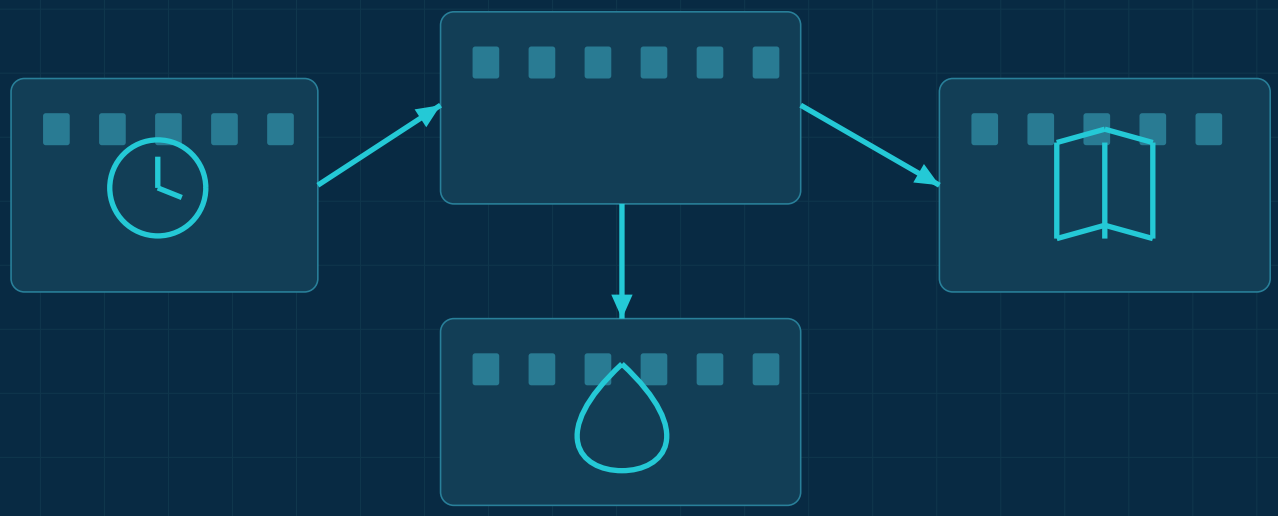
EU4BLUE / A COOPERATIVE PAPER ESCAPE GAME

THE LAST DROP

CAMPUS COUNTDOWN

The festival is ready.
The dashboard is locked.
The missing water is your lead.

T - 45:00



MASTER EDITION

AGES 15+ / 3–5 PLAYERS / 60–75 MIN / B2-C1

A4 / SINGLE-SIDED / PRINT AT 100% / NO APP NEEDED

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Open the box

HOST ONLY / PRINT, CUT AND PREPARE

Format: 60–75 minutes, ages 15+, teams of 3–5. Allow 5 minutes briefing, 45–55 minutes play and 10–15 minutes discussion. Start with a visible 45-minute timer; extend it if needed.
Learning: evaluate records, apply units, distinguish hypotheses from proof, trace a source-to-sea pathway and justify a practical response.

PER TEAM / PRINT CHECKLIST

Print P01–P11 once, single-sided at 100%. Cut P03 role cards, P04 records, P07 place cards and P09–P10 response cards. Keep each instruction strip with its deck. Provide six envelopes, pens and a calculator; no internet, device or physical lock is required.

Give at start	Seal until unlocked
P01 briefing + P02 mission board	1: P04 / Engineer’s log
P03 role cards	2: P05 / Campus route
A calculator and pens	3: P06 / Meter desk
One host copy of H01–H08	4: P07 + P08 / Water network
One cut H03 update per team	5: P09 + P10 / Response deck
Optional: visible classroom timer	FINAL: P11 / Release console

Master = all host and player pages. Host Guide = this booklet only. Player Pack = cover + P01–P11. Keep H03’s update separate from envelopes until File 3 is accepted. Never give players H06 solutions.

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Run it like a live mission

HOST ONLY / PACING, HAND-OFFS AND ACCESSIBILITY

00 / BRIEF + CAST

Read P01. Give each team a call sign. Students choose roles; with three, combine Navigator and Reporter. With five, add a second checker. Hand over File 1 and start the timer.

01–02 / KEEP THE STORY MOVING

Check a code and one sentence of reasoning. Release the next envelope immediately. Ask a different teammate to explain each answer. Rotate role cards after each file.

