LESSON 41

From blocks to text in MakeCode Arcade

40 minutes | Strand 3: Coding at the next level | Built in MakeCode Arcade | Outcome 3.1 | Outcome 3.3

WHAT THIS LESSON DOES

Students build a simple pixel character in MakeCode Arcade, move it with the controller, and begin reading the same project in the JavaScript view so they can see how familiar blocks map to text.

CURRICULUM OUTCOMES

Outcome	What the specification asks for
3.1	creatively design and write code for short programming tasks to demonstrate the use of operators for assignment, arithmetic, comparison, and Boolean combinations
3.3	demonstrate how functions and/or procedures (definition and call) capture abstractions

WHAT STUDENTS SHOULD BE ABLE TO DO

- Work in the JavaScript view of a game project and read what each block became (LO 3.1)
- Refactor a repeated piece of game logic into a function (LO 3.3)

BEFORE THE BELL

- Students logged in at devices with browsers open to MakeCode Arcade (arcade.makecode.com).
- No saved project needed; this lesson starts with a new project.
- Have the board ready to model creating a project and adding a sprite.
- Check that arrow keys or the on-screen d-pad work in the simulator on class devices.

WHAT YOU NEED

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

From blocks to text in MakeCode Arcade

HOW THE LESSON RUNS

4 min	introduction	Start: what we're building
4 min	content	Creating a New Project
7 min	content	Creating a Sprite
8 min	content	Animating the Sprite
6 min	content	Spot the repeat, then make it a function
5 min	content	Running the Game
3 min	content	Make sense: what worked, what broke
2 min	content	Reflect
1 min	summary	What you covered

TEACHING MOVES

- Model the first two steps on the board, then let pairs drive while you circulate.
- Pupils flip to the JavaScript view themselves in Creating a Sprite and again in Animating the Sprite, so your job at the board is to do the matching aloud with them: name the sprite line, then the controller line, and ask what each one came from in blocks.
- Keep each look at the JavaScript view short, and flip back to blocks as soon as anyone feels lost, so they see that nothing was lost in the move between views.
- If a pair finishes the moving character early, let them add more detail to their sprite art or try a second sprite while the rest of the class catches up.

WHAT TO WATCH FOR

- Sprite drawn but nothing moves: controller move was not added, or it points at the wrong sprite name. Check the name matches.
- Blank or tiny sprite: student closed the image editor without drawing. Reopen the image and add a few pixels.
- JavaScript view looks scary: students scroll past their own lines. Guide them to search for the sprite name they chose so they land on familiar code.

DIFFERENTIATION

- Support: Offer a simple 8×8 shape to copy for the sprite so drawing time does not block the move and run steps.
- Support: If a pair is uneasy in the text view, do the first matching with them at their screen, pointing from the block to the line it became.
- Extension: After the function is written, ask a fast pair to add a fifth and sixth rock and then change the rock image once inside the function, so they see every rock change together.