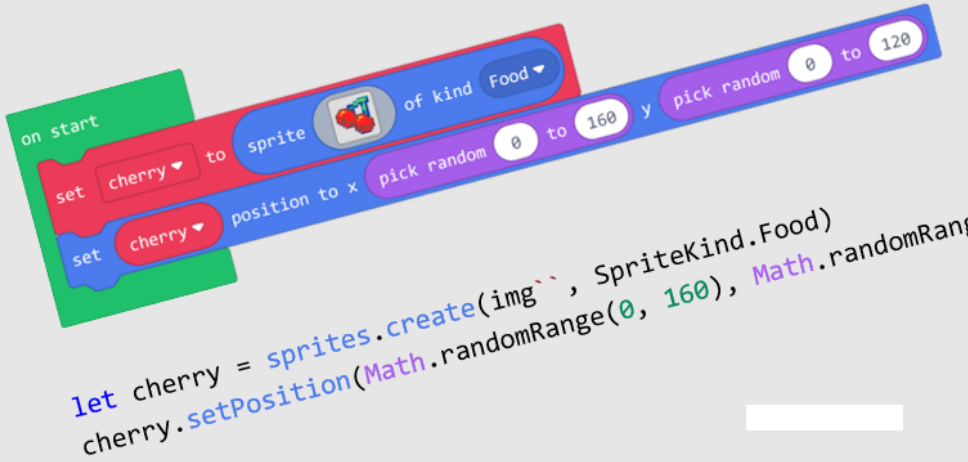
Microsoft



Microsoft MakeCode

< Instructor Name >

< Title >

How to create an Arcade Game

Microsoft MakeCode

Inspiring new generations of technology creators through immersive, hands-on computing education

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Microsoft

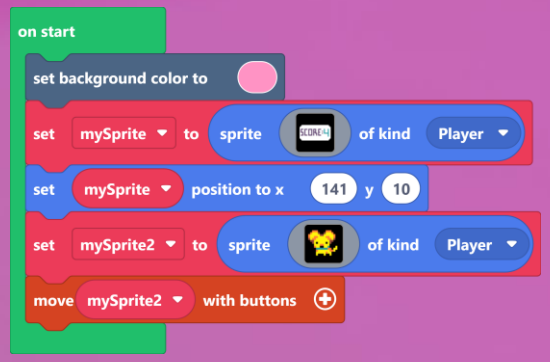
Three Main Code Editors

Physical Computing with micro:bit

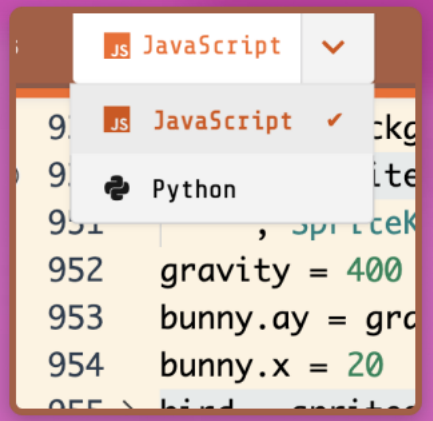
Mods in Minecraft

Retro Arcade Games

Blocks



Text

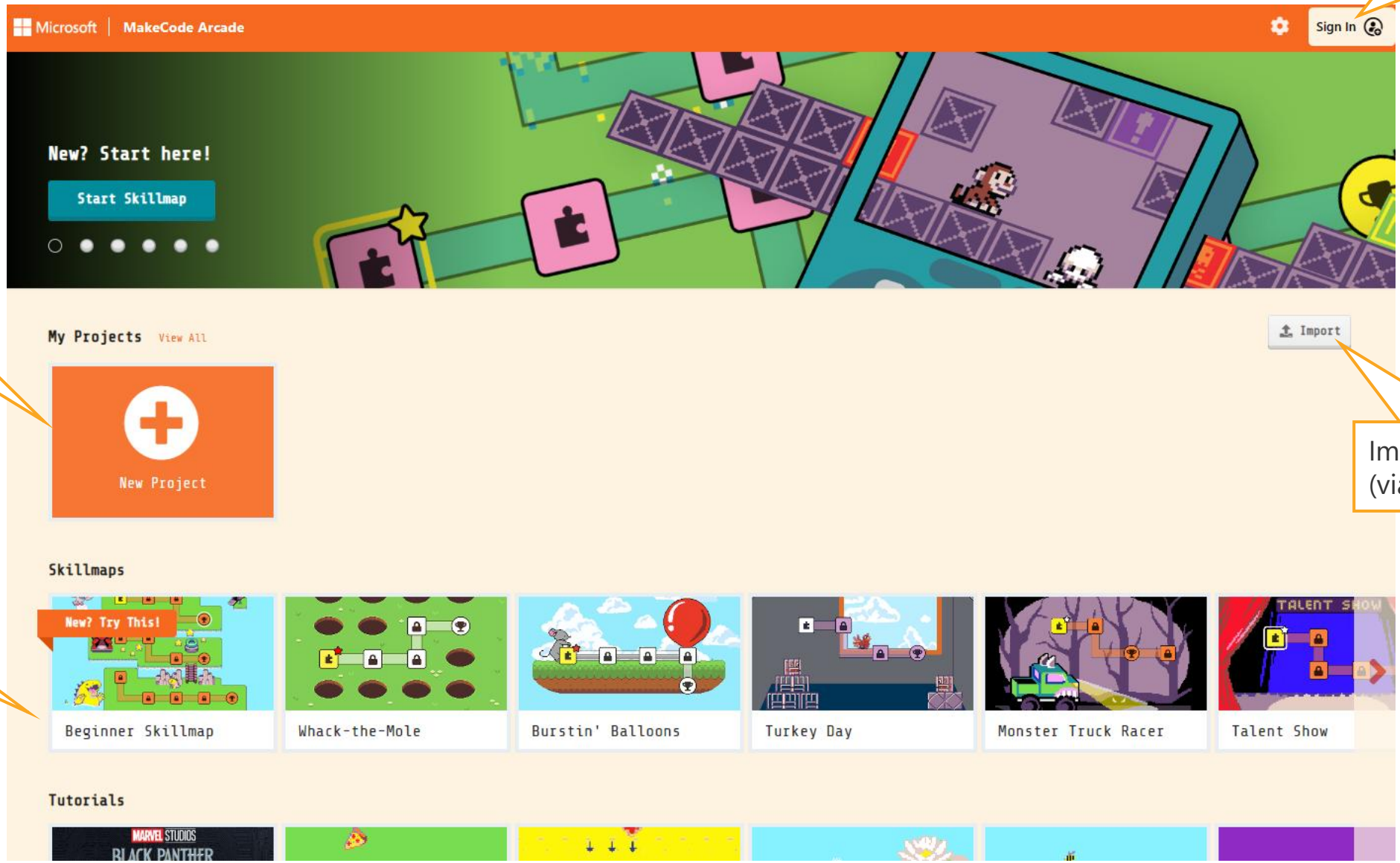


Let’s code a game!

Collect the bones but avoid the cars!

Open Browser: **arcade.makecode.com**

Optionally sign in to save to projects cloud



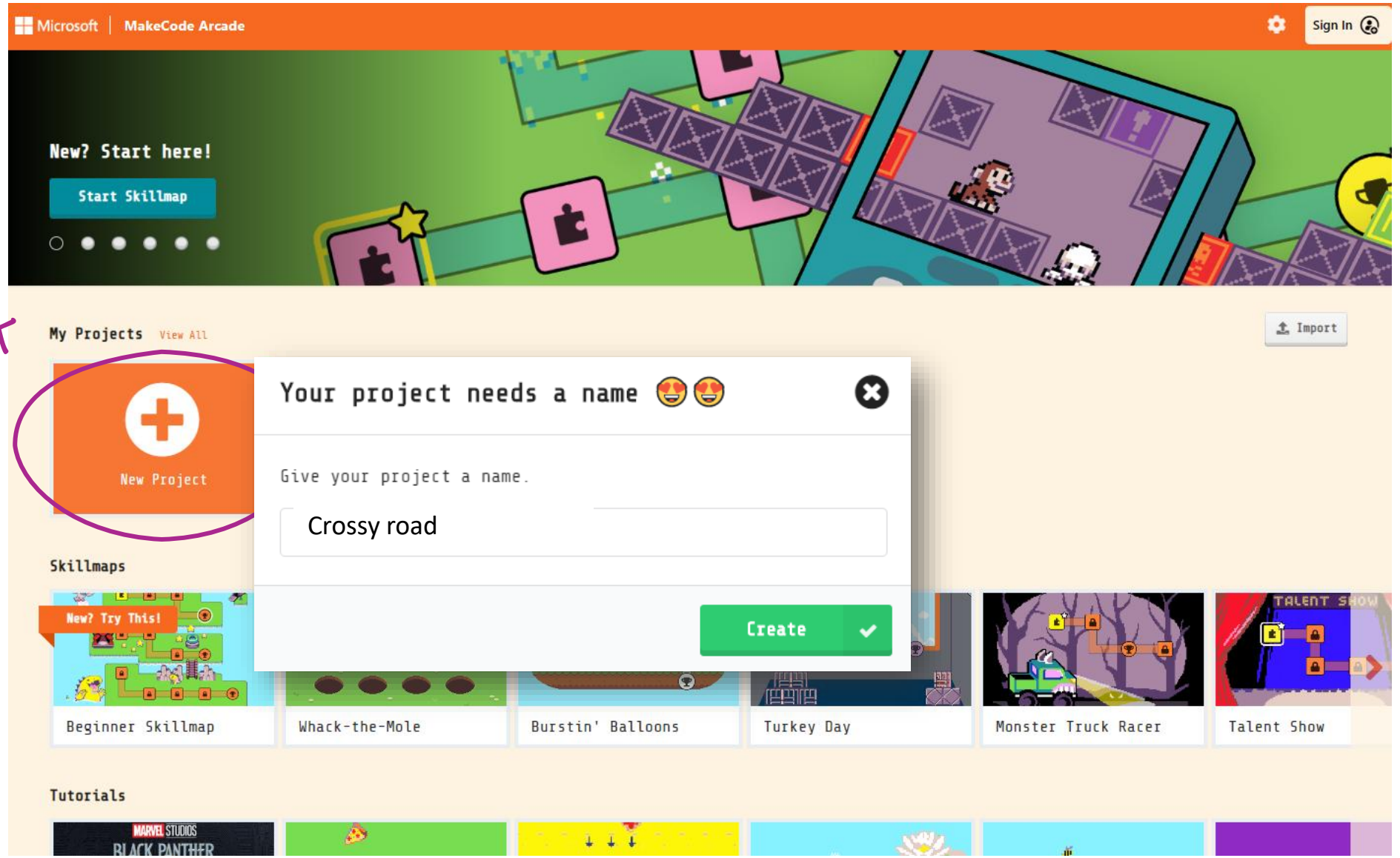
Create a New blank Project

Import Projects (via a File, or URL)

