

LESSON 5

Testing and Debugging in Scratch

40 minutes

Start Coding in Scratch

WHAT THIS LESSON DOES

Students build a Racing Car project in Scratch and practise testing it to check it works, then find and fix bugs using a named routine: read the symptom, find the block, form a hypothesis, and test the fix.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Students test a Scratch program to check it works and apply a named debugging routine (read the symptom, find the block, form a hypothesis, test it) to fix problems in their Racing Car build.

BEFORE THE BELL

- Have devices ready with browsers open and students logged in to Scratch (scratch.mit.edu).
- Check that students can create a new project and that image download or upload is allowed on the school network for the car sprite file.
- Open a blank Scratch project on the board so you can model the first steps before pairs work independently.

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HOW THE LESSON RUNS

4 min	introduction	Start: What We're Building
2 min	content	Create a New Scratch Project
2 min	content	Add the Car Sprite
2 min	content	Shrink the Car
3 min	content	Draw a Racing Track
4 min	content	Place Your Car on the Track
2 min	content	Create a Speed Variable
3 min	content	Detect Where the Car Is
3 min	content	Move Forwards and Backwards
3 min	content	Move Left and Right
2 min	content	Drive Your Car!
4 min	content	Break It, Then Fix It with the Routine
3 min	content	Make Sense: What Worked, What Broke
2 min	content	Reflect
1 min	summary	What You Covered

TEACHING MOVES

- Model the named debugging routine out loud when a bug appears: name the symptom, point to the likely block, state a hypothesis, then test the change.
- Remind students to place the car on the track first so the go to x y values prefill with a useful start position.
- When they set the touching-colour condition, have them use the colour picker on their own grass green so the sense matches their backdrop.
- Keep the PRIMM flow tight: short predict if you use one, then run often after each control or sensing change rather than only at the end.

WHAT TO WATCH FOR

- Touching-colour green does not match the grass, so speed never drops: reopen the colour picker and sample the backdrop green again.
- Go to x y was added before the car was placed, so it jumps to the wrong start: move the car on the stage, then replace or edit those values from the prefilled position.
- Arrow-key scripts sit outside the forever loop or use the wrong key, so one direction does nothing: check each key block is inside the forever and matches up, down, left, or right.

DIFFERENTIATION

- Support: Provide a finished track backdrop and sit with pairs to walk the four debugging steps on one broken arrow key together.
- Extension: Challenge early finishers to tune turn angle or off-track speed and retest until the drive feels fair.
- Extension: Ask confident pairs to plant one deliberate bug for another pair and coach them through the named routine to find it.