



ST. CATHERINE'S COLLEGE

A CHURCH OF ENGLAND ACADEMY

Unit 1: Numbers and the Number System

Topic	Success Criteria	MATHS WATCH CLIP
Time – Set 4 Only	<ul style="list-style-type: none">Tell time using an analogue and/or a digital clock; am and pm and 24hr	Clip 6
Order Numbers	<ul style="list-style-type: none">Understand place value in numbers with up to <u>three decimal places</u>Understand (order, write, read) place value in numbers with up to <u>eight digits</u>Place a set of negative numbers in orderPlace a set of mixed positive and negative numbers in order	Clip 1 Clip 3 Clip 2
The Four Operations	<ul style="list-style-type: none">Add and subtract positive and negative numbers mentally and using written methods<u>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</u>Solve multi-step problems involving addition, subtraction and/or multiplication and divisionUnderstand and use negative numbers when working with temperature and other contexts	Clip 17 Clip 18 Clip 68a Clip 19 Clip 20 Clip 68b Clip 21 Clip 23
BIDMAS	<ul style="list-style-type: none">Know that addition and subtraction have equal priorityKnow that multiplication and division have equal priorityKnow that multiplication and division take priority over addition and subtraction <p><u>Use brackets in problem involving the order of operations</u></p>	Clip 75





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Factors, Primes and Multiples	<ul style="list-style-type: none">Recall prime numbers up to 20; <u>up to 50</u>Know the meaning of a common multiple (factor) of two numbersIdentify common multiples (factors) of two numbers	Clip 28
	<u>Know the meaning of 'highest common factor' and 'lowest common multiple' and use these to solve problems</u>	Clip 79
		Clip 80
Squares and Cubes	<ul style="list-style-type: none">Understand the use of notation for powers and the square root symbolUse a scientific calculator to calculate powers and rootsRecall the first 10, <u>15 square numbers and recall the first 5 cube numbers</u>Calculate with squares and cubes	Clip 29 Clip 81 Clip 82
Keywords	Integer, Decimal, Positive, Negative, Sum, Product, Factor, Multiple, Operations, Prime, Highest Common Factor, Lowest Common Multiple, Square number, Powers, Roots, Cube Number	





Unit 2: Algebraic Manipulation

Topic	Success Criteria	MATHS WATCH CLIP
Concepts and Vocabulary	<ul style="list-style-type: none">• Know the meaning of expression, term, formula, equation, function• Know the basic algebraic notation (rules of algebra)	Clip 7
Manipulate and Simplify expressions	<ul style="list-style-type: none">• Simplify an expression by collecting like terms• Simplify an expression involving multiplication and division	Clip 33 Clip 34 Clip 35
Laws of Indices	<ul style="list-style-type: none">• <u>Know and use the laws of Indices (multiplication, division and brackets)</u>	Clip 29 Clip 131 Clip 82
Expanding and factorising	<ul style="list-style-type: none">• <u>Expand an expression involving a single bracket</u>• <u>Factorise an expression into a single bracket</u>• <u>Expand an expression involving double brackets</u>• 	Clip 134a Clip 94 Clip 134b Clip 93
Substitution	<ul style="list-style-type: none">• Substitute positive numbers into expressions and formulae• <u>Substitute negative numbers into expressions and formulae</u>	Clip 95
Keywords	Expression, Term, Formula, Equation, Function, Simplify, Indices, Expand, Factorise, Substitute, Input, Output	



Unit 3: Decimals, Estimating and Measures

Topic	Success Criteria	MATHS WATCH CLIP
Decimal Calculations	<ul style="list-style-type: none"> Add and subtract decimals Multiply and divide whole numbers and decimals by 10, 100 and <u>1000</u> <u>Multiply and divide whole numbers and decimals by 0.1, 0.01 etc</u> <u>Multiply and divide decimals</u> Solve problems involving decimals 	Clip 17 Clip 18 Clip 30 Clip 66 Clip 67
Rounding	<ul style="list-style-type: none"> Round to the nearest whole number, 10, 100 and 1000 Round numbers to 1 decimal places (<u>2dp and 3dp</u>) <u>Round numbers to a specified number of significant figures</u> 	Clip 31 Clip 32 Clip 90
Estimating	<ul style="list-style-type: none"> Estimate answers to calculations by rounding to the nearest 10, 100 or 1000 <u>Estimate answers to calculations by rounding to 1 significant figure</u> 	Clip 91
Standard form	<ul style="list-style-type: none"> <u>Write really big numbers in standard form</u> <u>Write really small numbers in standard form</u> Add and subtract numbers in standard form Multiply and divide numbers in standard form 	Clip 83
Units of measure	<ul style="list-style-type: none"> Identify appropriate units of measure for different objects - length, mass, volume 	Clip 112
Convert between units	<ul style="list-style-type: none"> Convert between different units of measurement 	Clip 112
Time	<ul style="list-style-type: none"> Tell time using an analogue and/or a digital clock; am and pm and 24hr Reading bus timetables 	Clip 6
Keywords	<ul style="list-style-type: none"> Analogue, Digital, Timetable, Round, Significant, Estimate 	



