LESSON 8

Studio: Rock, Paper, Scissors in Python

40 minutes | Build Something in Python

WHAT THIS LESSON DOES

Students build a Rock-Paper-Scissors game in the micro:bit Python editor using lists, randomness, button input and conditionals, tracing a round by hand before they run and debug.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Build the classic game with conditionals and randomness; trace one round by hand before running; use debugging to fix button, loop and comparison issues; extend with a score that persists across rounds.

BEFORE THE BELL

- Devices logged in to the Coding Ireland platform and ready for Python
- Open the micro:bit Python editor at python.microbit.org; one new project per student or pair
- Physical micro:bits and USB cables available if you plan the download step; otherwise run in the simulator
- Board or screen ready to model the first imports and the choices list

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HOW THE LESSON RUNS

4 min	introduction	Start: What We're Building
3 min	content	Introduction to the Game
2 min	content	Import Modules
3 min	content	Define Choices List
5 min	content	Get User Choice
3 min	content	Generate Computer Choice
5 min	content	Determine the Winner
5 min	content	Add Game Loop
2 min	content	Download Your Code
2 min	content	Wrap up and Extensions
3 min	content	Make Sense: What Worked, What Broke
2 min	content	Reflect
1 min	summary	What You Covered

TEACHING MOVES

- Model typing the imports and the choices list on the board; insist students type rather than paste so they notice spelling and indentation
- Before anyone runs the full compare block, pause and have the class trace one round on paper: user choice, computer choice, which branch fires
- Check both-buttons-for-scissors first in the if-elif chain; if rock or paper is tested first, both-button presses never register as scissors
- When adding a persistent score, introduce two variables outside the outer loop and update them only inside the win or lose branches

WHAT TO WATCH FOR

- Indentation errors inside while True or if-elif: the editor will refuse to run; realign blocks to the same level as the model on the board
- button_a checked before both buttons: scissors never wins the input test; reorder so both-buttons is first
- String mismatch in comparisons (extra space or capital letter): scroll messages look fine but the winner logic always falls through; match the list strings exactly

DIFFERENTIATION

- Support: Provide a printed trace table (user, computer, result) and stay on the simulator; pair stronger typists with peers who need help on indentation
- Extension: Add score variables that persist across rounds and scroll the running total after each result
- Extension: Add a shake-to-play input with the accelerometer as a second way to start a round