

	Using and applying mathematics	Shape, space and measure	Handling data
Level 7	<ul style="list-style-type: none"> Solve increasingly demanding problems and evaluate solutions; explore connections in mathematics across a range of context: number, algebra, shape, space and measures, and handling data; refine or extend the mathematics used to generate fuller solutions Give reasons for choice of presentation, explaining selected features and showing insight into the problems structure Justify generalisations, arguments or solutions Appreciate the difference between mathematical explanation and experimental evidence 	<ul style="list-style-type: none"> Calculate lengths, areas and volumes in plane shapes and right prisms Enlarge 2-D shapes, given a centre of enlargement and a fractional scale factor, on paper and using ICT; recognise the similarity of the resulting shapes Find the locus of a point that moves according to a given rule, both by reasoning and by using ICT Recognise that measurements given to the nearest whole unit may be inaccurate by up to one half of the unit in either direction Understand and use measures of speed (and other compound measures such as density or pressure) to solve problems 	<ul style="list-style-type: none"> Suggest a problem to explore using statistical methods, frame questions and raise conjectures; identify possible sources of bias and plan how to minimise it Select, construct and modify, on paper and using ICT suitable graphical representation to progress an enquiry including frequency polygons and lines of best fit on scatter graphs Estimate the mean, median and range of a set of grouped data and determine the modal class, selecting the statistic most appropriate to the line of enquiry Compare two or more distributions and make inferences, using the shape of the distributions and measures of average and range Understand relative frequency as an estimate of probability and use this to compare outcomes of an experiment Examine critically the results of a statistical enquiry, and justify the choice of statistical representation in written presentation
Level 6	<ul style="list-style-type: none"> Solve problems and carry through substantial tasks by breaking them into smaller, more manageable tasks, using a range of efficient techniques, methods and resources, including ICT; give solutions to an appropriate degree of accuracy Interpret, discuss and synthesise information presented in a variety of mathematical forms Present a concise, reasoned argument, using symbols, diagrams, graphs and related explanatory texts Use logical argument to establish the truth of a statement 	<ul style="list-style-type: none"> Classify quadrilaterals by their geometric properties Solve geometrical problems using properties of angles, of parallel and intersecting lines, and of triangles and other polygons Identify alternate and corresponding angles; understand a proof that the sum of the angles of a triangle is 180 degrees and of a quadrilateral is 360 degrees Devise instructions for a computer to generate and transform shapes and paths Visualise and use 2-D representations of 3-D objects Enlarge 2-D shapes, given a centre of enlargement and a positive whole-number scale factor Know that translations, rotations and reflections preserve length and angle and map objects onto congruent images Use straight edge and compasses to do standard constructions Deduce and use formulae for the area of a triangle and parallelogram, and the volume of a cuboid; calculate volumes and surface areas of cuboids Know and use the formulae for the circumference and area of a circle (...) 	<ul style="list-style-type: none"> Design a survey or experiment to capture the necessary data from one or more sources; design, trial and, if necessary, refine data collection sheets; construct tables for large discreet and continuous sets of raw data, choosing suitable class intervals; design and use two-way tables Select, construct and modify, on paper and using ICT: pie charts for categorical data; bar charts and frequency diagrams for discrete and continuous data; simple time graphs for time series; scatter graphs and identify which are most useful in the context of the problem Find and record all possible mutually exclusive outcomes for single events and two successive events in a systematic way Know that the sum of probabilities of all mutually exclusive outcomes is 1 and use this when solving problems Communicate interpretations and results of a statistical survey using selected tables, graphs and diagrams in support
	Level: 6C	Level: 6C	Level: 8C
OVERALL LEVEL: 7C			

	Algebra	Numbers and the number system	Calculating
Level 7	<ul style="list-style-type: none"> • Square a linear expression, and expand and simplify the product of two linear expressions of the form $(x+/-n)$ and simplify the corresponding quadratic expression • Use algebraic and graphical methods to solve simultaneous linear equations in two variables • Solve inequalities in one variable and represent the solution set on a number line • Use formulae from mathematics and in other subjects; substitute numbers into expressions and formulae; derive a formula and, in simple cases, change its subject • Find the next term and nth term of quadratic sequences and functions and explore their properties • Plot graphs of simple quadratic and cubic functions 	<ul style="list-style-type: none"> • Understand and use proportionality 	<ul style="list-style-type: none"> • Calculate the result of any proportional change using multiplicative methods • Understand the effects of multiplying and dividing by numbers between 0 and 1 • Add, subtract, multiply and divide fractions • Make and justify estimates and approximations of calculations; estimate calculations by rounding numbers to one significant figure and multiplying and dividing mentally • Use a calculator efficiently and appropriately to perform complex calculations with numbers of any size, knowing not to round during intermediate steps of a calculation
Level 6	<ul style="list-style-type: none"> • Use systematic trial and improvement methods and ICT tools to find approximate solutions to equations • Construct and solve linear equations with integer coefficients, using an appropriate method • Generate terms of a sequence using term-to-term and position-to-term definitions of the sequence, on paper and using ICT; write an expression to describe the nth term of an arithmetic sequence • Plot the graphs of linear functions, where y is given explicitly in terms of x; recognise that equations of the form $y=mx+c$ correspond to straight-line graphs • Construct functions arising from real-life problems and plot their corresponding graphs; interpret graphs arising from real situations 	<ul style="list-style-type: none"> • Use the equivalence of fractions, decimals and percentages to compare proportions 	<ul style="list-style-type: none"> • Calculate percentages and find the outcome of a given percentage increase or decrease • Divide a quantity into two or more parts in a given ratio and solve problems involving ratio and direct proportion • Use proportional reasoning to solve a problem, choosing the correct numbers to take as 100%, or as a whole • Add and subtract fractions by writing them with a common denominator, calculate fractions of quantities (fraction answers), multiply and divide an integer by a fraction
Level 5	<ul style="list-style-type: none"> • Construct, express in symbolic form, and use simple formulae involving one or two operations • Use and interpret coordinates in all four quadrants 	<ul style="list-style-type: none"> • Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 and 1000 and explain the effect • Round decimals to the nearest decimal place and order negative numbers in context • Recognise and use number patterns and relationships • Use equivalence between fractions and order fractions and decimals • Reduce a fraction to its simplest form by cancelling common factors (...) 	<ul style="list-style-type: none"> • Use known facts, place value, knowledge of operations and brackets to calculate including using all four operations with decimals to two places • Use a calculator where appropriate to calculate fractions/percentages of quantities/measurements • Understand and use an appropriate non-calculator method for solving problems that involve multiplying and dividing any three digit number by any two digit number (...)
	Level: 7C	Level: 7A	Level: 8B
OVERALL LEVEL: 7C			