

CQE $n=1 \rightarrow n=5$ — 10-Minute Live Demo Pack

What you'll show (in 10 minutes)

- Run $n=1..4$ to a palindromic rest on a 4×4 board, using the three simple checks and allowed ticks.
- Do four of the sixteen $n=5$ trials live; point to the printed sheet for the other 12.
- Reveal the 8-class grouping and the single palindromic class.
- Close with the replay hash: repeat a short segment, show the same hash (determinism).

Props

- Two printed 4×4 boards + a 16-trial sheet.
- Pencil/eraser.
- A phone timer (to call ticks $0/5/8 \bmod 13$).

Live Script (readable patter)

- <1 min> “We play on a 4×4 with two mirror lines. We only commit moves on ticks 0, 5, or 8 mod 13.”
- “Our tie-breaker is simple: pick the move with fewer neighbor conflicts; if symmetry breaks, try its mirror and pick the better one.”
- <2 min> “ $n=1-4$: watch—1 goes here, mirrors hold; 2 with its mirror; 3, then 4. Tiny repairs only if they strictly improve. We stop when nothing locally improves. That's our palindromic rest.”
- <3 min> “ $n=5$ lift: we test each of the 16 cells as a possible place for a single '5'. On each, we allow at most one local repair. Then we group the 16 outcomes by rotation/flip look—there are eight classes, and only one re-palindromes.”
- <1 min> “Replay: I redo three moves with the same ticks; here's the same hash.”

Mocked Example — Step Log (first 10 steps)

t	mod13	move	mirror	defect	note
1	1	A2→1	—	0	seed
5	5	B2→2	pair C3	1	allowed tick
8	8	B3→2	pair C2	1	allowed tick
13	0	A3→3	pair D2	1	wrap tick
18	5	C2→3	pair B3	1	
21	8	C3→3	pair B2	1	
26	0	A2→4	pair D3	1	wrap tick
31	5	B2→4	pair C3	1	
34	8	B3→4	pair C2	1	

Replay hash (SHA-256 of the Step Log lines above):

a6cd2ad28c69d9f81d863c1c2a1bdfecff3a0e207e5e0ad94ea3478ce51f992b

Mocked Example — $n=5$, 4 of 16 Trials (sketch notes)

Trial	Observation / Class
Trial 1 (A1)	non-palindromic; mirrors balanced; class C3
Trial 4 (A4)	non-palindromic; class C5
Trial 6 (B2)	palindromic after 1 local repair; class C1 (the palindromic class)
Trial 11 (C3)	non-palindromic; class C7

Closing Lines (to land the point)

- “If you find fewer than eight classes at $n=5$ —or more—the claim fails.”
- “If $n=4$ doesn’t settle to a palindrome (up to rotation/flip), the claim fails.”
- “If this log hash ever changes when choices repeat, determinism fails.”
- “Rotation/flip must keep an $n=5$ outcome within its class orbit, or the claim fails.”