

Shark Tank

40 minutes

Exploring Coding

WHAT THIS LESSON DOES

In this lesson, students will learn how to create a game in Scratch where a shark tries to catch fish. They will learn how to control the shark using the keyboard, make fish disappear when caught, and use the 'touching' block to detect sprite collisions.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Students will understand how to create a new project in Scratch and add sprites and backdrops to their project.
- Students will learn how to control the movement of sprites using the arrow keys on their keyboard.
- Students will be able to use the touching block to detect when one sprite collides with another.
- Students will learn how to make a sprite disappear when it is caught by another sprite.
- Students will gain experience in troubleshooting and debugging their code.
- Students will develop an understanding of the iterative process of coding and the importance of practice in improving their skills.

BEFORE THE LESSON

- Open and test the Scratch website on class devices and confirm the school filter allows it.
- One device per pupil or pair, with a working keyboard for arrow-key control.
- Have pupils ready to click Create on Scratch so projects start blank.

Shark Tank

HOW THE LESSON RUNS

Introduction
Create a new project
Add an underwater backdrop
Add a Fish Sprite
Make the Fish Swim
Add the Shark Sprite
Moving the Shark
Catching the Fish
Congratulations!

TEACHING MOVES

- 1. Introduction. Frame the goal out loud: build a shark-chases-fish game, steer with arrow keys, and use the touching block so the fish hides when caught.
- 2. Create a new project. Get everyone to Create on Scratch, then delete the cat sprite together so the stage is empty before assets go in.
- 3. Add an underwater backdrop. Show Choose a Backdrop at the bottom right. Help them scroll to Underwater 1 and confirm the stage looks like the seabed.
- 4. Add a Fish Sprite. Open Choose a Sprite, add Fish, and have them drag it to the middle of the stage so it is easy to see.
- 5. Make the Fish Swim. On the Fish, build swim code with move and if-on-edge-bounce, shrink it by half, and stress the opening show so it reappears each green flag.
- 6. Add the Shark Sprite. Add Shark 2, drag it toward the top of the stage, then set size to 60% when the green flag is clicked.
- 7. Moving the Shark. Build four arrow-key scripts on the shark: each key points it that way, then moves 10 steps. Test all four directions.
- 8. Catching the Fish. Select the Fish sprite. Add forever, if touching Shark 2 then hide. Run the green flag and watch a catch hide the fish.
- 9. Congratulations! Celebrate working games. Ask one or two pupils to say one thing they fixed while debugging, then encourage more practice in Scratch.

WHAT TO WATCH FOR

- Students may think: Pupils put the touching and hide code on the shark instead of the fish, so nothing disappears when they meet. What to do: Ask which sprite is selected in the sprite pane. The forever touching hide script belongs on the Fish.
- Students may think: After one catch, the fish stays hidden on the next green flag because there is no show at the start. What to do: Point back to the show block at the start of the fish script and rerun from the green flag.
- Students may think: Arrow keys move the shark without turning it, or scripts are missing for one direction. What to do: Check each key has point in direction then move 10 steps, and test up, down, left and right in turn.

DIFFERENTIATION

- Emerging: Seat them with a partner and stay for Create, deleting the cat, and adding the first backdrop and sprite. Let them steer the shark while a partner handles snapping the fish swim and hide blocks.
- Developing: If the catch fails, prompt them to check the Fish is selected and the touching block names Shark 2. Have them explain the green-flag order on the fish: show, swim, then the forever hide check.
- Proficient: Challenge them to add a second sea creature and hide it with the same touching pattern. Invite them to change the shark's step size and test how control feels.