

## LESSON 25

# Microbit Paddle Ball

60 minutes (2 periods)

Intermediate Robotics & Engineering

### WHAT THIS LESSON DOES

Get started with creating a fun paddle ball game using Scratch and a Microbit. Follow step-by-step instructions to build your game, from setting up sprites and coding ball movement to controlling the paddle with Microbit tilts.

### WHAT STUDENTS SHOULD BE ABLE TO DO

- Develop skills in creating and managing a new Scratch project.
- Understand and apply the concept of adding and positioning sprites in Scratch.
- Gain proficiency in coding for sprite movement, interaction, and control using Scratch blocks.
- Learn to integrate and use a Microbit with Scratch for real-time control of sprites.
- Enhance critical thinking and problem-solving skills by identifying potential improvements to the game.

### BEFORE THE BELL

- To spark student creativity, begin by encouraging them to think about real-world games that inspire their coding project. Prepare by ensuring Scratch and Microbit tools are set up, guiding students through sprite additions and coding for movement and interaction. Facilitate engagement by prompting discussions on game mechanics and potential improvements. Focus on key concepts like coordinates, conditionals, and sensor integration. Watch for challenges with Microbit connectivity or code debugging, offering one-on-one support as needed. For effective delivery, foster a playful atmosphere, allowing students to test and tweak their games iteratively for deeper learning.

## Microbit Paddle Ball

### HOW THE LESSON RUNS

- Create a new Scratch project
- Add the paddle sprite
- Add the football sprite
- Position the ball
- Make the ball bounce around
- Connect your Microbit
- Control the paddle
- Make the ball bounce off the paddle
- Add a backdrop
- Add the game over line
- Program game over
- Improve the game?

### STEP BY STEP

#### Create a new Scratch project

New Scratch projects have the cat sprite automatically added to them so this step of deleting the cat (if it's not needed) will be frequently performed.

#### Add the paddle sprite

When students are doing the initial lessons they will start to become familiar with clicking (left clicking), right clicking and dragging items on the screen.

#### Position the ball

Using the X Y axis image get the students to point to different positions on the screen to help them understand X and Y coordinates. For example X:-100 Y:200 etc.

#### Program game over

The stop [all] block stops all code from running which means game over in this instance.