

Five Colours in Low Water

PASSAGE · NON-FICTION

SKILLS TRAINED

Working memory

Delayed recall

Critical analysis

HOW TO USE THIS SHEET

About 25 minutes

- 1 Read the passage twice, slowly. Take about seven minutes.
- 2 Turn to the next page and cover this one. No looking back.
- 3 Write what you remember, then mark it on the last page.

For about five months of the year, a river in central Colombia turns red. Not rust-red or muddy red, but the deep wine colour of a stained-glass window, running in ribbons between pale rock. The river is Caño Cristales, in the Serranía de la Macarena, and the colour is alive.

It belongs to a plant called *Macarenia clavigera*, a riverweed that grips bare stone with a disc-shaped holdfast instead of roots in soil. For most of the year it is an unremarkable olive green. When the water drops far enough for sunlight to reach it strongly, but not so far that the plant is left dry, it floods itself with red pigment and the riverbed lights up. Yellow sand, green weed, black rock, blue water and that red together give the river its nickname — the river of five colours.

The plant is fussy because the river is strange. Caño Cristales runs over quartzite of the Guiana Shield, some of the oldest rock on the continent, and quartzite gives up almost nothing to the water passing over it. There is virtually no sediment and virtually no dissolved nutrient. That is why the water is so clear, and it is also why nothing much grows there except a plant adapted to living on rock in bright light. A richer, muddier river would never show its own bed at all. Clear water is normally a sign that a river is close to lifeless, and here it is exactly that — the display depends on the poverty of the stone.

The timing is narrow. In the heavy rains the river runs deep and fast, the light cannot get down, and the weed stays green. In the driest weeks stretches of rock are exposed and the plant pales and dies back. The display sits in the window between the two, roughly from the middle of the year into November, and it shifts from year to year with the weather.

Almost nobody saw it. The Macarena was difficult to reach and, for decades, effectively closed to outsiders; the nearest town, La Macarena, is served by a small airstrip rather than a road worth driving. Organised visiting began only around 2010. Then photographs of the red river travelled, and the arithmetic of the place changed completely.

The rules now are unusually strict. Visitors go in guided groups, group sizes and daily numbers are capped, parts of the river are closed in rotation, and nobody is allowed into the water wearing sunscreen or insect repellent, because the oils that protect a swimmer will kill a plant whose entire body is in contact with the water. People swim where they are told to swim and walk barefoot on the rock. Guides also carry out what visitors bring in, down to fruit peel, since a riverbed with no nutrient in it is an easy place to change by accident.

Whether this is enough is genuinely argued. One case is that the rules are working and that visitors are the reason: the fees pay guides, boatmen and wardens from La Macarena, and a plant that earns a town its living has defenders it would not otherwise have. The other case is that a species with one short season and a tolerance measured in centimetres of water is a poor candidate for any tourism at all, that caps are only as good as the counting, and that the red is simply too photogenic for the numbers to stay small.

Both sides agree on one thing. If the river ever stops turning red, nobody will be able to say with confidence which of them was right, because the plant responds to rainfall, light, visitors and the depth of the water all at once, and the river keeps no record of which pressure mattered most.

Cover the passage before you start.

Looking back turns this into a copying exercise. Getting it slightly wrong from memory is what makes it work.

PART A Tell it back

Write down everything you can remember about Caño Cristales — what makes it red, why the rock matters, the rules for visitors, and the argument about them. Order does not matter. Keep writing until you run out.

PART B 7 questions

- ① What is the plant that colours the river called, and roughly which months is the display at its best?

- 2 Why does the plant need the water to drop, but only by a certain amount?

- 3 How does the age and type of the underlying rock explain why Caño Cristales looks the way it does?

- 4 The passage says “the arithmetic of the place changed completely” once photographs travelled. What does arithmetic mean in that sentence?

- 5 How would you describe the writer's handling of the dispute in the last two paragraphs, and how is that effect achieved?

- 6 Weigh up the two cases made about tourism at Caño Cristales. Which is better supported by the evidence in the passage?

- 7 Evaluate the closing point that if the river stopped turning red, nobody could say why. What does it imply about judging conservation decisions?

PART C Mark your own work

Now go back to the passage. Tick every answer you got right. You do not need the same words as the answer below — if you wrote the same idea in your own words, it counts.

- ☐ 1 • The plant is **Macarenia clavigera**. The display runs roughly from the middle of the year into November.
- ☐ 2 • It turns red when strong sunlight reaches it, which cannot happen while the river is deep and fast after heavy rain. But if the level falls too far the rock is exposed, the plant dries out and pales, so it needs shallow water rather than no water.
- ☐ 3 • The river runs over very old quartzite, which barely erodes and releases almost no sediment or nutrient. That keeps the water exceptionally clear so the bed is visible, and it leaves the river too poor in nutrients for ordinary water plants, which gives a weed adapted to bare rock and bright light the space to dominate.
- ☐ 4 • It means the basic sums the place runs on — how many people arrive, what they pay, and what the town earns against what the river can take. Using arithmetic rather than a word like atmosphere signals that the change was a change in numbers, and that the numbers are what the later argument is about.
- ☐ 5 • It is even-handed and deliberately unresolved. Each case is put at similar length and in its strongest form, with no signalling language to mark one as naive, and the final paragraph withholds a verdict by pointing out that the evidence itself could not settle the question. The result reads as careful rather than evasive.
- ☐ 6 • The case for tourism rests on incentives and has concrete support: the rules described are unusually strict, rotation and caps exist, fees employ local guides and wardens, and a town with an income from the river has reason to protect it. The case against rests on the plant's own biology, which is also concrete: one short season, a tolerance measured in centimetres, and a display photogenic enough to make demand hard to hold down. Neither is clearly stronger, but the second identifies the greater risk, because the first depends on enforcement being maintained while the second depends only on the plant staying fragile. A reasonable conclusion is that the current rules are necessary but cannot be assumed to be sufficient.
- ☐ 7 • It implies that the test most people would apply — did the river survive? — cannot tell you whether a policy was right, because rainfall, light levels, water depth and visitor numbers all act on the plant at the same time and the outcome cannot be traced back to one cause. That means conservation choices here have to be judged on how well they reason about risk in advance rather than on results afterwards, which favours caution: a mistaken restriction can be relaxed later, while a mistaken permission may not be reversible and will not even be identifiable.

FACTS RECALLED IN PART A

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QUESTIONS CORRECT

— / 7

DATE

THE STRATEGY Interleaving

When you have several things to learn, do not finish one before starting the next — shuffle them. Ten minutes on this river, ten on a maths topic, ten on something else, then back. Mixing feels messier and slower than working through one block at a time, and it reliably produces better

recall a week later, because every switch makes you reload the material from memory instead of coasting on what is already in front of you.

WHERE YOU ALREADY DO THIS

Where do you already switch between different kinds of practice in one session rather than drilling one thing — training, an instrument, a game? Which approach has left you readier when it counted?

FOR THE PARENT OR TEACHER · This sheet trains delayed recall, not reading speed. Let your teenager read the passage once, then cover it completely before Part A — no glancing back and no prompting, because the effort of hauling a half-remembered fact out of memory is what fixes it there. At this level mark the thinking rather than the wording: the answers given for the inference, tone and analysis questions are one good response each, not the only one.