Progression map

**Number**

Moving from Level 7 to Level 8

- Solve problems involving calculating with powers, roots and numbers expressed in standard form, using a calculator as appropriate
- Use a calculator efficiently and appropriately to perform complex calculations with numbers of any size
- Calculate the result of any proportional change using multiplicative methods
- Add, subtract, multiply and divide fractions
- Understand the equivalence between recurring decimals and fractions
- Use fractions or percentages to solve problems involving repeated proportional changes
- Use fractions or percentages to calculate the original quantity, given the result of a percentage change
- Understand and use proportionality

Add, subtract, multiply and divide fractions
Progression map

Algebra

Moving from Level 7 to Level 8

- Factorise quadratic expressions, including the difference of two squares
- Solve inequalities in two variables and find the solution set
- Understand the effect on a graph of addition of (or multiplication by) a constant
- Square a linear expression, and expand and simplify the product of two linear expressions of the form \((x \pm n)\)
- Solve inequalities in one variable and represent the solution set on a number line
- Plot graphs of simple quadratic and cubic functions
- Use formulae; substitute numbers, expressions and formulae; derive a formula and, in simple cases, change its subject
- Manipulate algebraic formulae, equations and expressions, finding common factors and multiplying two linear expressions
- Derive and use more complex formulae and change the subject of a formula
- Evaluate algebraic formulae, substituting fractions, decimals and negative numbers
- Sketch, interpret and identify graphs of linear, quadratic, cubic and reciprocal functions, and graphs that model real situations
Progression map

Shape, space and measure

Moving from Level 7 to Level 8

Understand and use congruence and mathematical similarity

Understand trigonometrical relationships in right-angled triangles, and use these to solve problems, including those involving bearings

Enlarge two dimensional shapes, given a centre of enlargement and a fractional scale factor; recognise the similarity of the resulting shapes

Understand the difference between formulae for perimeter, area and volume in simple contexts by considering dimensions

Calculate lengths, areas and volumes in plane shapes and right prisms

Understand and apply Pythagoras’ theorem when solving problems in two dimensions

Calculate lengths, areas and volumes in plane shapes and right prisms
**Progression map**

**Handling data**

Moving from Level 7 to Level 8

- **Level 7**
  - Know when to add or multiply two probabilities
  - Estimate and find the median, quartiles and interquartile range of large data sets, including using a cumulative frequency diagram
  - 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
  - Interpret relative frequency as an estimate of probability and use this to compare outcomes of an experiment

- **Level 8**
  - Compare two or more distributions and make inferences, using the shapes of the distributions and measures of average and range
  - Use tree diagrams to calculate probabilities of combinations of events
  - Compare two or more distributions and make inferences, using the shape of the distributions and measures of average and spread including median and quartiles