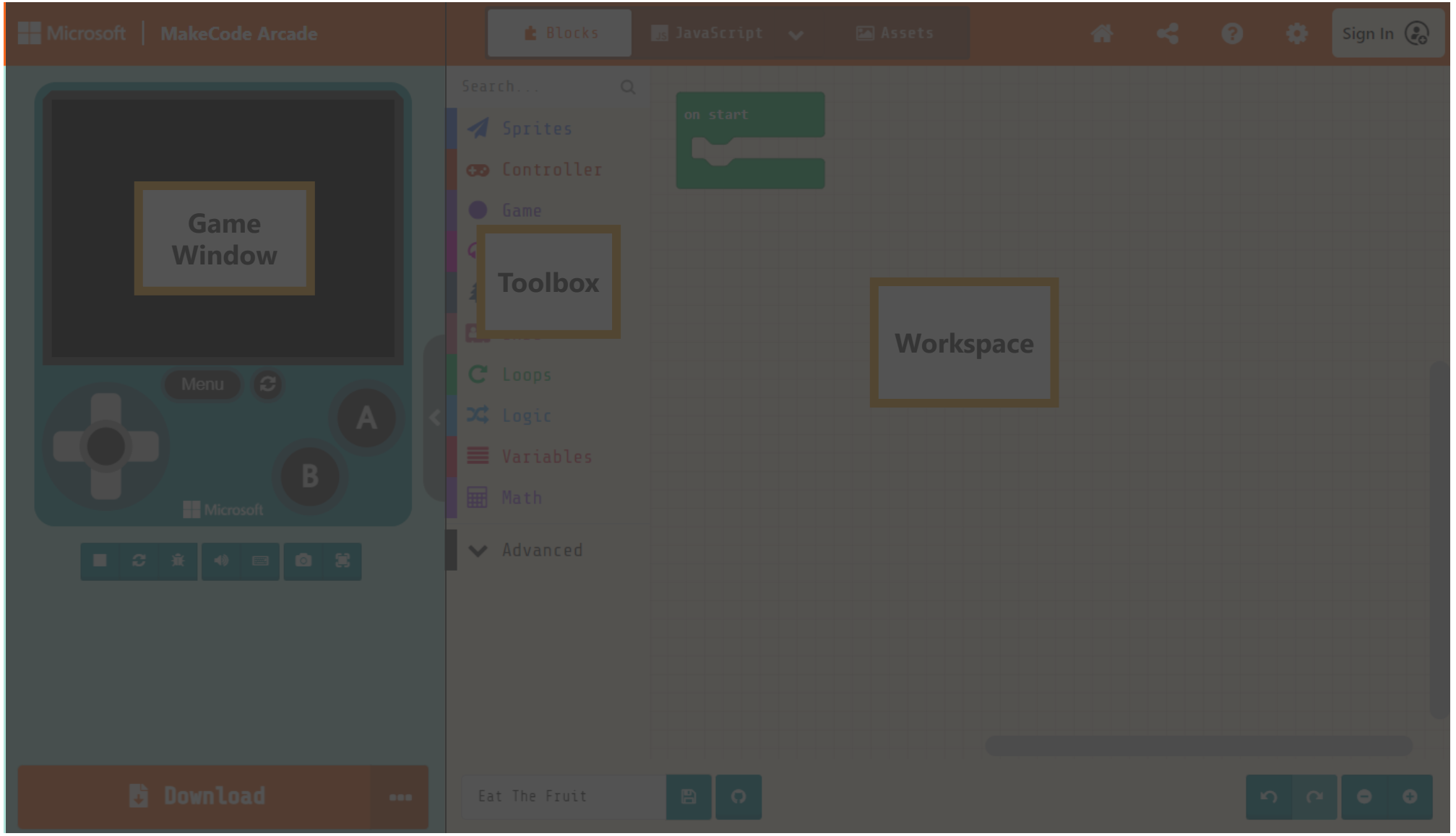
Step-by-step Skillmaps and Tutorials

Create a New Project

Click on New Project

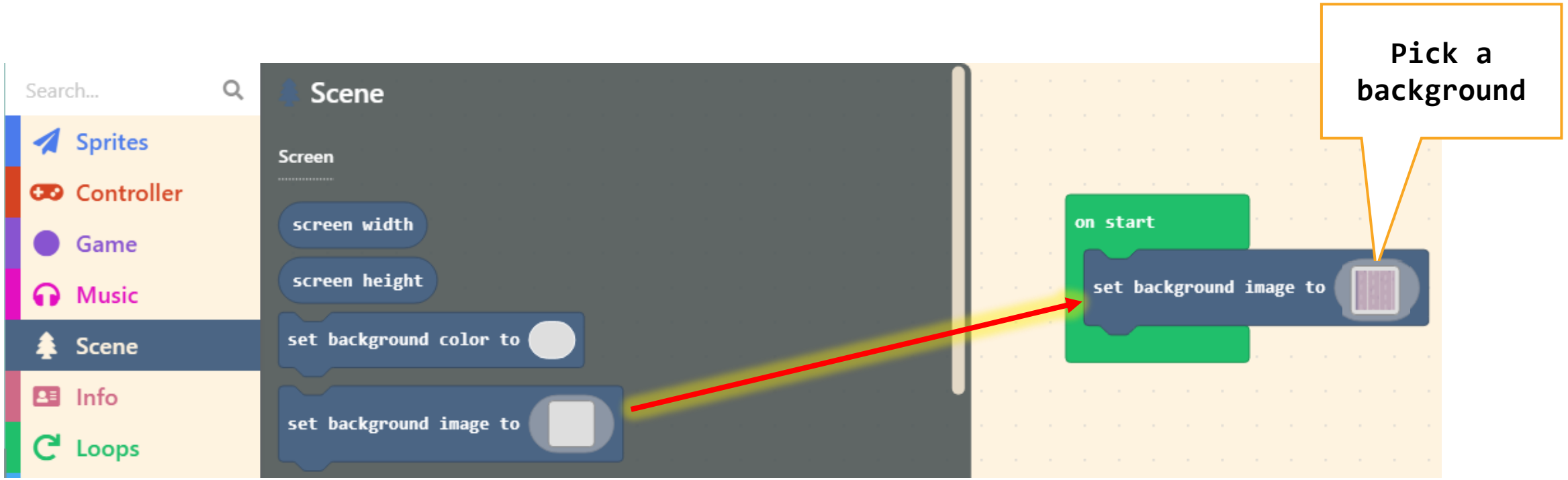


Getting familiar with MakeCode Arcade



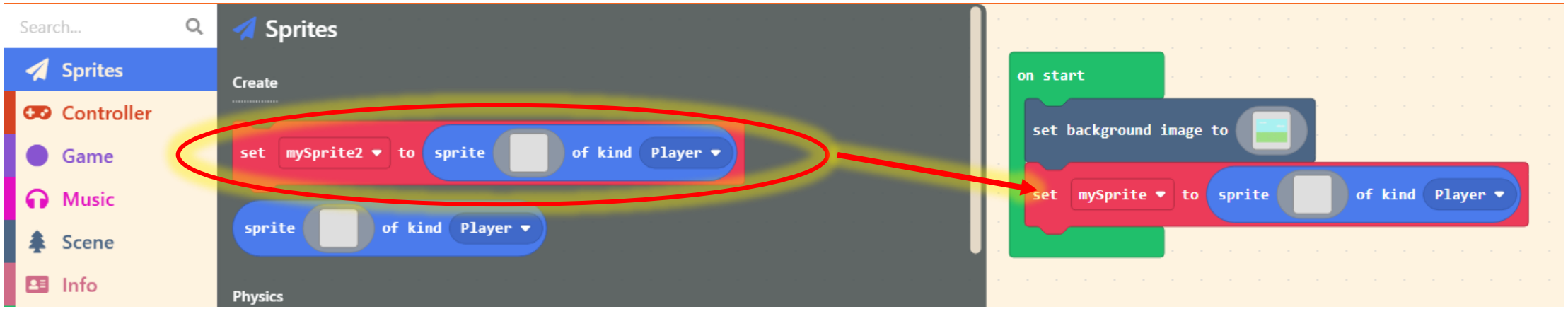
Set the background

- From the **Scene** Toolbox drawer, drag a **Set Background image** onto the Workspace
- Drop into the **On Start** block



Create a Player Sprite

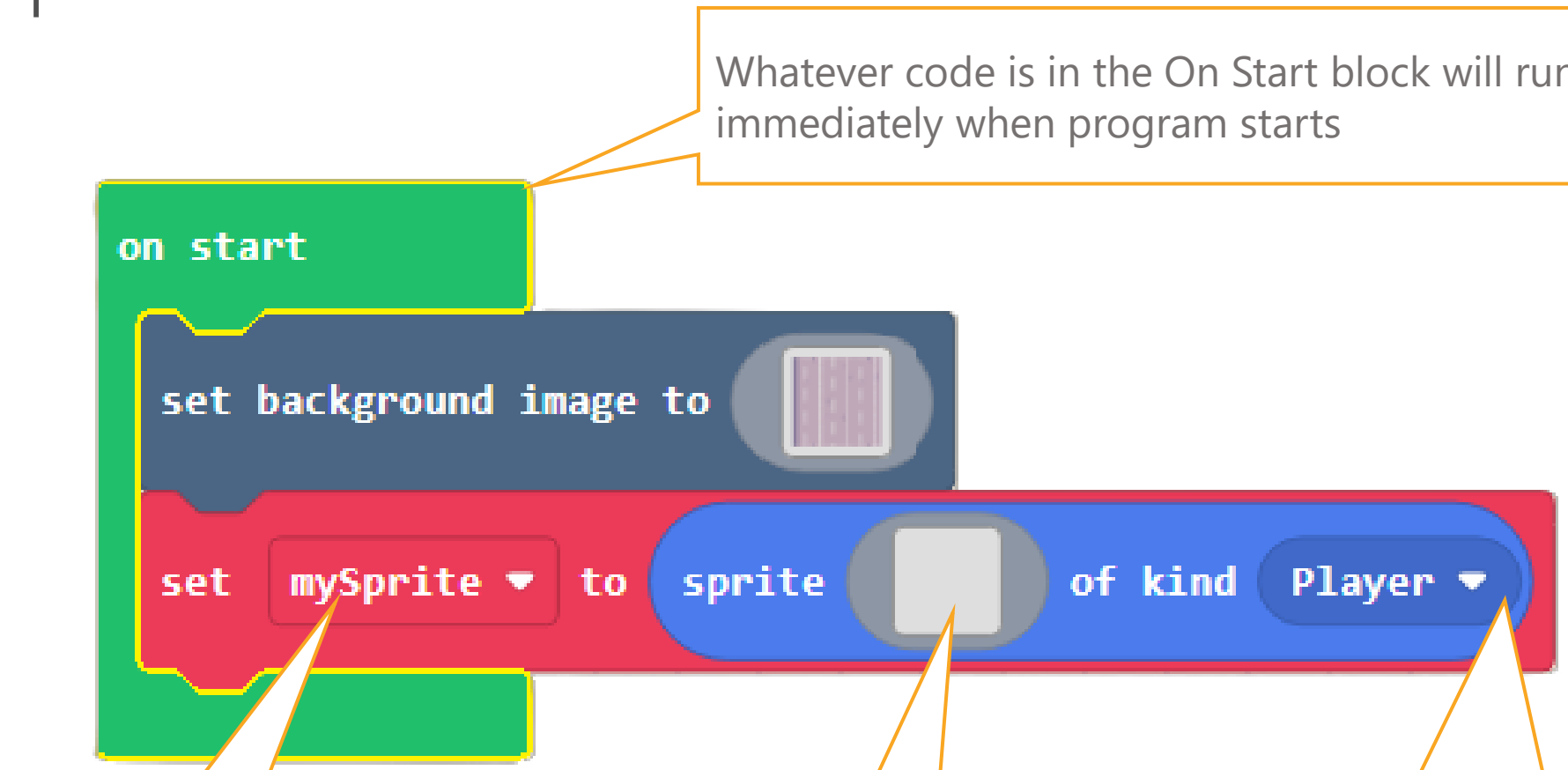
- From the **Sprites** Toolbox drawer, drag a **Set** sprite block onto the Workspace
- Drop into the **On Start** block after the **Set Background** block



Sprites

any object in a game that has properties and behaviors

Set Sprite block



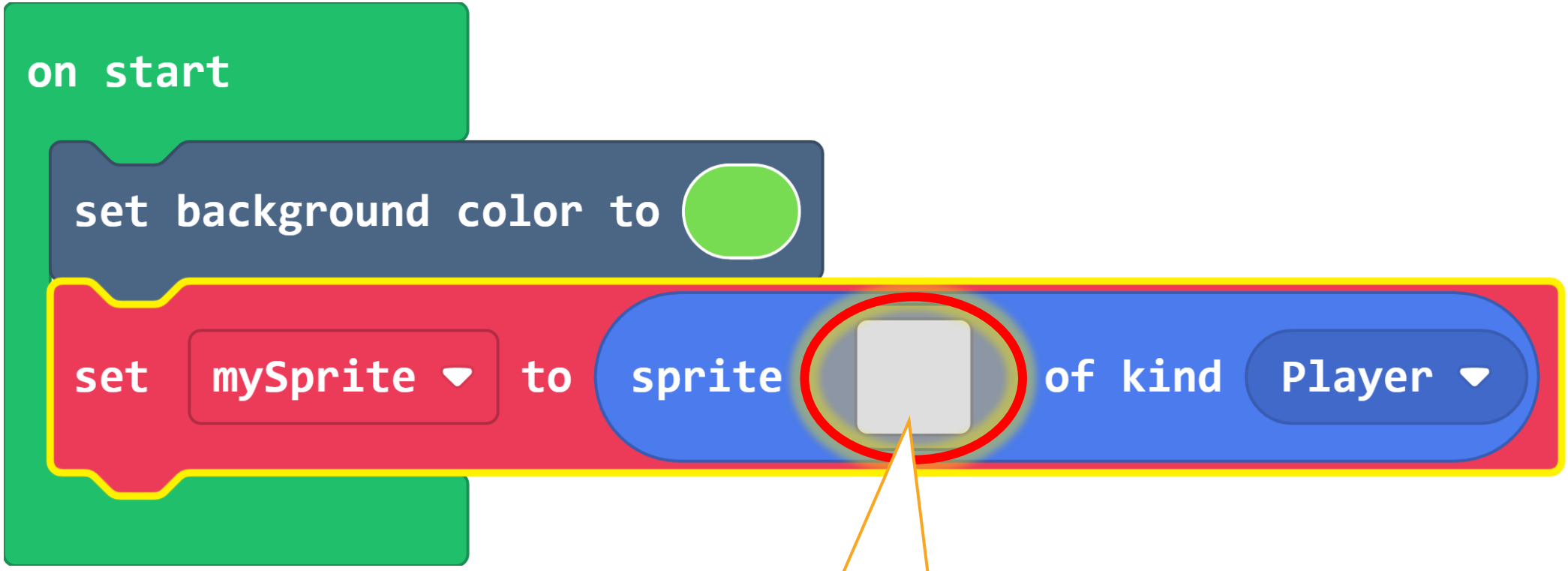
Whatever code is in the On Start block will run immediately when program starts