Unit 4: Lines, Angles and Shapes

Topic	Success Criteria	MATHS WATCH CLIP
Vocabulary	<ul style="list-style-type: none">Understand and identify points, lines, vertices, edges, planes, parallel lines, perpendicular lines, angles, right angles and polygons.<u>Draw on diagrams from written description, e.g. labelling parallel lines</u>	Clip 13
Measuring Angles	<ul style="list-style-type: none">To be able to use a protractorDraw an angle that is; acute; right-angled; obtuse; and <u>reflex</u>	Clip 46a Clip 46b
Angle facts	<ul style="list-style-type: none">Identify angles at a point, angles at a point on a line and vertically opposite angles<u>Identify alternate and corresponding angles and find missing angles in parallel lines</u>	Clip 45 Clip 120
Angles in triangles	<ul style="list-style-type: none">Know that angles in a triangles total 180°Find missing angles in triangles<u>Find missing angles in isosceles triangles</u>	Clip 121 Clip 122
Angles in quadrilaterals	<ul style="list-style-type: none">Know properties of quadrilaterals (inc. square, rectangle, <u>parallelogram, trapezium, kite and rhombus</u>)Know that angles in quadrilaterals total to 360°Find missing angles in quadrilaterals	Clip 9
Keywords	Point, Line, Vertices, Edges, Planes, Parallel, Perpendicular, Angle, Polygon, Protractor, Acute, Obtuse, Reflex, Identify, Alternate, Corresponding, Isosceles, Quadrilateral	



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Unit 5: Converting between FDP and Calculating with Fractions

Topic	Success Criteria	MATHS WATCH CLIP
Equivalent fractions	<ul style="list-style-type: none">Understand equivalence and find equivalent fractionsWrite fractions in their simplest formOrder fractions	Clip 24
		Clip 25
		Clip 26
Calculations with fractions	<ul style="list-style-type: none">Change between mixed numbers and top heavy fractionsAdd and subtract fractions when the denominator is differentFind fractions of amounts<u>Multiply and divide fractions</u>	Clip 71a
		Clip 71b
		Clip 73
		Clip 74
		Clip 72
Fractions, decimals and Percentages	<ul style="list-style-type: none">Convert between fractions, decimals and percentagesOrder fractions, decimals and percentages	Clip 84
		Clip 85
Keywords	<ul style="list-style-type: none">Equivalent, Numerator, Denominator, Mixed Number, Improper, Express, Quantity	

Unit 6: Calculating with Percentages

Percentages of amounts	<ul style="list-style-type: none">Express a quantity as a percentage of anotherFind 10%, 25% and 50% of a number<u>Find any percentage of an amount with and without a calculator</u>	Clip 40
		Clip 86
		Clip 87
Percentage change	<ul style="list-style-type: none"><u>Increase/decrease an amount by a given percentage</u><u>Introduce multipliers</u><u>Use calculators to find a percentage of an amount using multipliers</u>	Clip 108
Keywords	Percentage, Multiplier, Increase, Decrease	





Unit 7: Perimeter, Area and Volume

Topic	Success Criteria	MATHS WATCH CLIP
Measures	<ul style="list-style-type: none">Use standard units of length, mass, volume, money and other measures	Clip 112
Converting between units	<ul style="list-style-type: none">Convert between related units (time, length, <u>area</u>, <u>volume/capacity</u>, mass)	Clip 112
Area and Perimeter	<ul style="list-style-type: none">Calculate the area and perimeter of rectangles, triangles, <u>parallelograms and trapezia</u>Calculate the area and perimeter of compound shapes made from rectangles and triangles	Clip 52 Clip 53 Clip 54 Clip 55 Clip 56
Circumference and Area of Circles	<ul style="list-style-type: none"><u>Know the formulae for calculating the circumference and area of a circle</u><u>Calculate the circumference of a circle when given diameter or radius</u><u>Calculate the area of a circle when given diameter or radius</u>Find the area and perimeter of parts of circles	Clip 117 Clip 118 Clip 167
3D solids	<ul style="list-style-type: none">Know the number of faces, edges and vertices for solidsKnow the names and properties of solids (cubes, cuboids, prisms, cylinders, pyramids, cones and spheres)	Clip 43
Volume and surface area	<ul style="list-style-type: none"><u>Calculate the volume of cuboids and other prisms</u>Calculate the surface area of cuboids <u>and other prisms</u>	Clip 115 Clip 119 Clip 114a Clip 114b
Keywords	Capacity, Mass, Area, Perimeter, Compound, Circumference, Diameter, Radius, Surface Area, Volume,	



