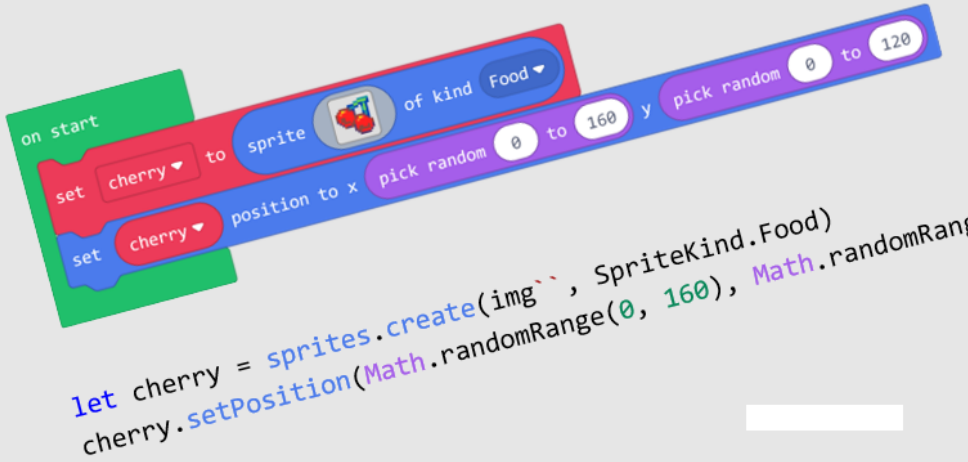
Microsoft



Microsoft MakeCode

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< Title >

How to create an Arcade Game

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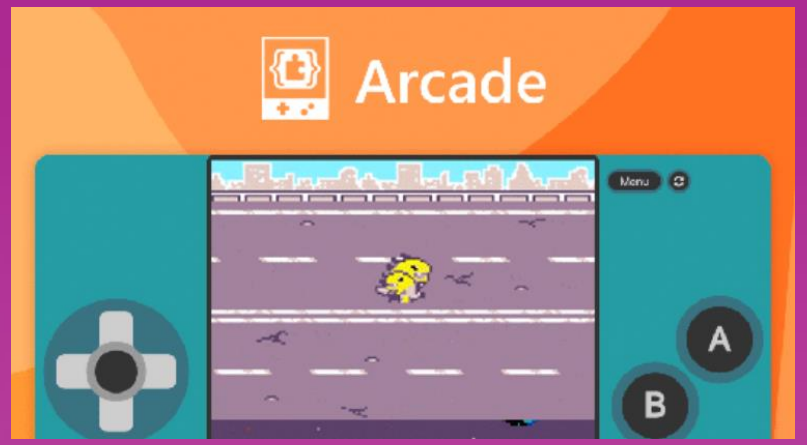
Microsoft

Three Main Code Editors

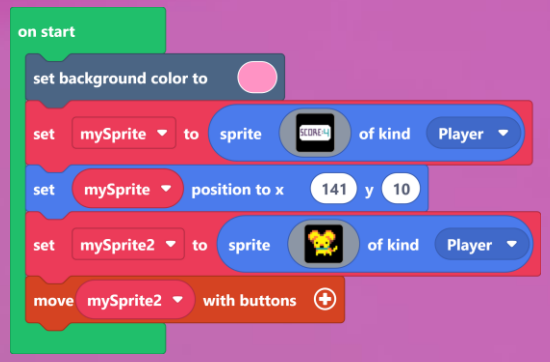
Physical Computing with micro:bit

Mods in Minecraft

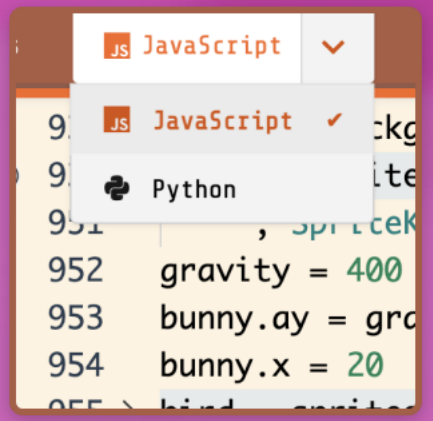


Retro Arcade Games

Blocks



Text



What is an Arcade game?

History of Arcade Games

An arcade game is a coin-operated video game machine installed in a public place like a restaurant, or an amusement park. Arcade games rose to popularity in the 1970's and 1980's.

The two paddles return the ball back and forth. The score is kept by the numbers (0 and 1) at the top of the screen.

The first successful Arcade game was called Pong, created by Atari in 1972.

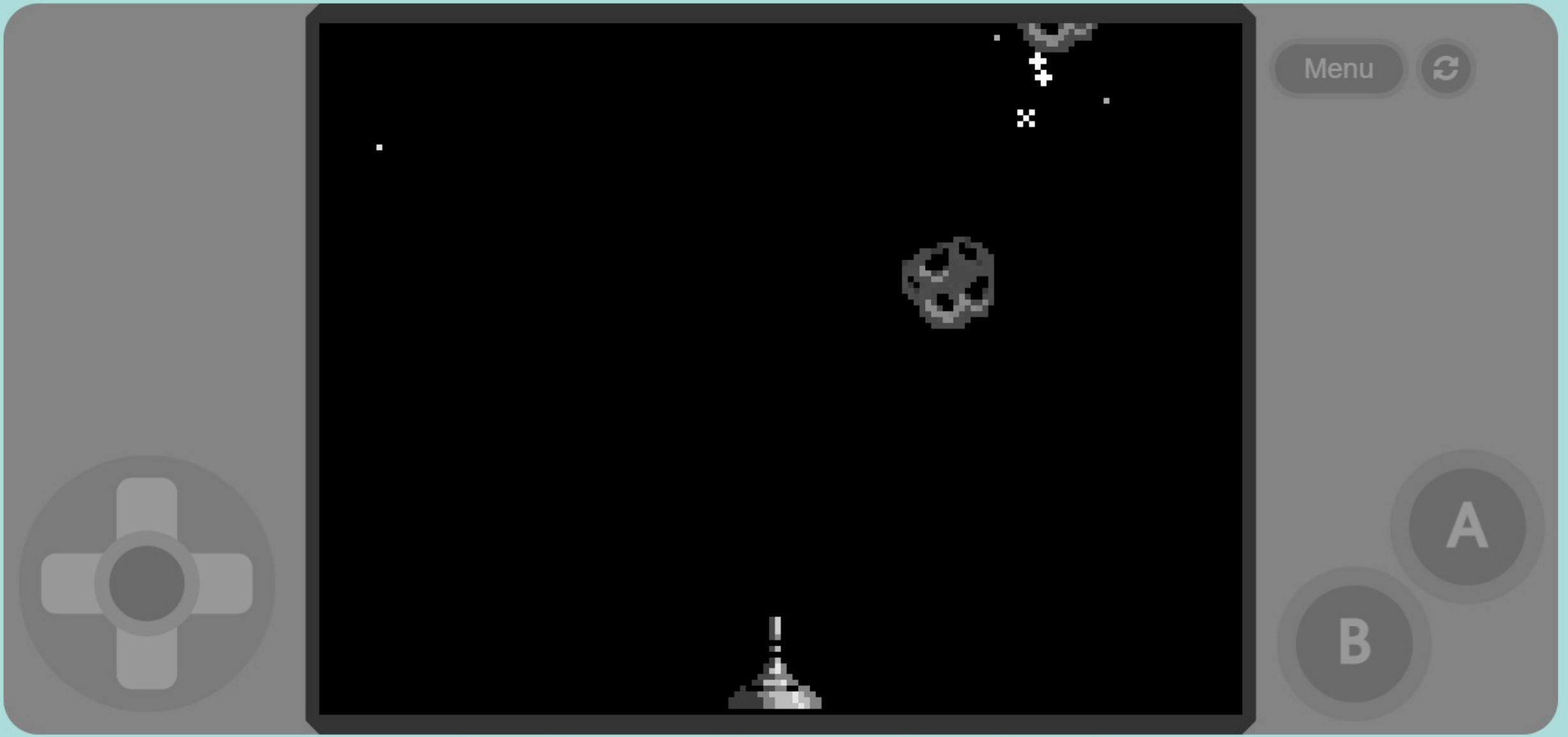
Examples of Arcade Games?

