



## Core Maths Comparison/Summary of Syllabi

Awarding Body	Content	Examination / Assessment
<p>AQA</p> <p>(Mathematical Studies)</p>	<p><b>Compulsory Content:</b></p> <p>Data analysis, (Fermi) estimation, personal finance and critical analysis.</p> <p><b>Optional Content:</b></p> <p><b>Option 1:</b> Statistics (Normal distribution, correlation (PMCC only) and regression, probability and estimation)</p> <p><b>Option 2:</b> Critical path and risk analysis (Expectation and Venn diagrams, CPA, using probability)</p> <p><b>Option 3:</b> Graphical techniques (graphs of functions, intersection points, rates of change, exponential functions)</p>	<p><b>Paper 1 (compulsory content):</b></p> <p>1.5 hours – Compulsory content assessed.</p> <p><b>Paper 2 (mainly optional content):</b></p> <p>1.5 hours – Critical analysis and optional content (1 of 3 options).</p> <p>Calculator allowed.</p> <p>Preliminary material used in both examinations (available from March 1)</p>
<p>Edexcel</p> <p>(Mathematics in Context)</p>	<p><b>All content compulsory – no optional content.</b></p> <ul style="list-style-type: none"> <li>■ Applications of Statistics – content includes: Spearman's Rank Linear Regression Product Moment Correlation Variance and Standard Deviation</li> <li>■ Probability – content includes: Using Venn diagrams and set notation Conditional probability, risk</li> <li>■ Linear Programming – content includes: Graphical solutions</li> <li>■ Sequences and Growth – content includes: Graphing exponential and reciprocal functions Gradients of curves (not differentiation) Quadratic and Fibonacci sequences APs and GPs (terms and sums)</li> </ul>	<p><b>Paper 1: Comprehension</b></p> <p>1 hour 40mins (40% of total)</p> <p>Source booklet used for all questions.</p> <p><b>Paper 2: Applications</b></p> <p>1hour 40mins (60% of total)</p> <p>Second source booklet (not pre-release) used for first section.</p> <p>Calculator allowed for both papers.</p> <p>One common theme/context tested in both papers (within section A of paper 2).</p>

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<p>OCR (Quantitative Problem Solving)</p>	<p>Uses the modelling, statistical problem solving and financial problem solving cycles.</p> <p><b>Noteworthy Content (Introduction to Quantitative Reasoning):</b></p> <p>Use of upper and lower bounds when estimating            Use of compound measures and dimensional analysis            Use of the Normal distribution            Use of spreadsheets when solving financial problems            Logarithmic scales and the exponential function            Estimating the gradient of curves            Use of probability when assessing risk</p> <p><b>Noteworthy Statistical Problem Solving Content:</b></p> <p>Hypothesis testing            Detailed sampling techniques            Sources of information            Standard deviation (including effect of linear transformations)            Normal distribution            Chi Squared test            Bivariate data (not regression)</p>	<p><b>Paper 1 – Introduction to Quantitative Reasoning (2 hours)</b></p> <p>Source material used and available from mid-March.</p> <p><b>Paper 2 – Statistical Problem Solving (2 hours)</b></p> <p>Source material used and available for use throughout the year.</p> <p>Calculator allowed for both papers.</p>
<p>OCR (Quantitative Reasoning)</p>	<p><b>Noteworthy Content (Introduction to Quantitative Reasoning)</b> – i.e. identical to the Quantitative Problem Solving course:</p> <p>Use of upper and lower bounds when estimating            Use of compound measures and dimensional analysis            Use of the Normal distribution            Use of spreadsheets when solving financial problems            Logarithmic scales and the exponential function            Estimating the gradient of curves            Use of probability when assessing risk</p> <p><b>Noteworthy Critical Maths Content:</b></p> <p>Fermi estimation problems            Fallacies in statistics and probability            Statistical experiments            Conditional probability            Critical reasoning with mathematics</p>	<p><b>Paper 1 – Introduction to Quantitative Reasoning (2 hours)</b></p> <p><b>Paper 2 – Critical Maths (2 hours)</b></p> <p>Source material used and available from mid–March.</p>

Awarding Body	Content	Examination / Assessment
City & Guilds (Using and Applying Mathematics)	<p><b>Content includes:</b></p> <ul style="list-style-type: none"> <li>■ Mathematical modelling</li> <li>■ Mathematical comprehension</li> <li>■ Communicating with mathematics</li> </ul> <p><b>Number:</b> Use of dimensional analysis and estimation to check validity of calculations, use of logarithms and logarithmic scales.</p> <p><b>Algebra:</b> exponentials (for growth and decay, including ideas of half-life, connecting with ideas and use of logarithms). Work with sequences defined by recurrence relations, including use of spreadsheets.</p> <p><b>Geometry/Measures:</b> Work with diagrams representing spatial situations e.g. elevations and topological maps.</p> <p><b>Probability:</b> Use of the Normal distribution as a probability distribution. Understand and calculate risk.</p> <p><b>Statistics:</b> Determining correlation and line of best fit using spreadsheet or calculator. Natural variation.</p> <p><b>Critical Paths:</b> Gantt charts, cascade diagrams.</p>	<p><b>Paper 1 – Mathematical Modelling (1.5 hours, 45 marks).</b></p> <p><b>Paper 2 – (2 hours)</b></p> <p><b>Part 1: Mathematical Comprehension (30 marks)</b></p> <p><b>Part 2: Communicating with Mathematics (30 marks)</b></p> <p>Examination based on pre-release material (available two months before examination).</p> <p>Calculator and/or computer can be used.</p>
NCFE (Mathematics for Everyday Life)	<p><b>Topics include:</b></p> <p><b>Personal Finance:</b> Calculations of interest, tax, loans, wages, insurance and risk, inflation.</p> <p><b>Understanding commerce:</b> Transportation Networks (common networking algorithms – Prim’s, Kruskal’s, Dijkstra’s), critical path analysis, linear programming, simulations.</p> <p><b>Understanding chance:</b> Probability including conditional probability and set notation, discrete random variables, Normal distribution, binomial distribution, permutations and combinations.</p> <p><b>Understanding data:</b> Generating data and sampling, graphing data, measures of average and spread, normal distribution, correlation (including Spearman’s Rank), regression.</p>	<p><b>Paper 1 – 1.5 hours (60 marks)</b></p> <p>40% of total</p> <p>Section 1: Multiple choice</p> <p>Section 2: Short questions</p> <p><b>Paper 2 – 2 hours (90 marks)</b></p> <p>60% of total</p> <p>Three options for paper 2:</p> <ul style="list-style-type: none"> <li>■ Business and Administration</li> <li>■ Health and Science</li> <li>■ Engineering and Manufacturing</li> </ul> <p>Sections 1 and 2 based on pre-release material (issued 4 weeks before assessment).</p> <p>Sections 3 and 4 set in scenarios relevant to context (same maths for all options).</p> <p>Calculator allowed.</p>