots of equations graphically	Clip 98 Clip 160
Key words	Coordinates, gradient, y-intercept, x-intercept, velocity, rate of change, reciprocal, exponential, turning point,	

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Unit 8: Angles

Topic	Success Criteria	Maths Watch
Conventional Terms	• 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	Clip 43
Angles in triangles and quadrilaterals	• Solve angle problems in triangles and quadrilaterals • Understand angle proofs about triangles • Understand angle proofs about quadrilaterals	Clip 121
Properties of angles and shapes	• Know and use basic angle properties to solve for missing angles • Solve geometric problems using side and angle properties of quadrilaterals • Identify congruent shapes	Clip 12b
Angles in parallel lines	• Understand and use the angle properties of parallel lines • Find missing angles using co-interior, corresponding and alternate angles	Clip 120
Bearings	• Be able to use a protractor and compasses • To know full, half and quarter turns • Be able to measure and write bearings • Construct a scale diagram involving bearings • Use bearings to solved geometrical problems • Find back bearings	
Exterior and interior angles	• Calculate the interior and exterior angles of regular polygons • Calculate the interior and exterior angles of polygons • Explain why some polygons fit together and other do not	Clip 123
Geometric problems	• Solve angle problems using equations • Solve geometric problems showing reasoning	Clip 137
Keywords	All above in terms Polygon, quadrilateral, interior, exterior,	

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Unit 9: Pythagoras and trigonometry

Pythagoras	• <u>Calculate the length of the hypotenuse</u> • <u>Calculate the length of a shorter side</u> • <u>Solve problems using Pythagoras' theorem</u>	Clip 150b Clip 150c
Trigonometry	• **Use trigonometric ratios to find lengths** • **Use trigonometric ratios to solve problems** • **Use trigonometric ratios to calculate an angle** **Find angles of elevation and angles of depression**	Clip 168
Exact Trigonometric Values	• **Know the exact values of the sine, cosine and tangent of some angles**	Clip 173
Key words	Hypotenuse, Opposite, Adjacent, sine, cosine, tangent, trigonometry	

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Unit 10: Ratio and Proportion

Topic	Success Criteria	Maths Watch
Writing ratios	• Use ratio notation • Write a ratio in its simplest form • <u>Write ratios in the form 1:n or n:1</u>	Clip 38
Using ratios	• Compare and Solve simple problems using ratio • Divide a quantity into 2 or 3 parts in a given ratio • Solve word problems using ratio • <u>Problems involving A:B and B:C.</u>	Clip 106
Comparing using ratio	• Interchange between Ratios and FDP • Compare ratios	
Using proportion	• Use methods to solve proportion problems • Solve proportion problems in words • Work out which product is better value for money • Convert between currencies and measures	Clip 39 Clip 42
Proportion problems	• Recognise different types of proportion • Solve simple problems involving direct and inverse proportion • **Solve inverse/direct proportion e.g $y = kx$**	Clip 199
Keywords	Ratio, direct, inverse, constant	

Unit 11: Perimeter, Area and Volume

Topic	Success Criteria	Maths Watch
Rectangle, parallelograms, triangles and trapezia	• Calculate the perimeter and area of rectangles, parallelograms and triangles • Calculate a missing length, given the area • Calculate the area and perimeter of trapezia • Find the height of a trapezium given its area • Convert between area measures for any shape.	Clip 52 Clip 53 Clip 54 Clip 55 Clip 56 Clip 112
Circle Definitions	• Understand and use maths language for circles	Clip 116
Circumference and Area of a circle	• Calculate the area and circumference of a circle • **Calculate the area and circumference of a circle in terms of π**	Clip 117 Clip 118
Sectors of circles	• Calculate the perimeter and area of semicircles and quarter circles • **Calculate arc lengths, angles and areas of sectors**	Clip 167
Volume and surface area	• Calculate the surface area of prisms • Calculate the volume of a cuboid • Calculate the volume of a prism • Solve problems involving surface area and volume	Clip 115 Clip 119 Clip 200
Cylinders and Spheres	• Calculate volume and surface area of a cylinder **and a sphere** • Solve problems involving volumes and surface areas	Clip 169
Pyramids and Cones	• **Calculate volume and surface area of pyramids and cones** • **Solve problems involving pyramid and cones**	Clip 170 Clip 171
Estimating	• Estimate lengths, areas and costs	Clip 91
Units of measure	• Convert between metric units of area and volume **Calculate the maximum and minimum possible values of a measurement**	Clip 200
Keywords	Area, perimeter, circumference, sector, segment, tangent, radius, diameter, prism, frustum,	

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Unit 12: Transformations and Constructions

Topic	Success Criteria	Maths Watch
Translations	• Translate a shape on a coordinate grid • Translate a shape using a vector • Use a column vector to describe a translation	Clip 50 Clip 174
Reflections	• Draw a reflection in a mirror line • Draw a reflection on a coordinate grid • Describe reflections on a coordinate grid	Clip 48
Rotations	• Rotate a shape on a coordinate grid about a centre of rotation. • Describe a rotation	Clip 49
Enlargement	• Enlarge a shape by a scale factor • Enlarge a shape using a centre of enlargement • **Enlarge shapes by fractional and negative scale factors about a centre of enlargement** • Identify the scale factor of an enlargement • Find the centre of enlargement • Describe an enlargement	Clip 148 Clip 181a Clip 182
Combining Transformations	• <u>Transform shapes using more than one transformation</u> • <u>Describe combined transformations of shapes on a grid</u>	Clip 182
<u>Plans and Elevations</u>	• Draw plans and elevations of 3-D solids	Clip 51
<u>Maps, Scale diagrams and Bearings.</u>	• Draw and use scales on maps and scale drawings • Solve problems involving bearings	Clip 124

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Construction	• Construct triangles using a ruler and compasses	Clip 146a
	• Construct the perpendicular bisector of a line	
	• Construct the shortest distance from a point to a line using a ruler and compasses	Clip 146b
	• Bisect an angle using a ruler and compasses	
	• Construct angles using a ruler and compasses	
	Construct shapes made from triangles using ruler and compasses	
Loci	• Draw a locus	Clip 165
	Use loci to solve problems	
Keywords	Translation, vector, reflection, symmetry, rotation, enlargement, scale factor, centre, plans, elevation, bearings, bisect, loci	

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