

Loop it! Making Movements Repeat

40 minutes

Creative Coding Challenges

WHAT THIS LESSON DOES

In this lesson, you'll learn to animate the Scratch Cat to walk across the screen. Follow step-by-step instructions to make the cat move, change costumes, and loop its actions for a smooth walking effect.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand and apply the concept of loops in animation.
- Create and control character movement using Scratch programming.
- Manipulate character costumes to simulate walking or running.
- Implement control structures to manage animation speed and direction.
- Apply learned skills to create a competitive animation scenario.

BEFORE THE LESSON

- Open the Scratch website on a class device and confirm pupils can reach Create and start a new project (check the school filter if needed).
- Devices ready per pupil or pair, charged, with browsers that load Scratch smoothly.

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HOW THE LESSON RUNS

Introduction

Create a new project

Make the Character Move

Changing Costumes for Walking

Control the Speed

Loop the Walk

Bounce at the Edge

Challenge - Animating a Race

TEACHING MOVES

1. Introduction. Show the end goal on the board: a cat that looks as if it is walking. Name the three ideas they will join: move, next costume, and repeat.
2. Create a new project. Get everyone to Create so they see the cat sprite. Check that every project is blank and ready before any blocks are dragged.
3. Make the Character Move. Have them snap when green flag clicked, then move 10 steps under it. Click the flag once so they see a single hop, not continuous walking yet.
4. Changing Costumes for Walking. Add next costume under move. Run the flag again and ask what still looks wrong: one step and one costume change is not a walk.
5. Control the Speed. Add wait 0.2 seconds under next costume. Let them try 0.1 and 0.5 so they feel how wait controls how natural the walk looks.
6. Loop the Walk. Wrap move, next costume and wait inside forever. Stress that forever repeats the stack, not a single block.
7. Bounce at the Edge. Put if on edge, bounce inside the loop. When the cat flips upside down, add set rotation style left-right under the green flag, before the loop.
8. Challenge - Animating a Race. For finishers: add Hare and Bear, copy the walking script to each, then race them. Suggest changing move steps or wait to tune speed.

WHAT TO WATCH FOR

- Pupils stack move and next costume once and expect continuous walking without a loop. Ask them to click the green flag once and watch: one run of the stack is one step. Show wrapping the three blocks in forever.
- When the cat hits the edge it turns upside down and the walk looks broken. Point out set rotation style left-right goes under the green flag, before the forever loop, so bounce only flips left and right.
- A very small or missing wait makes costumes flash so the walk does not look like walking. Have them try wait 0.2 seconds, then compare 0.05 and 0.5, and choose a value that still reads as steps.

DIFFERENTIATION

- Emerging: Sit with them to place when green flag clicked, move 10 steps, next costume and wait 0.2 in order before adding the loop. Pair them with a partner who can point to each block section (Events, Motion, Looks, Control) as they build.
- Developing: Prompt them to explain why forever must wrap all three inner blocks, not only move. If bounce flips the cat, ask them to find set rotation style left-right and say where it must sit.
- Proficient: Set the Hare and Bear race: each sprite gets its own copy of the walking script, then tune move steps or wait to change who wins. Challenge them to keep left-right rotation and still make a fair side-to-side race.