

Dino food game

40 minutes

Exploring Coding

WHAT THIS LESSON DOES

In this lesson, students will learn to create a simple game using Scratch. They will add and manipulate characters, control movement using keyboard keys, and make characters interact. They will also learn to add a backdrop to their game.

WHAT STUDENTS SHOULD BE ABLE TO DO

- By the end of this lesson, students will be able to create and manipulate characters in Scratch.
- Students will understand how to control character movement using keyboard inputs in Scratch.
- Students will learn how to use conditional statements to create interactions between characters in Scratch.
- Students will be able to use random functions to create unpredictability in game play.
- Students will learn how to add and manipulate backdrops in Scratch to enhance the visual appeal of their game.
- Students will develop an understanding of the iterative process of game design, including testing and refining their game.

BEFORE THE LESSON

- Open scratch.mit.edu on a class machine and confirm the school filter allows it.
- Devices ready one per pupil or pair, with working keyboards for the arrow keys.
- Decide whether pupils use Scratch accounts or temporary projects, and have that login path ready.

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HOW THE LESSON RUNS

Welcome to Dino Food Game

Create a new Scratch project

Add a character

Shrink the dinosaur

Make the dinosaur move up and down

Make the dinosaur move left and right

Add the Beetle sprite

Make the beetle move on it's own

Catch and eat the beetle

Add a backdrop

Wrap up

TEACHING MOVES

1. Welcome to Dino Food Game. Frame the goal out loud: control a dinosaur with the keys, catch beetles, and build the game one small piece at a time in Scratch.
2. Create a new Scratch project. Get everyone to scratch.mit.edu, start a new project, and delete the cat sprite before anything else is added.
3. Add a character. Open the sprite library together and add Dinosaur4 only. Check every project shows that sprite on the stage.
4. Shrink the dinosaur. Have pupils snap when green flag clicked and set size to 50 percent on the dinosaur, then click the flag to prove it shrank.
5. Make the dinosaur move up and down. Add the up and down key scripts: point in direction 0 or 180, then move 10 steps. Test both keys before moving on.
6. Make the dinosaur move left and right. Add left and right key scripts. Stress left is direction minus 90. Test all four arrows so the dinosaur faces and moves correctly.
7. Add the Beetle sprite. Add Beetle from the library. On green flag, set size to 30 percent and go to random position. Click the flag several times to show it jumps.
8. Make the beetle move on it's own. Under the beetle green-flag stack, add forever, move 2 steps, if on edge bounce. Show that blocks sit inside forever and keep running.
9. Catch and eat the beetle. On the beetle, add a forever loop: if touching Dinosaur4, go to random position. Pupils chase until a catch makes the beetle jump away.
10. Add a backdrop. Open the backdrop library and add Jurassic so the stage matches the dino theme.
11. Wrap up. Replay once as a class. Name what they built: sprites, key control, forever motion, touching, backdrop. Keep it spoken, not written.

WHAT TO WATCH FOR

- Students may think: Pupils set left as direction 90 instead of minus 90, so left and right feel swapped or the sprite faces the wrong way. What to do: Pause at the left-arrow block, read the direction value aloud, and retest only left and right until facing matches the key.
- Students may think: Pupils put the touching check outside a forever loop, so the beetle only tests once and never respawns during play. What to do: Ask when the check should run. Guide them to nest if touching inside forever, then green-flag and chase again.
- Students may think: Pupils expect the beetle to vanish for good when caught, or forget size and random position on the beetle green flag. What to do: Retell the design: a catch sends the beetle to a new random place. Replay green flag and confirm size 30 percent plus random start.

DIFFERENTIATION

- Emerging: Pair them with a partner and sit with them to find Dinosaur4 and Beetle in the library, then build one key script at a time. Have them copy only the up-arrow stack first and test it before any other directions.
- Developing: Prompt them to test after each step: green flag for size, then each arrow, then beetle bounce, then a catch. Ask them to read their forever stack aloud so they can spot a missing move or bounce block.
- Proficient: Ask them to explain why the beetle needs forever for both bouncing and the touching check. Challenge them to keep testing and refining feel, for example whether 10 steps or beetle speed 2 still feels fair, without adding new tools.