

Cambridge IGCSE Additional Mathematics 0606 Weekly Syllabus Breakdown

Assessment Structure :

- **Paper 1:** Non-calculator, 2 hours, 80 marks, 50% weighting
- **Paper 2:** Calculator, 2 hours, 80 marks, 50% weighting
- **Grades:** A* to E

Assessment Objectives (Equal weighting across both papers) :

- **AO1 Knowledge & understanding:** 45-55%
- **AO2 Analysis & communication:** 45-55%

Estimated Topic Weightings (Based on exam distribution)

Topic Area	Estimated Weighting	Weeks Allocated
Algebra & Functions (Functions, Quadratics, Polynomials, Equations)	35-40%	5 weeks
Calculus (Differentiation & Integration)	25-30%	3.5 weeks
Trigonometry (Circular measure, Trig identities, Equations)	15-20%	2.5 weeks
Coordinate Geometry & Vectors	10-15%	2 weeks
Logarithms & Exponential Functions	8-10%	1.5 weeks
Permutations/Combinations & Series	5-8%	1.5 weeks
Revision & Exam Practice	-	2 weeks

Detailed 16-Week Lesson Plan

WEEK 1-2: FOUNDATIONS - FUNCTIONS & QUADRATICS (35-40% weight)

Week 1: Functions & Their Properties

- Day 1: Function notation, domain, range, one-one & many-one functions
- Day 2: Composite functions ($fg(x)$), inverse functions, conditions for existence
- Day 3: Modulus functions, graphing $|f(x)|$ and $f(|x|)$
- Day 4: Past paper practice: Functions questions (identifying domains, finding inverses)

- Day 5: **Non-calculator focus:** Simplifying composite functions, exact values
- Day 6: Past paper review: Common function notation errors

Week 2: Quadratic Functions & Transformations

- Day 1: Completing the square, vertex form, discriminants
 - Day 2: Graphing quadratics, solving using discriminant analysis
 - Day 3: Quadratic inequalities, solving using graphical methods
 - Day 4: Past paper practice: Quadratics (roots, turning points, inequalities)
 - Day 5: **Calculator skills:** Using graphing to verify solutions
 - Day 6: Past paper review: Discriminant interpretation mistakes
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WEEK 3-4: POLYNOMIALS & ADVANCED ALGEBRA

Week 3: Polynomials & Factor Theorem

- Day 1: Polynomial division, remainder theorem
- Day 2: Factor theorem, solving cubic equations
- Day 3: Finding unknown coefficients given factors/reminders
- Day 4: Past paper practice: Polynomial problems (division, factorization)
- Day 5: **Non-calculator techniques:** Synthetic division methods
- Day 6: Past paper review: Polynomial long division errors

Week 4: Equations, Inequalities & Graphs

- Day 1: Simultaneous equations (linear + non-linear)
 - Day 2: Solving modulus equations $|ax+b| = c$
 - Day 3: Intersection of curves, points of intersection
 - Day 4: Past paper practice: Simultaneous and modulus equations
 - Day 5: **Graphical methods:** Sketching to solve inequalities
 - Day 6: Past paper review: Common algebraic manipulation mistakes
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WEEK 5-6: LOGARITHMS, EXPONENTIALS & COORDINATE GEOMETRY

Week 5: Logarithmic & Exponential Functions

- Day 1: Laws of logarithms, change of base formula
- Day 2: Solving exponential equations ($a^x = b$)
- Day 3: Solving logarithmic equations, modeling growth/decay
- Day 4: Past paper practice: Log/exponential equation solving
- Day 5: **Calculator focus**: Using log functions, avoiding rounding errors
- Day 6: Past paper review: Log law application errors

Week 6: Straight Line Graphs & Coordinate Geometry

- Day 1: Parallel/perpendicular lines, distance formula, midpoint
- Day 2: Coordinate geometry of the circle (center-radius form)
- Day 3: Tangents to circles, solving line-circle intersection
- Day 4: Past paper practice: Circle geometry problems
- Day 5: **Non-calculator**: Finding equations using exact forms
- Day 6: Past paper review: Circle tangent problems

WEEK 7-8: TRIGONOMETRY - PART 1

Week 7: Circular Measure & Radian Applications

- Day 1: Radian measure, arc length ($s=r\theta$), sector area ($\frac{1}{2}r^2\theta$)
- Day 2: Solving problems with circles and sectors
- Day 3: Relationship between degrees and radians, exact values
- Day 4: Past paper practice: Circular measure calculations
- Day 5: **Calculator vs non-calculator**: When to use which?
- Day 6: Past paper review: Sector/segment area confusion

Week 8: Trigonometric Functions & Identities

- Day 1: Sec, cosec, cot functions, graphs & properties
- Day 2: Pythagorean identities, solving basic trig equations
- Day 3: Compound angle formulas, double angle formulas
- Day 4: Past paper practice: Trig identity proofs & equation solving
- Day 5: **Skills focus**: Manipulating identities flexibly

