

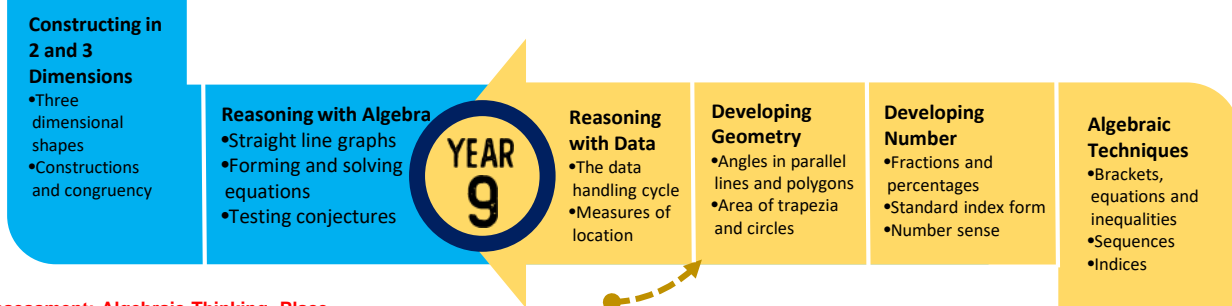
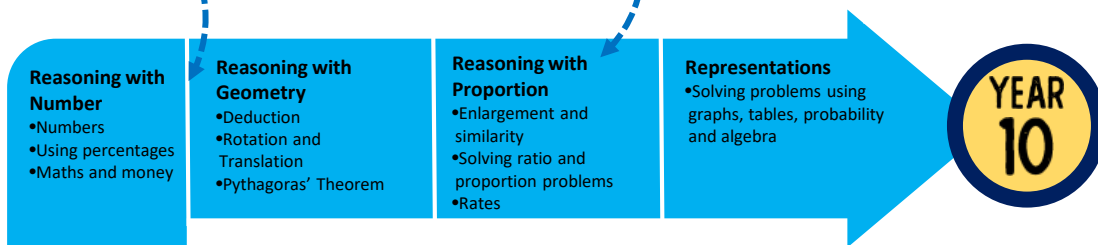


# SUBJECT CURRICULUM MAP

## Mathematics – Key Stage 3

Assessment: Reasoning with Algebra, Constructing and 2 and 3 Dimensions.

Assessment: Reasoning with Algebra, Constructing in 2 and 3 Dimensions, Reasoning with Number, Reasoning with Geometry

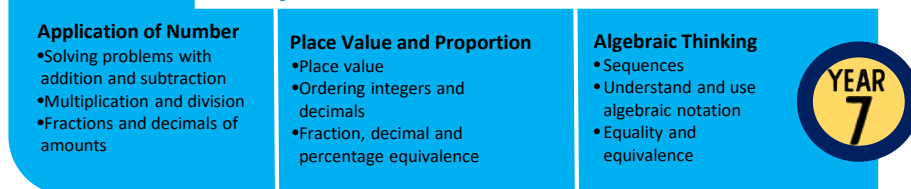


Assessment: Algebraic Thinking, Place Value & Proportion, Application of Number, Directed Number, Fractional Thinking.

Assessment: Proportional Reasoning, Representations, Algebraic Techniques, Developing Number.



Assessment: Algebraic Thinking, Place Value and Proportion



Assessments: Low stakes mini-assessments are completed and fed-back at the end of each sub-block of study – every 6-10 lessons.

### FLUENCY

- Quick and accurate recall of key facts
- Knowledge/selection of appropriate techniques/strategies



### REASONING

- Applying logical thinking to a situation to derive the correct problem solving strategy
- The bridge between fluency and problem solving.



### PROBLEM SOLVING

- Finding a way to apply knowledge and skills to answer unfamiliar types of problems.



