ES1-5

Working mathematically

MAO-WM-01 Working mathematically
develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly

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Stage 4   Core

Number and algebra

MA4-INT-C-01 Computation with integers
compares, orders and calculates with integers to solve problems

Stage 4   Core

Number and algebra

MA4-FRC-C-01 Fractions, decimals and percentages
   represents and operates with fractions, decimals and
   percentages to solve problems

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Stage 4   Core

Number and algebra

**MA4-RAT-C-01 Ratios and rates / Variation and rates of
change**
   solves problems involving ratios and rates, and analyses
   distance–time graphs

Stage 4   Core

Number and algebra

MA4-ALG-C-01 Algebraic techniques
generalises number properties to operate with algebraic
expressions including expansion and factorisation

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Stage 4   Core

Number and algebra

MA4-IND-C-01 Indices
operates with primes and roots, positive-integer and
zero indices involving numerical bases and establishes
the relevant index laws

Stage 4   Core

Number and algebra

MA4-EQU-C-01 Equations
    solves linear equations of up to 2 steps and quadratic
    equations of the form

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Stage 4   Core

Number and algebra

MA4-LIN-C-01 Linear relationships
    creates and displays number patterns and finds
    graphical solutions to problems involving linear
    relationships

Stage 4   Core

Measurement and space

MA4-LEN-C-01 Length
    applies knowledge of the perimeter of plane shapes and
    the circumference of circles to solve problems

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Stage 4   Core

Measurement and space

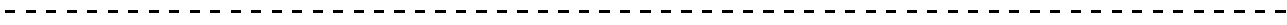**MA4-PYT-C-01 Right-angled triangles (Pythagoras' theorem)**
    applies Pythagoras' theorem to solve problems in
    various contexts

Stage 4   Core

Measurement and space

MA4-ARE-C-01 Area / Area and surface area
applies knowledge of area and composite area involving triangles, quadrilaterals and circles to solve problems

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Stage 4   Core

Measurement and space

MA4-VOL-C-01 Volume
applies knowledge of volume and capacity to solve problems involving right prisms and cylinders

Stage 4   Core

Measurement and space

MA4-ANG-C-01 Angle relationships
        applies angle relationships to solve problems, including
        those related to transversals on sets of parallel lines

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Stage 4   Core

Measurement and space

MA4-GEO-C-01 Properties of geometrical figures
        identifies and applies the properties of triangles and
        quadrilaterals to solve problems

Stage 4   Core

Statistics and probability

MA4-DAT-C-01 Data classification and visualisation / Data Analysis
classifies and displays data using a variety of graphical representations

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Stage 4   Core

Statistics and probability

MA4-DAT-C-02 Data classification and visualisation / Data Analysis
analyses simple datasets using measures of centre, range and shape of the data

Stage 4   Core

Statistics and probability

MA4-PRO-C-01 Probability
solves problems involving the probabilities of simple chance experiments

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Stage 5   Core

Number and algebra

MA5-FIN-C-01 Financial mathematics
solves financial problems involving simple interest, earning money and spending money

Stage 5   Core

Number and algebra

MA5-FIN-C-02 Financial mathematics
    solves financial problems involving compound interest
    and depreciation

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Stage 5   Core

Number and algebra

MA5-ALG-C-01 Algebraic techniques
    simplifies algebraic fractions with numerical
    denominators and expands algebraic expressions

Stage 5   Path

Number and algebra

MA5-RAT-P-01 Ratios and rates / Variation and rates of change

identifies and solves problems involving direct and inverse variation and their graphical representations (Path: Stn, Adv)

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Stage 5   Path

Number and algebra

MA5-RAT-P-02 Ratios and rates / Variation and rates of change

analyses and constructs graphs relating to rates of change (Path: Adv)

Stage 5   Path

Number and algebra

MA5-ALG-P-01 Algebraic techniques

> simplifies algebraic fractions involving indices, and expands and factorises algebraic expressions (Path: Adv)

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Stage 5   Path

Number and algebra

MA5-ALG-P-02 Algebraic techniques

> selects and applies appropriate algebraic techniques to operate with algebraic fractions, and expands, factorises and simplifies algebraic expressions (Path: Adv)

Stage 5   Core

Number and algebra

MA5-IND-C-01 Indices
    simplifies algebraic expressions involving positive-integer and zero indices, and establishes the meaning of negative indices for numerical bases

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Stage 5   Path

Number and algebra

MA5-IND-P-01 Indices
    applies the index laws to operate with algebraic expressions involving negative-integer indices (Path: Adv)

Stage 5　　　Path

Number and algebra

MA5-IND-P-02 Indices
　　　describes and performs operations with surds and
　　　fractional indices (Path: Adv)

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Stage 5　　　Core

Number and algebra

MA5-EQU-C-01 Equations
　　　solves linear equations of up to 3 steps, limited to one
　　　algebraic fraction

Stage 5   Path

Number and algebra

MA5-EQU-P-01 Equations
> solves monic quadratic equations, linear inequalities and cubic equations of the form (Path: Adv)

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Stage 5   Path

Number and algebra

MA5-EQU-P-02 Equations
> solves linear equations of more than 3 steps, monic and non-monic quadratic equations, and linear simultaneous equations (Path: Adv)

Stage 5   Core

Number and algebra

MA5-LIN-C-01 Linear relationships
     determines the midpoint, gradient and length of an
     interval, and graphs linear relationships, with and
     without digital tools

