

AQA Level 2 Further Mathematics (8365)

Below is a **60-week teaching schedule** designed for **one 60-minute after-school lesson per week over two academic years**. The sequence assumes students are also studying GCSE Higher Mathematics alongside the course and focuses on gradual development, regular retrieval practice and exam preparation. The qualification covers Number, Algebra & Functions, Coordinate Geometry, Calculus, Matrix Transformations and Geometry. [aqa.org.uk], [filestore.aqa.org.uk]

Year 10 (30 lessons)

Autumn Term 1

Week 1 Introduction to Further Mathematics and diagnostic assessment

Week 2 Surds: simplifying and manipulating

Week 3 Surds: rationalising denominators

Week 4 Product rule for counting

Week 5 Function notation and evaluation

Week 6 Domain and range of functions

Week 7 Composite functions

Autumn Term 2

Week 8 Inverse functions

Week 9 Algebraic fractions

Week 10 Algebraic fractions and complex simplification

Week 11 Binomial expansion

Week 12 Pascal's Triangle and applications

Week 13 Factor theorem

Week 14 Polynomial factorisation

Spring Term 1

Week 15 Polynomial equations and roots

Week 16 Completing the square

Week 17 Quadratic graphs and transformations

Week 18 Inequalities (linear and quadratic)

Week 19 Simultaneous equations including nonlinear forms

Week 20 Algebraic proof

Week 21 Recap and mixed algebra assessment

Spring Term 2

Week 22 Coordinate geometry: gradients and equations of lines

Week 23 Parallel and perpendicular lines

Week 24 Midpoints and distance problems

Week 25 Equation of a circle

Week 26 Circle geometry in coordinate form

Week 27 Tangents to circles

Summer Term

Week 28 Introduction to matrices

Week 29 Matrix multiplication

Week 30 Matrix transformations and Year 10 review

Year 11 (30 lessons)

Autumn Term 1

Week 31 Trigonometric identities

Week 32 Exact trig values and advanced applications

Week 33 Trigonometric graphs

Week 34 Transformations of trig graphs

Week 35 Trigonometric equations

Week 36 Advanced trigonometric problem solving

Week 37 Geometry and proof

Autumn Term 2

Week 38 Introduction to differentiation

Week 39 Differentiating polynomials

Week 40 Gradients of curves

Week 41 Tangents and normals

Week 42 Stationary points

Week 43 Increasing and decreasing functions

Week 44 Calculus problem solving

Spring Term 1

Week 45 Functions and graphs review

Week 46 Algebra review: factor theorem and polynomials

Week 47 Algebra review: inequalities and algebraic fractions

Week 48 Coordinate geometry review

Week 49 Trigonometry review

Week 50 Calculus review

Week 51 Matrices review

Spring Term 2

Week 52 Past Paper 1 walkthrough

Week 53 Paper 1 targeted improvement

Week 54 Past Paper 2 walkthrough

Week 55 Paper 2 targeted improvement

Week 56 Mixed exam-style algebra

Week 57 Mixed exam-style geometry and trigonometry

Summer Term

Week 58 Full mock paper and feedback

Week 59 Final revision of weakest topics

Week 60 Exam techniques, problem solving and final preparation

Suggested Lesson Structure (60 minutes)

- 10 mins retrieval practice
- 15 mins teacher input
- 20 mins guided practice
- 10 mins exam-style questions
- 5 mins reflection and homework

This pacing leaves sufficient time for students to master the algebraic content, which forms the largest proportion of the qualification and underpins success in calculus, functions and coordinate geometry. [[savemyexams.com](https://www.savemyexams.com)], [[aqa.org.uk](https://www.aqa.org.uk)]

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Two-Year Programme of Study Tracking Sheet