Sprite name

Sprite image

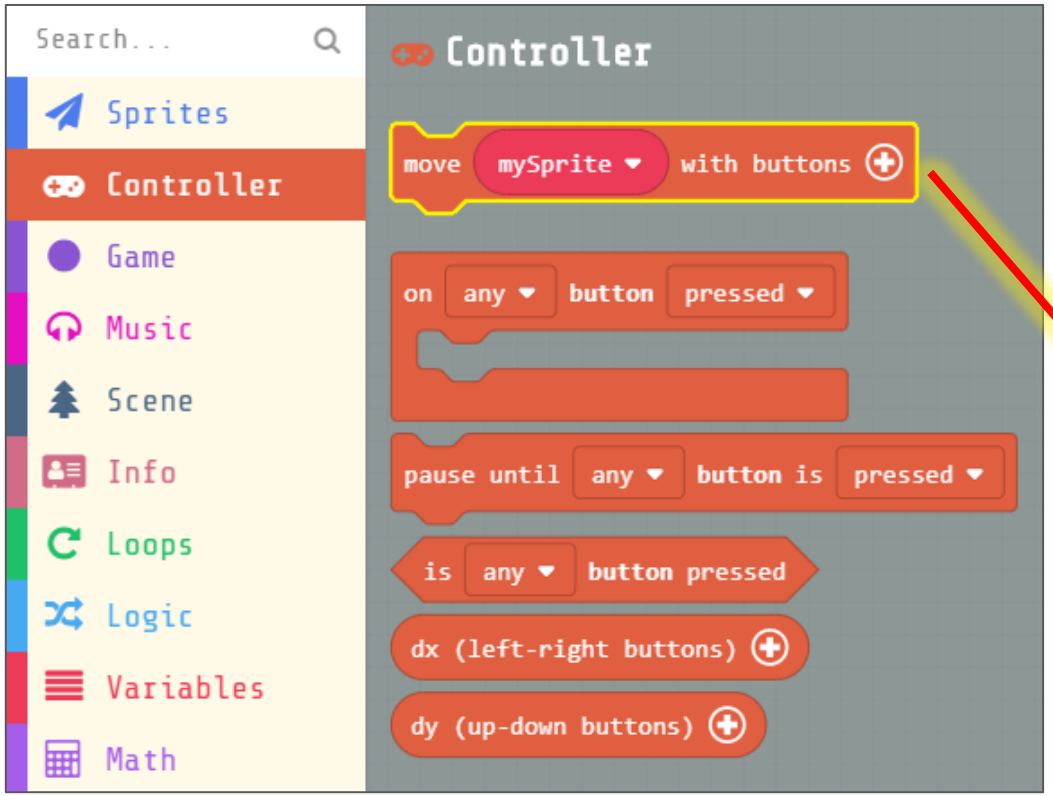
Sprite kind
(or the type of Sprite in your game)

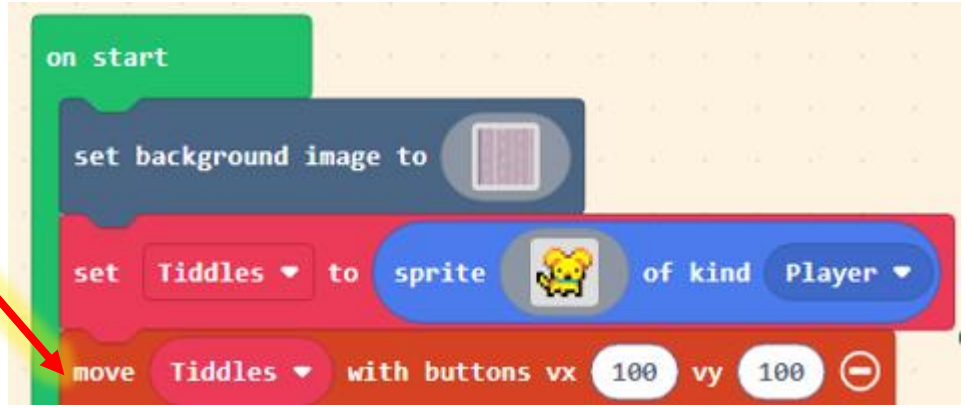
Set Sprite block



Control the movement of your Sprite

- From the **Controller** Toolbox drawer, drag a **Move** block onto the Workspace
- Drop into the **On Start** block after the **Set** sprite block



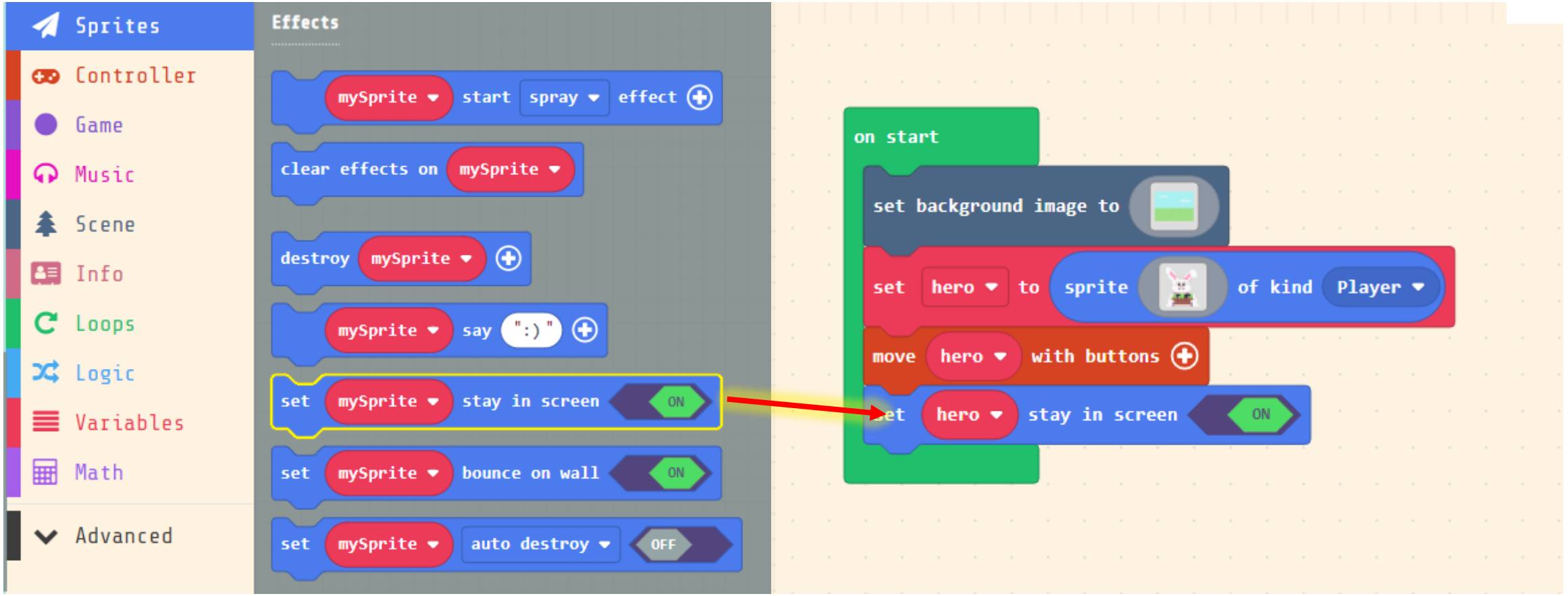


Try it out in Simulator

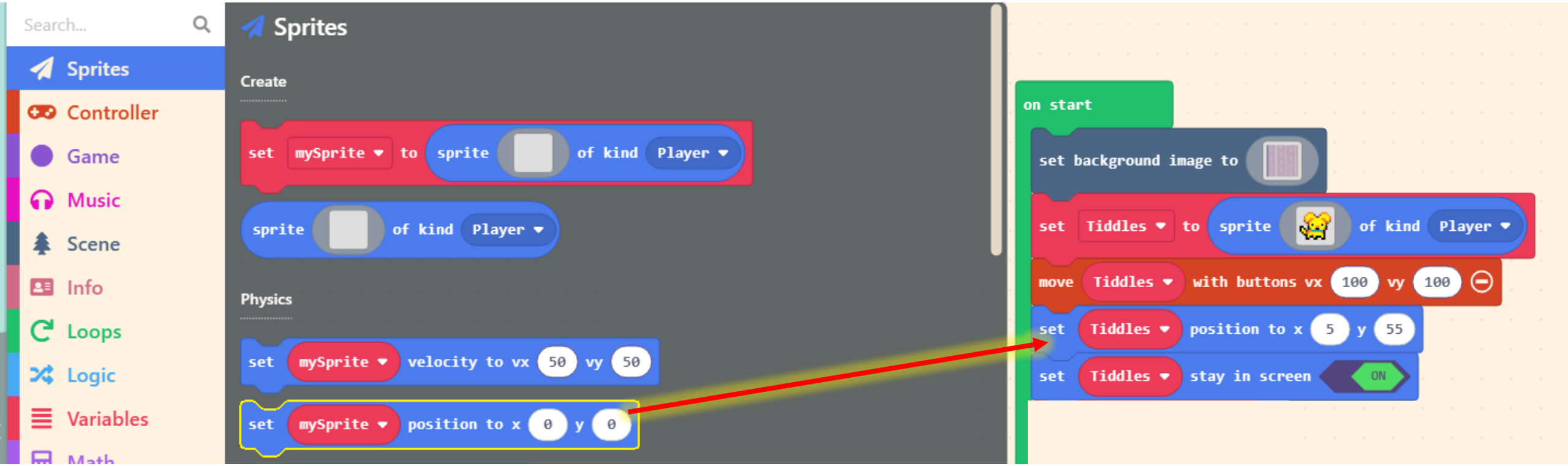
- Click on the joystick buttons in the Simulator to move your Sprite around the screen

- Or use the arrow keys on the keyboard (make sure the mouse is hovered over the Game window to activate controls)

