

Subject: Further Mathematics (AQA)



City of Norwich School
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Teacher responsible for the subject: Ms Rich

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This course covers the following topics throughout the two years:

YEAR 1: 1) **Number** [proportion, product rule, manipulating surds], 2) **Algebraic manipulation** [Index laws, algebraic fractions, expanding binomials, factorising polynomials, factor theorem, completing the square, linear & quadratic equations, simultaneous equations, inequalities], 3) **Geometry & proof** [circle theorems, geometrical proof, algebraic proof, comparing coefficients], 4) **Functions and graphs** [domain & range, composite, inverse functions, sketching functions, graphs]

YEAR 2: 1) **Coordinate geometry** [Gradients, tangents to circles], 2) **Calculus** [Differentiation, Tangents and normal to curves, increasing & decreasing functions, maxima and minima points], 3) **Geometry** [Sine and Cosine rules, Trigonometric ratios and Pythagoras in 2D & 3D, graphs of $\sin(x)$, $\cos(x)$ and $\tan(x)$, trigonometrical identities, solving trigonometrical equations], 4) **Matrix transformations** [Multiplication of matrices, the identity matrix, transformations of the unit square, combinations of transformations].

The teachers say: "We love teaching this course because:

GCSE Further Mathematics has become a very popular subject that allows pupils the chance to extend their knowledge of topics already studied in GCSE Mathematics, for example quadratic equations and trigonometry. The course also introduces pupils to new topics including differentiation and matrices. These topics are beyond the GCSE Syllabus, and are extended further in A- Level Mathematics and Further Mathematics. This is a fantastic stepping stone to further mathematical study, and helps pupils planning on continuing with their mathematical studies beyond GCSE.

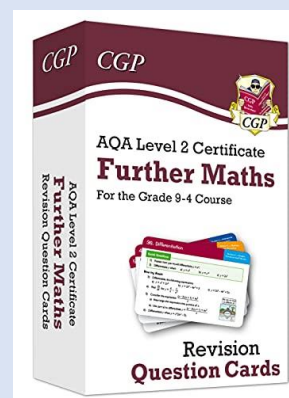
The students say: "We enjoy this course because:

We love GCSE Further Maths because it helps support our GCSE maths lessons,
We love GCSE Further Maths because we get to try some A- Level maths,
We love GCSE Further Maths because we understand where maths can lead us,
We love GCSE Further Maths because we get to learn something new beyond GCSE,

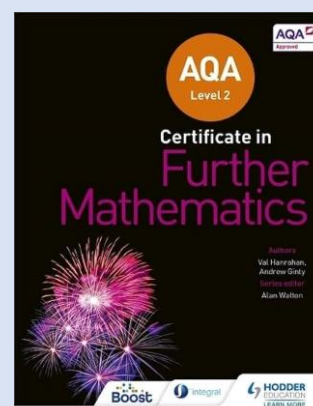
What future pathways might be open to me if I study Further Mathematics?

The study of GCSE Further Mathematics places an emphasis on higher order technical proficiency, rigorous argument, and problem-solving skills. These often lead to a degree in mathematics. The most common carers for maths graduates include teaching or banking, but many others require the critical maths skills. Typical jobs that utilise these maths skills are mathematician, software developer, computer programmer, research scientist, economist, actuary, accountant, engineer (environmental, civil, chemical, sound), forensic investigator, pilot, pharmacist, doctor, meteorologist, chemist.

Our recommended Revision Resources:



CGP Revision cards. Each of the 63 cards begins with a warmup has its own supporting video tutorial and practice.



We also have copies of the course textbook which we can loan to pupils should they wish to continue with further practice at home.

