Case File No. 01

CASE FILE: HOW MUCH WATER CAN WE ACTUALLY DRINK?



A sample case file from the Water Academy · Water Detectives (ages 9–12)

90 minutes · classroom or kitchen table · household materials

Downloaded from passionsea.com — try it tonight.

THE CASE

You live on a blue planet. From space, Earth looks like it has more water than anything else. So why do scientists, governments, and the United Nations warn about water shortages? How much of Earth's water can a human actually drink?

Make your prediction before you begin:
"I think humans can use _____ % of all water on Earth."

THE INVESTIGATION — THE BUCKET DEMONSTRATION

YOU NEED

- A large bucket or basin
- A measuring cup (or any small cup marked as "100 ml")
- A tablespoon
- An eyedropper or teaspoon
- A notebook — this is your case file

THE KNOWN QUANTITIES (approximate, widely published)

- All the water on Earth = the full bucket (100%)
- Salt water (oceans) ≈ 97.5%
- Fresh water ≈ 2.5%

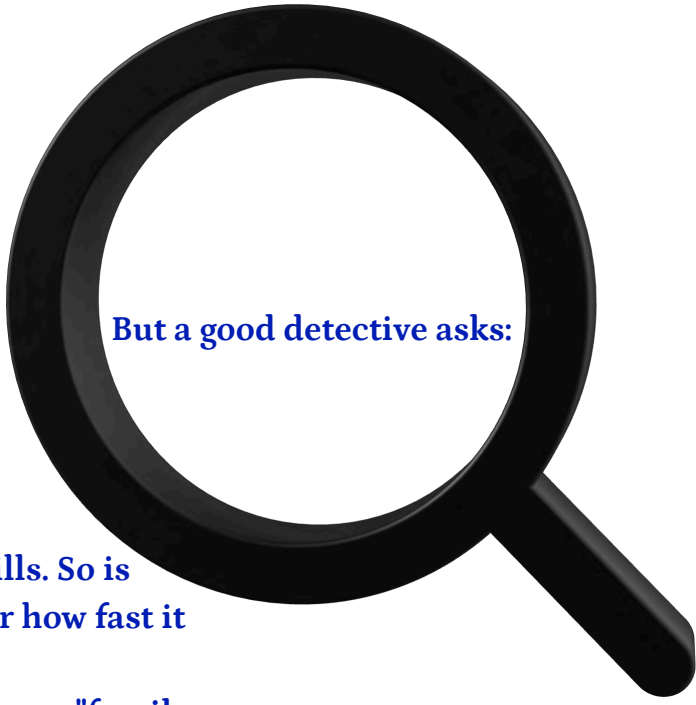
STEPS — DO THE MATHS WITH YOUR HANDS

1. Show the full bucket. "This is ALL the water on Earth."
2. Remove 97.5% — almost everything. Pour it out. That is the oceans: too salty to drink.
3. What remains is your fresh water — roughly 2.5%.
4. Of that, most is locked in glaciers and ice caps. Scoop most of it out. What remains is groundwater and surface water.
5. Now the teaspoon: of what remains, only a fraction is the clean, accessible surface water — rivers and lakes — that humans and ecosystems actually rely on.
6. Look at your teaspoon. Look at your bucket.

Record what you observed in your case file. Compare with your prediction. Were you close?



THE COMPLICATION — WHERE THE SIMPLE VERSION BREAKS



The demonstration says 2.5%.

But a good detective asks:

- Water is a cycle — the teaspoon refills. So is "shortage" about how much exists, or how fast it refills where people need it?
- Some of the world's biggest cities pump "fossil water" — underground reserves that refill over centuries. If you pump a bucket that took a thousand years to fill, what happens?
- Countries trade "virtual water" inside food and clothes. When you eat an imported steak, whose bucket did it come from?

The simple number is true. It is just not the whole story. Finding where a simple story breaks is what scientists do — and it's a promotion, not a problem.

THE STAKE

Over two billion people live in countries experiencing high water stress. Agriculture uses roughly 70% of the fresh water humans withdraw. The teaspoon is shared by eight billion people, every industry, and every ecosystem — and the weather is changing where and when it refills.

CLOSE THE CASE (choose one)

▸ **THE HOME AUDIT** — For one day, log every time your household uses water: every tap, flush, shower, load. Where is the teaspoon going? Report one change your family could make.

▸ **THE RESEARCH BRIEF** — Pick one water-stressed country. Find: main water source, main use, main threat. Write 150 words. Then write the one question you couldn't answer — that question is usually the best one.

▸ **THE ARGUMENT** — "Farmers should get priority when water is scarce." Argue FOR and AGAINST, 100 words each. Which was harder to write?



THIS IS ONE OF SEVEN CASE FILES.

In the full Water Academy, detectives investigate where water goes when it disappears, who owns the water underground, what's hiding in “clean” sand, and what's actually inside us — with full facilitation guides, materials, and structured assessment.

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