Pac-Man

Space Invaders

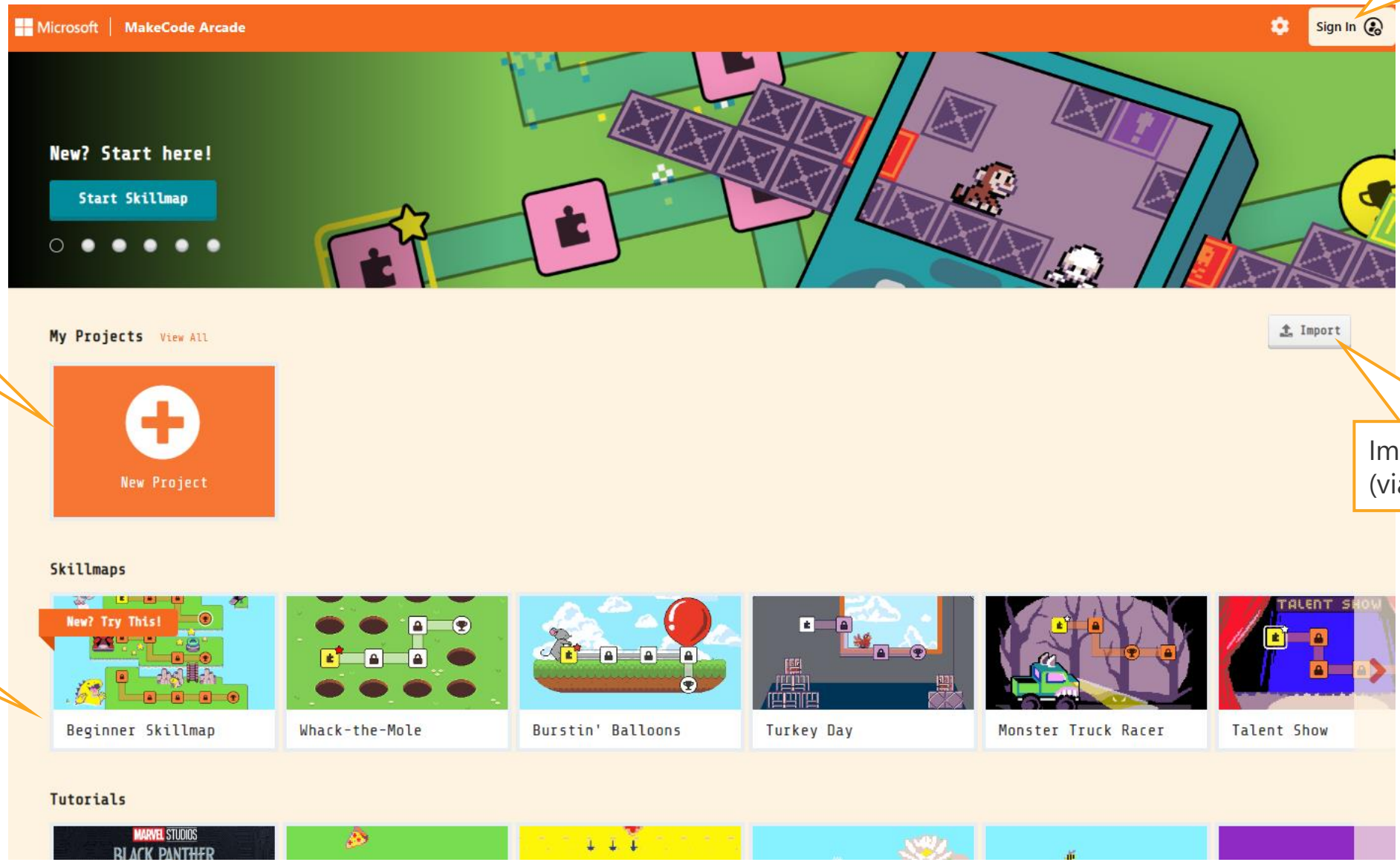
Donkey Kong

Space Game!



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

Optionally sign in to save to projects cloud



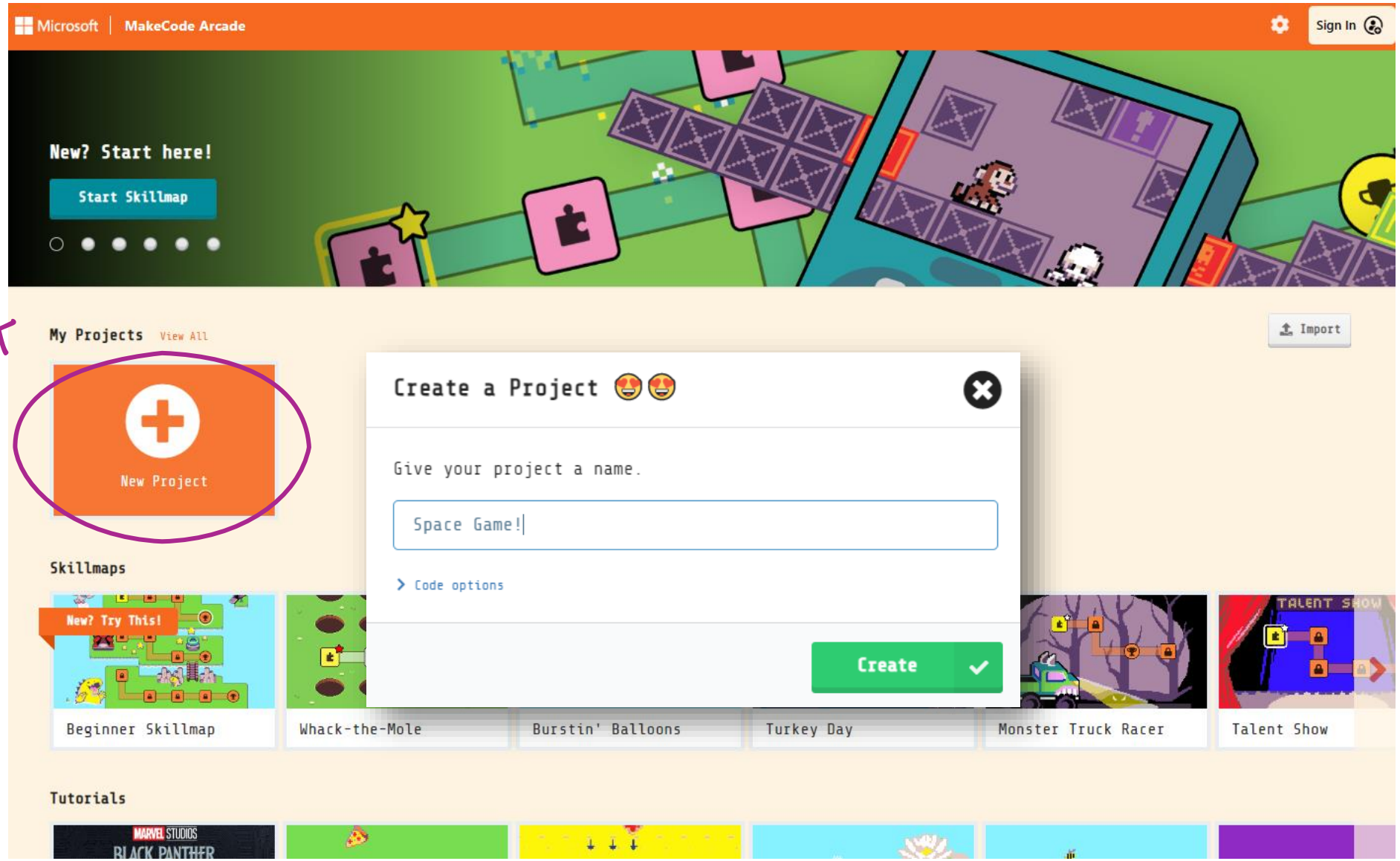
Create a New blank Project

Import Projects (via a File, or URL)