Week	Topic	Date Completed	✓ Done
1	Introduction to Further Mathematics and Diagnostic Assessment		
2	Surds: Simplifying and Manipulating		
3	Surds: Rationalising Denominators		
4	Product Rule for Counting		
5	Function Notation and Evaluation		
6	Domain and Range of Functions		
7	Composite Functions		
8	Inverse Functions		
9	Algebraic Fractions		
10	Algebraic Fractions: Advanced Simplification		
11	Binomial Expansion		
12	Pascal's Triangle and Applications		
13	Factor Theorem		
14	Polynomial Factorisation		
15	Polynomial Equations and Roots		
16	Completing the Square		
17	Quadratic Graphs and Transformations		
18	Linear and Quadratic Inequalities		

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19	Simultaneous Equations Including Non-Linear Forms		
20	Algebraic Proof		
21	Mixed Algebra Assessment and Review		
22	Coordinate Geometry: Gradients and Equations of Lines		
23	Parallel and Perpendicular Lines		
24	Midpoints and Distance Problems		
25	Equation of a Circle		
26	Circle Geometry in Coordinate Form		
27	Tangents to Circles		
28	Introduction to Matrices		
29	Matrix Multiplication		
30	Matrix Transformations and Year 10 Review		
31	Trigonometric Identities		
32	Exact Trigonometric Values and Applications		
33	Trigonometric Graphs		
34	Transformations of Trigonometric Graphs		
35	Trigonometric Equations		
36	Advanced Trigonometric Problem Solving		
37	Geometry and Proof		
38	Introduction to Differentiation		
39	Differentiating Polynomials		
40	Gradients of Curves		
41	Tangents and Normals		
42	Stationary Points		
43	Increasing and Decreasing Functions		

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44	Calculus Problem Solving		
45	Functions and Graphs Review		
46	Review: Factor Theorem and Polynomials		
47	Review: Inequalities and Algebraic Fractions		
48	Coordinate Geometry Review		
49	Trigonometry Review		
50	Calculus Review		
51	Matrices Review		
52	Past Paper 1 Walkthrough		
53	Paper 1 Targeted Improvement		
54	Past Paper 2 Walkthrough		
55	Paper 2 Targeted Improvement		
56	Mixed Exam-Style Algebra Practice		
57	Mixed Exam-Style Geometry and Trigonometry Practice		
58	Full Mock Paper and Feedback		
59	Final Revision of Weak Topics		
60	Final Exam Preparation and Problem Solving		

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Two-Year Programme of Study Overview

Course Intent

The AQA Level 2 Certificate in Further Mathematics is designed to stretch and challenge high-attaining GCSE mathematicians. It extends algebraic, geometric and analytical thinking beyond GCSE Mathematics and provides an introduction to topics encountered at A Level, including calculus, matrices and advanced trigonometry. The course develops fluency, mathematical reasoning and sophisticated problem-solving skills. [aqa.org.uk], [filestore.aqa.org.uk]

YEAR 10

Autumn Term 1

Surds and Functions

Learning Objectives

Students will:

- Simplify and manipulate surds confidently.
- Rationalise denominators.
- Apply the product rule for counting.
- Understand function notation.
- Determine domains and ranges.
- Calculate composite functions.

Suggested Homework

- GCSE Further Maths textbook exercises on surds.
- Mixed surd fluency questions.
- Online function notation practice.
- Create revision flashcards for key function vocabulary.

Autumn Term 2

Algebra and Functions

Learning Objectives

Students will:

- Calculate inverse functions.
- Simplify complex algebraic fractions.
- Expand expressions using the binomial theorem.
- Recognise patterns in Pascal's Triangle.
- Apply the factor theorem.
- Factorise and solve polynomial expressions.

Suggested Homework

- Factor theorem challenge questions.
- Binomial expansion practice.
- Weekly retrieval quizzes.
- Examination-style questions from past papers.

Spring Term 1

Advanced Algebra

Learning Objectives

Students will:

- Solve polynomial equations.
- Interpret roots of equations.
- Complete the square.
- Analyse quadratic graphs.
- Solve linear and quadratic inequalities.
- Solve simultaneous equations involving non-linear expressions.
- Construct mathematical proofs.