03 / THE PLOT TURN

After accepting File 3, give Mara’s update from H03 before File 4. Read it aloud if useful. Ask: “Does a lower reading prove that the first explanation was right?” Keep the update for File 5.

04–05 / BUILD THE RESPONSE

Teams assemble the water route, then select a response package. Require the package’s cost and a reason for rejecting one misleading report. Give P11 only after File 5.

FINAL / REVEAL

Accept the five-digit release and a brief evidence-based update. Read H07. If time runs out, pause the clock and run a supported finish using hints; no elimination or public ranking.

DESIGNED FOR PARTICIPATION

Hints have no penalty. Offer read-aloud support, dictionaries, larger print and written radio updates. Colour is decorative; labels carry the rules. All work can be done seated. Speed, accent and acting are not assessment criteria.

Facilitator target times: log 7 min / map 6 / audit 8 / route 7 / response 10 / console 7. These are pacing guides, not deadlines. Budget extra time for cutting if it is not done beforehand.

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Envelope labels + plot turn

HOST ONLY / CUT / RELEASE UPDATE AFTER FILE 03

01

ENGINEER’S LOG

OPEN WHEN THE HOST RELEASES IT

02

CAMPUS ROUTE

OPEN WHEN THE HOST RELEASES IT

03

METER DESK

OPEN WHEN THE HOST RELEASES IT

04

WATER NETWORK

OPEN WHEN THE HOST RELEASES IT

05

RESPONSE DECK

OPEN WHEN THE HOST RELEASES IT

FINAL

RELEASE CONSOLE

OPEN WHEN THE HOST RELEASES IT

NEW MESSAGE / MARA

An archived follow-up covers another 60-hour weekend after a building inspection. Metered use was 1,800 litres, including 1,200 litres of automatic flushing; occupancy was again zero. The inspection record does not identify any changes or repairs.

“The reading fell. That matters. But I cannot certify a cause from these records. Do not announce a confirmed leak repair. Keep this message for the response deck.”

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Hint desk / Files 1–3

HOST ONLY / TWO STEPS PER FILE / NO PENALTY

1 SUPPORT CARD

01 / HINT 1

A booking shows intention. Which records certify completion?

1 SUPPORT CARD

01 / HINT 2

Four jobs finished. Use 08:25 for the amended entry. Sort only completion times; the last badge becomes your pass.

2 SUPPORT CARD

02 / HINT 1

The pass is a badge, not the whole previous code. Apply it to the labelled links.

2 SUPPORT CARD

02 / HINT 2

One lower link needs a different pass. The middle diagonal is closed. Trace the upper route, then down to CONTROL.

3 SUPPORT CARD

03 / HINT 1

Find the difference between meter totals before converting units. Then remove logged automatic use.

3 SUPPORT CARD

03 / HINT 2

The meter difference is 8.400 m³. Multiply by 1,000 and subtract 1,200. For the estimate, 60 hours equals 3,600 minutes.

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Hint desk / Files 4–Final

HOST ONLY / TWO STEPS PER FILE / NO PENALTY

4 SUPPORT CARD

04 / HINT 1

Two cards belong to other systems. Follow the pipe connections described in the records.

4 SUPPORT CARD

04 / HINT 2

Before the tap: water is treated for supply. After the sink: it enters a sewer and a different treatment plant, then the river.

5 SUPPORT CARD

05 / HINT 1

Choose by category and requirement, then add costs. Read Mara’s update before choosing a report.

5 SUPPORT CARD

05 / HINT 2

Compare 8,400 with 1,800 for the fall. Subtract 1,200 from 1,800 for the residual. Neither calculation proves a repair.

6 SUPPORT CARD

FINAL / HINT 1

Use complete accepted codes, including both zeroes in File 3. Digit positions start at the left.

6 SUPPORT CARD

FINAL / HINT 2

Take positions 2, 4, 1, 3, 2 from Files 1–5 respectively. Then read the five extracted digits downwards.

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The complete solution

HOST ONLY / DO NOT DISTRIBUTE DURING PLAY

01 / 3846 / PASS 6

Sensor badge 3: 08:10. Filter badge 8: corrected 08:25. Pump badge 4: 08:40. Lab badge 6: 08:55. Badge 1 is cancelled; badge 9 is aborted. Retain last badge 6 as the corridor pass.

02 / 5274

START → 5 → 2 → 7 → CONTROL 4. Pass 6 permits 5 → 2. The lower route requires pass 9; the diagonal 9 → 4 is closed. The directed graph has only this admissible start-to-control path.

