

MATHEMATICS

at SCGSG

Acting Head of Department:

Mrs M. Appleton

Edexcel - Specification 1MA1

A Universal Language

Mathematics is a universal language used throughout the world. As well as a fascinating subject in its own right, a sound understanding of mathematics opens the door to future opportunities. We encourage all students to enjoy mathematics, enabling them to select appropriate techniques in order to answer a wide variety of questions with confidence.

To enhance the course, we regularly provide problem solving challenges that apply newly learnt skills in a variety of contexts.

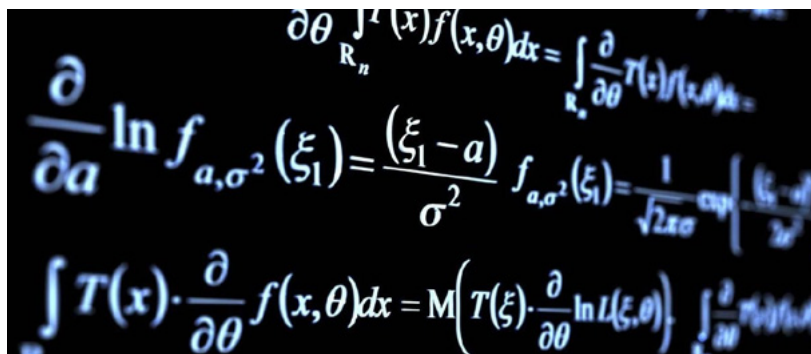
Mathematics is a popular subject, with many going on to study the subject at A-Level in the Sixth Form. The work done in Years 10 and 11 builds on the firm foundations laid down in previous years, preparing students thoroughly for GCSE and beyond.

How am I assessed?

The examination consists of **3 written papers**, each **1 hour 30 minutes**.

The papers are equally weighted towards the overall grade.

Paper 1 is non-calculator. For **papers 2 and 3**, students are allowed to use a **scientific calculator**.



The specification consists of six main topics:

Number

Upper and lower bounds of rounded or truncated numbers; Calculations with numbers in standard form; Recurring decimals

Algebra

Quadratic equations and inequalities; Surds; Graphs of quadratic functions; Algebraic Fractions; Rearranging formulae; Equations with indices; Parallel and Perpendicular graphs; Tangents to curved graphs; Approximate areas under curved graphs; Equations of circles; Simultaneous equations where one is a quadratic or a circle; Types of sequences; Iteration; Proofs

Ratio, Proportion and Rates of Change

Repeated percentage changes and reverse percentages; Graphs of variables that are in proportion; Compound measures

Geometry and Measures

Pythagoras and trigonometry in 3 dimensions; Graphs of the trigonometrical functions; Sine, cosine and tangent of 30°, 60°, 45°; Circle theorems; Sine rule, cosine rule, area of a non right-angled triangle; Sectors and segments; Volumes and surface areas of spheres, cones, pyramids; Areas and volumes of similar shapes

Statistics

Display of data, including cumulative frequency, box and whisker diagrams, histograms, scatter diagrams; Calculating averages and measures of spread for grouped data; Comparison of two sets of data using average and spread; Methods of sampling, questionnaires and biased samples

Probability

Use of tree diagrams and Venn diagrams to calculate probabilities; Conditional probability