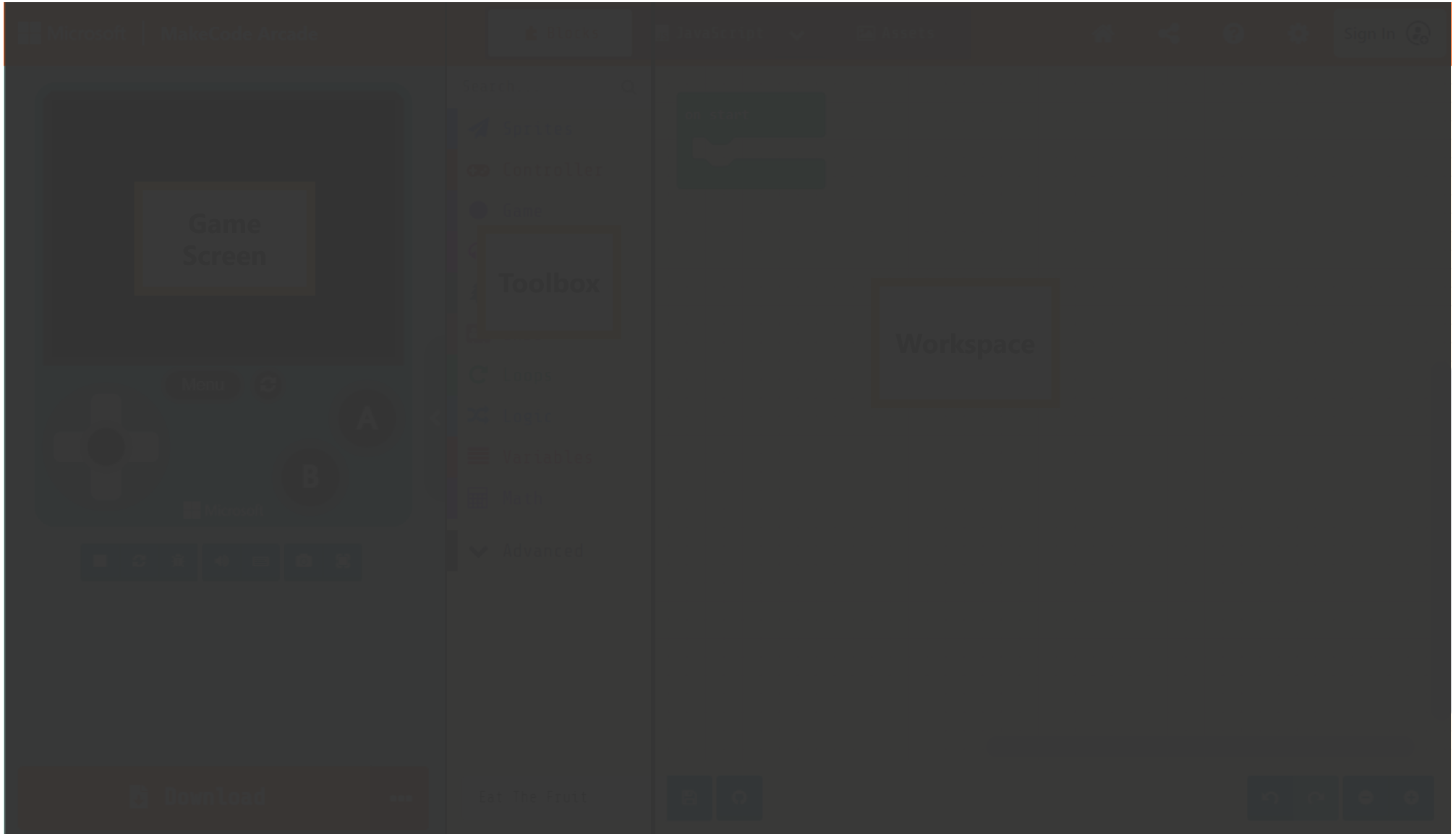
Step-by-step Skillmaps and Tutorials

Create a New Project

Click on New Project

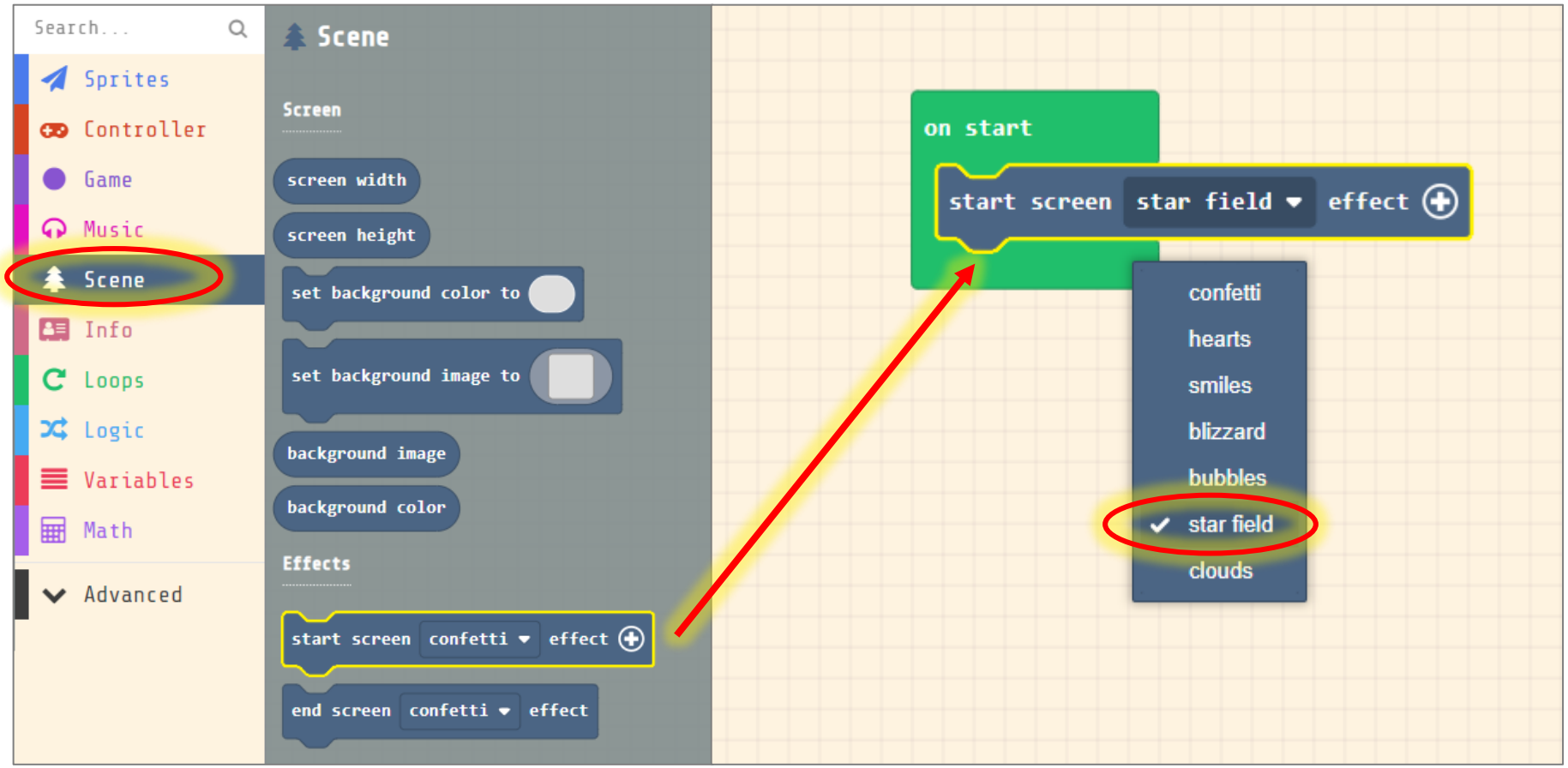


Getting familiar with MakeCode Arcade



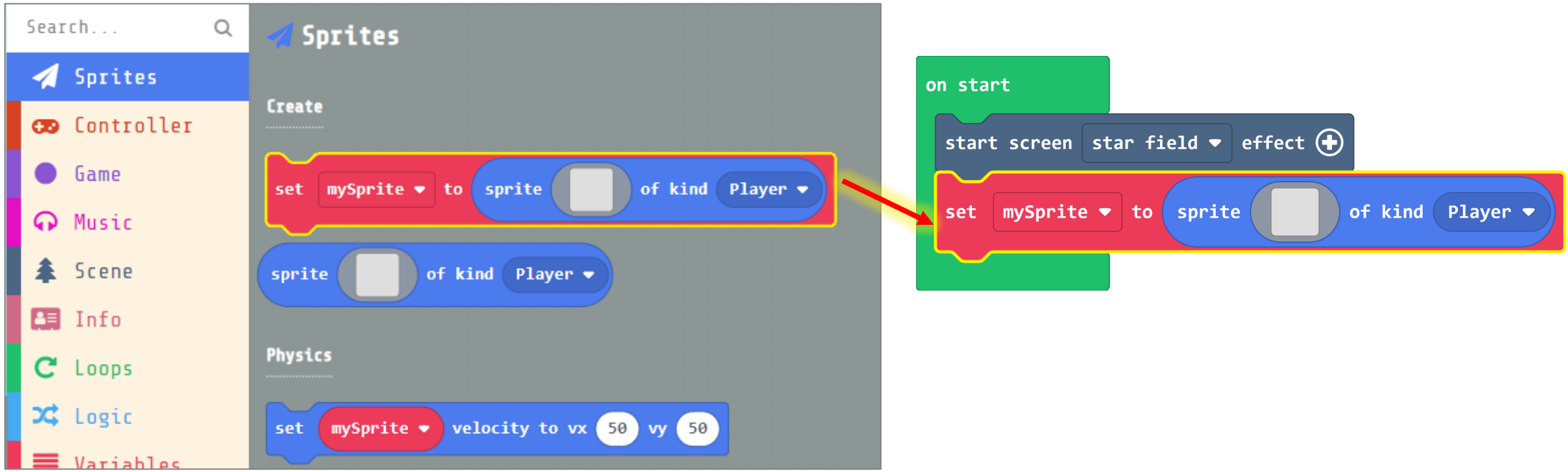
Add some Stars

- From the **Scene** Toolbox drawer, drag a **Start Screen Effect** block into the **On Start** block on the Workspace
- Click on the **confetti** drop-down menu to select **star field** effect



Create your Spaceship

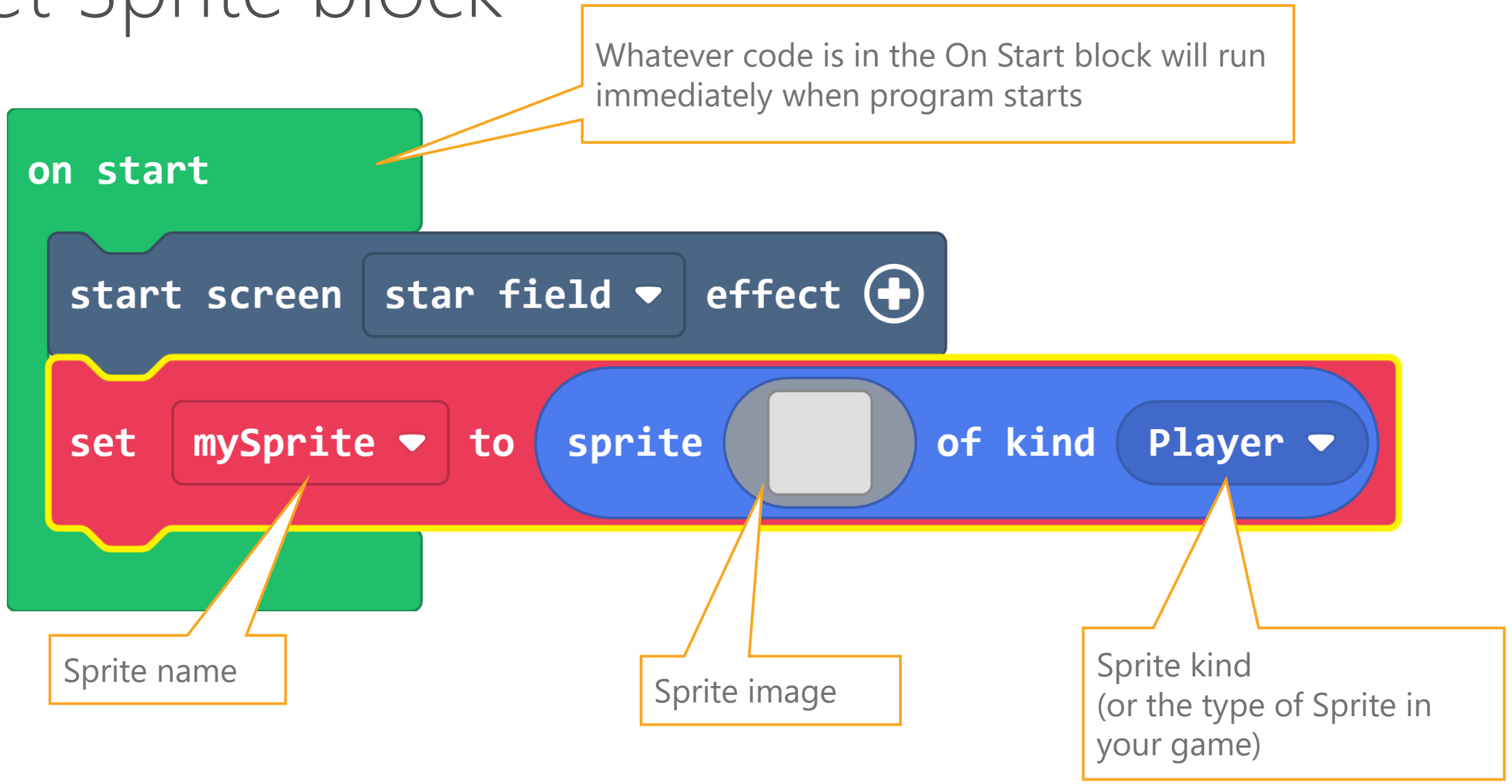
- From the **Sprites** Toolbox drawer, drag a **Set mySprite** block into the **On Start** block



