Mastery in Mathematics

The Structure of the Number system comprises of four core concepts: place value, estimation and rounding; properties of number; ordering and comparing; simplifying and manipulating expressions, equations and formulae

Operating on number comprises of two core concepts: arithmetic procedures; solving linear equations.

Multiplicative reasoning comprises of two core concepts: understanding multiplicative relationships; trigonometry.

Sequence and graphs comprises of two core concepts: sequences; graphical representations.

Statistics and Probability comprises of three core concepts: statistical representations and measure; statistical analysis; probability.

Geometry comprises of four core concepts: geometrical properties; perimeter, area and volume; transforming shapes; constructions.

Year 7
NUMBER 1
Place value
Ordering numbers
Addition and Subtraction
Multiplication and Division
Negative Numbers
BODMAS and Inverse Operations
Approximations
Roots and Powers

Multiples and LCM
Factors and HCF
Prime Numbers
NUMBER 2
Equivalent Fractions
Adding and Subtracting Fractions
Mixed numbers and Improper Fractions
Multiplying Whole Numbers by Fractions
Fractions, Decimals and Percentages
Percentage of Amounts
Ratios and comparing
Time
Units and measuring
ALGEBRA 1
Simplifying Expressions
Solving Equations
Formulas
Sequences
Coordinates
GEOMETRY 1
Symmetry
Triangles and Quadrilaterals
Angles
Measuring and Drawing lines of angles
Constructing triangles
Perimeter
Area
Reflection
3D Shapes
Volume
PROBABILITY & STATS 1
Probability
Tables, bar charts and pictograms
Pie charts
Mean, median, mode and range

Year 8
NUMBER 3
Place value and ordering decimals
Multiplication & Division
Calculations with negative numbers
Calculators, BODMAS
Rounding
Estimating
Powers and roots
Standard Form
Multiples, factors & prime numbers
Adding and Subtracting Fractions
Multiplying and dividing fractions
Changing fraction to decimals and percentages
Percentage of amounts
Percentage change
NUMBER 4
Comparing quantities using fractions and ratios
Ration & percentage problems
Percentage change problems

Changing units
Compound measures - Speed
Scale drawings
ALGEBRA 2
Simplifying expressions
Expressions with brackets
Solving equations
Substituting into a formula
Rearranging formulas
Generating terms
Finding the rule for the nth term
Coordinates
Plotting graphs
Interpreting graphs
Equation of a straight line
Finding the gradient
GEOMETRY 2
Angle rules
2D shapes
Angles in polygons
Constructions
Perimeter
Area
Perimeter
Volume
Pythagoras' Theorem
Reflection
Rotation
Translation
Enlargement
PROBABILITY & STATISTICS 2
Probability scale
Probability experiments
Theoretical probabilities
Sets
Bar charts & Pie charts
Scatter graphs
Average and range
Averages and range from tables
Comparing distributions

Year 9
NUMBER 5
Multiplication and Division

Decimals
Using powers of 10
Calculating with decimals
Negative numbers
Place value calculations
Complex operations
Upper and lower bounds
Powers
Standard form
Prime factors
HCF and LCM
Fractions and percentages
Equivalence
Recurring decimals
Add and subtract fractions
Multiply and divide fractions
Surds
Number problem-solving
ALGEBRA 3
Indices
Simplifying expressions
Expanding brackets
Expanding double brackets
Factorising
Complex factorising
Substitution
The nth term
Non-linear sequences
Solving simple equations
Solving complex equations
Writing and solving equations
Inequalities
Inequalities on graphs
Simultaneous equations
Rearranging formulae
Writing formulae
Midpoint and gradient
Equation of straight line
Straight line graphs
Parallel and perpendicular
Formulae from graphs and tables
Quadratic graphs
Non-linear graphs
Real life graphs
Algebra problem solving
NUMBER 6
Ratio
Direct proportion

Inverse proportion
Maps and scales
Speed, distance, time
Distance-time graphs
Density
Graphs of rates of change
Percentage change
Reverse percentages
Compound interest
Proportion problem solving
GEOMTERY 3
Perimeter and area
Compound shapes
Circles
Sectors of a circle
Circles problem solving
Plans and elevation
Surface area
Volume
Cylinders
Angles
Angles in parallelograms
Angles in polygons
Angles problem solving
Pythagoras' theorem
Trigonometry 1
Trigonometry 2
Constructions 1
Constructions 2
Loci
Transformation
Enlargement
Combined transformations
Congruent shapes
Similar triangles
PROBABILITY & STATS 3
Experimental Probability
Probability diagrams
Probability tree diagrams
Mutually exclusive and independent events
Averages and range
Averages from tables
Two-way tables
Analysing data
Interpretating charts
Scatter graphs
Frequency polygons

Cumulative frequency
Box plots

Year 10 & 11
NUMBER 7
Factors and primes
Indices 1
Indices 3
Decimals
Fractions
Estimation
Standard form
Recurring decimals
Upper and lower bounds
Accuracy and error
Surds
Counting strategies
ALGEBRA 4
Algebraic expressions
Expanding brackets
Factorising
Linear equations 1
Linear equations 2
Formulae
Arithmetic sequences
Solving sequence problems
Quadratic sequences
Straight line graphs 1
Straight line graphs 2
Parallel and perpendicular
Quadratic graphs
The Quadratic formula
Completing the square
Simultaneous equations 1
Simultaneous equations 2
Equation of a circle
Inequalities
Quadratic inequalities
Trigonometric graphs
Transforming graphs
Inequalities on a graph
Using quadratic graphs
Turning points
Sketching graphs
Iteration

Rearranging formulae
Algebraic fractions
Quadratics and fractions
Surds 2
Functions
Inverse functions
Algebraic proof
Exponential graphs
Gradient of curves
Velocity tie graphs
Area under curves
Problem solving 1 & 2
NUMBER 8
Ratio
Proportion
Percentage change
Reverse percentages
Growth and decay
Speed
Density
Other compound measures
Proportion and graphs
Proportionality formulae
Harder relationships
Problem solving 1 & 2
GEOMETRY 4
Angle properties
Solving angle problems
Angles in polygons
Pythagoras' theorem
Trigonometry 1
Trigonometry 2
Perimeter and area
Units of area and volume
Prisms
Circles and Cylinders
Sectors of circles
Volume of 3D shapes
Surface area
Plans and elevation
Translations, reflections and rotations
Enlargement

Combining transformations
Bearings
Scale drawings and maps
Constructions 1
Constructions 2
Loci
Congruent triangles
Similar shapes 1
Similar shapes 2
The sine rule
The cosine rule
Triangles and segments
Pythagoras' in 3D
Circle facts
Circle theorem
Vector
Vector proof
Problem solving 1 & 2
PROBABILITY & STATS 4
Mean, median and mode
Frequency table averages
Interquartile range
Line graphs
Scatter graphs
Sampling and stratified sampling
Capture re-capture
Cumulative frequency
Box plots
Histograms
Frequency polygons
Probability
Relative frequency
Venn diagrams
Conditional probability
Tree diagrams
Problem solving 1 & 2