Additional Mathematics (A-Math) Syllabus Guide & Study Checklist

Aligned to Singapore-Cambridge GCE O-Level Additional Mathematics (Syllabus 4049). Updated 15 Dec 2025.

Syllabus snapshot	
Exam scope	Three strands: Algebra; Geometry & Trigonometry; Calculus.
Assessment focus	AO1 Knowledge/Skills (35%), AO2 Application/Modelling (50%), AO3 Reasoning/Communication (15%).
Paper format	Paper 1: 2h 15m, 12-14 questions, answer all, 90 marks (50%). Paper 2: 2h 15m, 9-11 questions, answer all, 90 marks (50%).
Calculator	Approved calculator allowed in both papers. Non-exact answers typically to 3 s.f.; angles to 1 d.p. (unless question states otherwise).

1) What is the A-Math syllabus?

Additional Mathematics extends O-Level Mathematics and trains stronger algebraic manipulation, reasoning, and modelling. It is widely used as a bridge to A-Level H2 Mathematics and many STEM-related pathways.

2) How to access official MOE/SEAB information (in 3 steps)

- Download the SEAB 4049 syllabus PDF and read: aims → assessment objectives → scheme of assessment → subject content → formulae/notation.
- On SEAB's O-Level pages, check the syllabus listing for your year and the approved calculator list (plus rules and key dates).
- On MOE's syllabus page, download the latest Mathematics / Additional Mathematics syllabuses (useful for curriculum context and topic progression).

Quick links (official):

- SEAB GCE O-Level (Private Candidates) hub
- SEAB O-Level syllabuses (Private Candidates 2026)
- SEAB O-Level syllabuses (School Candidates 2025)
- MOE Secondary syllabus downloads

5-minute syllabus reading hack: When you see a topic, ask: (1) what skills? (2) what common traps? (3) how is it tested under time?

Topic map (organised by the 3 strands)

Use this as a revision checklist. If a topic feels shaky, treat it as a high-priority gap.

Algebra

- Quadratic functions: completing the square; max/min; always positive/negative conditions.
- Equations & inequalities: discriminant conditions; tangency/intersection; quadratic inequalities; simultaneous (linear + quadratic).
- Surds: operations; rationalising; equations involving surds.
- Polynomials & partial fractions: factor/remainder theorems; factorisation; solving cubics; decomposition.
- Indices, exponentials & logarithms: laws, graphs, solving equations (incl. change of base).
- Binomial expansion: (a+b)^n for positive integer n.

Geometry & Trigonometry

- Trigonometry: identities, formulae; graphs/transformations; solving trig equations in a given domain.
- R-form / rewriting forms as required by the syllabus.
- Coordinate geometry: straight line, circle, tangents/normals; intersections and distances.

Calculus

- Differentiation: rules; tangents/normals; stationary points; max/min; rate of change; kinematics.
- Integration: reverse differentiation; definite integrals and area; area between curves; kinematics links.

High-impact exam technique checklist

Marking & accuracy

- [ ] I show essential working (not just answers). Method marks matter.
- [ ] I state domains/intervals clearly (logs, trig, calculus).
- [ ] I check for invalid values (division by zero, log arguments, square roots) and extraneous roots.
- [ ] I keep accuracy consistent (3 s.f. for non-exact; angles 1 d.p., unless instructed otherwise).
- [ ] I keep an error log and redo those questions weekly.

Evidence-based study moves that actually work

Two techniques repeatedly rated as high-utility are **practice testing** (retrieval) and **spaced practice**. In A-Math, this means doing questions without notes, then revisiting the same skill across multiple days.

- After learning a method, close notes and do 3-5 questions from memory (then correct).
- Space similar skills across the week (do not block everything in one day).
- Interleave topics in one session so you practise choosing methods (like the real paper).
- Keep a 'why it works' note: one sentence explaining the key idea behind each method.

A simple 6-week plan (adjust to your exam date)

Phase	Goal	What to do
Weeks 1-2	Fix foundations + close gaps	Rebuild algebra; one topic per day; 20-30 questions; start an error log.
Weeks 3-4	Exam-mode skill building	Mixed topical sets; 1 timed mini-paper/week; review wrong questions next day.
Week 5	Full-paper stamina	2 full timed papers (P1 + P2). Analyse time sinks and repeated mistakes.
Week 6	Polish + confidence	Target weakest 3 topics; redo error-log questions; focus on presentation + accuracy.

Mini checklist before every timed practice

- [ ] I know my time sinks and I have a fallback method.
- [ ] I can do core algebra steps cleanly (factorise, complete square, change base, partial fractions).
- [ ] I will skip and return if stuck (protect time).

SEC exams note: MOE has announced the SEC examinations will replace N- and O-Levels from 2027. Always check the latest SEAB/MOE pages for the most current syllabus and paper format.

- MOE infosheet (SEC from 2027)

How we want the best for our A-Math students

- We teach from first principles so students understand the 'why', not just steps.
- We build confident algebra habits: neat working, correct notation, fewer careless errors.
- We train exam judgement: choose the right method fast under time pressure.
- We use an error-log system: targeted drills, not random worksheets.

Why have A-Math tuition with BukitTimahTutor.com?

What you get

- [ ] Small-group lessons (3 pax) for high attention, practice volume, and fast feedback.
- [ ] Experienced tutors focused on SEC/O-Level A-Math outcomes: concept clarity + exam performance.
- [ ] Personalised gap-fixing plan prioritised by marks and time impact.
- [ ] Homework checked properly (workings matter) + clear roadmap to A1/A2.

Ready to improve?	WhatsApp +65 88231234 (or scan the QR code) to book a consultation. Tell us your level (Sec 3/4), school, and your current weak topics.

References

• SEAB. Additional Mathematics (Syllabus 4049) for examination in 2026. https://www.seab.gov.sg/files/O%20Lvl%20Syllabus%20Private%20Cddts/2026/4049_y26_sy.pdf

• MOE. Curriculum for secondary schools - syllabus downloads. https://www.moe.gov.sg/secondary/schools-offering-full-sbb/syllabus

• MOE. Infosheet on SEC examination timetable (from 2027). https://www.moe.gov.sg/news/press-releases/20240304-infosheet-2-full-sbb-related-changes-on-sec-examination-timetable-polytechnic-year-1-admission-criteria

• Dunlosky, J. et al. (2013). Improving Students' Learning With Effective Learning Techniques. DOI: 10.1177/1529100612453266

• Roediger, H. L., & Karpicke, J. D. (2006). Test-enhanced learning. DOI: 10.1111/j.1467-9280.2006.01693.x