

LESSON 3

Loops in Scratch

40 minutes

Strand 1: Introducing computer science

Built in Scratch

Outcome 1.7

WHAT THIS LESSON DOES

Students use PRIMM to build a Pattern Creator in Scratch, replacing repeated move and turn blocks with a loop and explaining why a loop is the better approach.

CURRICULUM OUTCOMES

Outcome	What the specification asks for
1.7	Discuss and implement core features of a structured programming language: variables, operators, loops, decisions, assignment and modules.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Use a loop to repeat actions (LO 1.7)
- Explain why a loop is better than copying blocks (LO 1.7)

BEFORE THE BELL

- Students logged in to Scratch at scratch.mit.edu with a new project ready (or the class account open).
- Open the Scratch editor on the board so you can model the first blocks before pairs work independently.
- Check that students can add extensions and create variables; have a sample Pattern Creator project ready to show if the room stalls.

WHAT YOU NEED

Item	Qty	Per	If you do not have it
tablet or laptop with Scratch	1	pair	run the lesson on the IWB with students taking turns

Loops in Scratch

HOW THE LESSON RUNS

4 min	introduction	Start: what we're building
2 min	content	Why use a loop?
2 min	content	Create a new Scratch project
2 min	content	Add the Ball sprite
3 min	content	Add the Pen Extension
3 min	content	Draw a circle
2 min	content	Create some variables
3 min	content	Use the steps and degrees
2 min	content	Change the degrees
3 min	content	Add some colour
4 min	content	Change the pen size
2 min	content	Play around
2 min	content	Wrap up
3 min	content	Make sense: what worked, what broke
2 min	content	Reflect
1 min	summary	What you covered

TEACHING MOVES

- Model the first green-flag stack on the board, then pause so pairs finish each step before you move on.
- When the repeat until loop appears, ask why one loop is better than stacking the same move and turn blocks many times.
- Have students try the degrees slider only after the straight-line version works, so they see the spiral as a change in the loop values.
- Circulate during Play around and name pattern recognition aloud: same loop, different slider values, new drawings.
- If you are running short: cut Play around (step 12) and shorten the colour and pen-size steps to a demonstration on the board. Protect make sense and reflect: explaining why a loop beats copying blocks is the outcome, and it only happens in the talk.

WHAT TO WATCH FOR

- Pen stays up or erase all is missing, so nothing appears: check pen down is after erase all and before the loop.
- Steps variable never changes, so the sprite sits still or draws a tiny mark: confirm change steps by 1 is inside the repeat until block.
- Degrees or size slider not visible on the stage: right-click the variable and choose slider, then set a sensible starting value such as 20 for degrees.

DIFFERENTIATION

- Support: Provide a printed block order for the green-flag stack and sit with pairs while they place only the loop first.
- Extension: Challenge students to try more degree and size combinations, or to restart from the centre with a new colour each run.
- Extension: Ask stronger pairs to explain to the class where else a loop would save repeated blocks in a game or animation they already know.