LESSON 4

Paddle Ball Game

60 minutes | Introduction to Coding

WHAT THIS LESSON DOES

Get ready to create your very own Paddle Ball Game in Scratch! Follow step-by-step instructions to move sprites, change backdrops, and use sensing blocks. By the end, you'll have a fun game to play and share with friends.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Develop skills in using Scratch to create a simple game.
- Understand and apply the concept of sprites and backdrops in Scratch.
- Learn to control sprite movements using mouse input.
- Implement game logic using conditional statements in Scratch.
- Understand and apply the concept of X and Y coordinates to position sprites.

BEFORE THE LESSON

- Open Scratch on the classroom board and log in, so you can model each block live rather than describe it.
- Check every device can reach Scratch and that pupils are logged into their own accounts, so they can save and keep their game.
- Build the finished game yourself once beforehand: the coordinate values, the ccw turn and the exact red colour matching are the fiddly points you will be asked about.

Paddle Ball Game

HOW THE LESSON RUNS

Introduction
Create a new Scratch project
Add the paddle sprite
Add the football sprite
Position the ball
Make the ball bounce around
Create a speed variable
Control the paddle
Make the ball bounce off the paddle
Add a backdrop
Add the game over line
Program game over

TEACHING MOVES

- 2. Create a new Scratch project. Show how to delete the cat by right-clicking it. Point out this happens at the start of nearly every project, so it is worth remembering.
- 3. Add the paddle sprite. Stress leaving a gap between the paddle and the bottom of the stage. Tell them this space matters later for the game-over line, so do not push the paddle to the very bottom.
- 5. Position the ball. Point at the centre of the stage and say that is X:0 Y:0. Walk right for X, up for Y. Have them run the green flag and watch the ball jump to the top.
- 6. Make the ball bounce around. Run it and let them watch the ball pass straight through the paddle. Tell them plainly: we have not programmed that bounce yet, that comes later.
- 7. Create a speed variable. This is the key idea. Before running, ask them to predict what changing set speed to 10 into 20 will do. Watch for the speed block dropped beside the move block instead of into its number slot.
- 8. Control the paddle. Show a block dragged inside another block's box. The inner mouse x block gives the value the outer set x block uses. Run it and wiggle the mouse so they see the paddle follow.
- 9. Make the ball bounce off the paddle. Point out the small black arrow on the touching block that opens its drop-down menu to choose the paddle. Explain change speed by 0.5 makes the game get harder the longer they last.
- 11. Add the game over line. Model drawing the red line in the Backdrop Editor, in the gap you left under the paddle. Draw it clearly and solid so the ball can sense it.
- 12. Program game over. Warn that the colour in the touching color block must exactly match the red they drew. Explain stop all halts every script, which is what game over means here.

WHAT TO WATCH FOR

- Pupils drop the round speed block next to the move block rather than into its number slot, so the ball keeps moving at the old fixed value. Zoom the board in and show the block clicking into the white oval inside move. Have them delete and re-drop it until it sits inside the slot.
- Pupils think the ball goes through the paddle because their code is broken, when in fact the bounce has not been programmed yet. Reassure them the ball is meant to pass through at this stage. The bounce is added at the bouncing step, so nothing is wrong yet.
- The game-over line does nothing because the colour in the touching color block does not exactly match the red they drew. Show them clicking the colour patch in the block and using the dropper to pick the exact red from their line, rather than guessing the shade.

DIFFERENTIATION

- Emerging: Sit beside them for the delete-cat and add-sprite steps until dragging and dropping is comfortable, then let them continue. Give them the coordinate values and block names out loud one at a time so they build one line before hearing the next.
- Developing: Let them work but pause them at the variable step to explain in their own words what speed is storing. Pair them with a partner so one reads the target code aloud while the other builds it.
- Proficient: Once playable, challenge them to change the starting speed or the amount it speeds up on each hit and describe the effect. Ask them to pick a different backdrop or paddle sprite and get the game working again with it.