03 / 7200

1,528.400 − 1,520.000 = 8.400 m³ = 8,400 L. Deduct 1,200 L to get 7,200 L unexplained. 60 × 60 × 2 = 7,200 L, so the estimated leak is arithmetically compatible but not demonstrated. Release H03's update now.

04 / 4826

4 drinking-water plant → 8 school tap/sink → 2 wastewater plant → 6 river. Well and ocean are endpoints, not coded cards. The bottle depot and rainwater tank are not connected to this sink route. Return flow does not automatically restore location, timing or quality.

05 / 9153 / COST 10

9 authorised inspection (3) + 1 comparable records (2) + 5 protected access (4) + 3 qualified report (1) = 10 credits. Reject student valve work, incomplete monitoring, withdrawing hygiene and a proven-repair claim. Fall: 8,400 − 1,800 = 6,600 L. Follow-up residual: 1,800 − 1,200 = 600 L.

FINAL / 84721

From 3846 take digit 2 = 8; 5274 digit 4 = 4; 7200 digit 1 = 7; 4826 digit 3 = 2; 9153 digit 2 = 1. Accept only with a reasoned radio update. Example: "7,200 litres were unexplained. A leak is possible but unproved; staff should inspect and compare records. Used school water reaches the sea through treatment and a river in this model."

Release accepted

FINAL REVEAL / READ ALOUD OR GIVE TO THE TEAM

RELEASE ACCEPTED

EVIDENCE VERIFIED / RESPONSE AUTHORISED

The countdown stops.
Your message reaches Mara.

“Good work. You did not mistake a booking for a completed check. You did not force a closed route. And you did not turn a matching number into a proven leak.”

FESTIVAL CONTROL / STORY ENDING

Mara confirms that staff have completed the necessary on-site checks and that drinking water and hygiene facilities are available. The festival can open. Your investigation continues through documented inspections and comparable meter readings.

The win is a justified plan, not a magically repaired system. The meter tells part of the story; your team knew when to ask for more evidence.

TEAM CALL SIGN

MISSION: COMPLETED TOGETHER

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Bring the mission back to school

Language edition: B2-C1
Ask for connected explanations, comparisons and qualified claims. Invite a counter-explanation and a record that would help distinguish it.

All editions share the puzzle logic and codes. Briefings, evidence wording and response cards are adapted. Use separate tables to prevent overheard codes; do not compare teams by language level.

DISCUSS AFTER THE REVEAL

Which clue changed your mind? What would prove a leak or a repair more convincingly? Why is closing drinking-water access a poor conservation strategy? How can a school far from the coast affect downstream water?

Optional next step: propose a school water audit with an authorised staff member. Students can plan questions and a recording sheet; staff decide whether and how real readings or inspections are taken.

Scientific context: water availability involves quantity, quality and timing. [1] Meter records can guide investigations and help assess changes in use. [2] The game’s records and control system are fictional.

Sources and reuse
Original fictional scenario, cards and vector artwork. Free educational use and adaptation; not for resale. Supplied logo rights remain unchanged. No photographs or external artwork are reproduced.

[1] USGS. Water cycle.
https://www.usgs.gov/special-topics/water-science-school/water-cycle

[2] US EPA. WaterSense: Getting Started.
https://www.epa.gov/watersense/getting-started

Last visited: 14 October 2026.

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The festival cannot open. Yet.

START HERE / FICTIONAL CAMPUS / WORLD WATER DAY

The school festival opens in an hour, but its dashboard has locked after detecting unexpected water use. Engineer Mara is inspecting the site while your team reconstructs the evidence. Your challenge is to secure a justified release without turning a plausible explanation into a proven fact. Drinking water and hygiene facilities remain available.

INCOMING / MARA, SITE ENGINEER

“I am checking the building. You have my paper records. Find the completed checks, reach the control desk and work out what the water figures really say. Do not let a confident headline replace evidence.”

Your mission

Solve five sealed files. Each gives a four-digit code. Show your reasoning to the host to unlock the next file. Keep all five codes for the final console. Your release authorises a response plan in the story; staff handle the real checks.

Game rules

Share clues aloud. Change roles after each file. Ask for hints without penalty. Use a calculator and dictionary if helpful. Search only the supplied paper: no real cupboards, taps, pipes or equipment. Nobody is locked in.

