

LESSON 2

Monkey Mayhem

60 minutes

Advanced Game Development

WHAT THIS LESSON DOES

Get ready for a thrilling coding challenge! In this lesson, you'll build a game using MakeCode Arcade where you control a monkey to collect donuts within 30 seconds. Follow the steps to create and code your exciting adventure!

WHAT STUDENTS SHOULD BE ABLE TO DO

- Develop skills in creating and controlling a player sprite in MakeCode Arcade.
- Understand how to generate food sprites at random positions on the game screen.
- Learn to implement a scoring system based on sprite interaction.
- Gain knowledge on adding sound effects to enhance game experience.
- Master the use of a countdown timer to increase game difficulty.

BEFORE THE LESSON

- Open arcade.makecode.com yourself first and check it loads on the school network. It can be blocked by content filters, so test it before the lesson, not during.
- One device per pupil, each able to reach the MakeCode Arcade site. This is a build-along lesson so pupils cannot easily share a screen.
- Sound on, or headphones ready, for the sound effect added near the end. Play a short game yourself so you can demo the finished result.

Monkey Mayhem

HOW THE LESSON RUNS

Introduction

Create a new project

Add your player

Move your player

Create the donuts

Random places

Collect the donuts

Get a point

Play a sound

Add a countdown

Wrap Up

TEACHING MOVES

1. Introduction. Show them the finished game running first: a monkey, donuts appearing, a score climbing, a clock counting down. Then say they are going to build exactly this, one piece at a time.
2. Create a new project. Walk them to arcade.makecode.com and creating a new project together. Wait until every screen shows an empty project before anyone types code.
3. Add your player. Show that clicking the grey image box opens the sprite gallery. Let them pick the monkey. Stress the sprite kind must stay as Player.
4. Move your player. Add the movement block and have everyone test the joystick or arrow keys straight away. A sprite that will not move usually means the controls block was not added.
5. Create the donuts. Point out this new sprite must be set to the Food kind, not Player. Getting this wrong is the most common cause of the scoring failing later.
6. Random places. Explain that the random position code is why donuts appear in different spots each time. Run it and watch a few spawn.
7. Collect the donuts. Go slowly here. Show them swapping mySprite for otherSprite in the destroy block, and check the overlap block reads Player and Food. This step catches the most pupils out.
8. Get a point. Add the score block inside the overlap and play immediately. A score that stays at zero means the overlap or Food kind is wrong, so send them back to the previous steps.
9. Play a sound. Add the sound block and test with sound on. If nothing plays, check device volume and headphones before assuming the code is wrong.
10. Add a countdown. Add the thirty second countdown and let them feel how it changes the game. Ask what strategy gets the most donuts before time runs out.
11. Wrap Up. Have a few pupils show their working game and score. Invite anyone finished to change the timer length, the sprite or the spawn speed.

WHAT TO WATCH FOR

- Pupils leave the donut sprite set to Player kind instead of Food, so the overlap and scoring never fire. When a game does not score, check the sprite kind first. Show them the drop-down on the create block and have them switch it to Food.
- In the overlap block pupils destroy mySprite instead of otherSprite, so the wrong sprite disappears or nothing happens. Show side by side that sprite is the monkey and otherSprite is the donut. Have them read aloud which one they want to destroy before fixing the block.
- Pupils think a game that does not work means their device is broken rather than the code needing a fix. Reassure them that a game not working is normal and fixable. Walk back one step at a time and test after each change.

DIFFERENTIATION

- Emerging: Pair them with a partner who is a step ahead and have them build the same game together on one pupil's device. Pause the class at the end of each step and confirm their screen matches yours before moving on.
- Developing: Ask them to explain back to you what the overlap block does before they add the score block, so they are building meaning and not just copying. Let them test after every single step so they connect each block to a change on screen.
- Proficient: Challenge them to change the countdown length, the donut spawn speed or the sound effect and predict what will happen first. Ask them to add a second kind of food that is worth more points, using only blocks they have already met.