



Lymm High School- KS3 Life after levels - Maths Y9

		BRONZE	SILVER	GOLD	PLATINUM
		D and below= GCSE 1,2,3	C= GCSE 4	C/B= GCSE 5,6	A/A*= GCSE 7,8,9
Year 9	Number, Ratio & Proportion	Order Integers, Negatives and decimals 4 Operations with Integers, Negatives and Decimals Convert between Fractions, Decimals and Percentages Calculate percentage increase and decrease using non-calculator methods Apply order of operations (BIDMAS) Recognise and find types of numbers (Squares, Cubes, roots, primes etc) Find factors and multiples of integers HCF and LCM of 2 or more integers Find equivalent fractions and simplify fractions Compare size of fractions Find fractions of amounts Multiply and Divide by powers of 10 Round to powers of 10 Round to nearest integer Round to a specified number of decimal places Identify and simplify ratio Divide into a ratio	Find upper and lower bounds Estimate calculations by rounding each number to 1sf Express any integer greater than 2 as a product of Prime factors 4 Operations with fractions 4 Operations decimals Convert between fractions and decimals Round to specified number of significant figures Convert between standard index form and ordinary form Apply unitary method. Write one number as a percentage of another Calculate Percentage increase and decrease using multipliers Calculate simple interest Plot and read conversion graphs	Add/Subtract in Standard form Multiply/Divide with Standard form 4 Operations with mixed numbers Apply upper and lower bounds to contexts such as area, perimeter, scientific formulae etc Find the Reciprocal of any number Use proportion to compare quantities and find the best buy Calculate Percentage Change Reverse Percentages (If given new amount, find the original)	Convert between Recurring decimals and fractions using proof Use surds and π in exact calculations Apply rules for surds Rationalise denominator of a surd in simple cases Rationalise denominator of a surd in more difficult cases Expand brackets with surds Calculate with Compound interest. Calculate with Compound growth and decay



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		Calculate percentage of amounts with and without a calculator			
	Algebra	<p>Understand and use correct algebraic notation</p> <p>Write expressions</p> <p>Simplify expressions by collecting and multiplying terms</p> <p>Expand single brackets</p> <p>Solve simple linear equations</p> <p>Substitute positive integers into a formula or an expression</p> <p>Find the term to term rule of a sequence and use to generate a sequence</p> <p>Recognise important sequences (Squares, Cubes, Fibonacci, Triangular numbers etc)</p> <p>Plot coordinates in 4 quadrants</p> <p>Plot horizontal and vertical graphs as well as $y=x$ and $y=-x$</p>	<p>Apply simple index laws</p> <p>Identify expression, equation, identity and formula from a list</p> <p>Expand brackets and simplify expressions</p> <p>Factorise expressions</p> <p>Solve linear equations with brackets</p> <p>Solve linear equations with negative and fractional solutions</p> <p>Solve equations with unknowns on both sides</p> <p>Derive and sub negatives and fractions into formulae</p> <p>Expand a product of 2 brackets</p> <p>Find nth term of linear/arithmic sequence</p> <p>Use nth term to generate a quadratic sequence</p> <p>Plot linear graphs</p> <p>Understand $y=mx+c$</p> <p>Plot simple quadratic graphs</p>	<p>Change subject of formula</p> <p>Recognise Geometric sequences</p> <p>Find gradients of straight lines and between 2 points.</p> <p>Find equations of Parallel lines.</p> <p>Set up and Solve 2 linear simultaneous equations by elimination</p> <p>Solve 2 linear simultaneous equations graphically</p> <p>Plot quadratic graphs</p> <p>Solve linear inequalities in 1 variable and represent solution on a number line</p> <p>Use set notation and inequality notation</p> <p>Find approximate solutions of quadratic equations</p>	<p>Apply Index laws for negative and fractional indices</p> <p>Change subject of a formula where the new subject appears twice</p> <p>Factorise simple quadratic expressions</p> <p>Recognise Difference Of Two Squares and use to factorise expressions</p> <p>Find nth term of a quadratic sequence.</p> <p>Find equations of lines perpendicular to other lines</p> <p>Find Equation of line between 2 points</p> <p>Set up and solve 2 linear simultaneous equations by substitution</p> <p>Find intersection of quadratic and linear graphs and know that this is the proximate solution to simultaneous equations</p> <p>Graphical inequalities</p> <p>Solve quadratic inequalities</p> <p>Length of line segment</p>



