Maths

Year 10

What are the aims and intentions of this curriculum?

Term	Set 1	Set 2/3	Foundation	Assessment
Autumn 1	•To be able to calculate missing lengths and angles in right angled triangles •To be able to use exact values to find missing lengths and angles in right angled triangles •To be able to calculate missing lengths on similar triangles •To be able to calculate with positive, negative and fractional indices •To be able to calculate exactly with surds •To be able to apply and interpret limits of accuracy, including upper and lower bounds	•To be able to calculate with powers and roots •To explore the use of standard form •To explore the effects of rounding •To know and apply standard mathematical constructions •To explore ways of representing 3D shapes	•Identify and use the prime factorisation of a number •Round numbers to an appropriate degree of accuracy •Understand and use standard form •To be able to add, subtract, multiply and divide with negative numbers •To be able to apply the correct order of operations	Mini topic assessments after each section of work
Autumn 2	•To be able to find approximate solutions using iteration •To be able to solve simultaneous equations using elimination •To be able to solve simultaneous equations using substitution •To be able to draw and describe enlargements •To be able to draw and describe rotations •To be able to draw and describe reflections •To be able to draw and describe translations	•To understand equations and identities •To manipulate algebraic expressions •To construct algebraic statements •To solve problems involving direct and inverse proportion •To understand and solve problems involving similarity and congruence •To know and use compound units	•To explore enlargement •To use scale drawings and bearings •To explore representations of 3D drawings •To understand the language of probability •To explore experiments and outcomes •To be able to calculate probabilities	Mini topic assessments after each section of work and a written assessment covering all the work completed so far.
Spring 1	•To be able to expand a product of 2 or more brackets •To be able to factorise quadratics •To be able to work with algebraic fractions •To solve problems involving direct proportion •To solve problems involving inverse proportion •To recognise and interpret graphs illustrating direct and inverse proportion •To generate sequences from a position to term rule •To find the nth term of a quadratic sequence •To recognise, describe and continue a geometric sequence	•To recognise and generate Fibonacci sequences •To generate quadratic sequences •To calculate the next terms in quadratic sequences •To understand and use the concepts and vocabulary of inequalities •To solve linear inequalities in one variable •To represent the solution set to an inequality on a number line	•To be able to simplify expressions •To be able to factorise expressions •To be able to change the subject of a formula •To understand the relationship between ratio and proportion •To be able to solve problems involving proportional reasoning •To be able to solve problems involving compound measures	Mini topic assessments after each section of work and a written assessment covering all the work completed so far.
Spring 2	•To solve inequalities and represent inequalities on a number line •To represent the solution set to inequalities on a graph •To find the volume and surface area of spheres •To find the volume and surface area of cones and pyramids •To compare the length, area and volume of similar shapes •To use circle theorems to find missing angles •To prove geometric conjectures using the circle theorems •To plot and interpret graphs •To calculate or estimate gradients •To calculate or estimate areas under graphs	•To solve problems involving arcs and sectors •To solve problems involving surface area of cylinders •To calculate lengths using Pythagoras' Theorem •To explore the congruence of triangles •To form conjectures •To create a mathematical proof	•Generate terms of a sequence and find a general rule for a sequence •Understand and use angle properties of parallel lines •Explore the angle properties of regular polygons •To be able to calculate percentage change •To be able to calculate reverse percentages •To be able to interpret fractions as numbers and operators	Mini topic assessments after each section of work
Summer 1	•To change recurring decimals to their corresponding fractions and vice versa •To set up, solve and interpret growth and decay problems •To solve quadratics by factorising and by using graphs •To apply the product rule for counting •To sort information in a Venn diagram, and use this to calculate probabilities •To sort information into a two-way table, and use this to calculate probabilities	•To investigate features of straight line graphs •To explore graphs of quadratic, other standard and non-standard functions •To explore graphs of non-standard functions •To solve kinematic problems	•To explore the area and circumference of circles •To calculate the radius and diameter of circles •To calculate volume of cylinders and area/perimeter of shapes related to circles	Mini topic assessments after each section of work
Summer 2	•To calculate and interpret measures of average, spread, central tendency •To construct and interpret box plots •To construct and interpret cumulative frequency graphs •Identify perpendicular lines using algebraic methods •Identify the equation of a circle from its graph •Find the equation of a tangent to a circle at a given point •To understand and be able to represent column vectors •To understand and find parallel vectors •To be able to calculate with vectors	•To be able to solve equations with 2 unknowns simultaneously •To be able to set up and solve equations with 2 unknowns simultaneously •To be able to find approximate solutions using graph	•To plot and interpret linear graphs •To plot and interpret quadratic graphs •To model real situations using linear graphs	End of Year 10 mocks. All students will sit all 3 GCSE Mathematics papers.