MATHEMATICS: Curriculum Overview

Year 11

Half Term	Topic studied	What will I learn?	How will I be assessed?
Year 11 Autumn 1	*Unit 15 - Ratio and Proportion* *Unit 16 – 3D Shapes* *Unit 17 – Factors Powers and Roots*	Describe proportion using percentages, fractions and decimals. Simplify ratios by cancelling down. Solve ratio problems. Use and interpret maps and scale drawings. Recognise, sketch and name 3D shapes and their properties and nets. Represent 3D shapes on 2D diagrams, showing plan view, front and side elevation. Calculate volume and surface area of different shapes. Convert between units of volume eg cm^3 to mm^3 Understand and use 3D coordinates. Find HCF and LCM of two or more numbers Calculate and estimate powers and roots Apply the laws of indices including negative and fractional indices	Test in penultimate week of October HT. *(plus marking of exercise books throughout the term)*
Year 11 Autumn 2	*Unit 18 – Handling Data 2* *Unit 19 - Calculations 2* *Unit 20 – Trigonometry*	interpret and construct line graphs (including time series graphs and frequency polygons) calculate an estimate for the mode, median and mean and range for continuous data. use and interpret a scatter graph and draw an estimated line of best fit. draw and interpret histograms (equal and unequal intervals) by calculating the frequency density, frequency or class width. convert between numbers in ordinary and standard index form (with and without a calculator) simplify surd expressions. rationalise the denominator of a surd. carry out addition, subtraction, multiplication and division calculations involving surds. apply the trigonometric ratios to find lengths and angles in right angled triangles and other 2 dimensional shapes. SOHCAHTOA apply the sine rule to find unknown lengths and angles in triangles. apply the cosine rule to find unknown lengths and angles in triangles. know and apply Area= ½ ab sin C to calculate the area, sides or angles of any triangles	Mock Exam in Hall in the week before Xmas break. *(plus marking of exercise books throughout the term)*

Year 11 Spring 1	*Unit 21 - Vectors* *Unit 22 – Probability* *Unit 23 – Co-ordinate Geometry 2*	apply addition and subtraction of vectors, multiplication by a scalar and diagrammatic and column representations of vectors use tree diagrams to calculate probabilities for independent events. use Venn diagrams to record outcomes. sketch and interpret graphs of reciprocal functions. recognise the shapes of graphs for linear, quadratic, cubic and reciprocal functions and match to their equation.	2nd Mock Exam in classroom or hall this half term. (*Marking of exercise books throughout the term)*
Year 11 Spring 2	*Unit 24 – Sequences* *Unit 25 – Real Life Graphs*	calculate the nth term of a linear sequence. recognise and use Geometric progressions. recognise quadratic sequences using the 2nd difference. use compound units such as speed, rates of pay, pricing, density and pressure. plot and interpret distance time graphs to calculate time, distance or speed. calculate positive and negative gradients of a line using a graph and interpret them as a rate of change.	No formal tests *(plus marking of exercise books throughout the term)*
Year 11 Summer 1	REVISION		GCSE exams; non-calculator, followed by 2 calculator papers