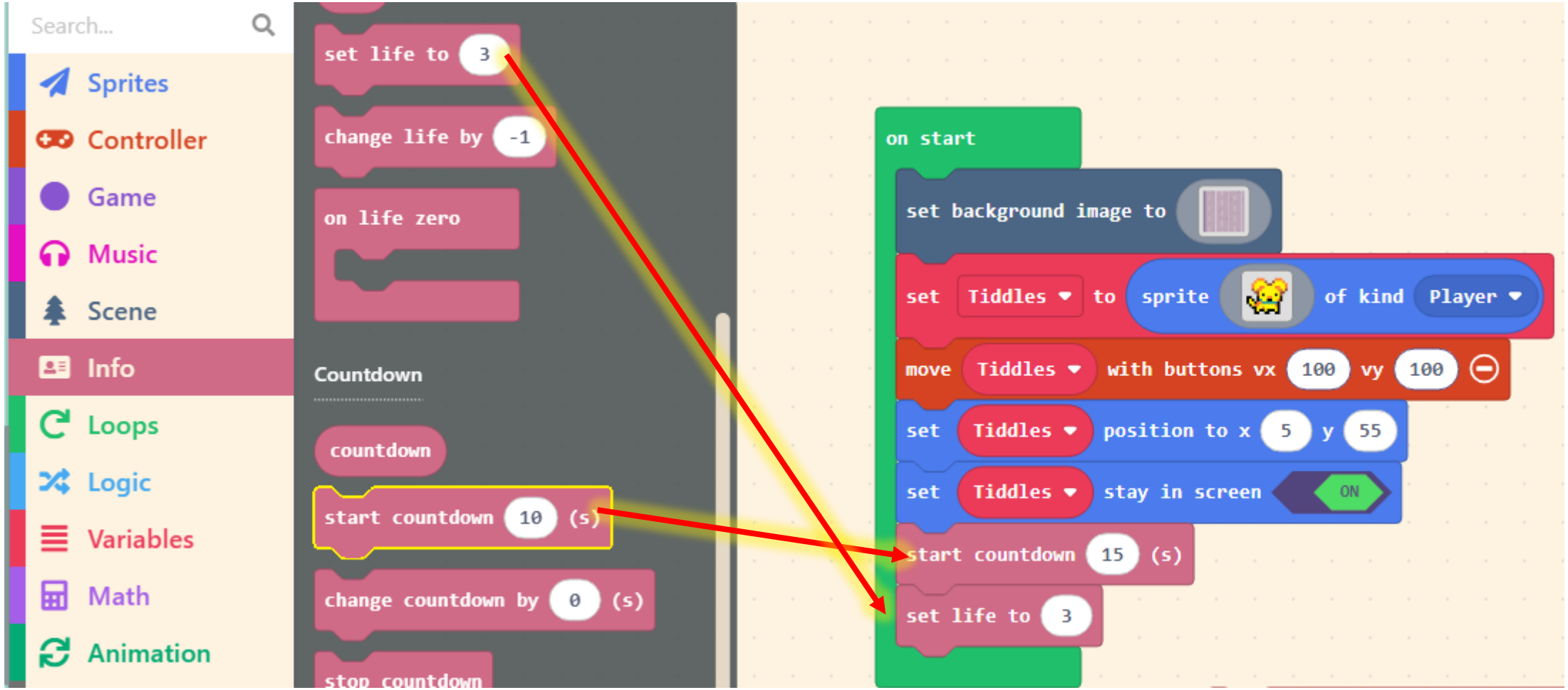
Keep Sprite in Screen



Decide where tiddles starts

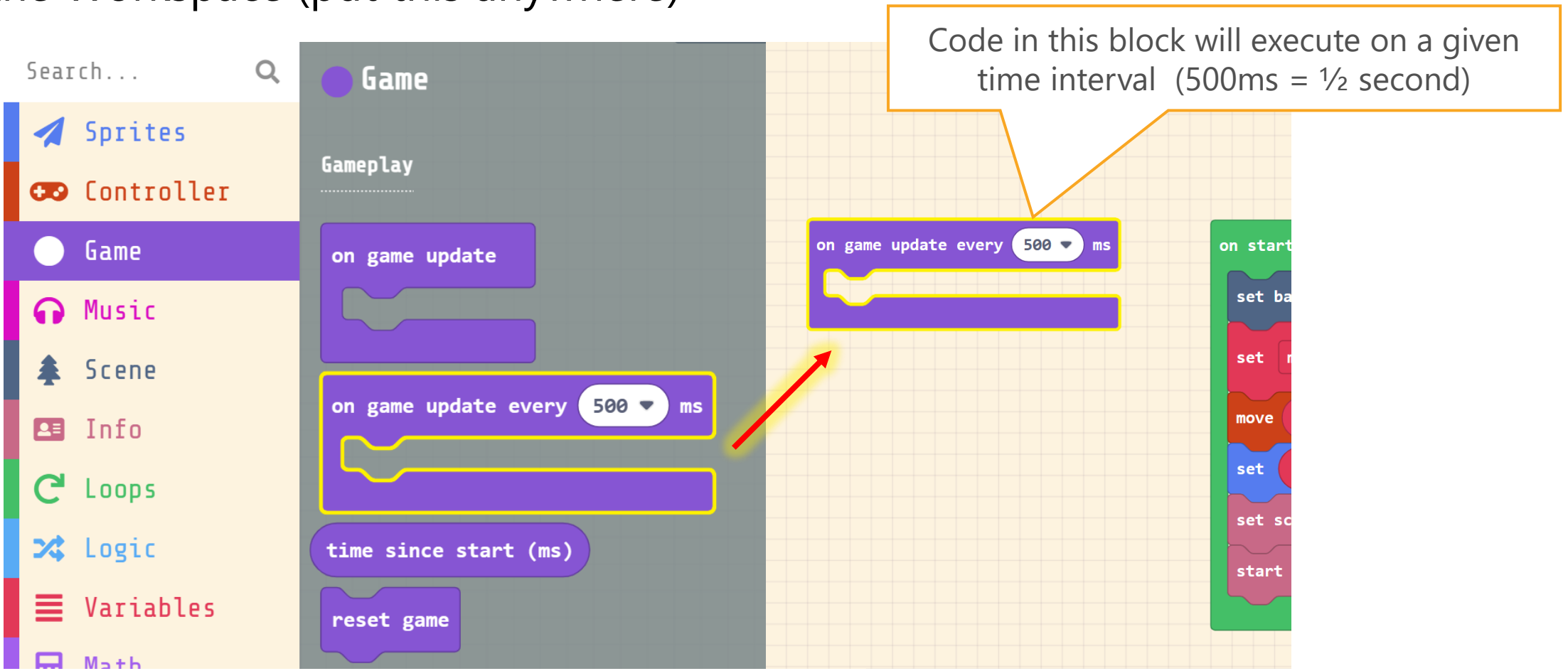


Add countdown and lives



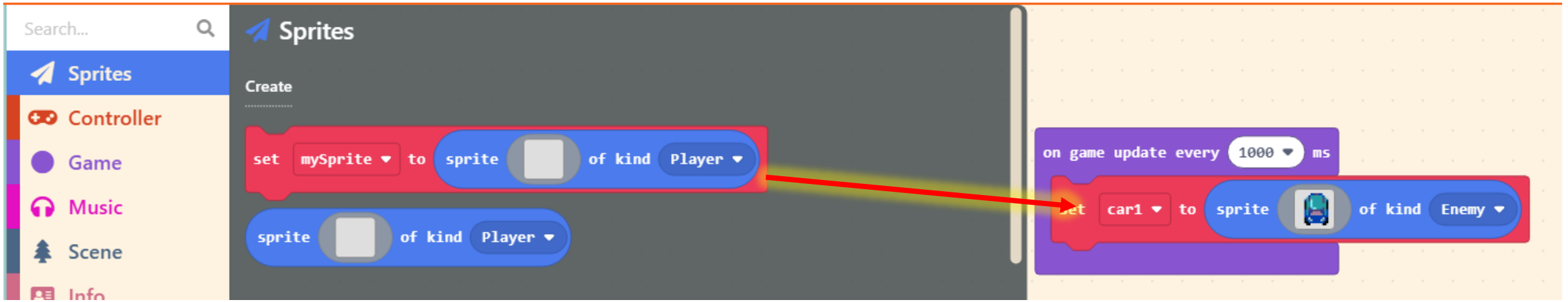
Create a flying car Sprite every 1 second

- From the **Game** Toolbox drawer, drag a **On Game Update Every** block onto the Workspace (put this anywhere)



Create a enemy flying car Sprite

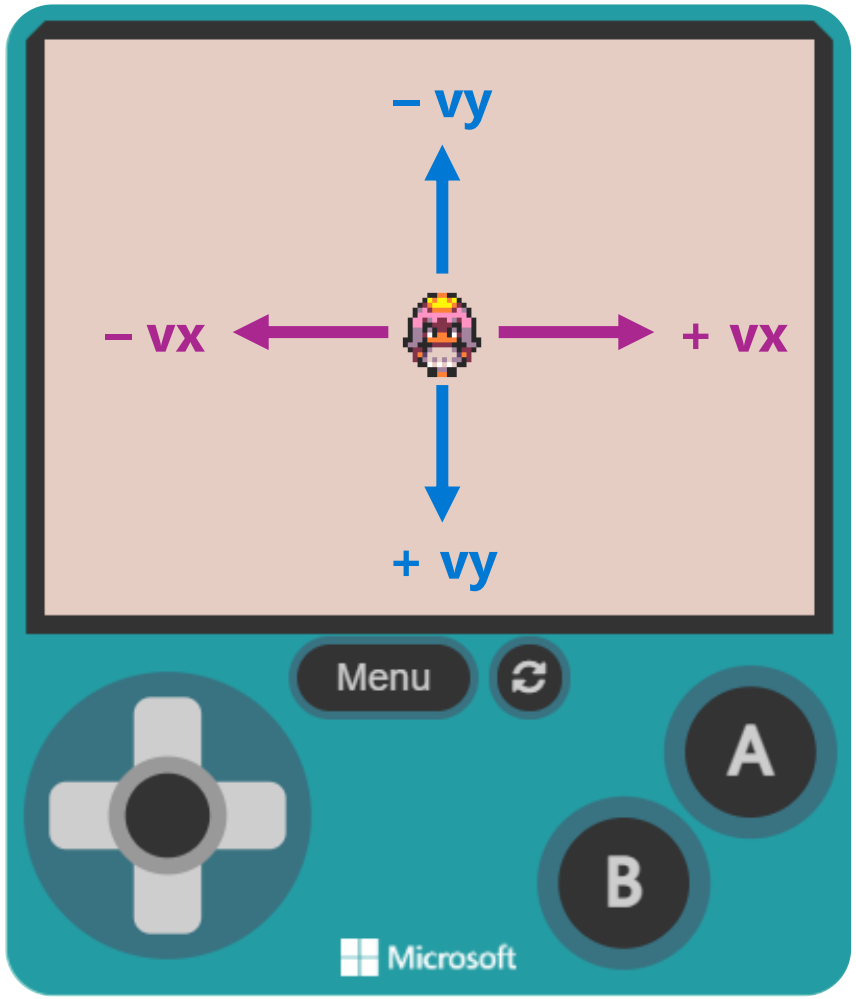
- From the **Sprites** Toolbox drawer, drag a **Set Projectile from side** block into the **On Game Update Every** block



Velocity = speed and direction

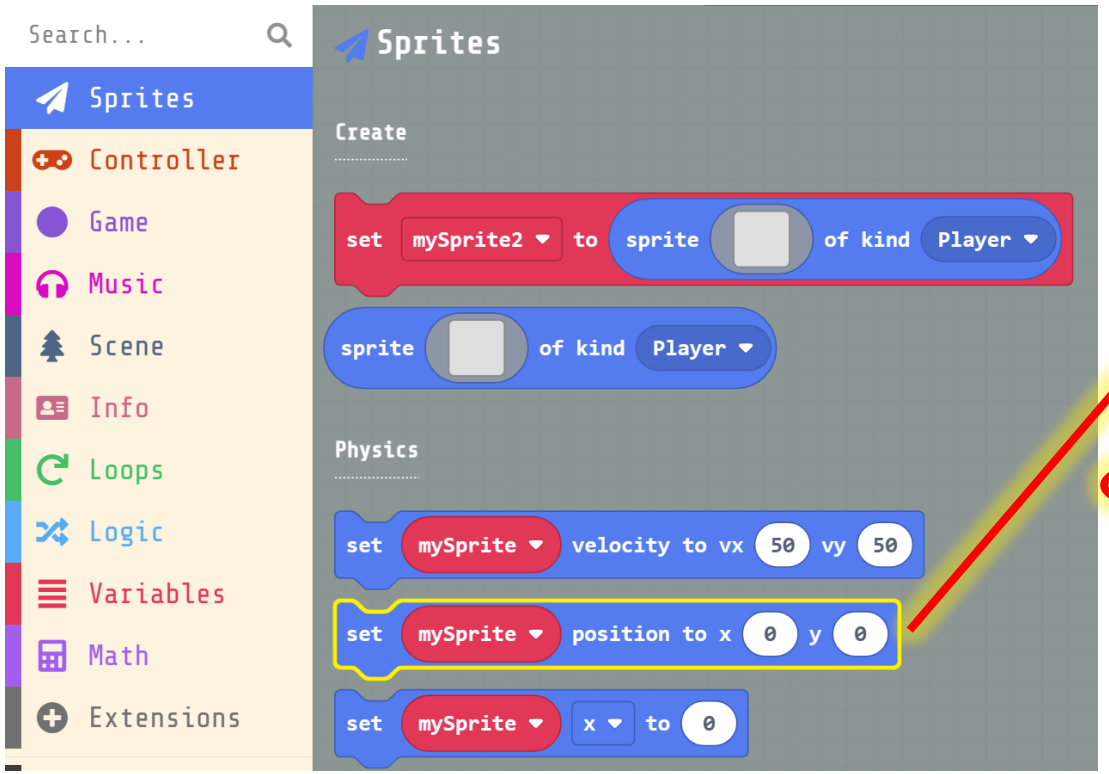
vx = horizontal movement
- positive value = left to right
- negative value = right to left