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Stage 5   Core

Number and algebra

MA5-LIN-C-02 Linear relationships
     graphs and interprets linear relationships using the
     gradient/slope-intercept form

Stage 5   Path

Number and algebra

MA5-LIN-P-01 Linear relationships
  describes and applies transformations, the midpoint,
  gradient/slope and distance formulas, and equations of
  lines to solve problems (Path: Adv)

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Stage 5   Core

Number and algebra

MA5-NLI-C-01 Non-linear relationships
  identifies connections between algebraic and graphical
  representations of quadratic and exponential
  relationships in various contexts

Stage 5   Core

Number and algebra

MA5-NLI-C-02 Non-linear relationships
> identifies and compares features of parabolas and exponential curves in various contexts

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Stage 5   Path

Number and algebra

MA5-NLI-P-01 Non-linear relationships
> interprets and compares non-linear relationships and their transformations, both algebraically and graphically (Path: Adv)

Stage 5   Path

Number and algebra

MA5-POL-P-01 Polynomials
     defines, operates with and graphs polynomials and
     applies the factor and remainder theorems to solve
     problems (Path: Adv, Ext)

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Stage 5   Path

Number and algebra

MA5-LOG-P-01 Logarithms
     establishes and applies the laws of logarithms to solve
     problems (Path: Adv)

Stage 5   Path

Number and algebra

MA5-FNC-P-01 Functions and other graphs
uses function notation to describe and graph functions of one variable and graphs inequalities in one and 2 variables (Path: Adv)

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Stage 5   Core

Measurement and space

MA5-MAG-C-01 Numbers of any magnitude
solves measurement problems by using scientific notation to represent numbers and rounding to a given number of significant figures

Stage 5   Core

Measurement and space

MA5-TRG-C-01 Trigonometry
> applies trigonometric ratios to solve right-angled triangle problems

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Stage 5   Core

Measurement and space
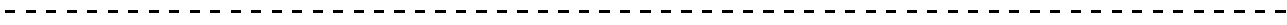
MA5-TRG-C-02 Trigonometry
> applies trigonometry to solve problems, including bearings and angles of elevation and depression

Stage 5   Path

Measurement and space

MA5-TRG-P-01 Trigonometry

applies Pythagoras' theorem and trigonometry to solve 3-dimensional problems and applies the sine, cosine and area rules to solve 2-dimensional problems, including bearings (Path: Stn, Adv)

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Stage 5   Path

Measurement and space

MA5-TRG-P-02 Trigonometry

establishes and applies the properties of trigonometric functions and finds solutions to trigonometric equations (Path: Adv)

Stage 5   **Core**

Measurement and space

MA5-ARE-C-01 Area / Area and surface area
      solves problems involving the surface area of right
      prisms and practical problems involving the area of
      composite shapes and solids

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Stage 5   **Path**

Measurement and space

MA5-ARE-P-01 Area / Area and surface area
      applies knowledge of the surface area of right pyramids
      and cones, spheres and composite solids to solve
      problems (Path: Stn, Adv)

Stage 5   Core

Measurement and space

MA5-VOL-C-01 Volume

> solves problems involving the volume of composite
> solids consisting of right prisms and cylinders

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Stage 5   Path

Measurement and space

MA5-VOL-P-01 Volume

> applies knowledge of the volume of right pyramids,
> cones and spheres to solve problems involving related
> composite solids (Path: Stn, Adv)

Stage 5   Core

Measurement and space

MA5-GEO-C-01 Properties of geometrical figures
     identifies and applies the properties of similar figures
     and scale drawings to solve problems

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Stage 5   Path

Measurement and space

MA5-GEO-P-01 Properties of geometrical figures
     establishes conditions for congruent triangles and
     similar triangles and solves problems relating to
     properties of similar figures and plane shapes (Path: Ext)

Stage 5   Path

Measurement and space

MA5-GEO-P-02 Properties of geometrical figures
constructs proofs involving congruent triangles and similar triangles and proves properties of plane shapes (Path: Ext)

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Stage 5   Path

Measurement and space

MA5-CIR-P-01 Circle geometry
applies deductive reasoning to prove circle theorems and solve related problems (Path: Ext)

Stage 5   Path

Measurement and space

MA5-NET-P-01 Introduction to networks
    solves problems involving the characteristics of
    graphs/networks, planar graphs and Eulerian trails and
    circuits (Path: Stn)

Stage 5   Core

Statistics and probability

**MA5-DAT-C-01 Data classification and visualisation / Data
Analysis**
    compares and analyses datasets using summary
    statistics and graphical representations

Stage 5   Core

Statistics and probability

MA5-DAT-C-02 Data classification and visualisation / Data Analysis

   displays and interprets datasets involving bivariate data

Stage 5   Path

Statistics and probability

MA5-DAT-P-01 Data classification and visualisation / Data Analysis

   plans, conducts and reviews a statistical inquiry into a
   question of interest (Path: Stn, Adv)

Stage 5   Core

Statistics and probability

MA5-PRO-C-01 Probability
> solves problems involving probabilities in multistage
> chance experiments and simulations

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Stage 5   Path

Statistics and probability

MA5-PRO-P-01 Probability
> solves problems involving Venn diagrams, 2-way tables
> and conditional probability (Path: Adv)