

Studio: Donut Rush

40 minutes

Project studios (optional extension sessions)

Built in MakeCode Arcade

Outcome 1.7

Outcome 1.9

WHAT THIS LESSON DOES

Students build Donut Rush in MakeCode Arcade, a collection game with score and a countdown timer, then swap with a friend to compare one strength and one improvement in each design.

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.
1.9	Evaluate a program in groups of two or three.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Build a collection game with score and a countdown (LO 1.7)
- Test it against a friend's and compare design choices (LO 1.9)

BEFORE THE BELL

- Students logged in to the Coding Ireland platform on classroom devices
- MakeCode Arcade ready in the browser; each student or pair starts from a new project when the build begins
- Optional: open a blank MakeCode Arcade project on the board so you can model the first blocks

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

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HOW THE LESSON RUNS

4 min	introduction	Start: what we're building
2 min	content	The plan: four parts to build
3 min	content	Creating a new project
6 min	content	Setting up the Game
2 min	content	Creating the Start Level Function
3 min	content	Set up the level
5 min	content	Create the Donuts
2 min	content	Starting the Game
3 min	content	Collect the Donuts
2 min	content	Complete the level
2 min	content	Wrap up and Play
3 min	content	Make sense: what worked, what broke
2 min	content	Reflect
1 min	summary	What you covered

TEACHING MOVES

- Model the first one or two steps on the board, then let pairs drive the rest while you circulate
- When the countdown and level restart land, pause so the class sees how `startLevel` resets `collected`, `target` and the timer
- Name debugging when a pair hits a stuck build: what did you expect, what happened, which block will you check first
- Leave enough time for the neighbour swap: one strength and one improvement each, spoken not typed

WHAT TO WATCH FOR

- Overlap kinds not set to Player and Food, so collecting does nothing. Fix on the spot by checking both kind dropdowns in the overlap block
- `startLevel` never called from on start, so the splash and first level never appear. Point students back to the call at the end of on start
- Countdown or level-complete check missing, so the game never advances. Ask which variable (`collected` vs `target`) should trigger the next level

DIFFERENTIATION

- Support: pair a less confident student with a peer; model the overlap and `startLevel` call on the board before they try
- Extension: after a working build, change countdown length, target formula, or splash text and retest
- Extension: in the peer compare, ask for one design reason behind a choice, not only surface feedback