Sprites

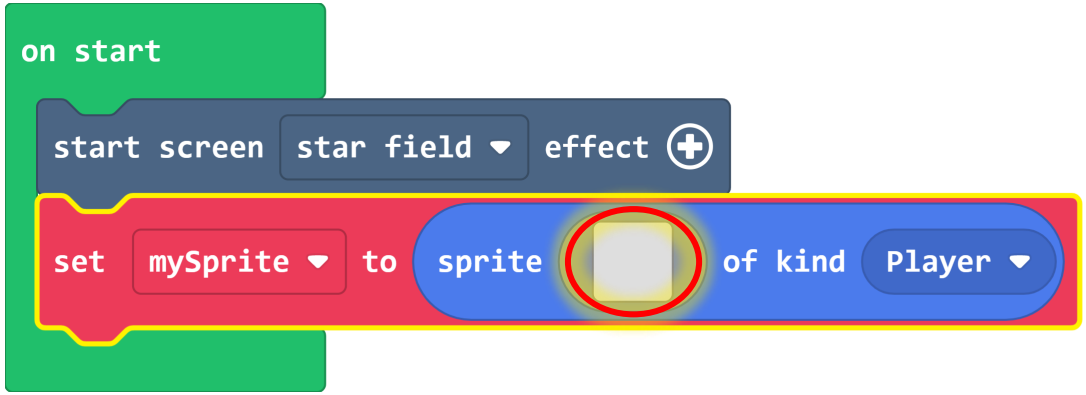
any object in a game that has properties and behaviors

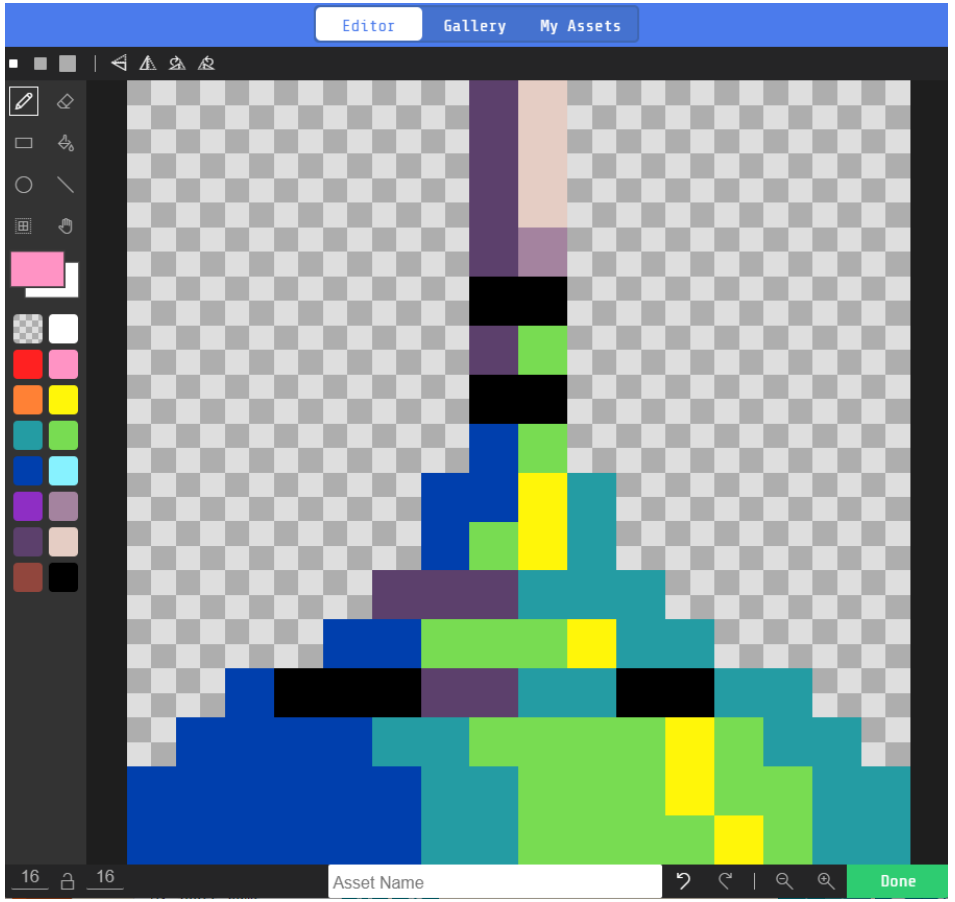
Set Sprite block



Create your Spaceship Image

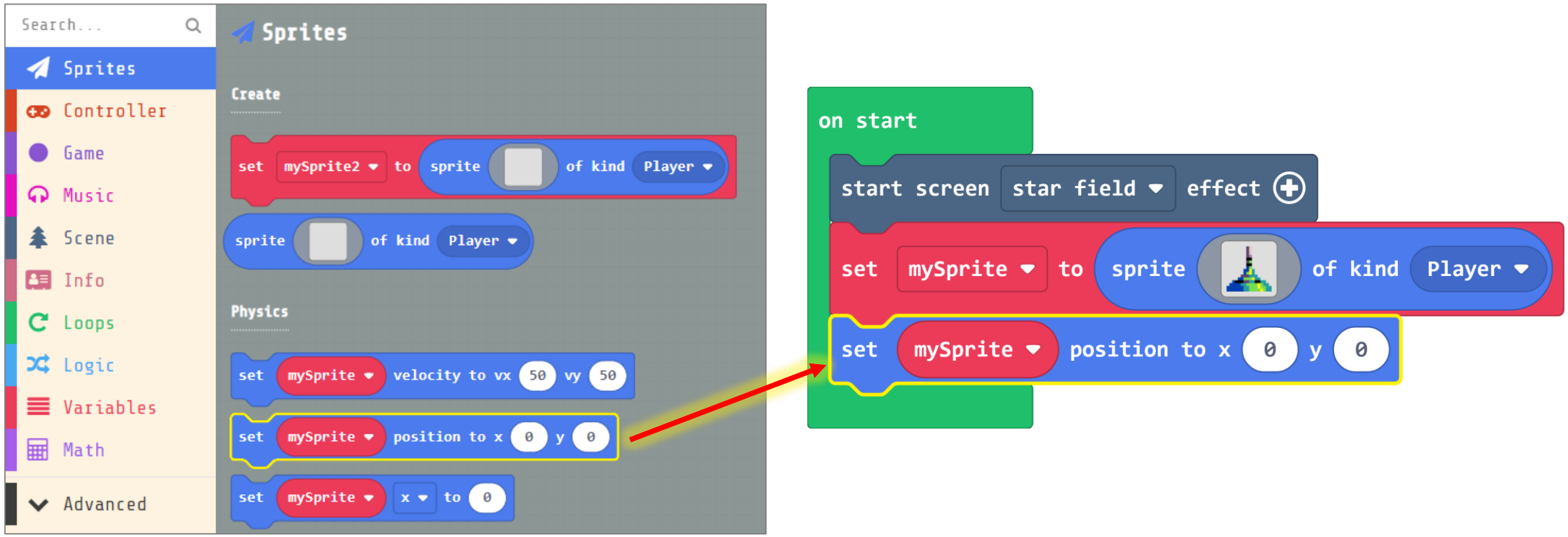
- In the **Set mySprite** block, click on the grey square to open the Image Editor
- Draw your Spaceship
- Or pick an existing image from the Gallery





Place your Spaceship at the bottom of the screen

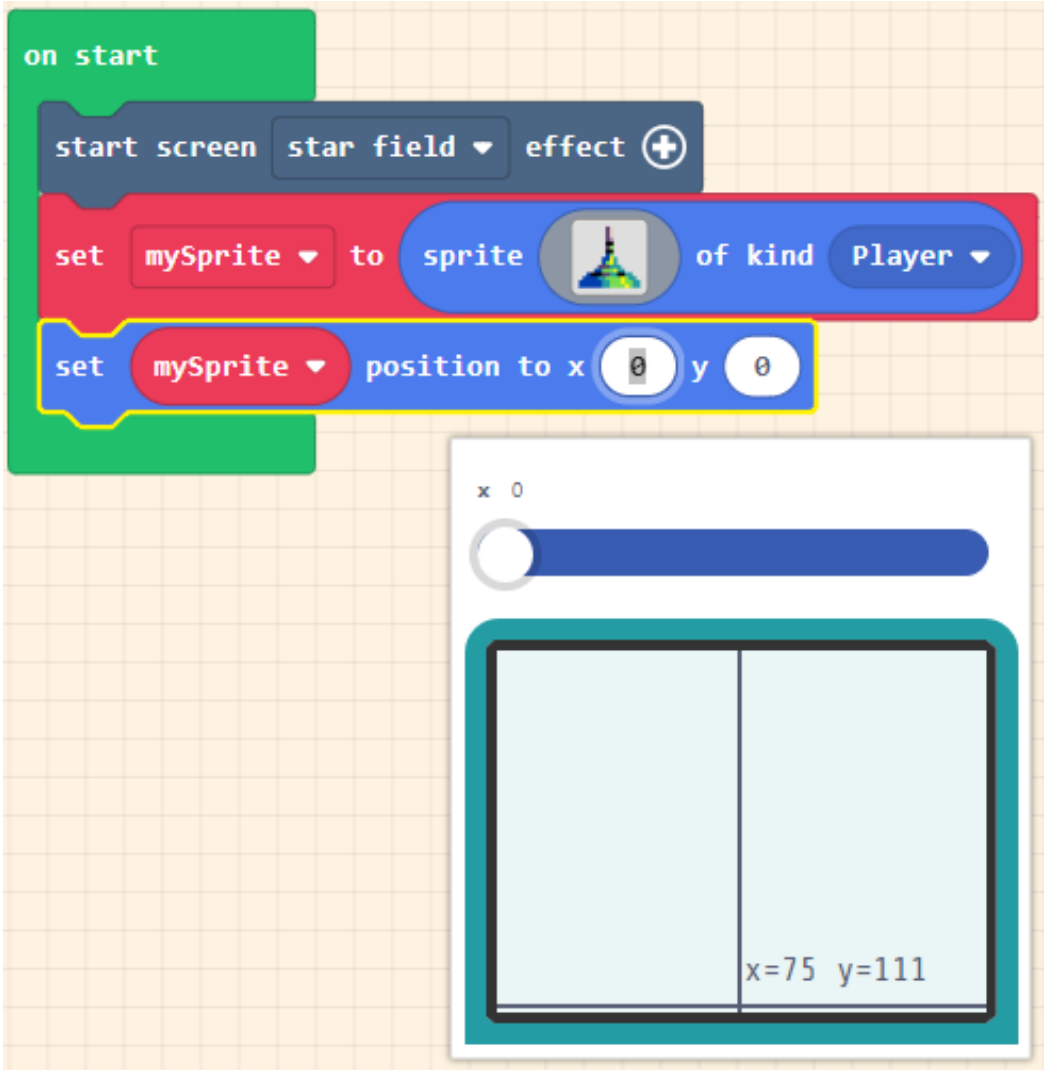
- From the **Sprites** Toolbox drawer, drag a **Set mySprite Position** block into the **On Start** block