ON YOUR TABLE

Mission board + four role cards. Five files will arrive one at a time. A surprise message arrives after File 3. Finish with a 20-second radio update: what you found, what remains uncertain and what staff should do next.

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Mission control

TEAM BOARD / KEEP ALL CODES / DO NOT CUT

TEAM CALL SIGN

01 / The engineer’s log

VERIFIED CODE

02 / The campus route

VERIFIED CODE

03 / The missing water

VERIFIED CODE

04 / From school to sea

VERIFIED CODE

05 / The response plan

VERIFIED CODE

FINAL RELEASE

Radio update notes / One finding. One uncertainty. One next step.

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Choose your crew

CUT FOUR ROLE CARDS / ROTATE AFTER EVERY FILE

Three players: combine Navigator and Reporter. Five players: add a second Evidence Checker. Roles organise the team; everyone may read, calculate and question.

01 CREW PASS

NAVIGATOR

Spread out the map and cards. Ask everyone to point to the clue that supports the route. Hand the role on after each file.

02 CREW PASS

EVIDENCE CHECKER

Watch for cancelled records, estimates and missing information. Ask: “Does this show what happened, or only what might have happened?”

03 CREW PASS

NUMBER KEEPER

Record all accepted codes and units. Explain each calculation so another player can check it. A calculator is welcome.

04 CREW PASS

RADIO REPORTER

Invite a different teammate to explain each answer. Deliver the team’s code and reasoning to the host. Prepare the final short update.

TEAM AGREEMENT

No grabbing the cards. No silent solving. Before submitting a code, ask someone else to explain it. A hint is a tool, not a penalty.

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The engineer’s log

FILE 01 / CUT SIX RECORDS / KEEP THE INSTRUCTION STRIP

Reconstruct the sequence of four completed checks. Apply signed corrections, distinguish completion from booking, and exclude cancelled or unfinished work. Concatenate badge digits chronologically. The final badge grants your corridor access.

4 MAINTENANCE BADGE

PUMP CHECK

Scheduled 08:05; completed 08:40. The earlier appointment covered preparation only.

1 MAINTENANCE BADGE

DRAIN INSPECTION

Scheduled 08:15; cancelled at 08:17. No completed inspection is recorded.

8 MAINTENANCE BADGE

FILTER CHECK

Completion entered as 08:50. Signed amendment replaces this with 08:25.

6 MAINTENANCE BADGE

LAB VERIFICATION

Scheduled 08:20; completion confirmed at 08:55 after a second sample check.

3 MAINTENANCE BADGE

SENSOR CHECK

Scheduled 08:30; completed 08:10 after Mara brought the task forward.

9 MAINTENANCE BADGE

RESERVE TEST

Initiated 08:00; aborted at 08:12. No completed test can be certified.