# SUBJECT CURRICULUM MAP

## Mathematics – Key Stage 4

### FURTHER STUDY

- A-Level Mathematics
- A-Level Further Maths
- Level 3 Core Maths
- Mathematics Degree
- STEM Degree

### CAREER PATHS

- STEM subjects
- Finance
- Insurance and Risk
- Data Science
- Computing
- Natural and Life Sciences
- Business and Operation

### SKILLS

- Reasoning
- Evaluation
- Analysis
- Problem Solving

### Examinations

#### Revision and Communication

- Show that...

#### Revision and Communication

- Transforming and constructing
- Listing and describing

#### Reasoning

- Multiplicative
- Geometric
- Algebraic

**Assessment: Summative – End of Year 10 Exams**  
(Similarity, Developing Algebra, Geometry, Proportions and Proportional Change, Delving Into Data, Using Number (up to and inc. 'Types of Number and Sequences').)

**Assessment: Year 11 Mock Examinations 2 (full spec.)**

**Assessment: Year 11 Mock Examinations 1 (Yr10 Content + Yr11 up to and inc. 'Gradients and Lines')**

#### Proportions and Proportional Change

- Ratio and fractions
- Percentages and interest
- Probability

#### Delving into Data

- Collecting, representing and interpreting data

#### Using Number

- Non-calculator methods
- Types of number sequences

#### Using Number

- Indices and roots

**YEAR 11**

#### Expressions

- Indices and roots
- Manipulating Expressions

#### Graphs

- Gradients and lines
- Non-linear graphs
- Using graphs

#### Algebra

- Expanding and factorising
- Changing the subject
- Functions

**Assessment: Summative Assessment**  
(Geometry (up to and inc. 'Angles and Bearings'), Developing Algebra, Similarity)

#### Geometry

- Angles and bearings
- Working with circles
- Vectors

#### Developing Algebra

- Representing solutions of equations and inequalities
- Simultaneous equations

#### Similarity

- Congruence, similarity and enlargement
- Trigonometry

**YEAR 10**

**Assessments: Low stakes mini-assessments are completed and fed-back at the end of each sub-block of study – every 6-10 lessons.**

### FLUENCY

- Quick and accurate recall of key facts
- Knowledge/selection of appropriate techniques/strategies



### REASONING

- Applying logical thinking to a situation to derive the correct problem solving strategy
- The bridge between fluency and problem solving.



### PROBLEM SOLVING

- Finding a way to apply knowledge and skills to answer unfamiliar types of problems.



# SUBJECT CURRICULUM MAP

## A-Level Mathematics

### FURTHER STUDY

- Mathematics Degree
- Related Degree Subjects

### CAREER PATHS

- STEM subjects
- Finance
- Insurance and Risk
- Data Science
- Computing
- Natural and Life Sciences
- Business and Operations

### SKILLS

- Reasoning
- Evaluation
- Analysis
- Problem Solving

**Summative Mock Examinations 2:**  
Entire specification coverage due to concluding the course.

### Examination Preparation

#### Pure Maths

- Numerical Methods

#### Applied - Statistics

- The Normal Distribution

#### Applied - Mechanics

- Projectiles
- Applications of Forces
- Further Kinematics

#### Pure Maths

- Integration
- Vectors

#### Applied - Statistics

- Conditional Probability
- The Normal Distribution

#### Pure Maths

- Functions & Graphs
- Differentiation

#### Applied - Statistics

- Regression, Correlation & Hypothesis Testing
- Conditional Probability

#### Applied - Mechanics

- Moments
- Forces and Friction

**Summative Mock Examinations 1:** Pure content (P1.1-P1.12 + P1.14). Statistics content (SM1.1-SM1.6). Mechanics content (SM1.8, SM1.9, SM1.10) – Yr12 A Level Mathematics content coverage plus: Pure content P2.1-P2.9. Statistics content SM2.1, SM2.2. Mechanics content SM2.4, SM2.5.

