

Star Chaser

60 minutes

Dynamic Digital Projects

WHAT THIS LESSON DOES

This lesson guides students through creating a fun game called 'Star Chaser'. They will learn how to use variables to keep score and how to create and control clones in Scratch. The game involves a character named Ripley chasing stars, with the score increasing each time a star is caught.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Develop understanding and practical application of 'variables' in coding.
- Gain proficiency in creating and controlling 'clones' within a digital project.
- Acquire skills to manipulate sprite size and movement using specific code blocks.
- Learn to create a scoring system using variables in a game environment.
- Enhance problem-solving and creative thinking skills through game development.

BEFORE THE LESSON

- Open scratch.mit.edu and check it loads and is not blocked by the school filter. Confirm you can create a new project.
- One device per pupil, or per pair if devices are short. Sound on, and headphones ready since the game plays a sound when a star is caught.
- Build the game yourself once beforehand so you know where the set size, create clone of, and when I start as a clone blocks live.

Star Chaser

HOW THE LESSON RUNS

Introduction

Create a New Project

Add the Stars backdrop

Add Ripley

Shrink and Move Ripley

Create a score variable

Add the Star Sprite

Hide the star and create clones

Program the Clones

Catch a Star

Game Time and Wrap Up

TEACHING MOVES

- 2. Create a New Project. Show pupils exactly how to delete the cat sprite: right-click it or use the bin icon. Some will hesitate to remove it because it is the default.
- 5. Shrink and Move Ripley. Have everyone click the green flag and check Ripley follows the mouse before moving on. If he does not move, the forever block or move block is usually missing.
- 6. Create a score variable. Explain a variable as a score that changes, like a football scoreboard. Watch that the variable is named exactly 'score' so the later change block matches.
- 8. Hide the star and create clones. Stress that set score to 0 and hide run once at the start, inside the green flag script. Nothing appears yet, and that is correct: clones do the work.
- 9. Program the Clones. Point out this script starts with 'when I start as a clone', not the green flag. This is the block pupils most often miss, and then no stars show.
- 10. Catch a Star. Check the 'if touching Ripley' block sits inside the forever loop on the clone script. Test that catching a star raises the score by one and plays a sound.
- 11. Game Time and Wrap Up. Give a few minutes to play and beat a high score, then ask two or three pupils to say aloud what the variable and the clones each do.

WHAT TO WATCH FOR

- Pupils attach the clone behaviour script to the green flag instead of to 'when I start as a clone', so no stars ever appear. Show that clones need their own hat block. Have them find 'when I start as a clone' and rebuild the show and move script under it.
- Pupils think the original Star sprite should be visible, and worry when it hides at the start. Explain the original stays hidden as a template and the clones are the stars they see. Point to the hide block and the create clone block together.
- The score does not go up because the change block or the touching check is outside the forever loop. Have them drag the 'if touching Ripley' block inside the clone's forever loop and confirm change score by 1 sits inside the if.

DIFFERENTIATION

- Emerging: Pair them with a partner and do the first script, shrink and follow the mouse, together on one screen before they try alone. Give the block names to look for out loud, category by category, rather than expecting them to hunt the whole palette.
- Developing: Let them copy the scripts step by step but ask them to predict what each block will do before clicking the green flag. When something breaks, ask which block is missing rather than fixing it for them.
- Proficient: Once the game works, challenge them to change the wait time so stars appear faster, or change Ripley's move steps to make him quicker. Ask them to add a second variable or a timer, using only Scratch blocks they can find themselves.