- Day 6: Past paper review: Common sign errors in identities
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WEEK 9-10: TRIGONOMETRY - PART 2 & SERIES

Week 9: Advanced Trigonometry

- Day 1: Expressing $a\cos\theta + b\sin\theta$ in form $R\cos(\theta\pm\alpha)$ or $R\sin(\theta\pm\alpha)$
- Day 2: Solving equations using R-formula, max/min problems
- Day 3: Sine rule, cosine rule, area of triangle ($\frac{1}{2}ab\sin C$)
- Day 4: Past paper practice: R-formula applications
- Day 5: **Calculator verification**: Checking R-formula solutions
- Day 6: Past paper review: Max/min trig problem strategies

Week 10: Permutations/Combinations & Series

- Day 1: Permutations (nPr), factorial notation, arrangements
 - Day 2: Combinations (nCr), selection problems
 - Day 3: Binomial expansion $(a+b)^n$, general term
 - Day 4: Past paper practice: Counting problems & binomial expansions
 - Day 5: **Non-calculator**: Expanding binomials manually
 - Day 6: Past paper review: Distinguishing permutations vs combinations
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WEEK 11-12: VECTORS & CALCULUS FOUNDATIONS

Week 11: Vectors in Two Dimensions

- Day 1: Vector notation, magnitude, direction, addition/subtraction
- Day 2: Position vectors, vector geometry (parallel, collinear points)
- Day 3: Applications to kinematics, relative velocity
- Day 4: Past paper practice: Vector geometry problems
- Day 5: **Calculator skills**: Finding magnitudes accurately
- Day 6: Past paper review: Vector collinearity problems

Week 12: Differentiation - Part 1

- Day 1: First principles, basic differentiation rules

- Day 2: Product rule, quotient rule, chain rule
 - Day 3: Differentiation of trig, log, exponential functions
 - Day 4: Past paper practice: Finding derivatives and gradients
 - Day 5: **Non-calculator**: Differentiating from first principles
 - Day 6: Past paper review: Chain rule application errors
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WEEK 13-14: CALCULUS - APPLICATIONS

Week 13: Differentiation - Part 2 & Applications

- Day 1: Increasing/decreasing functions, stationary points
- Day 2: Maxima/minima problems (optimization)
- Day 3: Rate of change problems, connected rates
- Day 4: Past paper practice: Optimization and rate problems
- Day 5: **Calculator focus**: Solving derivative equations
- Day 6: Past paper review: Optimization strategy

Week 14: Integration & Applications

- Day 1: Indefinite integration as reverse differentiation
 - Day 2: Definite integration, area under curves
 - Day 3: Integration of trig, exponential functions
 - Day 4: Past paper practice: Area calculations and integration
 - Day 5: **Calculator skills**: Evaluating definite integrals
 - Day 6: Past paper review: Finding limits of integration
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WEEK 15-16: REVISION & MOCK EXAMS

Week 15: Intensive Past Paper Practice

- Day 1: **Full Paper 1 mock** (non-calculator, 2h) + marking
- Day 2: **Full Paper 2 mock** (calculator, 2h) + marking
- Day 3: Error analysis: Identify top 5 weak topics
- Day 4: Targeted revision: Functions & Calculus

- Day 5: Targeted revision: Trigonometry & Vectors
- Day 6: Formula recall & common proof techniques

Week 16: Final Preparation

- Day 1: Command words workshop (solve, prove, show, find)
- Day 2: Exam technique: Time management (1.5 min per mark)
- Day 3: **Final Paper 1 mock** (exam conditions)
- Day 4: **Final Paper 2 mock** (exam conditions)
- Day 5: Review of final mocks, confidence building
- Day 6: Light revision, strategy session, Q&A

Past Paper Integration Strategy

1. **Daily practice:** 2-3 problems per sub-topic from topic-wise compilations
2. **Weekly full paper sections:** Every Friday/Saturday dedicated to timed practice
3. **Calculator vs Non-calculator:** Alternate practice between Paper 1 and Paper 2 style
4. **Progressive difficulty:** Start with routine AO1 questions, then AO2 problem-solving
5. **Cumulative testing:** Every 2 weeks, mixed topic tests covering all topics taught

Key Resources:

- **Official syllabus:**

for 2025-2027

- **Past papers:** 2019-2024 series (both 0606 and 4037 for extra practice)
- **Question banks:** Revision Village topic questions
- **Formula sheet:** Memorize all formulas not provided in exam

Exam Tips:

- **Paper 1** (non-calculator): Focus on algebraic manipulation, exact values, and proof techniques
- **Paper 2** (calculator): Complex calculations, applications, and verification of answers
- **Common pitfalls:** Sign errors in identities, forgetting \pm in square roots, misapplying chain rule

- **Success factor:** Strong algebra foundation is crucial - spend extra time on Weeks 1-4 if needed