

WATER: THE RESOURCE BEHIND THE RESOURCES

One idea must land: Australia's water problem isn't just WHERE it is — it's WHEN it arrives. Average is a liar.

WE ARE LEARNING

Where Australia's water actually is, how unevenly it is shared, and why it varies — the secret ingredient behind every operation on the Lesson 2 map.

CURRICULUM • VERBATIM

"The location, distribution and variability of Australia's water resources" — Revised WA Curriculum, Y7 Geography, Water in Australia (SCSA, implementation 2026).

SPARK THE RAINFALL WAGER

- Anchor: Perth $\approx$ 730 mm/yr (long-term average). Students lock estimates + confidence for Broome, Marble Bar, Kalgoorlie BEFORE any teaching.
- Reveal (long-term averages, Bureau of Meteorology): **Broome $\approx$ 615 mm • Marble Bar $\approx$ 360 mm • Kalgoorlie $\approx$ 265 mm.**
- The rule-breaker: tropical Broome is nearly as "wet" as Perth — then the catch: almost all of it lands December–March. Nine dry months on a "good average." Say the line and make them finish it all year: **average is a... liar.**

CORE LOCATION • DISTRIBUTION • VARIABILITY

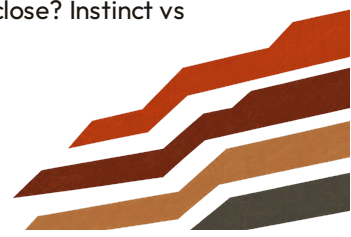
- Three ideas, one map: WHERE water sits (the tropical north, the eastern seaboard, the south-west corner — and the dry heart); WHO it's shared between (spoiler: not where the mines are — hold last lesson's map next to a rainfall map and let them see the mismatch); WHEN it arrives (Broome's three-month year; rivers that are dust in September and dangerous in February).
- Then the industry hook, one line only: every operation on their map drinks — processing, dust control, people. The where-it-comes-from problem is tomorrow's lesson; today is where water IS.

WORKSHOP THE WATER FILES

- Teams of 3–4. Four evidence cards (printable), face down. For each file: students PREDICT reliable/risky in the handout first, then open the card, then confirm or revise with a one-line defence. Revision is rewarded — say so.
- Close with the Advisor's Verdict: rank all four for the next 50 years. Any order defended with evidence stands; an undefended "right" order doesn't.

LAND IT EXIT TICKET + CALIBRATION

- Broome proof of "average is a liar"; one source-and-region from memory; the Pilbara prediction (seeds Lesson 4's scarcity story); and the calibration check — were their "sure" estimates actually close? Instinct vs data is an advisor's first lesson.



DISCUSSION GUIDANCE — THE FILES AREN'T EQUAL, AND THAT'S THE POINT

FILE	WHERE THE ARGUMENT USUALLY LANDS
South West dams	Feels reliable (it's Perth's backyard) — but the evidence card shows rainfall in the south-west has declined for decades, which is exactly why Perth turned to the ocean. “Reliable-but-shrinking” is a sophisticated verdict; praise it.
Lake Argyle / the Ord	Enormous volume, wrong address — a giant in the far north, thousands of kilometres from the people and mines that might want it, refilled by a wet season that arrives all at once.
The Goldfields pipeline	The engineered answer: when the driest region got a gold rush, WA pumped water $\approx$ 560 km uphill from Mundaring — in 1903. Reliable, but one artery serving a whole region invites the question: what if it breaks?
Pilbara groundwater	Hidden, ancient, locally finite — some aquifers refill over centuries (their Lesson 1 It-Depends card, all grown up). Fine this decade; the 50-year question is the hard one.

PROBING QUESTIONS

- “Where does the water in YOUR tap come from, right now?” (Most won't know — perfect humility hook.)
- “Is a river that floods once a year reliable? For whom?”
- “Why would you build a 560 km pipe in 1903 — what did the Goldfields have that made it worth it?”
- “What does an average hide?”

DIFFERENTIATION

Support: evidence cards have their key fact pre-boxed; pairs read one file each and teach the team.

Extend: the fifth file — desalination. Perth now drinks the ocean through two desal plants: is water made from seawater “renewable”? What would an advisor need to know? (Energy is the thread worth pulling.)

RUNNING SHORT — THE CUT LINE

Drop File 4 (Pilbara groundwater — Lesson 4 covers that ground properly). Protect the wager, the verdict ranking and the exit ticket.

MISCONCEPTIONS TO WATCH

“North = dry” (Broome breaks it) · “rain = supply” (no catchment, no storage, no supply) · “the pipeline must be modern” (1903 — older than the ute).

Figures are long-term Bureau of Meteorology averages, rounded for teaching; pipeline $\approx$ 560 km per Water Corporation. If students fact-check you, they'll find you're right — that's the brand.

