Curriculum Plans: Year 10 (Maths – Mixed Ability)

	Topic	Knowledge: By the end of the unit students will know:	Skills: What skills will students have developed by the end of this unit?	Key terms: What new key terms and vocabulary will be learnt in this unit?	Summative Assessment: How will pupils be assessed in this unit?
Michaelmas 1	Order of Operations Estimating Shape - Triangles Algebraic expressions	How to use BODMAS to determine the order of operations Understand how estimating answers obtains a quick solution and appreciate the margins of errors in this method How to use Pythagoras' Theorem and Trigonometry to calculate unknown lengths and angles in right angle triangles. How to expand single, double and triple brackets. How to factorise expressions, and to factorise and then solve simultaneous equations. How to solve linear equations with integers and fractions.	• Arithmetic • Multiplication • Division • Addition • Problem solving • Shape • Numerical operations • Counting skills • Time management	Triple brackets – three sets of brackets needing to be manipulated. Grid method multiplication – a written multiplication method that involves partitioning numbers into ones, tens, hundreds, etc.	Weekly homework set via Sparx Maths which is connected to each scheme of work and creates questions that are a combination of retrieval and current content. Half term test in the final week of the half term to formally assess students in all areas covered.
Michaelmas 2	Fractions Percentage	Convert fractions into decimals and percentages, and vice-versa. How to express a recurring decimal as a fraction. Express an amount as a percentage of another amount. Calculate percentage increases/decreases and compound interest.	• Decimals and fractions • Problem solving • Numerical operations • Numeracy • Counting skills • Time management	Recurring decimals – decimals numbers that have a repeated pattern. Unitary Method – a process to find the value of a single unit from the value of	Weekly homework set via Sparx Maths which is connected to each scheme of work and creates questions that are a combination of retrieval and current content. Half term test in the final week of the half term to formally assess students in all areas covered.

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	Ratio Transformations	Use ratio to share amounts between Understand how to reflect, rotate, translate (move) and enlarge/decrease a shape.		multiple units and the value of multiple units from the value of a single unit.	
Lent 1 & 2	Averages Data handling Number Shape Proportion	Calculate averages from a (grouped) frequency table. Calculate moving averages. Construct cumulative frequency tables and graphs. Calculate the median and interquartile range. Construct box and whisker plots. Draw scatter graphs and identify types of correlation. Draw and interpret real-life graphs Calculate with standard form and upper/lower bounds. Calculate density and pressure. Calculate lengths of arcs and areas of sectors in circles. Calculate volume & surface areas of prisms, cones, pyramids and spheres. Write and use equations for direct and indirect proportionality.	• Decimals and fractions • Problem solving • Data analysis • Numerical operations • Numeracy • Counting skills • Time management	Correlation - the degree to which two or more quantities are linearly associated. Cumulative frequency graphs - a graph that represents the running total of frequencies for each value in a data set.	Weekly homework set via Sparx Maths which is connected to each scheme of work and creates questions that are a combination of retrieval and current content. End of term test in the final week of term to formally assess students in all areas covered.
Trinity 1 & 2	Graphs	Draw graphs, calculate gradients, write the equation of a straight line graphs. Form equations of perpendicular lines and lines between two points.	• Geometry • Shape • Patterns • Spatial ability • Problem solving	Reciprocal graphs – a graph of the form $y = a / x$	Weekly homework set via Sparx Maths which is connected to each scheme of work and creates questions that are a combination of retrieval and current content.

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		Recognise quadratic, cubic, reciprocal and exponential graphs. Draw graphs of quadratic functions and use them to solve quadratic equations, identify and interpret roots, intercepts and turning points. Calculate or estimate gradients of graphs and areas under graphs	• Time management • Counting skills		End of Year exam in June to formally assess students in all areas covered.
	Shape	Use basic angle rules; angles on straight line, angles at a point, vertically opposite angles. Identify angles on parallel lines. Interior and exterior angles of polygons. Identifying the different parts of a circle. Understand and prove the special rules for angles in circles. Identifying triangles are congruent. Using congruent triangles for geometric proofs.			
	Inequalities	Understanding and writing inequalities. Solving 'linear' inequalities. Representing and interpreting inequalities on graphs. Solve quadratic inequalities.			
	Sequences	Recognise and use rules for number and pattern sequences, including triangular, square, cube & Fibonacci-type numbers, arithmetic sequences,			

		quadratic sequences and geometric sequences. Finding the nth term for linear and quadratic sequences.			