



Bideford College Mathematics Faculty: Key Stage 2 – 4 Progress Matrix

In order to get a <u>grade 1</u> at GCSE you must be able to	In order to get a <u>grade 2</u> at GCSE you must be able to	In order to get a <u>grade 3</u> at GCSE you must be able to	In order to get a <u>grade 4</u> at GCSE you must be able to	In order to get a <u>grade 5</u> at GCSE you must be able to	In order to get a <u>grade 6</u> at GCSE you must be able to	In order to get a <u>grade 7</u> at GCSE you must be able to	In order to get a <u>grade 8</u> at GCSE you must be able to	In order to get a <u>grade 9</u> at GCSE you must be able to
M1.1: Order positive and negative numbers	M2.1: Apply all 4 operations to whole numbers and decimals – both positive and negative	M3.1: Apply the 4 operations to fractions	M4.1: Check calculations using approximation and estimation	M5.1: Interpret fractions and percentages as operators	M6.1: Calculate with indices including fractional indices	M7.1: Simplify expressions involving surds	M8.1: Rationalise denominators	M9.1: Solve quadratic inequalities
M1.2: Understand and use the decimal place value system	M2.2: Use conventional notation for the priority of operations - BIDMAS	M3.2: Use the concepts of powers, roots, highest common factor and lowest common multiple	M4.2: Calculate with fractions and indices	M5.2: Calculate and interpret standard form	M6.2: Calculate exactly using surds	M7.2: calculate upper and lower bounds of measurement	M8.2: Solve simultaneous equations where one is linear and the other quadratic	M9.2: Represent the solution set of inequalities on a number line, on a graph and using set notation
M1.3: Use the 4 operations with whole numbers	M2.3: Simplify expressions by collecting like terms	M3.3: Manipulate algebraic expressions through substitution, expanding brackets or factorising.	M4.3: Manipulate expressions and solve equations	M5.3: Solve simple quadratic and simultaneous equations	M6.3: Manipulate complex algebraic expressions	M7.3: Factorise quadratic expressions	M8.3: Find approximate solutions to equations using iteration	M9.3: Sketch transformations to graphs
M1.4: Use fractions as parts of a whole and percentage as parts per 100	M2.4: Work with co-ordinates in all 4 quadrants	M3.4: Plot straight line graphs of linear functions	M4.4: Recognise, sketch and interpret the graphs of linear functions	M5.4: Sketch and interpret the graphs of different functions and graphs of real life situations	M6.4: Recognise and use geometric and quadratic sequences	M7.4: Solve quadratic equations using a variety of methods	M8.4: Recognise, sketch and interpret graphs of exponential and trigonometric functions	M9.4: Find the equation of a tangent to a circle
M1.5: Continue whole number sequences forwards and backwards	M2.5: Calculate using simple percentages and ratio	M3.5: Use scale factors, scale diagrams and maps	M4.5: Apply ratio to real contexts and problems	M5.5: Express a multiplicative relationship between 2 quantities as a ratio or a fraction	M6.5: Construct and interpret equations that describe direct and inverse proportion	M7.5: Identify the roots and turning points of quadratic functions	M8.5: Calculate gradients of graphs and the area under graphs	M9.5: Interpret the succession of two functions as a composite function

M1.6: Classify 2D and 3D shapes using mathematical properties	M2.6: convert freely between different units of measurement – both metric and imperial	M3.6: Solve problems involving percentage change	M4.6: Solve problems involving compound measures	M5.6: Solve problems involving direct and inverse proportion	M6.6: Apply the standard circle theorems	M7.6: Use vectors to construct geometric arguments and proofs	M8.6: Recognise and use the equation of a circle	M9.6: Apply the concepts of average and instantaneous rate of change
M1.7: Measure line segments of geometric figures	M2.7: Use conventional terms and notation for the properties of lines and shapes	M3.7: Use the 4 types of transformations on geometric figures	M4.7: Use the standard ruler and compass constructions	M5.7: Apply trigonometry to right angled triangles to calculate lengths and angles	M6.7: Identify, describe and construct congruent and similar shapes	M7.7: Apply Pythagoras theorem to 3D models	M8.7: Construct mathematical arguments and proofs	M9.7: Use circle theorems to prove related results
M1.8: Know and apply simple formulae to calculate area	M2.8: Apply angle facts and the properties of geometric figures	M3.8: Know and apply formulae to calculate area and volume	M4.8: Apply Pythagoras' Theorem to solve problems	M5.8: Solve loci problems	M6.8: Describe the changes and similarities achieved by combinations of transformations	M7.8: Know and apply the formulae of trigonometry for non-right angled triangles	M8.8: Interpret the reverse process as the inverse function	M9.8:
M1.9: Find the mode and median from a list of data	M2.9: Find the mean from a list of data	M3.9: Calculate probabilities of mutually exclusive events	M4.9: Calculate probabilities from venn and sample space diagrams	M5.9: Calculate probabilities of independent events using tree diagrams	M6.9: Calculate and interpret conditional probabilities	M7.9: Construct and interpret histograms	M8.9: Apply trigonometry to 3D models	M9.9:
M1.10: Draw and interpret lists, charts and tables	M2.10: Construct and interpret charts, graphs and tables	M3.10: Compare distributions using averages and range	M4.10: Draw and interpret scatter graphs, correlation and lines of best fit	M5.10: Draw and interpret cumulative frequency graphs	M6.10: Find the critical values from a cumulative frequency graph including drawing and interpreting box plots	M.710: Use the term 'frequency density' in relation to histograms	M8.10: Prove the standard circle theorems	M9.10: