

technology

Patterns and bugs

Lesson at a glance

Open by acting clap-clap-spin twice and asking which bit came back, then pin the words bug (crossed arms) and fix (thumbs up). Model a floor line of Jump-Jump-Spin twice, swap the last Spin for Wave, and think aloud the find-and-fix. Groups copy a board starter with action cards, insert one bug, spot and swap it. Close on the algorithm-sequencer with a one-turn bug so the robot reaches the star.

Learning objectives

- Spot a repeat (pattern) in a short action sequence
- Find a wrong step (bug) in a sequence
- Suggest a fix for the bug so the sequence works

Before the bell: prep

Print duplicate-rich action step-cards the day before: one demo set plus one set per group (about 4 Jump, 4 Clap, 3 Spin, 3 Stomp, 2 Wave, 2 Half-turn). Clear floor strips for card lines. Load the algorithm-sequencer on the IWB and walk the correct robot path once yourself.

Materials

Item	Qty	Per	Source	Low-cost substitute
action step-cards with duplicates (Jump, Clap, Spin, Stomp, Wave, Half-turn)	1	group	classroom	sticky notes with a simple action drawing on each; make several of each action so groups can build a repeat
clear floor space for acting sequences	1	group	classroom	a marked strip of hall floor if the classroom is tight
pictured board starter sequence (Clap, Clap, Stomp — Clap, Clap, Stomp)	1	class	classroom	lay one set of the action cards face-up on the front strip so the whole class can see the starter line

Safety watch-point

On-the-spot moves only; soft landings; freeze on your signal. Spin is one full circle; half-turn only faces the other way — keep the two distinct so nobody over-twirls into a neighbour.



Teaching moves

- **Bug and fix words:** Board shows only bug and fix. Say bug with crossed arms — 'a wrong step, not an insect' — and fix with thumbs up. Keep it under a minute so energy stays for the floor cards.
- **Watch me spot and fix:** Lay Jump, Jump, Spin, Jump, Jump, Spin and act it once. Circle the two repeats, then swap the last Spin for Wave. Ask which card is the bug and what fixes it; swap back to Spin and act the fixed line so the class feels the repair.
- **Act it and fix it:** Groups copy the board starter Clap, Clap, Stomp — Clap, Clap, Stomp. On 'bug time' one helper swaps a single card while others look away; group acts, points to the wrong card, names the fix, swaps back, and acts once more. Circulate with: which bit is the pattern? which card is the bug? what will you put instead?
- **Find the bug on the board:** Bridge aloud: same bug-spotting, new robot moves. Point which way the robot faces; body-cue left and right; finger-walk the correct path. Run the buggy line (turn left instead of turn right), have the class name the single wrong card, swap to turn right, press run, and celebrate the star.
- **How we fixed the bug:** Carpet talk only on what just happened: spot the repeat or path, point to one wrong step, swap, try again. Name once that game-makers fix wrong steps so games do not get stuck. Invite one or two fixed dances if time; one kind clap each.



What it should show

In the model, most point to Wave as the bug and restore Spin. In groups, look for a single wrong card named and the dance re-tried after the swap. On the robot, the bug is turn left; the fix is turn right — after the change the robot lands on the star. If a group says the whole second half is wrong, praise the notice and narrow them to the one card to change.



Misconceptions & interventions

- **A bug means a creepy-crawly insect.** Cross arms the moment you say bug and gloss out loud: 'a bug means a wrong step'. Keep the gesture every first reuse so the coding meaning sticks.
- **The whole second half of the dance is wrong, not one card.** Praise that they noticed a mismatch, then point along the cards: 'which single card would we change to make the pattern match again?'
- **Left and right turns feel the same on the robot, so any turn might be the bug.** Before the buggy run, have the class point with a whole arm the way the robot faces and hold up left/right hands as body cues, then finger-walk the correct path once.

Differentiation

Emerging	Developing	Proficient
- Keep support groups on the two-move board starter only (clap-stomp repeat) and stay beside them for the single-card bug swap. - Let them point to the wrong card first; you supply the fix word if needed, then they act the repaired line.	- After one successful fix, ask 'which bit is the pattern?' before the next bug so they name the repeat out loud. - Offer the second ready-made line (Jump, Jump, Wave) still with one bug at a time.	- In Burst 3 give a second ready-made line (Spin, Spin, Half-turn) and have them explain why that one card was the bug before swapping. - On the robot, ask them to predict where it will go wrong before you press run, then confirm against the turn-left card.

Cross-curricular hook

Link to Maths pattern work — the repeating clap-clap-stomp unit is the same 'what comes next' idea, now hunted for a wrong step.