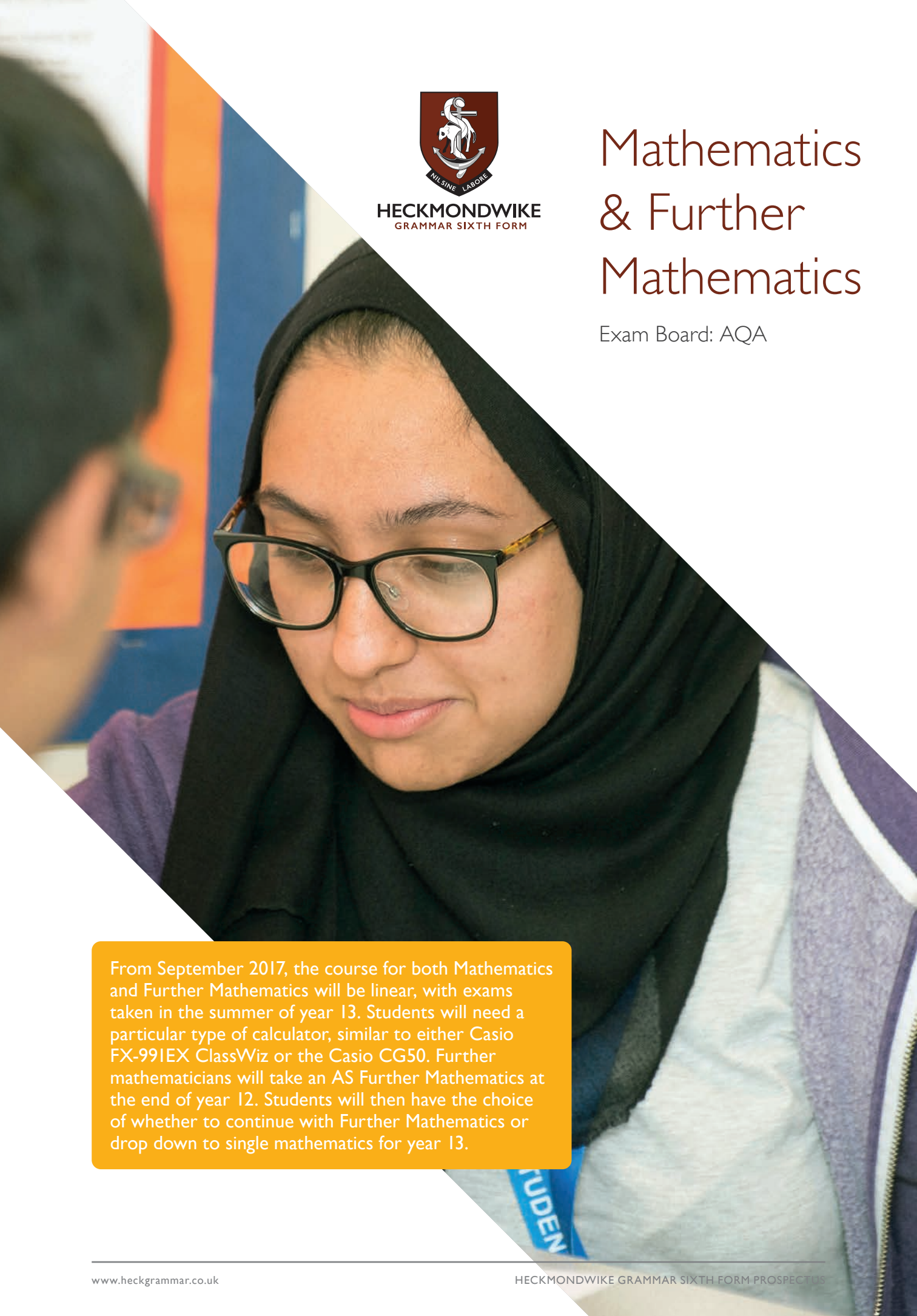
HECKMONDWIKE
GRAMMAR SIXTH FORM

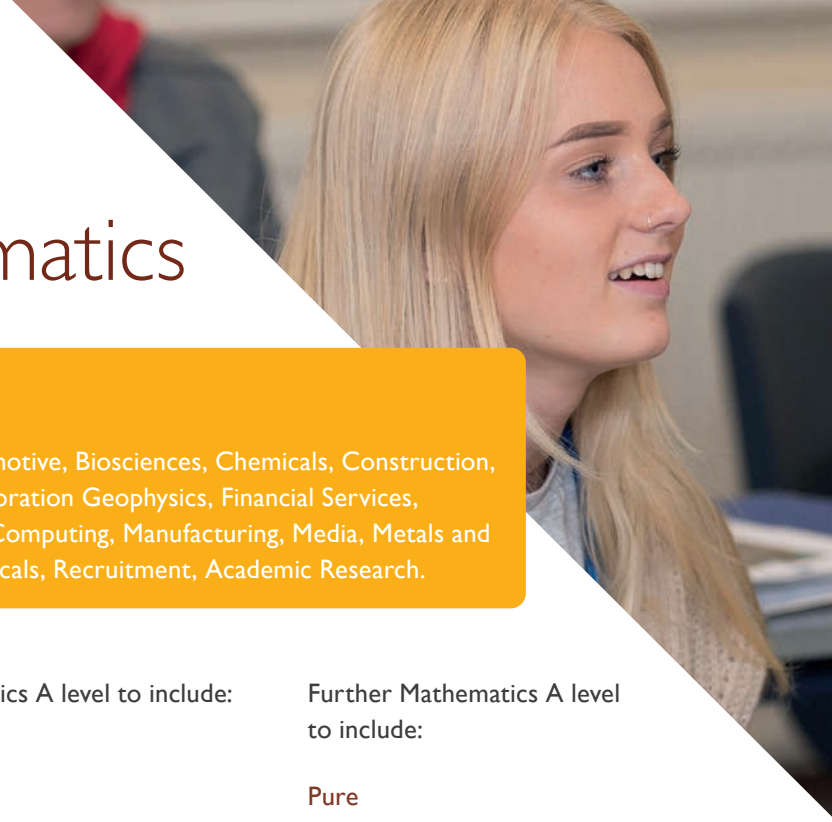
Mathematics & Further Mathematics

Exam Board: AQA



From September 2017, the course for both Mathematics and Further Mathematics will be linear, with exams taken in the summer of year 13. Students will need a particular type of calculator, similar to either Casio FX-991EX ClassWiz or the Casio CG50. Further mathematicians will take an AS Further Mathematics at the end of year 12. Students will then have the choice of whether to continue with Further Mathematics or drop down to single mathematics for year 13.

Mathematics & Further Mathematics



Career Opportunities

Accountancy, Aerospace and Defence, Automotive, Biosciences, Chemicals, Construction, Consultancies, Education, Environment, Exploration Geophysics, Financial Services, Government, Healthcare, Insurance, IT and Computing, Manufacturing, Media, Metals and Minerals, Operational Research, Pharmaceuticals, Recruitment, Academic Research.

Course Content

There is no choice over which aspects of A level Mathematics you will study, this has been predetermined by the exam boards. All students will study some aspects of pure mathematics, statistics and mechanics. Students will also need to be competent with technology, including the use of spreadsheets and the new calculators, as this is a requirement by the exam boards. Technology will permeate the syllabus. Further Mathematicians will study Mechanics and Statistics in greater depth.

Mathematics A level to include:

Pure

YEAR 12

Algebra, co-ordinate geometry, polynomials, inequalities, language of mathematics, indices and surds, differentiation, integration, trigonometry, logarithms.

YEAR 13

Differentiation, integration, natural logarithms and exponentials, sequences, functions, proof, numerical solution of equations, binomial expansions, partial fractions, trigonometry, parametric equations, further techniques for integration and differential equations.

Statistics

Exploring data, data presentation, probability, discrete random variables, combinations, the binomial distribution, the normal distribution, hypothesis testing, correlation and regression.

Mechanics

Modelling, vectors, kinematics, Newton's laws of motion, forces, friction, moments and projectiles.

Further Mathematics A level to include:

Pure

Proof, complex numbers, graph sketching, matrices, de Moivres theorem, differential equations, roots of unity, vectors (including 3D), power series, hyperbolic functions (including differentiation and integration), polar co-ordinates.

Applied

Friction, moments, work, energy and power, centres of mass, PMCC, chi squared, the normal and the poisson distribution.