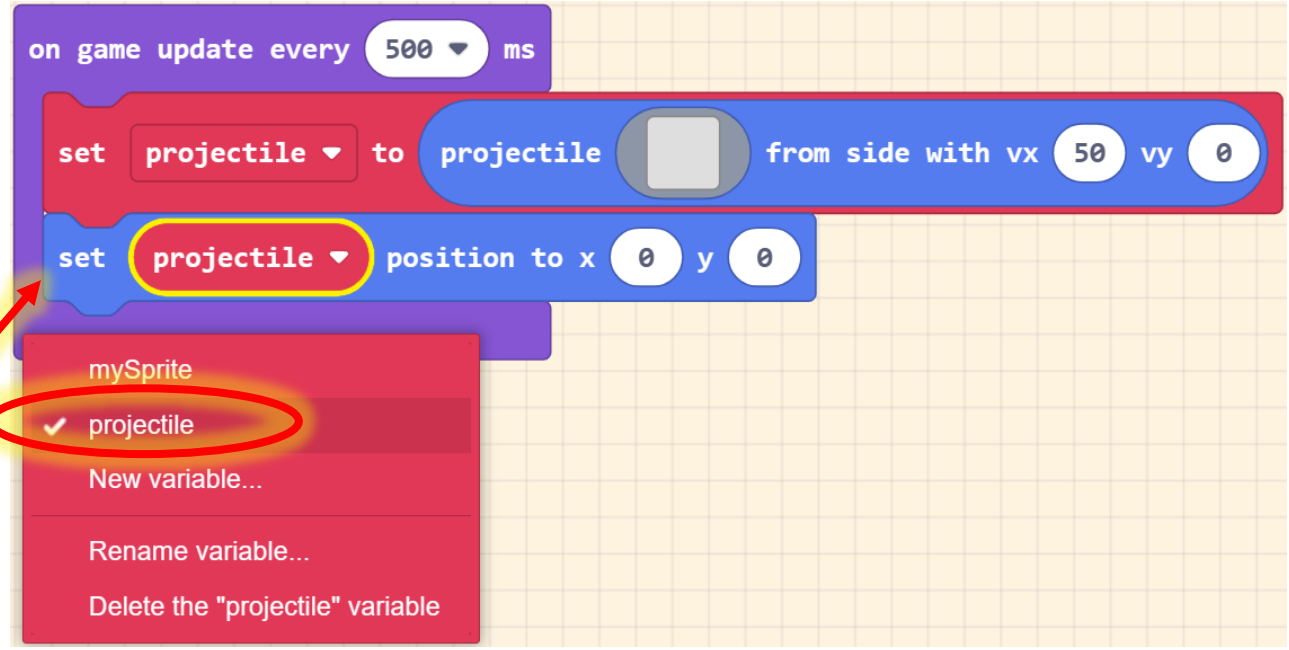
vy = vertical movement
- positive value = top to bottom
- negative value = bottom to top



Set the car starting position

- From the **Sprites** Toolbox drawer, drag a **Set Position** block into the **On Game Update Every** block
- Change mySprite variable to **projectile**





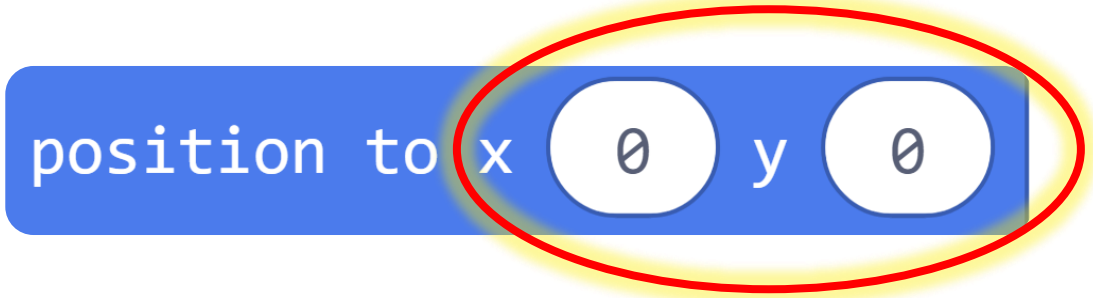
Coordinates

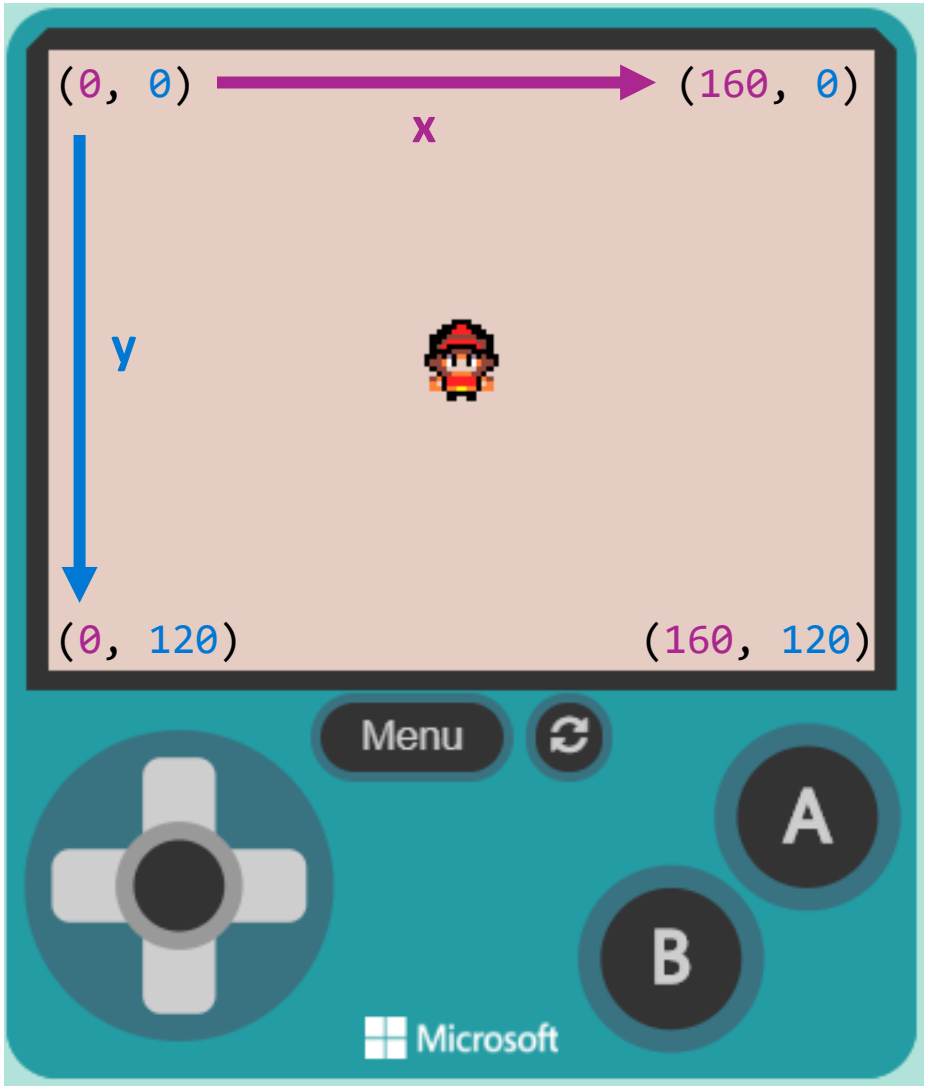
The Arcade game screen dimensions are:

160 pixels wide x **120** pixels high

x is horizontal

y is vertical





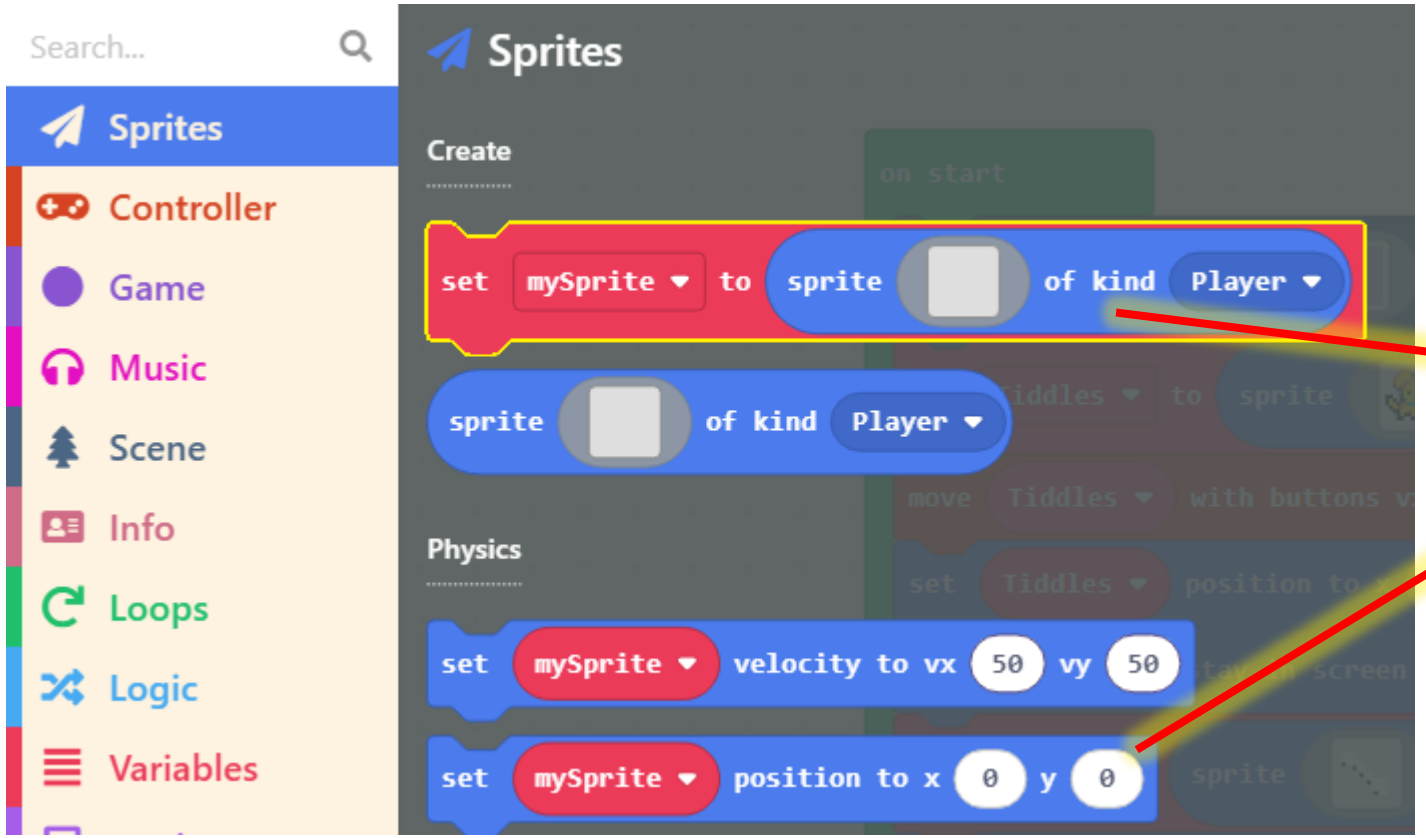
Start from the bottom at random places

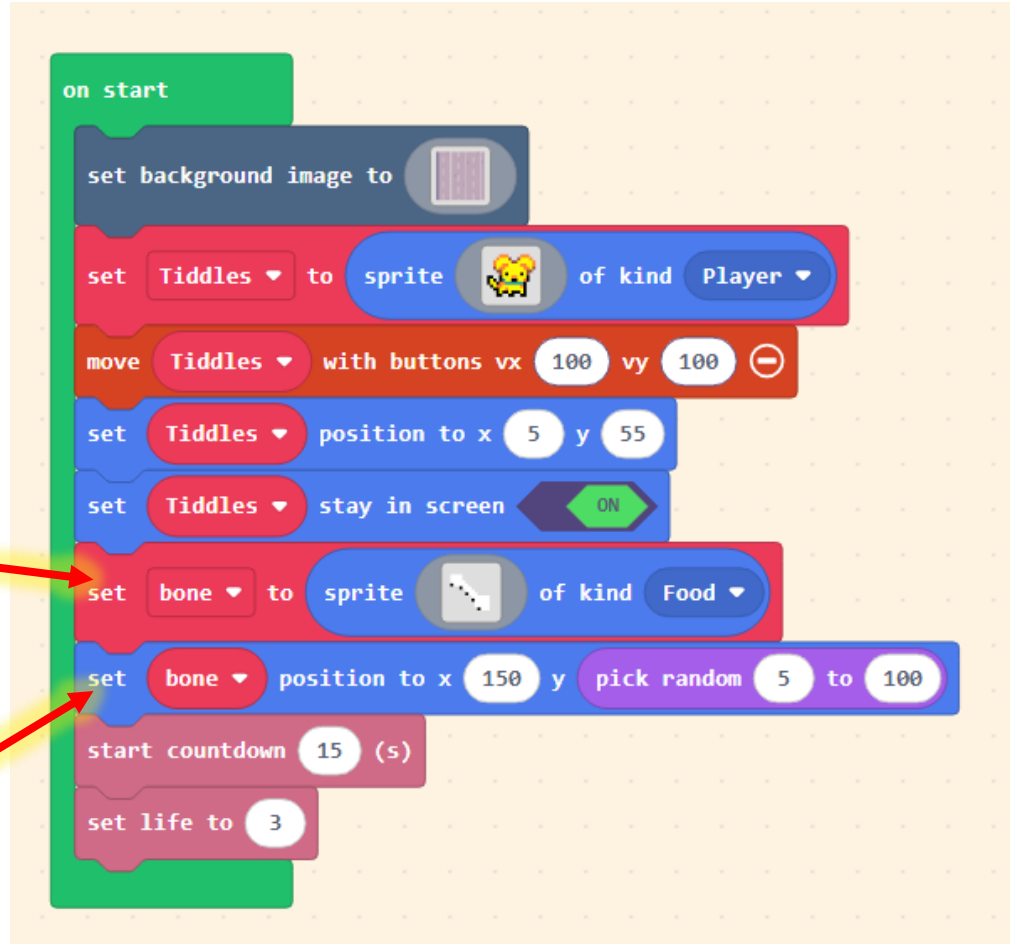
- From the **Math** Toolbox drawer, drag a **Pick Random** block, and drop into the **x** field of the **Set Position** block
- In Pick Random block, change values from 20 to 140 value to **120**

Make the speeds random

- From the **Math** Toolbox drawer, drag a **Pick Random** block, and drop into the **y** field of the **Set Position** block

Add a bone to collect



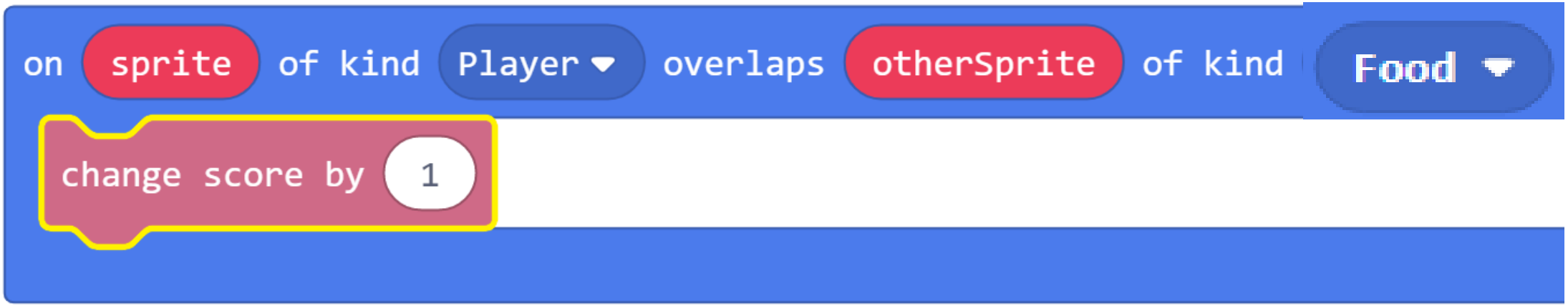


Add a point when you eat bone

- From the **Sprites** Toolbox drawer, under the **Overlaps** category, drag an **On Sprite Overlaps** block onto the Workspace
- Change the second sprite kind to **food**

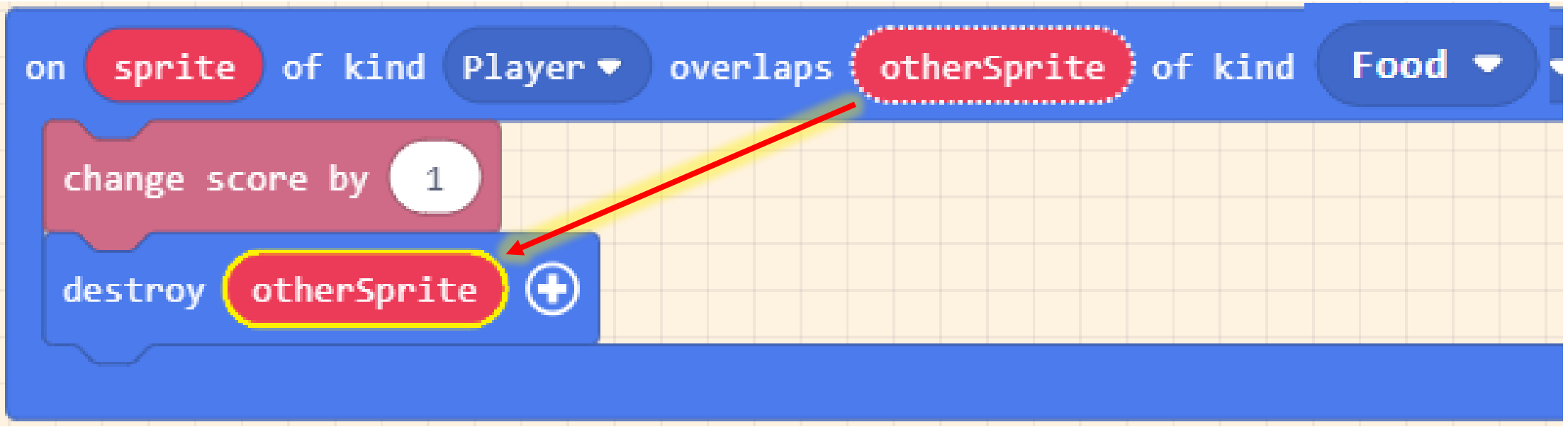
Add a point when you eat fruit

From **Info** Toolbox drawer, add **Change Score** block



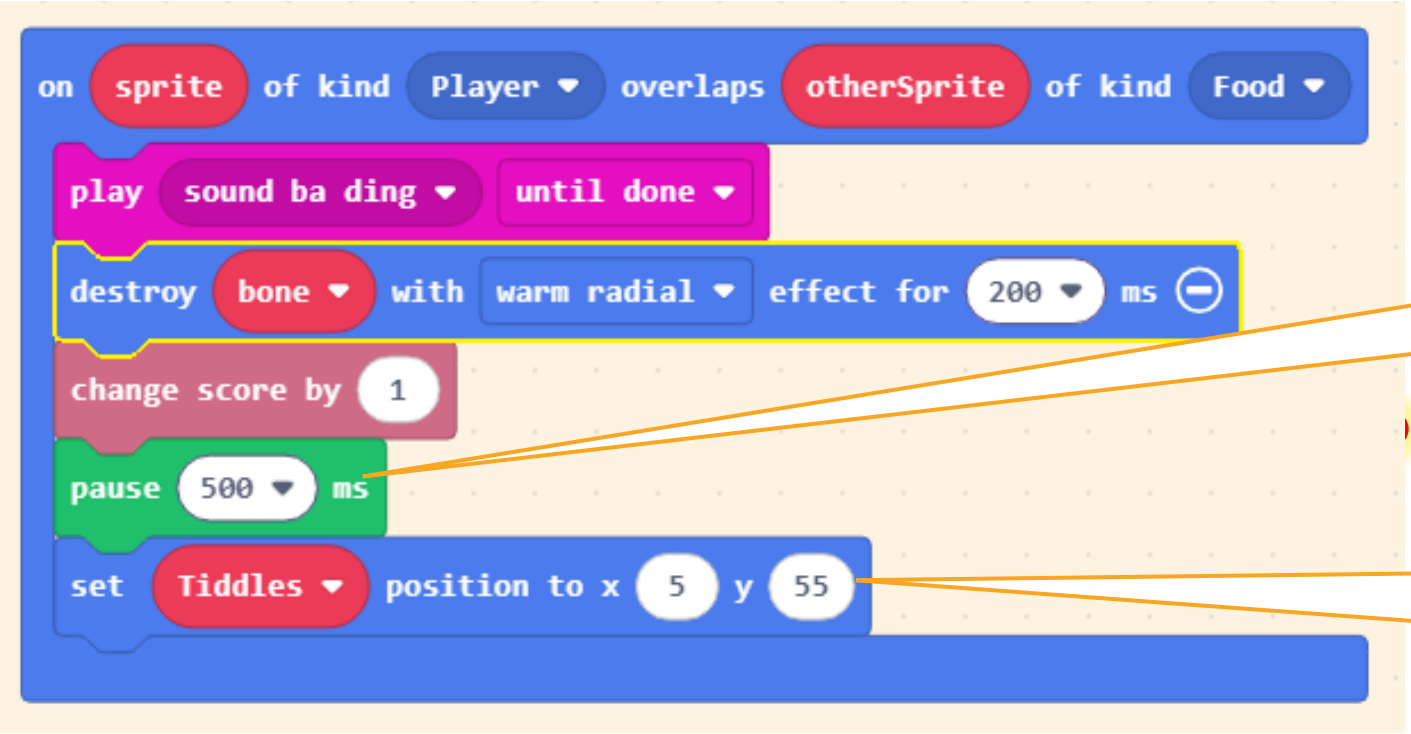
Destroy the Fruit

- From the **Sprites** Toolbox drawer, Add **Destroy mySprite** block
- Drag the **otherSprite** local variable block into the **Destroy** block



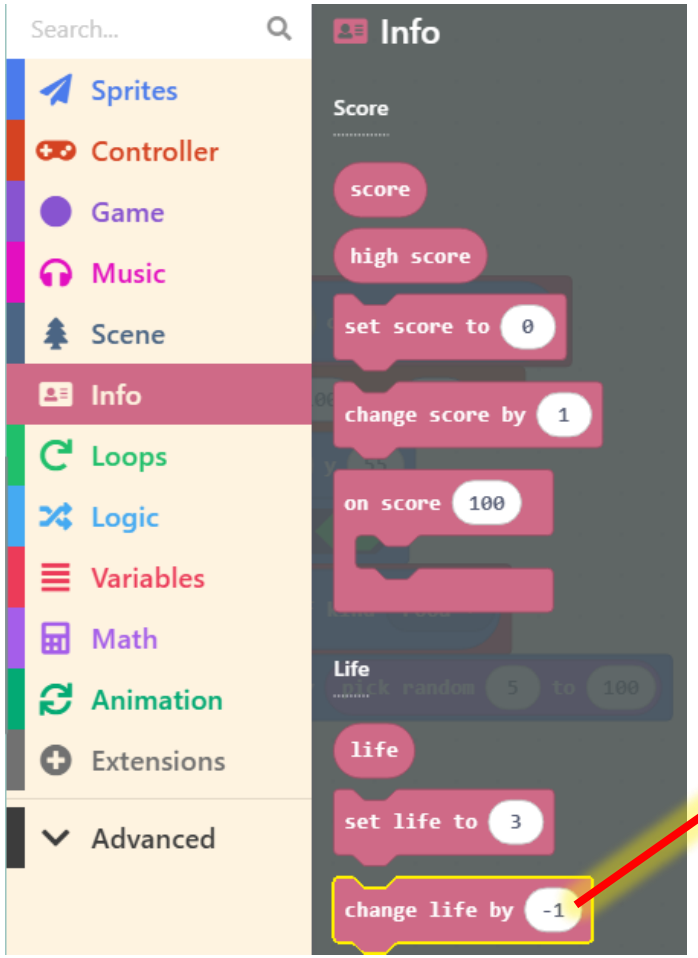
Add effects and music

- In the **Destroy** block, click the plus **(+)** icon
- Select an effect to show when our fruit is destroyed
- From the **Music** Toolbox drawer, drag a **Play Sound** block into the **On Sprite Overlaps** block

