



The Mall School

Curriculum Guide

Mathematics – Autumn Term

Year 8 - Scholars

Teachers:	Dr Alistair Miller
Lessons:	2 x 40min, 1 x 35min, 3 x 30min
Homework:	2 x 40min (Tuesday & Friday)

Introduction:

The mathematics syllabus is based on a spiral curriculum where the same study units are covered each year but in greater depth. This term the boys will practise typical scholarship questions from an array of different school papers. They will sit a mock examination during November (for the school to which they are applying). Generally, most schools have one scholarship maths paper, this is usually a non-calculator paper with no mental arithmetic test.

Key Objectives:

- Find the n th term of a linear sequence and a quadratic sequence. Look at different sequences like Fibonacci and geometric progressions.
- Understand how to simplify and calculate with surds. Be able to rationalise the denominator.
- Understand and use appropriate formulae for finding areas and volumes for various polygons and polyhedrons. Be able to convert area measures and between volume measures.
- Understand Pythagoras's theorem in practical situations. Solve 2-D and 3-D problems using Pythagoras' theorem.
- Solving simultaneous equations graphically and algebraically and quadratic equations by factorisation and from applying the formula.
- Distinguish the different roles played by letter symbols in equations, identities, formulae and functions.
- Solve increasingly demanding problems; explore connections in mathematics across a range of contexts.
- Suggest extensions by asking 'What if...?' or 'Why?', conjecture and generalize; identify exceptional cases or counter-examples.

These key objectives will be covered alongside others in the units of work in each term. The topic areas to be covered for the Autumn Term are as follows:

- Quadratic sequences
- Locus and Constructions
- Surds
- Simultaneous and Quadratic Equations
- Pythagoras' Theorem
- Area and Volume
- Algebraic Fractions

Resources:

All boys must bring the following equipment to all lessons:

Pencil, Rubber, Pencil Sharpener, 30cm Ruler, Protractor, Compass, Scientific Calculator (Casio FX-83GT PLUS), Colouring Pencils, Highlighter Pens, Glue Stick.

All boys have been issued with a textbook 'GCSE Mathematics – Higher' by David Rayner