Place your Spaceship at the bottom of the screen

- In the **Set mySprite Position** block, click on the **x 0** value

- Move your cursor to the bottom of the screen and click to select the Position of your spaceship



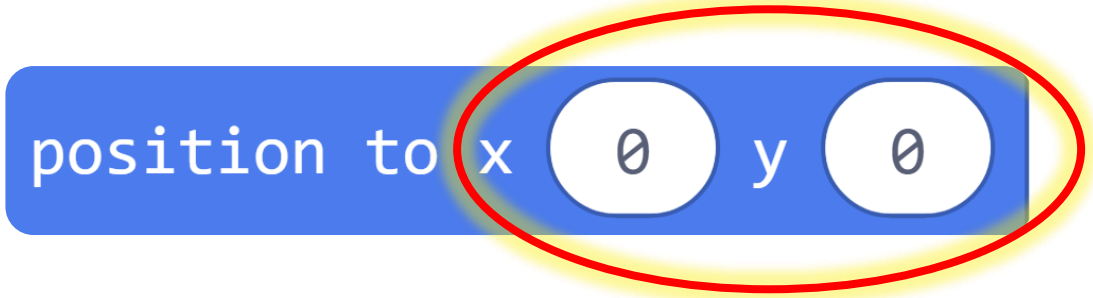
Coordinates

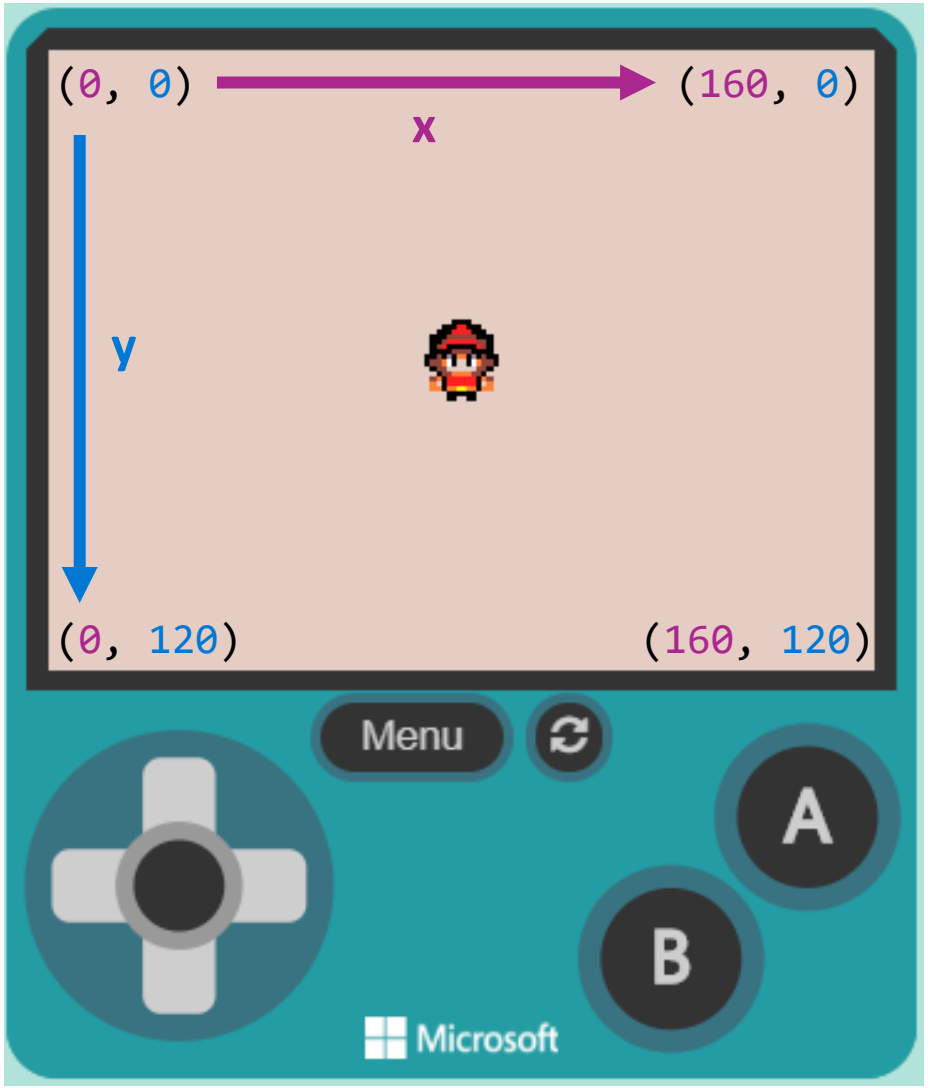
The Arcade game screen dimensions are:

160 pixels wide x **120** pixels high

x is horizontal

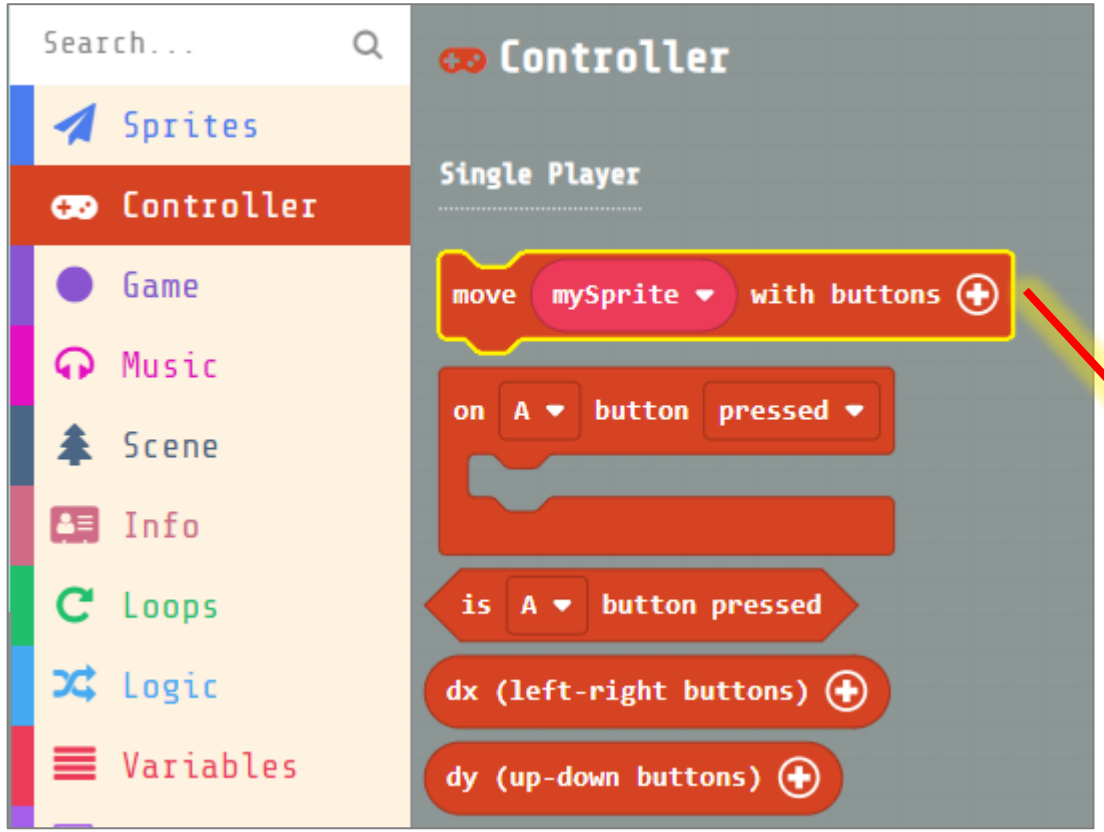
y is vertical

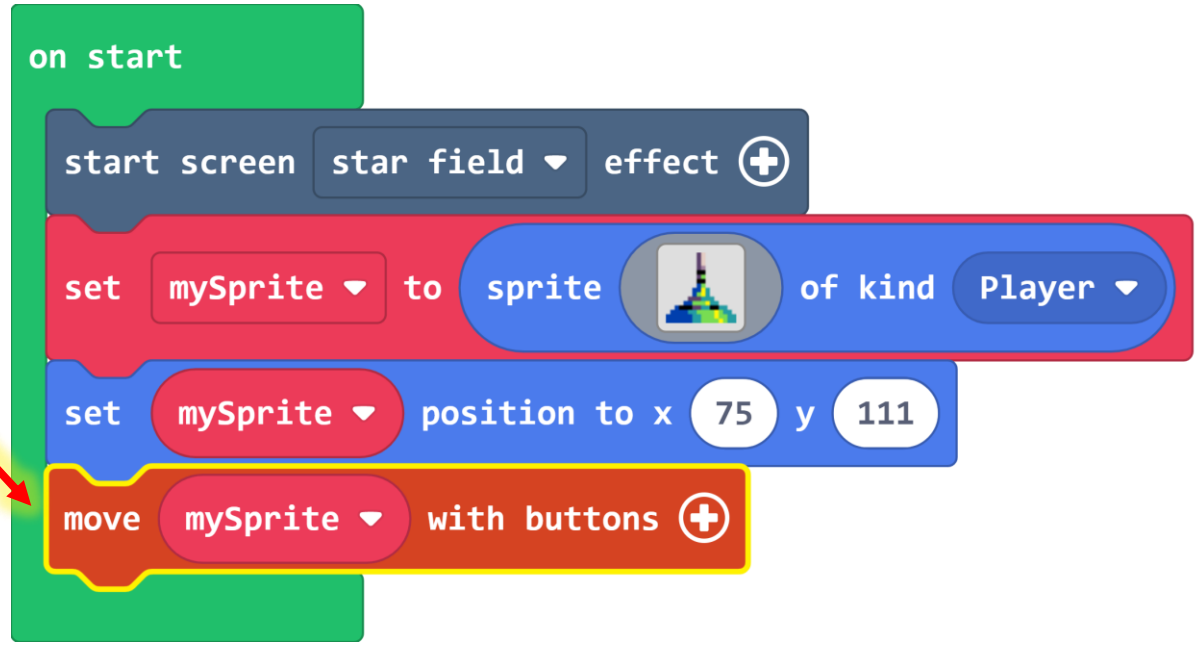




Control the movement of your Spaceship

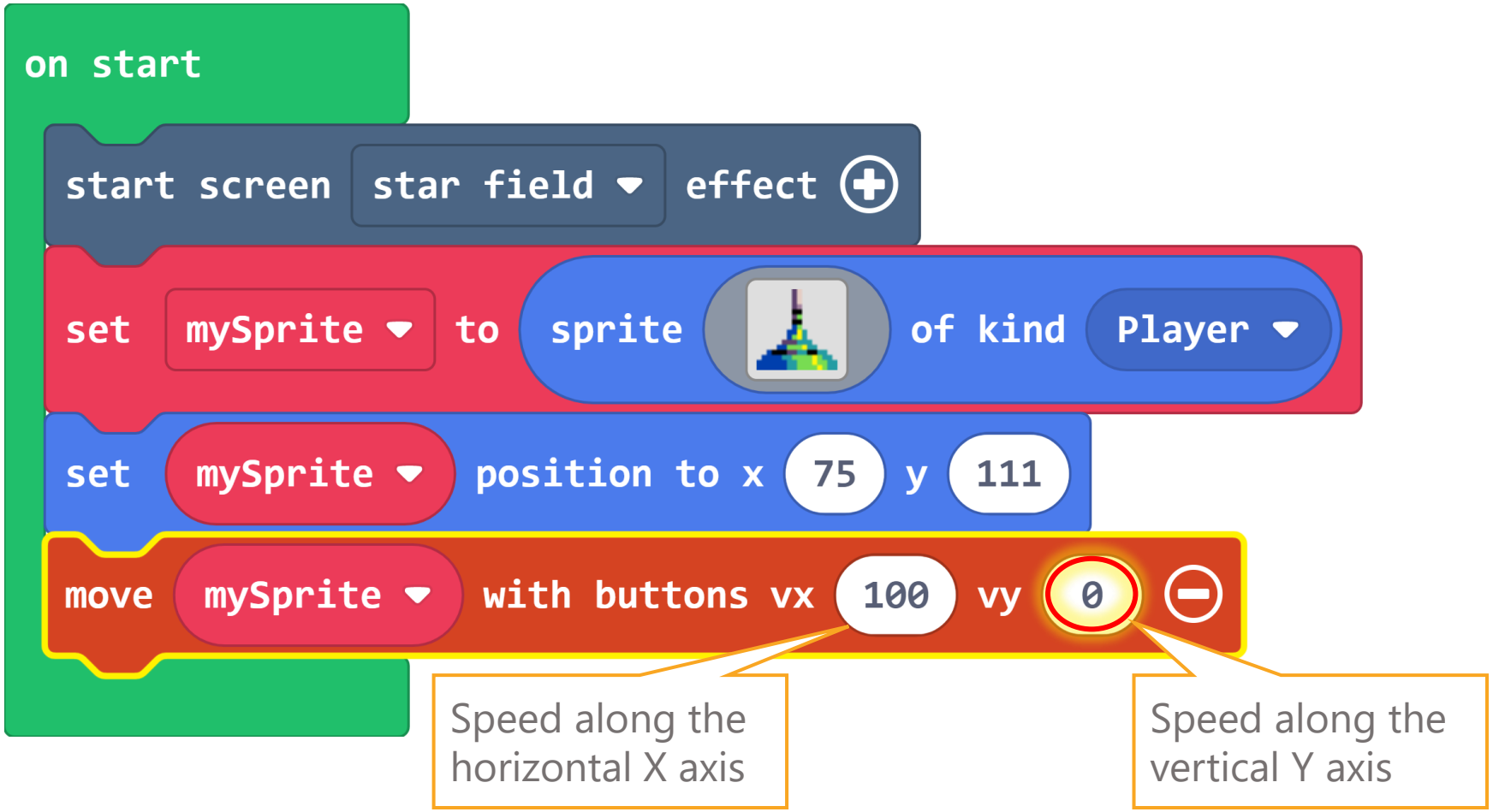
- From the **Controller** Toolbox drawer, drag a **Move mySprite** block into the **On Start** block





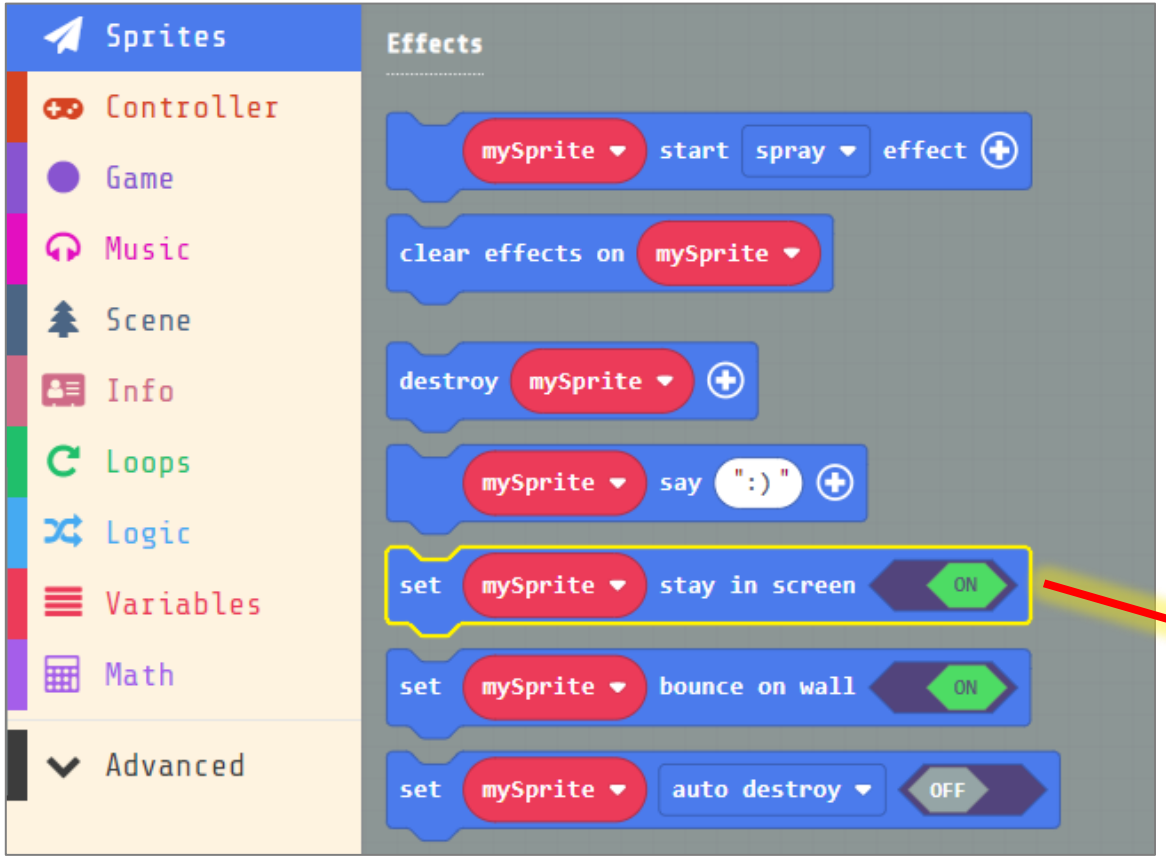
Move only left and right

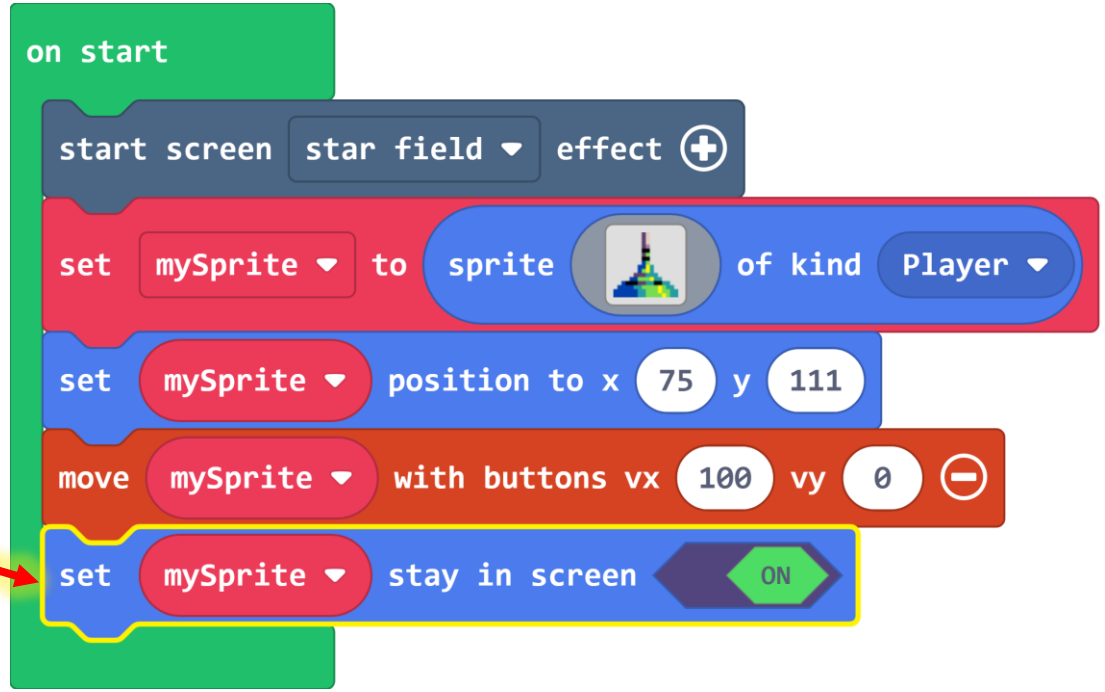
- In the **Move mySprite** block, click the plus (+) icon to expand
- Set the Velocity **vy** value to **0**