Suggested Homework

- Completing the square exam questions.
- Algebraic proof investigations.
- Mixed algebra GCSE Further Maths questions.
- Independent revision of unfamiliar algebra techniques.

Spring Term 2

Coordinate Geometry

Learning Objectives

Students will:

- Calculate gradients.
- Determine equations of straight lines.
- Use midpoint and distance formulae.
- Understand and apply the equation of a circle.
- Solve problems involving tangents and circles.

Suggested Homework

- Coordinate geometry worksheet.
- Graphing activities using Desmos.
- Examination-style geometry questions.
- Retrieval quiz on Year 10 algebra topics.

Summer Term

Matrices

Learning Objectives

Students will:

- Understand matrix notation.

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- Perform matrix multiplication.
- Use matrices to describe transformations.
- Interpret geometric transformations represented by matrices.

Suggested Homework

- Matrix multiplication practice.
- Transformation investigations.
- End-of-year revision booklet.
- Preparation task for Year 11 trigonometry.

YEAR 11

Autumn Term 1

Advanced Trigonometry and Geometry

Learning Objectives

Students will:

- Use trigonometric identities.
- Apply exact trigonometric values.
- Sketch and interpret trigonometric graphs.
- Transform trigonometric graphs.
- Solve trigonometric equations.
- Apply deductive reasoning in geometrical proofs.

Suggested Homework

- Trigonometric graph sketching.
- Identity simplification tasks.
- Geometry proof questions.
- Examination-style mixed trigonometry exercises.

Autumn Term 2

Introduction to Calculus

Learning Objectives

Students will:

- Understand gradient as a rate of change.
- Differentiate polynomial functions.
- Determine gradients of curves.
- Calculate equations of tangents and normals.
- Find stationary points.
- Interpret increasing and decreasing functions.

Suggested Homework

- Differentiation fluency exercises.
- Tangent and normal problems.
- Stationary point investigations.
- Online calculus revision videos and note-making.

Spring Term 1

Consolidation and Review

Learning Objectives

Students will:

- Strengthen understanding of key algebraic techniques.
- Revisit coordinate geometry concepts.
- Consolidate trigonometry skills.
- Secure understanding of calculus methods.
- Apply matrices confidently.
- Develop resilience in tackling unfamiliar problems.

Suggested Homework

- Topic-based revision tasks.
- Self-assessment using specification checklists.
- Weekly mixed-topic papers.
- Student-created revision resources.

Spring Term 2

Exam Preparation

Learning Objectives

Students will:

- Apply knowledge across all specification areas.
- Develop confidence with exam technique.
- Improve accuracy and efficiency.
- Analyse common examination errors.
- Refine mathematical communication.

Suggested Homework

- Timed past paper questions.
- Error analysis activities.
- Revision of identified weak areas.
- Formula and methods retrieval practice.

Summer Term

Final Revision

Learning Objectives

Students will:

- Demonstrate secure knowledge of all content.

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- Apply advanced problem-solving techniques.
- Use efficient examination strategies.
- Communicate mathematical reasoning clearly.

Suggested Homework

- Full past papers.
- Personalised revision programme.
- Targeted intervention tasks.
- Final knowledge retrieval activities.

Recommended Weekly Homework Structure

For a one-hour weekly lesson, homework should typically require **30-45 minutes** and include:

- 1. Fluency Practice (10 mins)**
 - a. Skills taught during the lesson
- 2. Exam-Style Questions (15-20 mins)**
 - a. Application and problem solving
- 3. Retrieval Practice (5-10 mins)**
 - a. Review of previously taught topics
- 4. Revision Task (5 mins)**
 - a. Flashcards, knowledge organiser updates, or self-quizzing

This approach helps students continually revisit prior content whilst building confidence with the more demanding algebraic and problem-solving aspects of Further Mathematics.