YEAR 13

#### Applied - Statistics

- Correlation
- Probability
- Statistical Distributions

#### Pure Maths

- Vectors

#### Pure Maths

- Exponentials and Logarithms
- Differentiation
- Integration

#### Applied - Statistics

- Hypothesis Testing

#### Applied - Mechanics

- Variable Acceleration

#### Pure Maths

- Sequences & Series
- Algebraic Methods
- Radians
- Trigonometric functions and modelling
- Parametric Equations

#### Assessment: End of Year 12 Examinations – Cumulative

**Assessment:** Pure content (P1.1-P1.12 + P1.14). Statistics content (SM1.1-SM1.6). Mechanics content (SM1.8, SM1.9, SM1.10).

**Assessment 1:** Pure content (P1.1-P1.12 + P1.14). Statistics content (SM1.1-SM1.6). Mechanics content (SM1.8, SM1.9, SM1.10) – Yr12 A Level Mathematics content coverage plus: Pure content P2.1, P2.3, P2.5-P2.8.

#### Applied - Statistics

- Data Collection
- Measures of Location and Spread
- Representations of Data

#### Applied - Mechanics

- Constant Acceleration Formulae
- Forces and Motion

#### Pure Maths

- Circles
- Algebraic Methods
- The Binomial Expansion
- Trigonometric Ratios
- Trigonometric Identities and Equations

#### Pure Maths

- Algebraic Expressions
- Quadratics
- Equations and Inequalities
- Graphs and Transformations
- Straight Line Graphs

YEAR 12

**Assessment 2:** Pure content (P1.1-P1.10). Statistics content (SM1.1, SM1.2, SM1.3). Mechanics content (SM1.8, SM1.9, SM1.10).

**Assessment 1:** P1.1 (algebraic expressions), P1.2 (quadratics), P1.3 (equations and inequalities), P1.4 (graphs and transformations).

