

Coding in Scratch: sequences

Lesson at a glance

Hook with real Irish traffic lights that run on coded sequences. Anchor 'sequence' to a morning routine, then open the Scratch starter with the traffic-light sprite. Model on the IWB as pairs build red (5 s), then green (10 s), then orange (3 s), wrap the stack in a forever block, and run to check the cycle. Pupils record the working sequence in the Investigation Journal and close with a display-only code talk on bugs they fixed.

Learning objectives

- Build an ordered Scratch sequence that runs a simple program end to end
- Run the program and check that the order of steps is correct
- Record the working sequence in the Investigation Journal

Before the bell – prep

Test the starter project link (scratch.mit.edu/projects/1052671596/editor) on class devices the day before — confirm the traffic-light sprite and its three costumes load. Pair devices; have Investigation Journals ready. Bookmark the link on the IWB for modelling.

Materials

Item	Qty	Per	Source	Low-cost substitute
tablet or laptop with Scratch	1	pair	school devices	run the lesson on the IWB with pupils taking turns

Safety watch-point

Use the class Scratch accounts or offline editor only; no pupil should share personal details or open unshared projects from strangers while online.

**Teaching moves**

- **Introduction:** Read the sequence callout together and link it to a morning routine. Ask ‘What would go wrong if we did the steps in the wrong order?’ before any blocks appear — this locks the idea that order matters.
- **Open Starter Project:** Have every pair click the starter link and show you the traffic-light sprite with red, orange and green costumes. Circulate hard — the common snag is opening a blank project instead.
- **Set it to red:** Model when-green-flag-clicked, switch-costume-to-red, and wait-5 on the IWB, then pairs copy. Have them run it and confirm red holds. Watch for a missing wait that makes red flash past.
- **Set it to green:** Model snapping green and wait-10 underneath the red blocks — stress ‘under, not beside’. Ask ‘Which colour should show after red?’ Common bug: green stacked above red; fix by dragging to reorder, then re-run.
- **Set it to orange:** Add orange and wait-3 under green on the IWB. Ask pairs to predict the full order before they press play, then run red → green → orange and check each wait is present.
- **Make it loop!:** Model dropping forever in first, then dragging the whole colour stack inside it. Ask ‘What does forever mean here?’ Common bug: blocks left outside so only orange repeats — re-seat the stack fully inside the C-shape.
- **Wrap Up:** Confirm each pair’s program actually loops before they close Scratch. Prompt them to save the project and record the finished working sequence in the Investigation Journal.
- **Code talk — what worked and what we'd change:** Display-only talk — no typing. Invite one pair who hit a bug to describe what they saw and how they fixed it; revoice that checking after each block makes bugs easier to catch.

**What it should show**

A working program cycles red (5 s) → green (10 s) → orange (3 s) and repeats forever when the green flag is clicked. If a colour never appears, a wait or switch-costume block is missing or outside the forever. If only the last colour loops, the stack was not fully nested inside forever — re-drag it in.

**Misconceptions & interventions**

- **‘The order of the blocks doesn’t matter as long as all three colours are there.’** — Run a deliberately wrong stack (green before red) on the IWB and ask what a driver would do. Drag the blocks back into red → green → orange and re-run so they see order is the whole point.
- **Pupils drop forever around only the last block, so orange repeats and red/green never return.** — On the IWB, point to blocks sitting outside the C-shape. Model lifting the whole stack and nesting it fully inside forever, then run until the full cycle repeats twice.
- **‘A bug means I broke Scratch’ — pupils freeze instead of debugging.** — Normalise it: ‘A bug is just a block in the wrong place.’ Have them re-run after each added colour so the mistake is small and easy to spot.





Differentiation

Emerging	Developing	Proficient
• Build red-only with the teacher table first and celebrate the green-flag run before adding green and orange one block at a time. • Provide a printed block-order checklist (red → wait 5 → green → wait 10 → orange → wait 3 → forever) they can tick as they snap.	• After the loop works, ask why the waits differ (5 / 10 / 3) and whether those times feel realistic for a real junction.	• Challenge them to adjust the wait times to match a familiar local crossing, then justify the new sequence in the code talk. • Ask them to explain to another pair how they would spot a forever-nesting bug without help.

Cross-curricular hook

Link to SPHE road safety and Maths measures — the wait blocks are times in seconds pupils can compare and justify.