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					Find the length of a line segment
Probability & Statistics	<p>Use the Probability scale</p> <p>Calculate probabilities of single events</p> <p>Use Sample space diagrams and lists to show all possible outcomes and use to calculate probabilities of events.</p> <p>Calculate 3 Averages and range from discrete data</p> <p>Identify types and sources of data</p> <p>Read and use Bar charts, Pictograms and frequency tables</p>	<p>Set up and complete 2 way tables</p> <p>Calculate relative frequency from experimental data</p> <p>Calculate expectation</p> <p>Define Bias and fair tests</p> <p>Find Mean, median , range, mode from a frequency table</p> <p>Identify outliers</p> <p>Choose correct average</p> <p>Read and use pie charts</p> <p>Read and use line charts, line graphs and time series</p> <p>Plot scatter graphs and draw and apply Line of best fit</p> <p>Describe types and strength of correlation</p> <p>Know that the probability of mutually exclusive events add up to 1.</p>	<p>Estimate mean and class that median lies in from a grouped frequency table.</p> <p>Find modal class from a grouped frequency table</p> <p>Find Lower Quartile (LQ), Upper Quartile (UQ), and Inter-Quartile Range (IQR) from discrete data</p> <p>Understand the Data Handling Cycle</p> <p>Know the different methods for Sampling including Stratified sampling</p>	<p>Use Tree diagrams to calculate probability of 2 or more successive events</p> <p>Know and use the AND/OR rules in probability</p>	
Geometry & Measures	<p>Identify and describe properties of the special types of triangles and quadrilaterals</p> <p>Calculate area and perimeter of Rectangles, Triangles and Parallelograms</p> <p>Calculate the surface area of Cubes and Cuboids</p> <p>Identify parts of a circle</p> <p>Calculate Volume of Cubes, Cuboids</p>	<p>SAS, ASA, SSS Constructions</p> <p>Reflect shapes in lines $y=x, y=-x$ on axes</p> <p>Area and Perimeter of Trapezia</p> <p>Area and Perimeter of Compound shapes</p> <p>Surface area of Triangular prisms</p> <p>Area and Cicrumference of a circle</p>	<p>Find angles in Parallel lines giving reasons.</p> <p>Use Maps and scale drawings</p> <p>Use Bearings</p> <p>RHS (right-angled, Hypotensue Side) Cosntructions</p> <p>Construct Perpendicular bisector of a line and from a point</p> <p>Construct Angle bisector</p>	<p>Construct the perpendicular to a line from any point</p> <p>Apply 3 Trigonometric ratios to right-angled triangles</p> <p>Know values of $\sin x$ $\tan x$, $\cos x$ for $x=0,30,45,60,90$</p> <p>Know and apply Circle theorems</p>	



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		<p>Identify Reflective and Rotational symmetry of 2D shapes Identify Planes of symmetry in 3D shapes Apply translations using words Rotate shapes about any point Reflect shapes in simple lines Know angle properties (Angles on a straight line, at a point, in a triangle and in a quadrilateral) Use a ruler, protractor and compass correctly Know the different types of angles</p>	<p>Volume of Prisms and Cylinders Find the length of a shape given volume Plot and read distance-time and speed-time graphs Convert between metric and imperial units. Compound measures – Speed, Distance, Time Carry out translations using Vectors Reflect shapes in horizontal and vertical lines and axes in x-y plane Enlarge shape by positive scale factor about a point Enlarge shape by fractional scale factor about a point Describe reflections and rotations</p>	<p>Interior and Exterior angles in polygons Area of Compound shapes with circles Surface area of Cylinders Apply Pythagoras' theorem to find a Hypotenuse Apply Pythagoras' theorem to find a shorter side Convert between Area and Volume measures Convert between Capacity and Volume measures Compound measures (Density, Mass, Volume/Pressure, Force Area) Describe enlargements Use Similarity of 2D Shapes to find edges</p>	<p>Prove Circle theorems from first principles Enlarge shape by negative scale factor about given point Describe and carry out 2 transformations Find and apply Area scale factors of an enlargement Find and apply Volume scale factors of an enlargement Calculate Surface Area Of Cones and Spheres Calculate Arc Length Calculate Area of Sectors</p>
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