Year 10 – Maths Higher						
Curriculum intent	We believe that students deserve a creative and ambitious mathematics curriculum, rich in skills and knowledge, which ignites curiosity and prepares them well for everyday life and future employment. Our mathematics curriculum will give students the opportunity to: • become fluent in the fundamentals of mathematics, through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. • reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. • can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and preserving in seeking solutions. • can communicate, justify, argue and prove using mathematical vocabulary. • develop their character, including resilience, confidence and independence, so that they contribute positively to the life of the school, their local community and the wider environment.					
Term	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Knowledge	• Percentage Change • Compound and Simple • Surface Area of 3D Shapes • Volume of 3D Shapes • Simultaneous Equations • Re-arranging Formula •	• Trigonometry • Constructions • Y = mx + c • Real Life Graphs • Venn Diagrams • Tree Diagrams	• Compound Measures • Ratio • Harder Graphs • Sequences • Sampling • Proportion • Transformations	• Bounds • Indices • Expanding • Factorising	• Diagrams • Surds • Algebraic Fractions • Equations • Pythagoras • Further Trigonometry	• Circle Theorems • Histograms • Review of topics from earlier in the year – class teacher dependent.
Skills	Building Blocks – Finding basic percentages with and without a calculator. Understand the purpose of a multiplier when calculating repeated percentage change.	Develop an understanding of sin, cos and tan. Find unknown sides and angles in right angles triangles. Using the exact values of trigonometric ratios. Constructing loci	Calculating with density and pressure. Combining ratios. Calculating with ratios and algebra. Changing ratios. To be able to plot velocity time graphs and	Finding error intervals. Finding error intervals for truncated numbers. Understand the index laws for positive and negative indices. Simplify expressions using the laws of indices.	Interpret frequency tables with grouped data. Finding averages from grouped data. Drawing stem and leaf diagrams. Drawing and Interpreting line graphs.	Angles subtended at the centre or the circumference of a circle. Angles in segments and cyclic quadrilaterals.

	Calculate simple interest. Calculate repeated percentage change including compound interest, growth and decay. Finding the surface area of pyramids Finding the surface area of cones Finding the surface area of spheres Finding the surface area of frustums Finding the surface area of composite shapes. Finding the volume of pyramids Finding the volume of cones Finding the volume of spheres Finding the volume of frustums and composite shapes. Solve simultaneous equations using elimination Solve simultaneous equations using substitution. Solve simultaneous equations graphically. Use inverse operations to rearrange formula.	To be able to identify equations of parallel lines. Find the equation of a line from its gradient and y intercept. Find the equation of a line from two points on the line. Work with and identify equations of parallel and perpendicular lines. Plot linear real-life graphs. Use and find equations of linear real-life graphs. Understand and be able to uses set notation with Venn Diagrams. Use and draw tree diagrams for independent and dependent events.	using these to calculate acceleration. To be able to recognise and plot graphs of cubic functions, reciprocal functions and geometric functions. To be able to identify the position to term rules for arithmetic and geometric sequences. To understand the different types of sampling and the meaning of bias. Interpreting direct and inverse proportion equations. Recognise graphs of direct and inverse proportion. To be able to use prior knowledge of transformations to combine these into one.	Expanding double brackets. Factorising the difference of two squares. Factorising to solve quadratic equations without a co-efficient in from of the x squared.	Draw and interpreting frequency polygons. Performing all four operations with surds. Simplifying surds. Expanding brackets with surds. Rationalising denominators containing a single term. Rationalising denominators containing two terms. Simplifying algebraic fractions by factorising into one bracket. Simplifying algebraic fractions into two brackets. Performing all four operations with algebraic fractions. Using trigonometric graphs to calculate exact trigonometric values. To be ablet to use the sine rule to find missing sides and angles of triangles. To be able to use the cosine rule to find missing sides and angles of triangles. To use Pythagoras theorem in 3D.	Circle theorems for chords and tangents. Alternate segment theorem. Drawing histograms with equal class widths. Drawing histograms with unequal class widths. Interpreting histograms. Calculating averages from histograms.
Assessments	• Regular exam practice	• Autumn Assessment (exam paper sets 1 and 2 to do higher and 3	• Regular exam practice	• Spring assessment (exam paper sets 1 and 2 to do higher and	• Mock exams (exam paper sets 1 and 2 to do higher and 3 and 4 to do foundation)	• Summer assessment (exam paper)

		and 4 to do foundation) • Regular exam practice		3 and 4 to do foundation) • Regular exam practice	• Regular exam practice	• Regular exam practice
Curiosity	• Try a mini exam paper https://www.onmaths.com/mock_exams/mini-mock-1-higher-calculator/ • Visit the oak national academy website to view lessons and videos of the above topics. • Have a go at this interactive activity around rearranging equations. How many levels can you progress through? https://www.transum.org/software/SW/Starter_of_the_day/Students/Changing_The_Subject.asp?Level=6	• Mathematical advent calendar. • Try a mini exam paper https://www.onmaths.com/mock_exams/mini-mock-2-higher-calculator/ • Visit the oak national academy website to view lessons and videos of the above topics. • Practice your further trigonometry skills here: https://www.transum.org/Maths/Exercise/Advanced_Trigonometry/	• Mathematical advent calendar. • Try a mini exam paper https://www.onmaths.com/mock_exams/mini-mock-2-higher-calculator/ • Visit the oak national academy website to view lessons and videos of the above topics. • Visit the independent learning section of SParx	• Mathematical advent calendar. • Try a mini exam paper https://www.onmaths.com/mock_exams/mini-mock-2-higher-calculator/ • Visit the oak national academy website to view lessons and videos of the above topics.	• Mathematical advent calendar. • Try a mini exam paper https://www.onmaths.com/mock_exams/mini-mock-2-higher-calculator/ • Visit the oak national academy website to view lessons and videos of the above topics.	• Histograms practice https://www.mathsisfun.com/data/histograms.html • Mathematical advent calendar. • Try a mini exam paper https://www.onmaths.com/mock_exams/mini-mock-2-higher-calculator/ • Visit the oak national academy website to view lessons and videos of the above topics.