**MATHEMATICAL ARGUMENT, LANGUAGE AND PROOF**



**MATHEMATICAL PROBLEM SOLVING**



**MATHEMATICAL MODELLING**



# SUBJECT CURRICULUM MAP

## Level 3 Core Mathematics

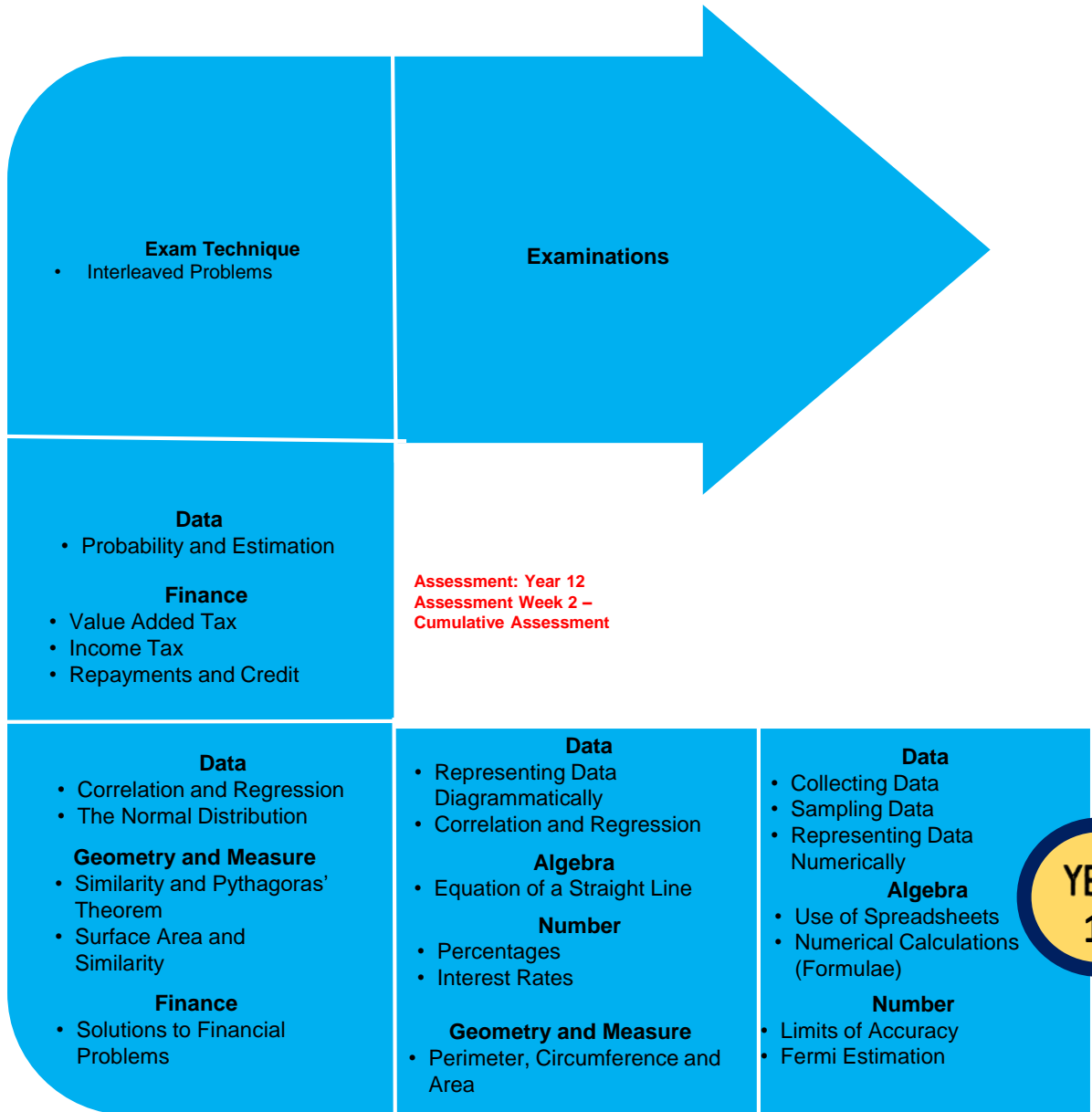
### FURTHER STUDY

### CAREER PATHS

### SKILLS

- Humanities
- Banking/Finance
- Journalism
- Business Operations
- Insurance/Risk

- Reasoning
- Evaluation
- Analysis
- Problem Solving



**YEAR 12**

**MATHEMATICAL ARGUMENT, LANGUAGE AND PROOF**



**MATHEMATICAL PROBLEM SOLVING**



**MATHEMATICAL MODELLING**



# SUBJECT CURRICULUM MAP

## A-Level Further Mathematics

### FURTHER STUDY

- Mathematics Degree

### CAREER PATHS

- STEM subjects
- Finance
- Insurance and Risk
- Data Science
- Computing
- Natural and Life Sciences
- Business and Operations

### SKILLS

- Reasoning
- Evaluation
- Analysis
- Problem Solving

**Summative Mock Examinations 2:** Entire specification coverage due to concluding the course.

### Examination Preparation

#### Further Mechanics

FM5 - Elastic Collisions in two dimensions  
**Core Pure 2**  
 CP2.7 – Methods in Differential Equations  
 CP2.8 – Modelling with Differential Equations

#### Further Mechanics

FM2 - Work, Energy and Power  
 FM3 - Elastic Springs and Strings  
 FM4 - Elastic Collisions in one dimension.  
**Core Pure 2**  
 CP2.4 – Volumes of Revolution  
 CP2.5 – Polar Coordinates  
 CP2.6 – Hyperbolic Functions

**Summative Mock Examinations 1:** (Yr12 A Level Mathematics entire specification content + Further content) – Core Pure CP1.1-CP1.9, CP2.1-CP2.6; Decision D1-D8; Further Mechanics FM1-FM4.