Unit 8: Ratio and Proportion

Topic	Success Criteria	MATHS WATCH CLIP
Simplifying ratios	<ul style="list-style-type: none">• Use ratio notation• Simplify 2 and <u>3 part</u> ratios by cancelling common factors• Simplify ratios when units are different and convert between units	Clip 38
Dividing in a ratio	<ul style="list-style-type: none">• Divide a quantity into a ratio	Clip 106
Proportion problems	<ul style="list-style-type: none">• Use ratio to solve real life problems (e.g. recipes and best buy problems)	Clip 39 Clip 42
Currency	<ul style="list-style-type: none">• Use an exchange rate to calculate currencies	Clip 105
Direct and Inverse Proportion	<ul style="list-style-type: none">• Understand the idea of direct and inverse proportion• Solving simple direct proportion problems	
Keywords	Ratio, Exchange, Direct, Inverse, Proportion	



Unit 9: Equations and Inequalities

Topic	Success Criteria	MATHS WATCH CLIP
Function machines	<ul style="list-style-type: none">Find the output on a single and multi-step function machineUse inverse operations to find the input on a function machine	Clip 36
Solving equations	<ul style="list-style-type: none">Solve one step equations using inverse operations or the balancing methodSolve multi-step equations using inverse operations or the balancing method<u>Solve equations with unknowns on both sides</u>Form and solve equations	Clip 135a Clip 135b Clip 137
Representing Inequalities	<ul style="list-style-type: none">Represent an inequality on a number lineWrite a solution set for an inequality	Clip 138
Keywords	Multi-Step, Balancing, Unknown, Form, Solve, Represent, Inequality, Solution, Inverse	



Unit 10: Analysing and Displaying Data

Topic	Success Criteria	MATHS WATCH CLIP
Types of data	<ul style="list-style-type: none">Discrete and continuous data.Quantitative and qualitative data	Clip 63
Displaying data	<ul style="list-style-type: none">Interpret and construct frequency tablesDraw and interpret pictograms and bar chartsDrawing and interpret simple pie charts ($1/2, 1/4, 1/3$)<u>Draw and interpret pie charts</u><u>Stem and leaf</u>	Clip 65a Clip 16 Clip 128a
Averages	<ul style="list-style-type: none">Calculate the mean, median, mode and range of a set of numbers. <u>Finding missing mean values.</u>	Clip 62
Averages from a frequency table	<ul style="list-style-type: none"><u>Find the mean, mode and median from frequency tables</u>Find the mean, mode and median from grouped frequency tables	Clip 130a Clip 130b
Keywords	Averages, Mean, Mode, Median, Range, Discrete, Continuous, Quantitative, Qualitative, Frequency, Grouped, Interpret	



Unit 11: Sequences and Graphs

Topic	Success Criteria	MATHS WATCH CLIP
Generating sequences	<ul style="list-style-type: none">Continue sequences and find missing numbers in sequencesGenerate a sequence from the term-to-term rule or position to term rule	Clip 37
Special Sequences	<ul style="list-style-type: none">Recognise special sequences (inc. triangle numbers, square and cube numbers, <u>Fibonacci</u> and <u>quadratic</u>)	Clip 104
Nth Term	<ul style="list-style-type: none">Generate a sequence from the nth term<u>Find the nth term of a linear sequence</u>	Clip 102 Clip 103
Coordinates	<ul style="list-style-type: none">Plot and write coordinates in the positive quadrantPlot and write coordinates in all four quadrants<u>Calculate mid-points and end points of a line segment</u>	Clip 8
Linear Graphs	<ul style="list-style-type: none">Complete a table of valuesPlot vertical and horizontal graphsPlot a simple straight line on a graph ($y = x + 1$)<u>Plot straight line graphs ($y = 2x - 3$)</u>Plot graphs of the form $2x + 3y = 12$	Clip 96
Keywords	Sequence, Generate, Triangle numbers, Fibonacci, Nth Term, Quadratic, Graph, Quadrant, Vertical, Horizontal, Axes, Midpoint, Plot	