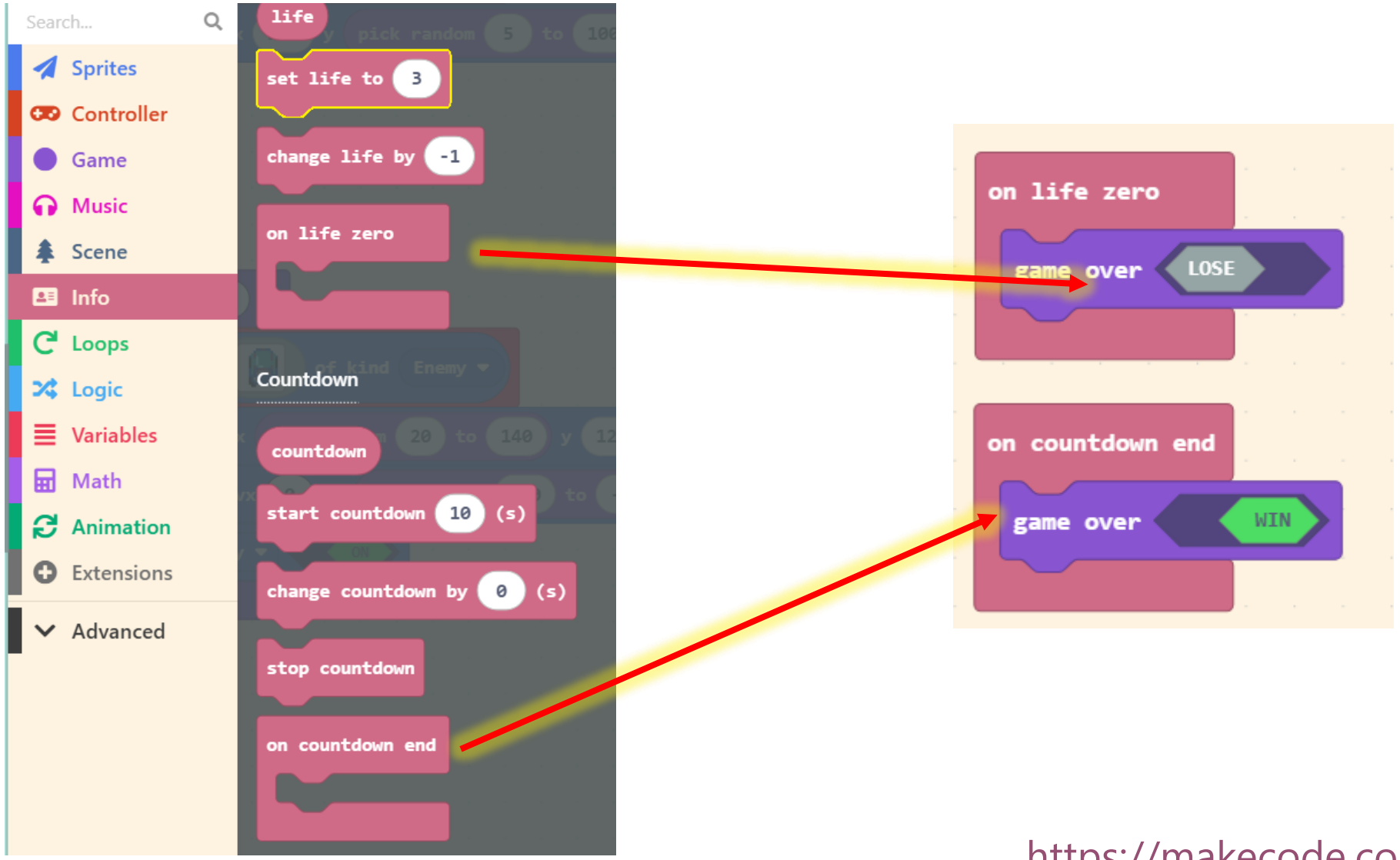


What happens if you get hit by a car?

- Use the same tools but this time- when player overlaps enemy (car)

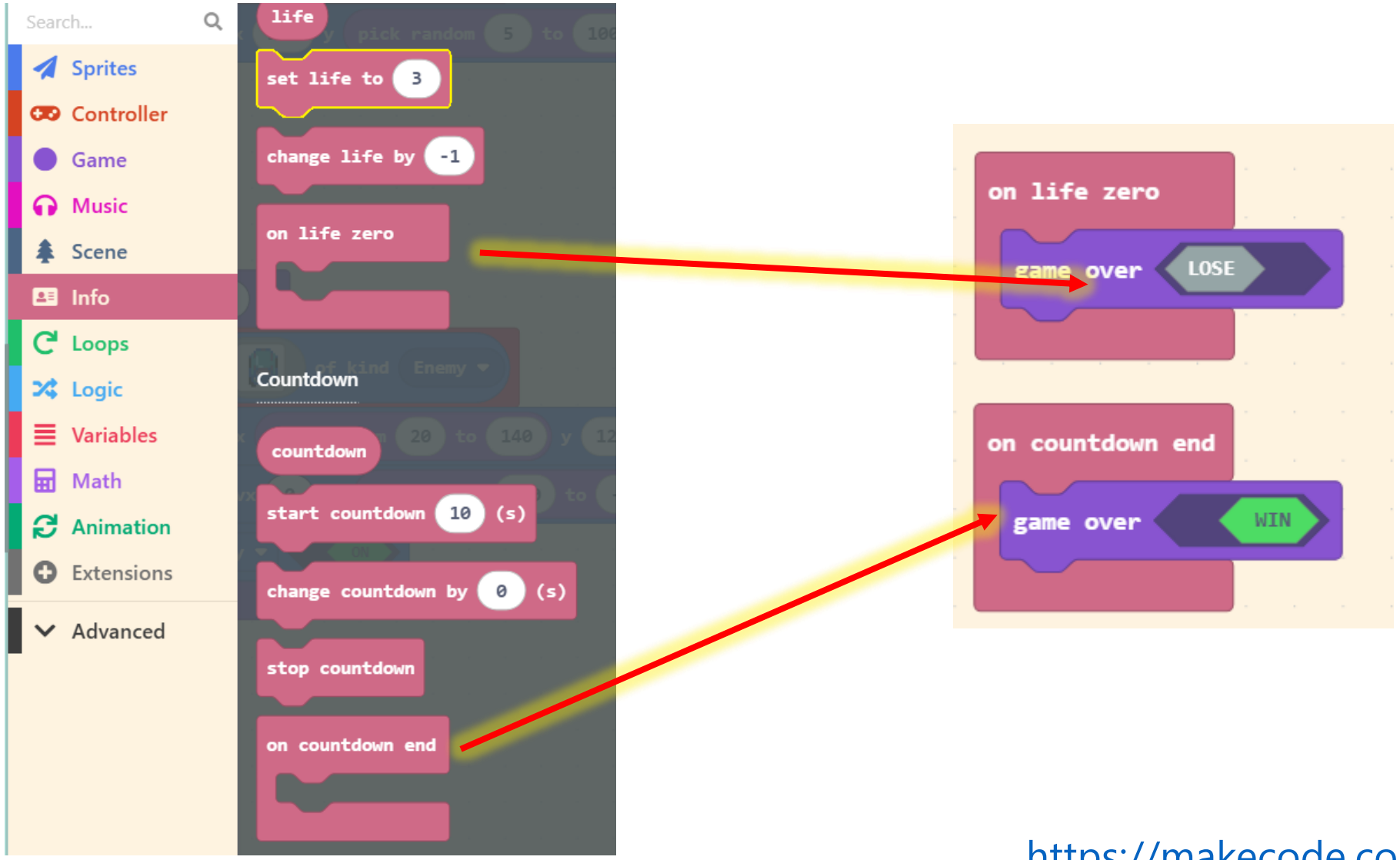


Game over?



https://makecode.com/_Lbi84LcCVf1k

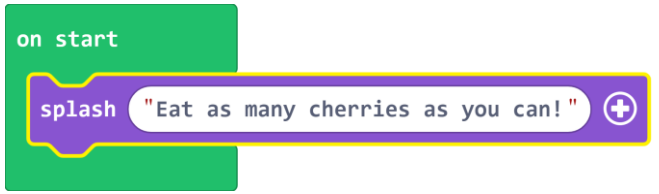
Game over?

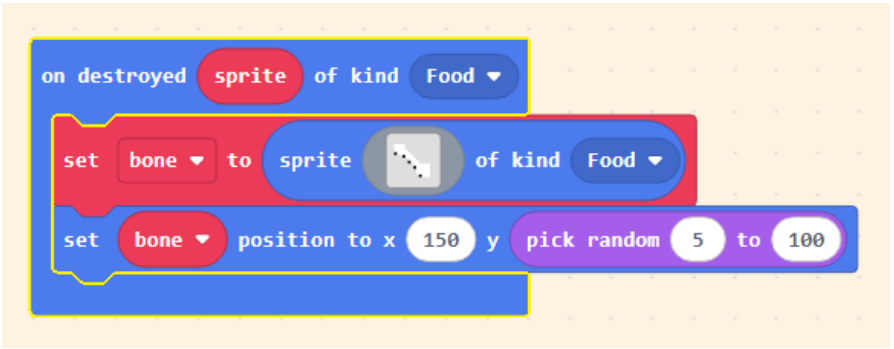


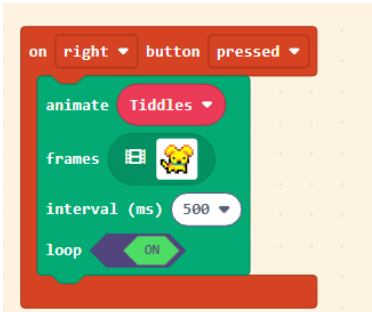
https://makecode.com/_Lbi84LcCVf1k

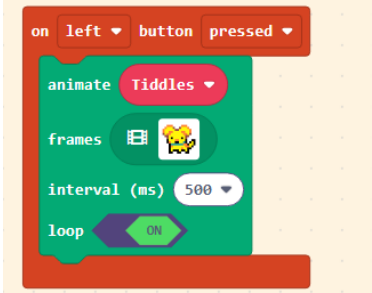
Try modding your game

- Add a beginning Splash screen
- Change the speed of the food or player
- Add other types of Fruit for different points
- Add more sounds and effects
- Change how often each type of food appears
- Change the direction of the food sprites
- Add Animations
- Move the bone around each time it is collected
- Animate the character