#### Decision

D6 - Linear Programming (CONT)  
 D7 - Further Linear Programming (Simplex Algorithm)  
 D8 - Critical Path Analysis

#### Further Mechanics

FM1 - Momentum and Impulse  
**Core Pure 1**  
 CP1.9 – Vectors  
**Core Pure 2**  
 CP2.1 – Complex Numbers  
 CP2.2 – Series  
 CP2.3 – Methods in Calculus

**YEAR 13**

#### Mechanics

SM2.6 – Projectiles  
 SM2.8 - Further kinematics  
**Pure**  
 P2.3 – Sequences/Series  
 P2.10 - Numerical methods  
 P2.11 – Integration (CONT)

#### Statistics

SM2.2 - Conditional probability  
 SM2.3 - The normal distribution  
 SM2.1 - Regression, correlation and hypothesis testing  
**Core Pure 1**  
 CP1.1 - Complex Numbers

#### Decision

D1 – Algorithms  
 D2 – Graphs and Networks  
**Core Pure 1**  
 CP1.2 – Argand Diagrams  
 CP1.3 – Series  
 CP1.4 – Roots of Polynomials  
 CP1.5 – Volumes of Revolution

#### Decision

D3 - Algorithms on Graphs  
 D4 - Route Inspection Algorithm  
 D5 - Travelling Salesman Algorithm  
 D6 - Linear Programming  
**Core Pure 1**  
 CP1.6 – Matrices  
 CP1.7 – Linear Transformations  
 CP1.8 Proof by Induction

#### Mechanics

SM2.5 - Forces and friction  
 SM1.11 - Variable acceleration  
 SM2.4 - Moments  
 SM2.7 - Application of forces  
**Pure**  
 P2.9 – Differentiation (CONT)  
 P2.11 – Integration

#### End of Year Exams

Exam papers assessing all half term 1-5 content (at the start of the half term 6). Full A Level Mathematics papers used as specification content covered.

#### Yr13 Summative Assessment 1:

(Yr12 A Level Mathematics entire specification content + Autumn 1 HT1 Further content) – Core Pure CP1.1-CP1.5, CP1.6, CP1.7, CP1.8. Decision D1-D6.

#### Pure

P1.14 - Exponentials and logarithms  
 P2.8 - Parametric equations  
 P2.9 - Differentiation

#### Mechanics

SM1.8 - Modelling in mechanics  
 SM1.9 - Constant acceleration  
 SM1.10 - Forces and motion  
**Statistics**  
 SM1.7 - Hypothesis testing

#### Pure

P1.9 - Trigonometric ratios  
 P1.10 - Trigonometric identities  
 P2.5 - Radians  
 P2.6 - Trigonometric functions  
 P2.7 - Trigonometric modelling  
 P1.11 - Vectors  
 P2.12 - Vectors  
**Statistics**  
 SM1.5 - Probability  
 SM1.6 - Statistical distributions  
 SM1.1 - Data collection  
 SM1.2 - Measures of location and spread  
 SM1.3 - Representations of data  
 SM1.4 - Correlation

#### Pure

P1.2 – Quadratics  
 P1.3 - Equations and Inequalities  
 P1.4 - Graphs and Transformations  
 P1.5 - Straight line graphs  
 P1.6 – Circles  
 P2.2 – Functions and Graphs  
 P1.1 - Algebraic Expressions  
 P1.7 - Algebraic methods  
 P2.1 - Algebraic methods  
 P1.8 - The binomial expansion  
 P2.4 - Binomial expansion  
 P1.12 - Differentiation  
 P1.13 – Integration

**YEAR 12**

**Summative Assessment 2:** Pure content (P1.1-P1.14, P2.1-P2.8, P2.12). Statistics content (SM1.1-1.7). Mechanics content (SM1.8-SM1.10).

**Summative Assessment 1:** Pure content (P1.1-P1.8, P1.12, P1.13, P2.1, P2.2, P2.4).

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