"Real understanding means you can spot a pattern before the teacher points it out."

You open your maths file at 10 pm, red pen ready, and stare at a page of undone kinematics.

What one thing can you do in the next two minutes that improves the rest of the night?

This article answers that question seven times.

1 The IP Track at a Glance

- Length & goal Six years straight from Sec 1 to JC 2 (or IB Yr 6 / NUS High Yr 6).
- Skip an exam No O-Levels in Year 4; final credential is A-Level, IB Diploma or NUS High Diploma.
- Who gets in Top ≈ 10 % of each PSLE cohort—about four thousand students a year.
- **Style** More research and CCAs, but the syllabus is wider and moves faster.

The workload feels abstract only until the first common test hits.

The seven habits below are concrete guard-rails.

2 Seven Habits → Seven Micro-Routines

Habit	Why it helps	2-minute micro-routine	What it looks like
Spot Patterns	Cuts guess-work in algebra, graphs or titrations.	Dot & colour pass – put a • next to anything that repeats $\ge 3 \times$ and give each recurring item its own highlighter colour.	<i>Chem:</i> three pink dots on identical 25.00 cm ³ readings.
Build a Model	Turns a word wall into one clean diagram or equation.	One-sketch rule – draw one picture (strip diagram, free-body, flow chart) on	<i>Physics:</i> sketch forces on a block before writing F = ma.

		a Post-it <i>before</i> writing any algebra.	
Break It Down	Keeps big problems from feeling overwhelming.	1-3-5 break-plan – jot 1 recall, 3 atomic steps, then spend 5 min on step 1 only.	<i>Essay:</i> 1 thesis, 3 points, 5 min to draft intro.
Self- Check	Catches sign slips and unit mix-ups early.	Traffic-light margin – every 3 lines mark ✓ (green), ? (amber) or × (red). Stop at × and fix.	<i>Math:</i> find a sign error after × and redo two lines, not two pages.
Connect the Dots	Recycles tricks across subjects.	Analogy hunt – name two earlier topics with the same shape, then state one difference.	<i>Bio:</i> enzyme-rate curve vs physics resistance curve.
Big Picture First	Stops premature symbol-chasing.	Headline test – write the answer you expect in plain English first; replace words with symbols only when needed.	"Distance <i>s</i> after 3 s given u = 4 m/s, a = −1 m/s²."
Shuffle Practice	Builds recall under exam scramble.	Tiny interleave – pick one anchor topic and slip in 1– 2 unrelated problems every 15 min.	Worksheet: Q1-4 kinematics, Q5 chem equilibrium, Q6 kinematics.

3 Do-Along Worked Examples

3.1 Maths – Telescoping Series

Try first

Find $S_n = \sum_{k=1}^n 1/[k(k+1)]$. Write the first three partial sums before reading the solution.

Solution

- 1. Dot & colour highlight the repeated 1 in the numerators.
- 2. One-sketch split each term: 1/k 1/(k+1).
- 3. Terms cancel domino-style; only first and last survive.
- 4. Result: 1 1/(n + 1).

3.2 Physics – Same Question, Two Models

A stone is flicked up at 15 m/s. When does it return to the hand? **Pause & predict before checking the answers**.

Model 1 (Kinematics) Solve $0 = ut + 0.5at^2 \rightarrow 3.1$ s. *Model 2 (Energy)* Use $\frac{1}{2}mv^2 = mgh$. Find peak time, double it $\rightarrow 3.1$ s.

3.3 Chemistry – Haber Pressure Trick

Self-Check Predict argon's effect, then read.

Adding argon at constant pressure hardly shifts $N_2 + 3H_2 \rightleftharpoons 2NH_3$: all partial pressures drop together, so the forward-to-back ratio stays the same.

4 Subject-Rotating Vignettes

Habit	Maths	Physics	Lit/Humanities
Break It Down	Prove a vector identity via two lemmas.	Split airplane drag-lift Q into horizontal vs vertical tables.	Split a 12-mark DBQ into provenance/ message/context.
Self- Check	After each derivative, swap $x \rightarrow 0$ to sanity- check.	After plugging numbers, estimate magnitude: ~10 m or 10 km?	Cover the quote; can you still paraphrase tone?

Switching subjects shows the habit is general, not STEM-only.

5 Mini-Failure Story

Jia Hui lost 5 marks for writing m/s as a unit for acceleration.

She now writes the unit *before* the value, then back-fills numbers—traffic-light margin guards the habit.

6 7-Day Habit Sprint

DayFocusMission (≤ 15 min)1Traffic-light margin Use it on tonight's maths homework.

- 2 One-sketch rule Apply to tomorrow's chem worksheet.
- 3 Dot & colour pass Re-annotate yesterday's physics notes.
- 4 Headline test Summarise an English essay before drafting.
- 5 Tiny interleave Mix 2 bio MCQs into a math drill.
- 6 Analogy hunt Link today's graph to two past topics.
- 7 1-3-5 break-plan Plan weekend revision, photograph your sticky notes.

Tick each box, post a pic to your class chat, tag a friend to try the next day.

7 Daily & Weekly Blueprint

- Weeknight micro-blocks 2 × 45 min problem sets + 15 min habit review.
- Weekend long block 3 h mix: past paper, CCA, rest.
- Journal in 30 s Habit used | snag point | tweak.
- Shuffle rule No two sessions in a row on the same subject.

8 Starter Toolkit (quick-demo links)

Need	Free tool + setting	Habit reinforced
Graphs & motion	Desmos with <i>Sliders</i> template	Big Picture + Build Model
Flashcards	Anki + <i>Cloze Overlapper</i> add-on	Shuffle Practice
Past papers	TestPapersFree filter "common errors"	Self-Check

9 Simple Practice Loop

- 1. Pick one habit for the session.
- 2. Work a mixed set.
- 3. Journal the snag and the fix.
- 4. Teach a friend before bedtime.
- 5. **Revisit** the same set after 1, 7 and 21 days.

Small loops, spun many times, beat heroic overnight crams.

10 Read More

- How to Solve It George Pólya
- Mathematical Problem Solving Alan Schoenfeld
- *Peer Instruction* Eric Mazur