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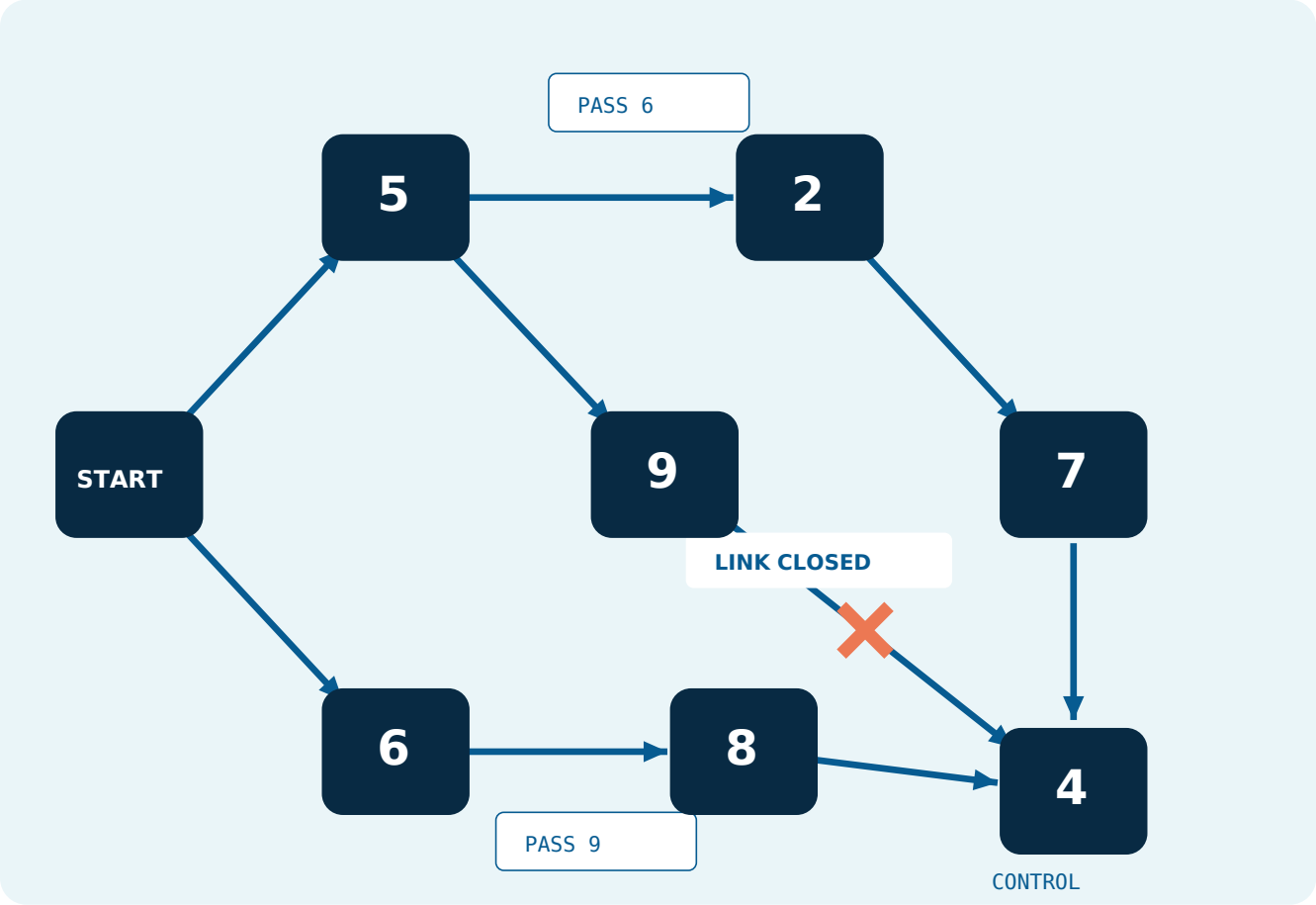
Find the control desk

FILE 02 / CAMPUS ACCESS MAP / FICTIONAL NETWORK

Use the final badge from File 1 as your corridor pass. Trace the permitted directed route from START to CONTROL 4, respecting the closure and pass restrictions. Concatenate visited checkpoint IDs, including the destination but excluding START.



MAP KEY

Arrows are one-way. PASS labels apply to the link directly below or above them: 5 → 2 requires pass 6; 6 → 8 requires pass 9. The link 9 → 4 is closed. All other links are open.

ACCESS CODE

Show the host your code and your reasoning. Keep every accepted code.

Where did the water go?

FILE 03 / METER DESK / USE THE FICTIONAL RECORDS

Calculate the volume between the two meter readings, convert it to litres and deduct recorded automatic use. The four-digit residual is the access code. Evaluate whether the estimated leak rate could account for it, and whether numerical agreement establishes the cause.

FRIDAY / 18:00

1520.000

m³ / CUMULATIVE METER

MONDAY / 06:00

1528.400

m³ / CUMULATIVE METER

SITE RECORD

The two readings are exactly 60 hours apart. No people were recorded on site. Automatic flushing used 1,200 litres. For the calculations, accept both readings and the automatic-use record as accurate.

MARA'S PENCIL NOTE / NOT A MEASUREMENT

"A leak might run at 2 litres per minute. I have not measured a leak or confirmed where it is. Please test the idea, not just the arithmetic."

Conversion: 1 m³ = 1,000 litres. 1 hour = 60 minutes.

Total litres: _____ Minus logged use: _____

Unexplained litres: _____ Estimated leak volume: _____

ACCESS CODE

Show the host your code and your reasoning. Keep every accepted code.

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Reconnect the water story

FILE 04 / CUT SIX PLACE CARDS / USE WITH P08

Reconstruct the specified well-to-ocean pathway through the school. Select four place cards and order them between the printed endpoints. Use their IDs as the code. Respect the network described in the records rather than assuming a different local arrangement.

2 PLACE IN THE NETWORK

WASTEWATER PLANT

Treats used sink water arriving through the sewer, then discharges to the river. It is distinct from drinking-water treatment.