Keep your Spaceship on the screen

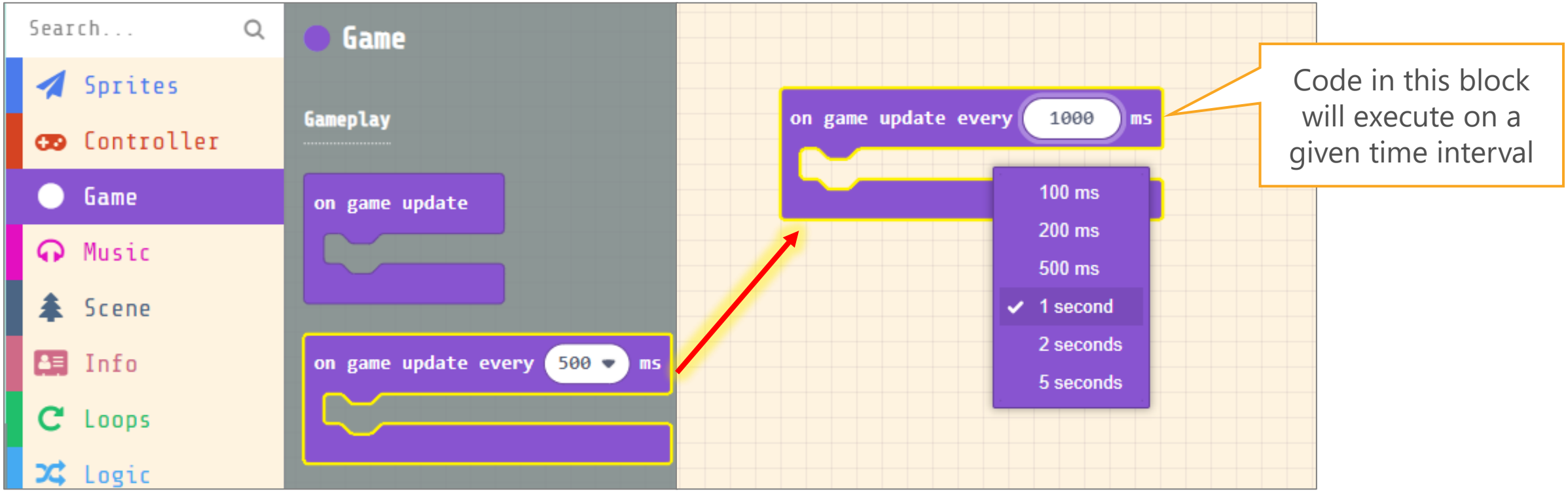
- From the **Sprites** Toolbox drawer, drag a **Set mySprite Stay In Screen** block into the **On Start** block





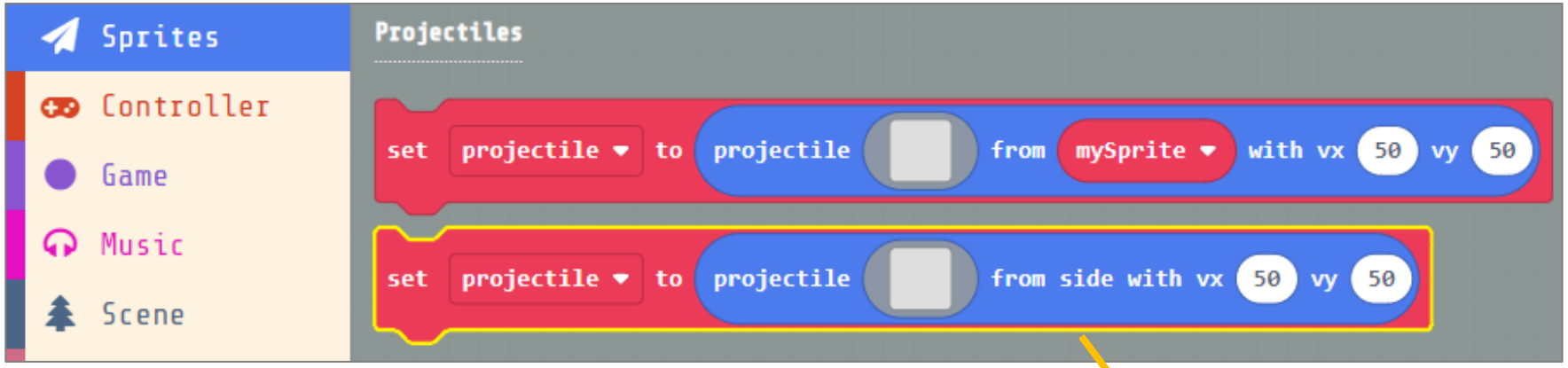
Make an Asteroid fall every 1 second

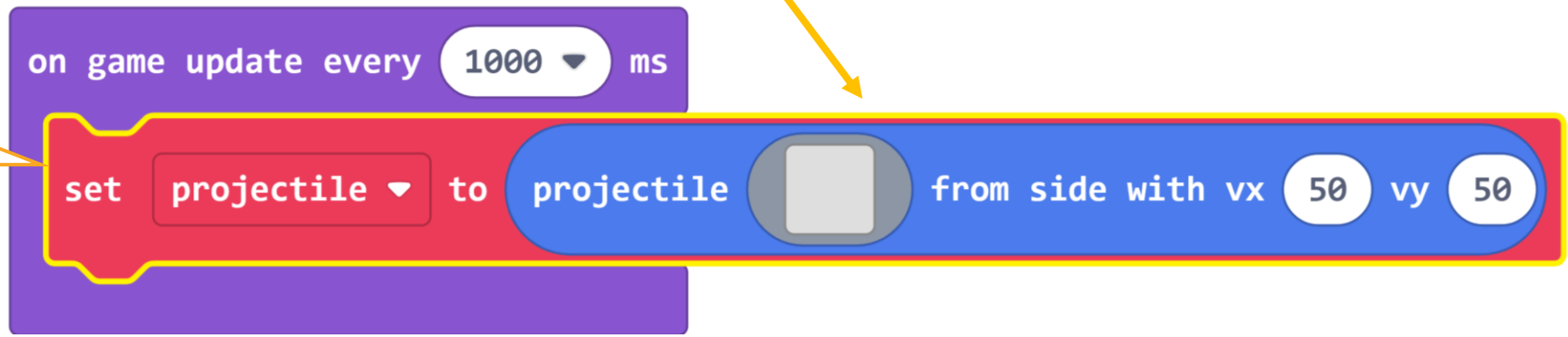
- From the **Game** Toolbox drawer, drag a **On Game Update Every** block onto the Workspace
- Click on the **500** ms drop-down and select **1 second** (1000 milliseconds)



