Epistemic Habits

Guardian Reading *— practical epistemic toolkit (every day)*

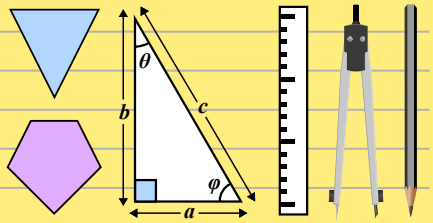
contradiction is how we learn. memorization is primarily willpower, but contradiction requires **reconciliation** and cognitive dissonance resulting in memory formation. memorization requires **endurance**. checking requires correction and accuracy. during practice, we use reference materials.

Student Reading *— morning epistemic stance (1-5 minutes)*

ES†	**Eleventy check**	verify errors, data, and claims, and check independent sources.
	Exhaustively enumerate	list all possibilities, cases, or counterexamples before concluding.
MS†	**Seek contradiction**	look for data or arguments to challenge or falsify statements.
	Trace provenance	check dictionary, origin, intention of claims, sources, and data.
	Quantify uncertainty	measure where knowledge is uncertain or probabilistic.
HS†	**Model divergence**	build simplified representations, test alternatives against reality.
	Recursively reflect	drill down examining reasoning for bias or error.
	Test extremities	test assumptions in edge cases or extreme conditions.
	Document theory	carefully trace and organize your reasoning for review.
	Iteratively refine	accept that understanding evolves and update continuously.
HL†	**Verify accuracy**	critically doubt previously constructed models or answers.

Student Reflection *— afternoon reflective check-in (5-20 minutes)*

- Which habits did you use and how did you apply them?
- How did you use contradiction to reconcile conflict?
- How did you use divergence during problem-solving?
- What would you do differently if you were to repeat?
- What were you uncertain about that needs reconciliation?
- Which habits reinforced each other, and which conflicted?



Student Practice *— evening practice session (20-120 minutes)*

- Distill a complex idea into a ***one-sentence summary, diagram, sketch or journal entry***.
- Choose a habit and document how it applies to an assignment problem.
- Choose a problem and try to apply each habit in steps and reflect on outcomes.
- Choose an argument and practice evaluating it from multiple perspectives.
- Choose categories and try to list eleven or more things to practice divergence.
  - ***Examples in any order****: car models, bird species, spoken languages, …*
  - ***Examples in specific orders:*** *numbers, alphabet, elements of the periodic table, …*
    Examples by category: *musical instruments (strings, percussion, brass), …*
- Endurance test: remember in manageable chunks and progressively chain mnemonics. e.g.
  - ***(H,He,Li,Be*** *— Hydrogen, Helium, Lithium, Beryllium)*
  - ***(B, C, N, O*** *— Boron, Carbon, Nitrogen, Oxygen)*
  - ***(Na, Mg, Al, Si*** *— Sodium, Magnesium, Aluminum, Silicon)*

† **ES** = Elementary School, **MS** = Middle School, **HS** = High School, **HL** = Higher Level