

# Maths Curriculum Summary

## KS4 Curriculum Summary

### Introduction

*In keeping with the aims stated above our KS4 Curriculum in mathematics is designed to introduce the content and skills of the National Curriculum, prepare our students for an important and compulsory GCSE while maintaining an enthusiasm for mathematics.*

*All students are prepared for the Higher GCSE exam and if they score highly in this exam all are eligible to take A level Mathematics or A level Further Mathematics.*

*From Year 9 we start allowing the pace of comprehension to influence the pace of learning and we advance the curriculum for the top sets in order that they might take an extra qualification at the end of year 11. Our most able students study for the Free Standing Mathematics Qualification (FSMQ or Additional Mathematics) run by OCR and which covers a substantial part of the first year of A level pure mathematics. Those who are talented and also in need of challenge but not at the same standard are prepared for the AQA Further GCSE examination which adds some new content to the GCSE and tests the students at a far harder level.*

*We believe strongly in the National Curriculum's aim of ensuring that a student's skills in the application of mathematics are further improved during KS4 as well as teaching them an increasing set of mathematical skills. This is accomplished by encouraging fluency with the techniques available, encouraging a systematic approach to problem solving and a continual reinforcement of the importance of presenting their work as a well reasoned logical argument based on evidence.*

*Students are entered where appropriate for the national maths competition the intermediate Mathematics Challenge organised by the UKMT or for the top sets the Senior Mathematics Challenge (which is in principle aimed at sixth formers). We have many students make it through to the subsequent qualifying rounds and we support them in this.*

### **Exam board: Edexcel GCSE Mathematics 1MA1**

Supporting documents: [Edexcel GCSE Mathematics 1MA1 Higher](#)

### **Exam board: OCR Additional Mathematics 6993**

Supporting documents: [OCR Additional Mathematics 6993](#)

### **Exam board: AQA GCSE Further Mathematics 8365**

Supporting documents: [AQA GCSE Further Mathematics 8365](#)

### Non-Examination Assessment

*There is no non-examined component of this course.*

## Year 9 - core

| Topic                                                 | Principal resources                                                                           |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Expanding binomials and solving simple equations      | Assorted classroom text books, worksheets, Mymaths, Kerboodle online<br>Higher GSCE text book |
| Factorising Quadratics                                |                                                                                               |
| Calculations with Standard Form                       |                                                                                               |
| Estimation and bounds                                 |                                                                                               |
| Partial circle calculations                           |                                                                                               |
| Surface Areas of 3D shapes                            |                                                                                               |
| Simplifying algebraic fractions                       |                                                                                               |
| Using straight lines                                  |                                                                                               |
| Creating and solving simultaneous equations           |                                                                                               |
| Fractional and negative Indices                       |                                                                                               |
| Construction of triangles                             |                                                                                               |
| Congruency                                            |                                                                                               |
| Similar triangles                                     |                                                                                               |
| Linking quadratic graphs to the equation              |                                                                                               |
| Standard Non-linear graphs                            |                                                                                               |
| Direct Proportion                                     |                                                                                               |
| Compound units                                        |                                                                                               |
| Finding the nth term of a quadratic sequence          |                                                                                               |
| Recurring decimals as fractions                       |                                                                                               |
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| Summary statistics from a table of grouped data       |                                                                                               |
| Ratio in all its forms                                |                                                                                               |
| Linking ratio to linear functions                     |                                                                                               |
| Trigonometry in practical situations                  |                                                                                               |
| Tree diagrams                                         |                                                                                               |
| Similar areas and volumes                             |                                                                                               |
| Enlargements with negative and rational scale factors |                                                                                               |

|                                               |  |
|-----------------------------------------------|--|
| Introduction to surds                         |  |
| Cumulative frequency curves                   |  |
| Comparative pie charts                        |  |
| Angles in polygons                            |  |
| Changing the subject of a formula             |  |
| Distance time graphs and velocity time graphs |  |
| Distance time graphs and velocity time graphs |  |

## Year 10 - core

| Topic                                            | Principal resources                                                                           |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Difference of 2 squares                          | Assorted classroom text books, worksheets, Mymaths, Kerboodle online<br>Higher GSCE text book |
| All rules of indices                             |                                                                                               |
| Using HCF and LCM                                |                                                                                               |
| Working with Algebraic Fractions                 |                                                                                               |
| Geometric skills in the xy plane                 |                                                                                               |
| Extending trigonometry                           |                                                                                               |
| Direct and indirect proportion                   |                                                                                               |
| Sampling                                         |                                                                                               |
| Tangents                                         |                                                                                               |
| Applying percentage skills                       |                                                                                               |
| Plans and elevations                             |                                                                                               |
| Set notation                                     |                                                                                               |
| Solving quadratic equations - algebraically      |                                                                                               |
| Solving quadratic equations - graphically        |                                                                                               |
| Angle proof                                      |                                                                                               |
| Using similar shapes                             |                                                                                               |
| Linear inequalities in 1 and 2 variables         |                                                                                               |
| Defining and using class width in grouped tables |                                                                                               |
| Creating and applying simultaneous equations     |                                                                                               |
| Algebraic proof                                  |                                                                                               |

|                                   |  |
|-----------------------------------|--|
| Alternate segment theorem         |  |
| Harder algebraic rearranging      |  |
| Equations of circles and tangents |  |
| Geometric sequences               |  |
| Expanding more than 2 binomials   |  |
| Sine rule, Cosine rule and area   |  |

## Year 11 - core

| Topic                                                             | Principal resources                                                                           |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Locating Turning points                                           | Assorted classroom text books, worksheets, Mymaths, Kerboodle online<br>Higher GSCE text book |
| Proof and congruence                                              |                                                                                               |
| Simultaneous equations with 1 non-linear equation - algebraically |                                                                                               |
| Working with more than 2 brackets                                 |                                                                                               |
| Rationalising the denominator                                     |                                                                                               |
| Non-Linear graphs                                                 |                                                                                               |
| Choosing a probability method                                     |                                                                                               |
| Finding side lengths from compound areas and volumes              |                                                                                               |
| Quadratic inequalities                                            |                                                                                               |
| Simultaneous equations with 1 non-linear equation - graphically   |                                                                                               |
| Approximating the area under a curve                              |                                                                                               |
| Time series data                                                  |                                                                                               |
| Multiple transformations                                          |                                                                                               |
| Ratio and proportion                                              |                                                                                               |
| Functions                                                         |                                                                                               |
| Graphical transformations                                         |                                                                                               |
| Vectors                                                           |                                                                                               |