7 PLACE IN THE NETWORK

BOTTLED-WATER DEPOT

Road deliveries supply the stored bottles. The depot has no pipe connection to the school sink.

8 PLACE IN THE NETWORK

SCHOOL TAP + SINK

Receives treated water through supply pipes. After sink use, the water enters the sewer.

6 PLACE IN THE NETWORK

RIVER

Receives the wastewater plant’s treated discharge and carries water towards the ocean.

3 PLACE IN THE NETWORK

RAINWATER TANK

Collects roof runoff for garden use. This fictional system has no connection from tank to school sink.

4 PLACE IN THE NETWORK

DRINKING-WATER PLANT

Treats groundwater abstracted from the well before distribution through pipes to school taps.

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From school to sea

FILE 04 / ASSEMBLY BOARD / KEEP P07 BESIDE THIS PAGE

Lay your four chosen cards beside this board. Write their IDs in the empty boxes. The site record fixes the route: well water supplies the school sink; used sink water enters the sewer; treated discharge enters a river that reaches the sea.

GROUNDWATER WELL

START / WATER IS PUMPED TO THE FIRST PLACE

PLACE 1

PLACE 2

PLACE 3

PLACE 4

OCEAN

END / THE SCHOOL IS PART OF A CONNECTED SYSTEM

Before submitting: does water returning to the environment automatically return it to the same place, at the same time and with the same quality?

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What should the school do?

FILE 05 / RESPONSE DECK A / PAIR WITH P10 + MARA'S UPDATE

Build a response package with one card for CHECK, RECORD, KEEP OPEN and REPORT, in that order. Meet all four requirements within an inclusive ten-credit budget. Incorporate Mara's update before choosing the public statement.

FOUR REQUIREMENTS / EXACTLY ONE CARD EACH

CHECK / Only authorised staff inspect; document findings.
RECORD / Compare two further 60-hour periods with occupancy and automatic-use logs.
KEEP OPEN / Protect drinking water and handwashing.
REPORT / Use the update accurately; distinguish change from proven cause.

7 RESPONSE OPTION

CHECK / 0 CREDITS

Delegate cupboard access and valve adjustment to the student festival team.

9 RESPONSE OPTION

CHECK / 3 CREDITS

Request an inspection by authorised staff, with a record of findings and any repairs.

1 RESPONSE OPTION

RECORD / 2 CREDITS

Compare two further 60-hour weekends, recording metered use, occupancy and automatic flushing.

8 RESPONSE OPTION

RECORD / 1 CREDIT

Photograph the next meter reading without recording occupancy or automatic consumption.

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Protect access. Tell the truth.

FILE 05 / RESPONSE DECK B / TOTAL BUDGET: 10 CREDITS

Complete your package with one KEEP OPEN card and one REPORT card. Calculate the total cost of all four chosen cards. The statement must agree with Mara’s new message.

2 RESPONSE OPTION

KEEP OPEN / 0 CREDITS

Suspend access to all drinking-water and handwashing points to minimise metered use.

5 RESPONSE OPTION

KEEP OPEN / 4 CREDITS

Maintain drinking-water access and hygiene facilities throughout the investigation.

3 RESPONSE OPTION

REPORT / 1 CREDIT

Recorded use fell by 6,600 litres; the cause remains unconfirmed and 600 litres are still unexplained.

6 RESPONSE OPTION

REPORT / 1 CREDIT

The reduction establishes that a leak was repaired and all avoidable use was eliminated.

RESPONSE PACKAGE

CHECK: ____ + RECORD: ____ + KEEP OPEN: ____ + REPORT: ____ credits
Total: ____ / 10 credits. Code: read the four selected card IDs in this same category order, not their costs.

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The final release console

OPEN ONLY AFTER FILE 05 / ALL FIVE VERIFIED CODES REQUIRED

Enter the five verified access codes. Extract the digit at the indicated position in each row, counting from the left. Read the five extracted digits vertically and submit the final sequence with a defensible incident update.

FILE 01

TAKE DIGIT 2

FILE 02

TAKE DIGIT 4

FILE 03

TAKE DIGIT 1

FILE 04

TAKE DIGIT 3

FILE 05

TAKE DIGIT 2

Final radio update / 20 seconds

Report the unexplained first-weekend volume, one limit of the evidence and a responsible next action. Explain one connection between the school and the ocean. Share the speaking if you wish.

The host checks the release code and your update. This is a paper simulation: it does not operate real infrastructure.

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