Making Your Brain Work for You!

Your brain is naturally lazy - it likes to save energy by forgetting what it doesn't see as important.

The trick is to "trick" it into caring: new memories stick better when you connect them to emotion (fun, pride, humour, surprise) and when you repeat them over time.

Make a topic feel meaningful or memorable, and then revisit it regularly - that's how you get recall ready for exams.

Rest well

- Sleep isn't "lost time" - it's when your brain **consolidates learning**. During deep and REM sleep, the brain replays and strengthens the connections you made during study
- Without enough rest, your recall is shaky and you're more likely to blank in the exam, even if you studied hard!
- **Practical Tips:** Aim for 7-9 hours. If you can, do a short review before bed - your brain will literally rehearse it while you sleep. Power naps (20-30 min) can also boost focus when revising long hours

Fuel your brain

- Your brain runs on glucose and water, so what you eat and drink directly affects your **thinking speed and focus**
- Skipping meals or living on energy drinks and junk food leads to crashes, brain fog, and lower problem-solving ability
- **Practical tip:** Go for steady-release energy: whole grains, fruit, nuts, eggs, and veggies. Keep a water bottle nearby - **even mild dehydration can reduce concentration**. Small, balanced meals beat one heavy meal that makes you sleepy

Put simply: **well-rested, well-fuelled students outperform tired, dehydrated ones**, even if study hours are the same.

Making it emotional in study doesn't mean turning every maths formula into a tear-jerker. It means **tying the content to something that matters to you** so your brain tags it as important. Here are some practical ways for you to explore:

Personal Connection

- **Tell yourself a story** around the problem: imagine the parabola as a rollercoaster you're riding, or probability as betting on your favourite team.
- Link abstract maths to **your goals** (e.g., "if I nail these financial maths questions, that's one step closer to my ATAR target and my future course").

Humour & Play

- Doodle or give equations **personalities** (a surd as a "wild root" that can't be tamed, absolute values as "double-sided mirrors").

Surprise & Challenge

- Set up **mini challenges** ("Can I beat my time from yesterday?").
- Reward yourself when you succeed (small treat, quick break). The brain associates success with pleasure.

Social & Emotional Links

- Teach a friend (or even a parent/pet/even a chair) - explaining sparks confidence and humour, which makes recall stronger.
- Discuss tricky questions in a group; shared laughter or "aha!" moments are sticky memory markers.

Big idea: If a question makes you *feel* something (funny, proud, challenged, connected), your brain flags it as worth keeping. Pair that with **repetition** (space it over hours/days), and it'll be ready for you in the exam.

Effective HSC Maths Study Sequence

KIP HSC Maths Resources (papers, solutions and marker notes)

https://mylearn.une.edu.au/course/section.php?id=474977

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1) Pick & Plan (2-3 min)

- Choose a weak topic. Pick one past-paper question (note its marks)
- Set a timer ≈ **1.5–2 min per mark**. Start with **no notes** ("blind start")
- Skim parts (a)/(b)/(c). Jot the formulas/steps you'll likely need

2) Attempt Under Exam Conditions

- Write the formula before substituting; lay out steps for **method marks**
- Draw and/or annotate diagrams/graphs
- State domains/conditions/units; box the final result
- If stuck >90s: leave a breadcrumb (last correct line), star it, move on

3) Check & Verify (3-5 min)

- Back-substitute / differentiate / quick sketch to sanity-check
- Confirm mode (deg/rad), rounding at the **end**, and units
- If you used a calculator, validate with a **second method** or reasoning

4) Error Analysis (2-4 min)

- Have a look at the worked solution (either HSC NESA or The Maths Studio video)
- Look at the HSC marker notes to see what aspects the HSC markers identified for this type of question
- Tag: **Red** (struggled) / **Amber** (minor slips) / **Green** (solid)
- Classify: **Concept gap** | **Procedure/algebra slip** | **Careless/reading** | **Time management**
- Write one **fix sentence** (what you'll do differently)

Capture Learning & Schedule Revisits

- Note: "What I learned", "One similar to try next", key identity to memorise
- Revisit: **tonight** (quick re-attempt) → **2–3 days** (full redo) → **7 days** if Red/Amber
- On revisits, also if possible find and do a **variant** (another similar HSC question / change numbers / reverse the task)

Extras that save marks

- Use the **marks-per-step** idea: every mark corresponds to a justified step - make them visible
- Track common **algebra traps** (expansion, cancellation, negatives, indices/surds, restrictions)

Flash Cards

- Flash cards force your brain to **actively recall** (instead of just re-reading notes), which is one of the strongest ways to beat your brain's "lazy" default.
- They work especially well for **processes, methods, diagrams, and key terminology**. On the front: a prompt or diagram. On the back: the steps, formula, or definition.
- Keep them short, sharp, and portable - you can flip through them in a spare five minutes.
- **Pro tip:** Mix them up (shuffle the deck) and say the answers out loud - this makes recall stronger under exam pressure.