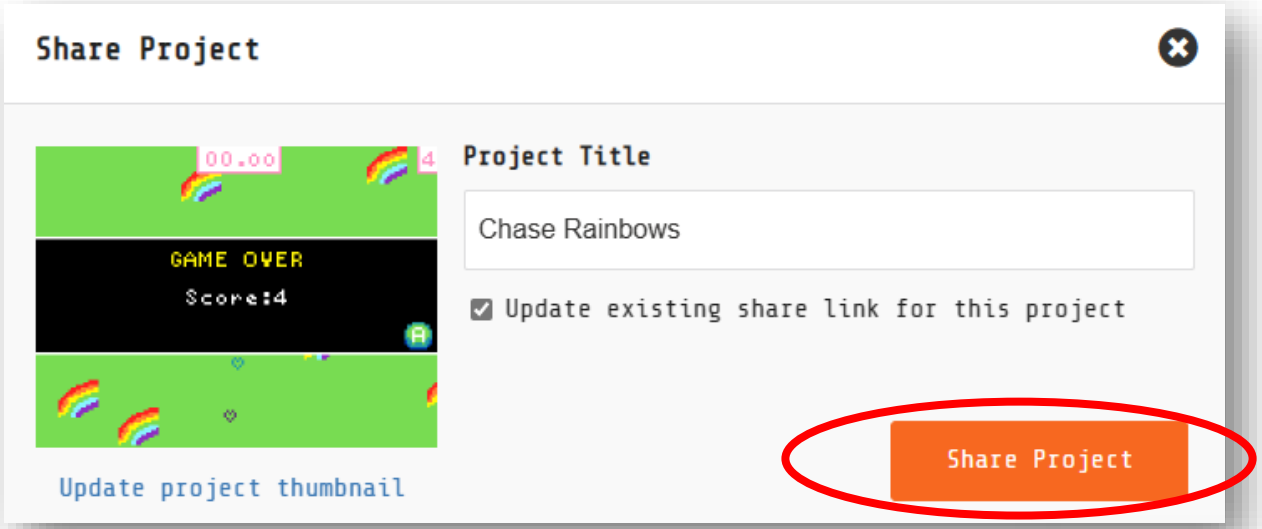




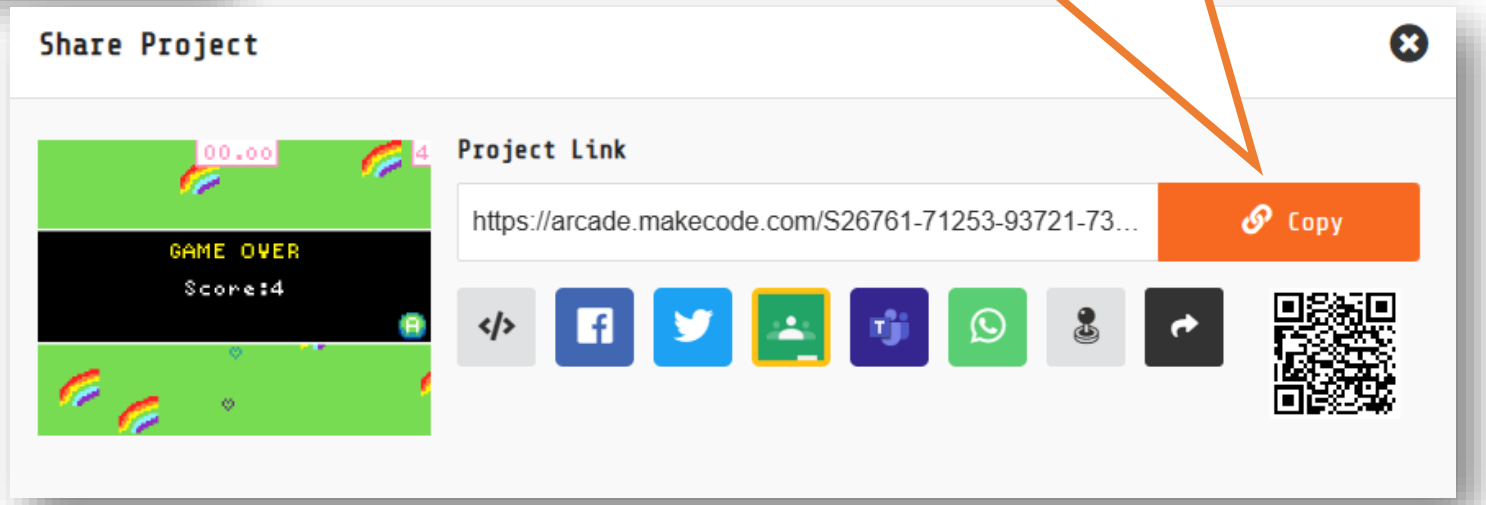


Share your game!

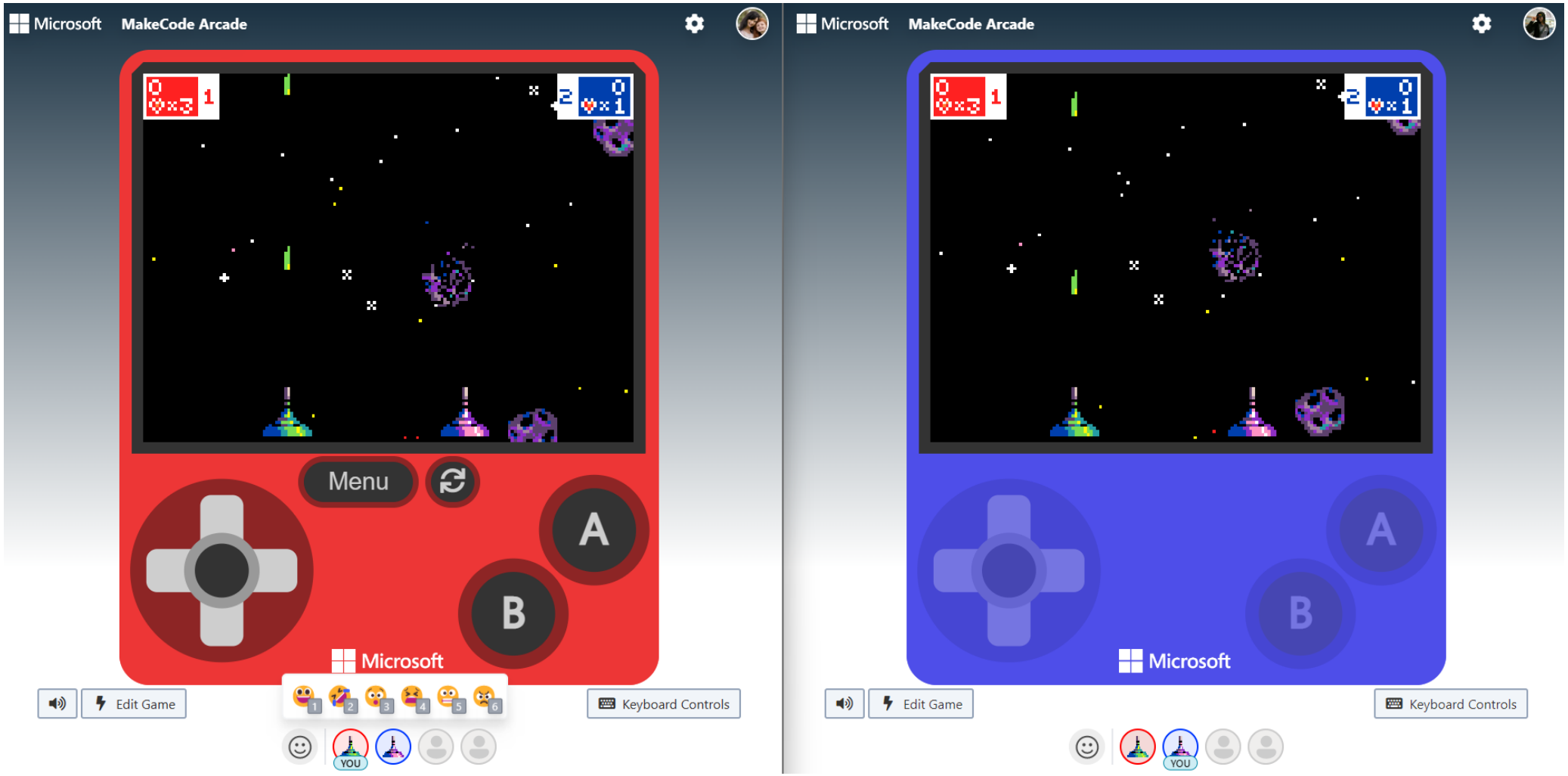
Click the Share button in the top left of the screen



Copy and Paste link into Chat window



Playing games together



arcade.makecode.com/--multiplayer

Eat the Fruit – Multiplayer!

https://arcade.makecode.com/S73249-29024-14612-80286

Arcade Hardware

Boards

These boards run MakeCode Arcade games. Choose a board to find out more about it and where you can get one!

BrainPad Arcade

Learn how BrainPad Arcade lets you run games on a small handheld console.

Meowbit

A retro game console for STEM education from Kittenbot team.

Adafruit PyBadge

It's a badge, it's an arcade, it's a PyBadge.

Adafruit PyGamer

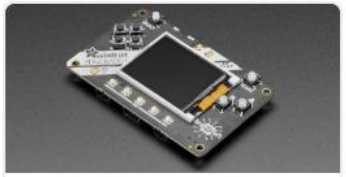
The upgraded PyBadge.

Kitronik ARCADE

ARCADE is a programmable gamepad for use with MakeCode Arcade.

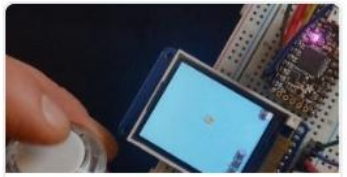
Ovobot Xtron

A programmable microcomputer that can be used for making MakeCode Arcade games.



Adafruit EdgeBadge

It's the PyBadge with a zest of Machine learning.



Adafruit M4

Learn how to run your games on micro-controllers from Adafruit.

Adafruit Joy Bonnet

Learn how to run your games on Raspberry Pi Zero and Adafruit Joy Bonnet.

arcade.makecode.com
/hardware

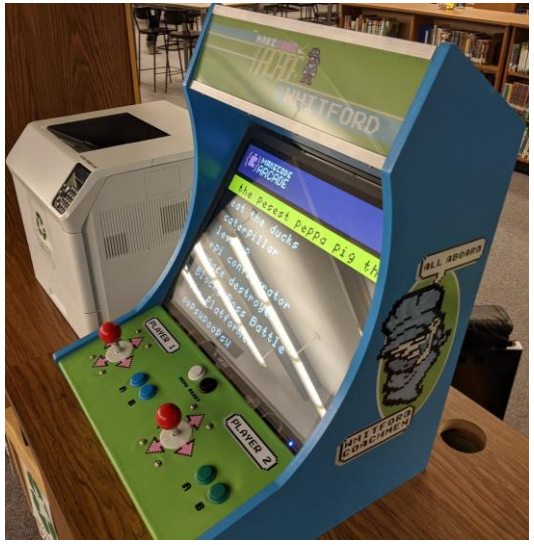
Arcade Cabinets & Controllers

Cardboard Panel

Turn a cardboard box into a tabletop arcade.

Arcade table

Turn an IKEA FLISAT table into an arcade.



Arcade Kiosk Mode

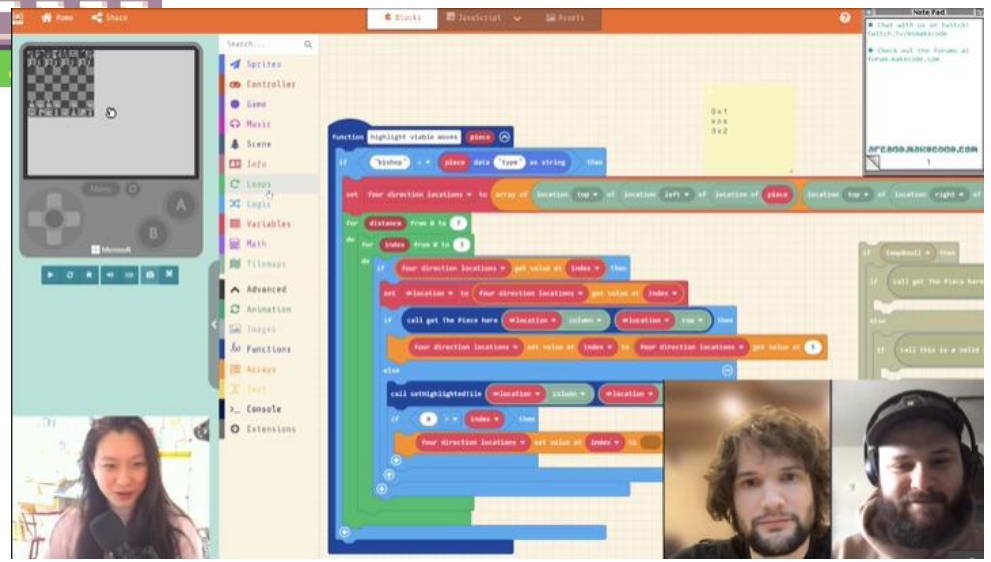
arcade.makecode.com/hardware/kiosk

MakeCode Arcade Live Stream & Forum

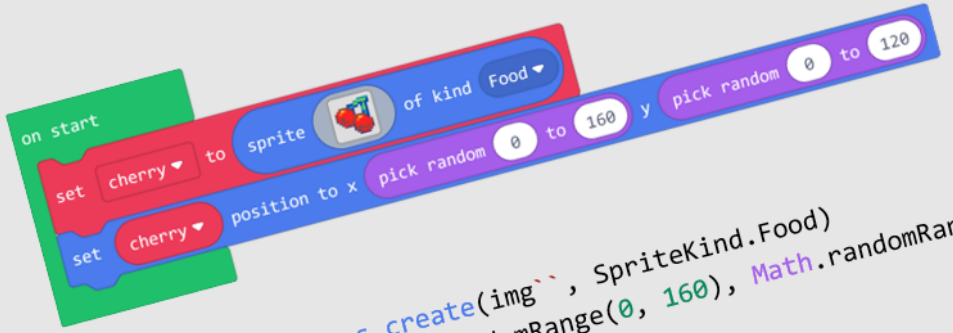
1pm Pacific / 3pm Eastern MWF

twitch.tv/msmakecode

forum.makecode.com



MakeCode Engineers




```
let cherry = sprites.create(img`` , SpriteKind.Food)
cherry.setPosition(Math.randomRange(0, 160), Math.randomRange
```

Thank You!