Create Asteroid

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

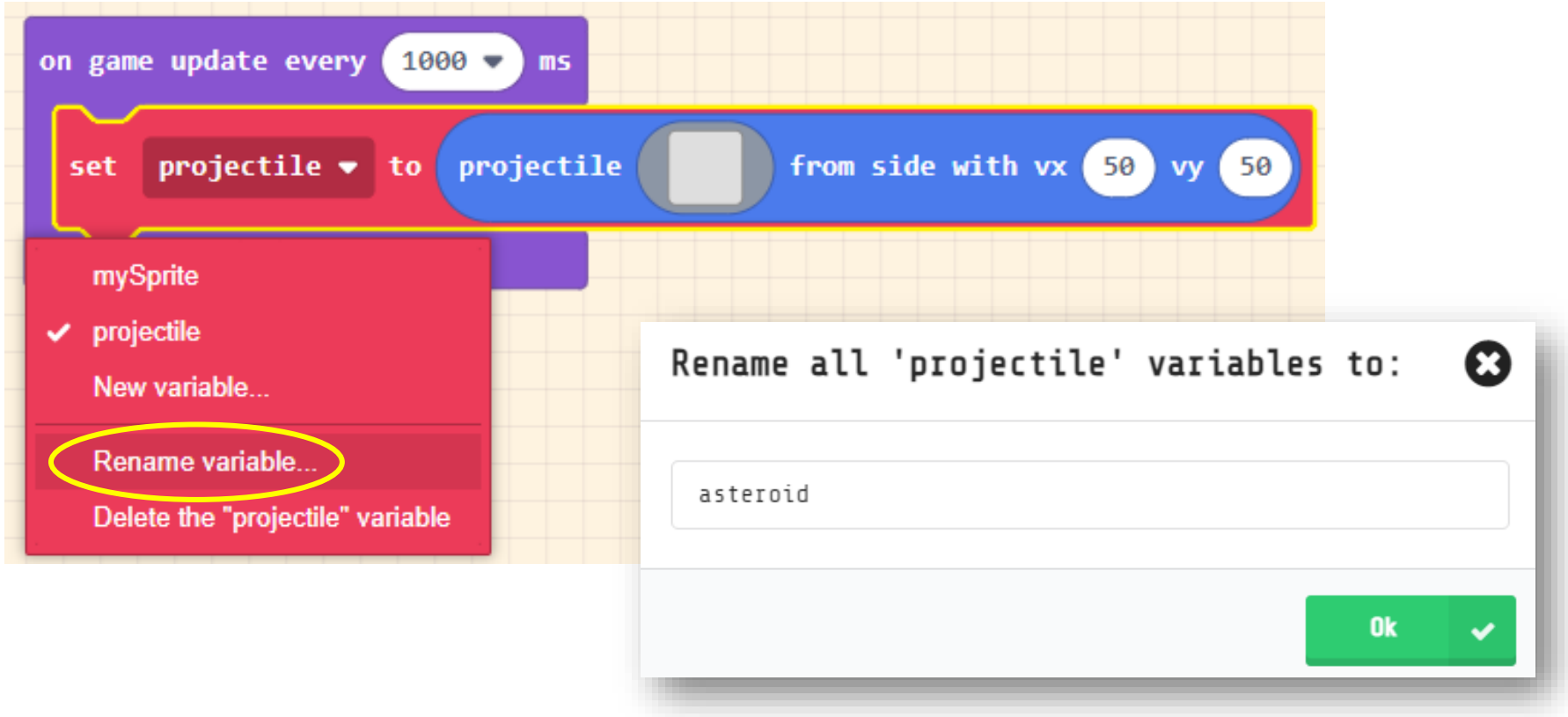




A Projectile is a type of Sprite that moves by itself

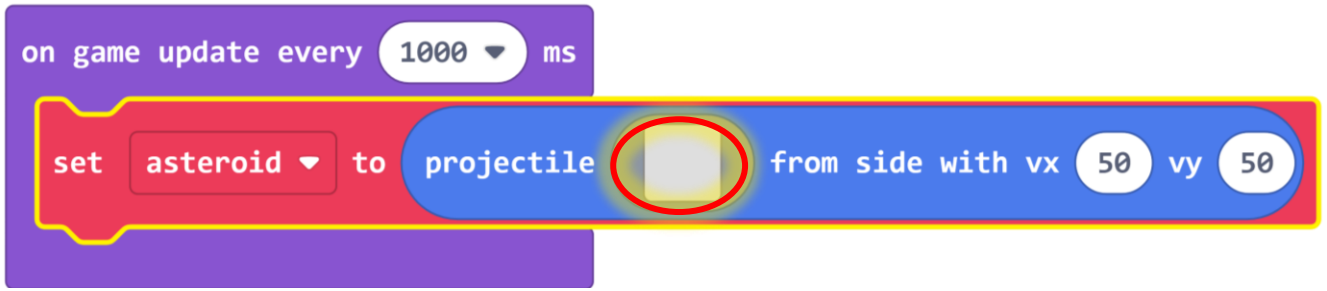
Rename projectile

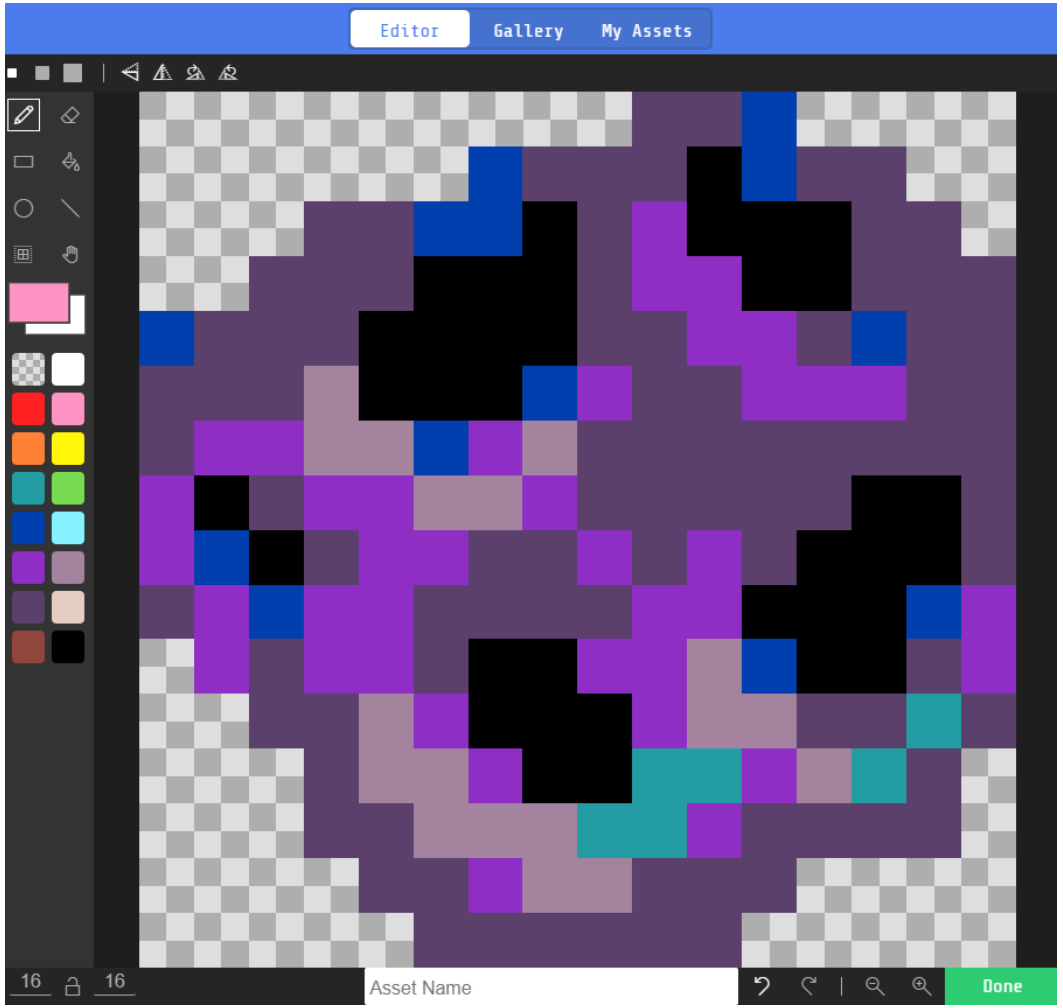
- In the **Set Projectile to Projectile from Side** block, click on the **projectile** drop-down menu and select **Rename Variable**
- Type in a name like **asteroid**



Create your Asteroid Image

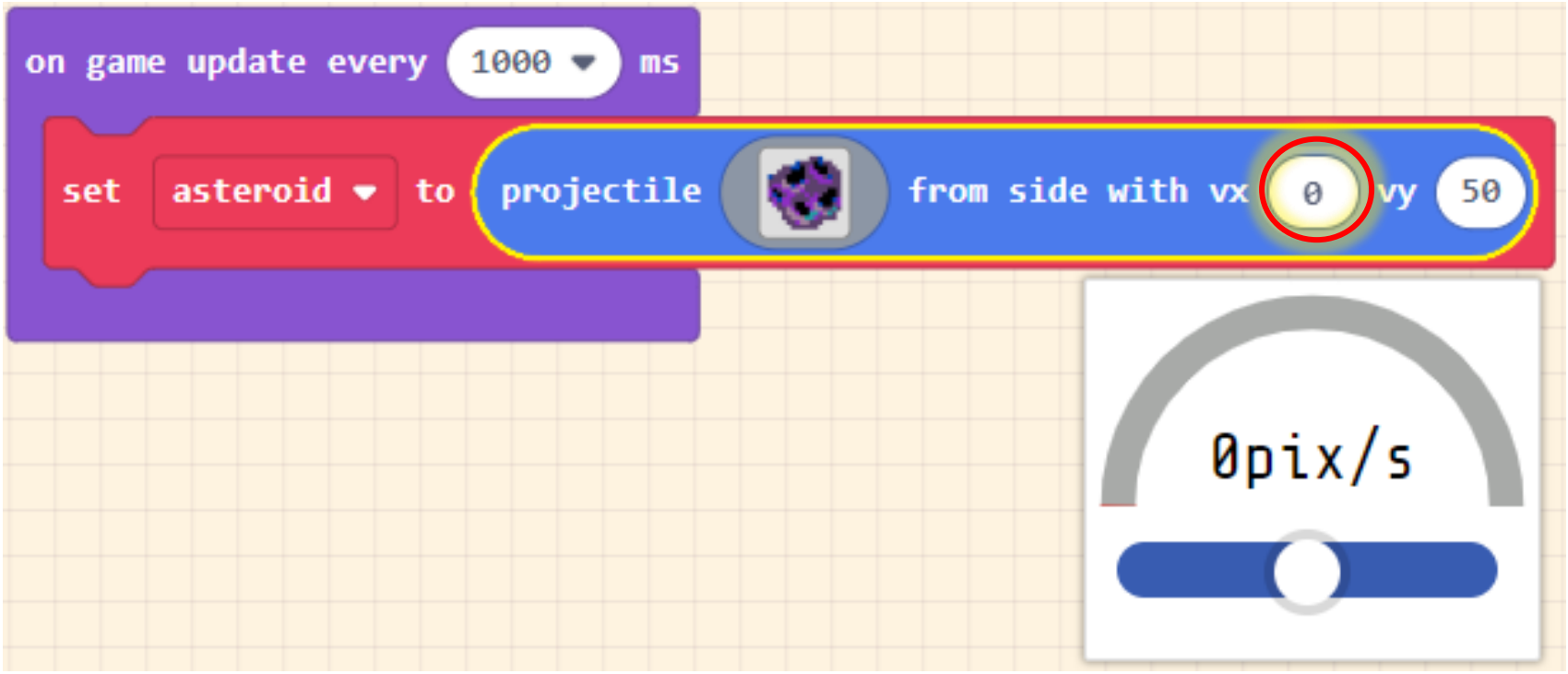
- In the **Set Projectile to Projectile from Side** block, click on the grey square to open the Image Editor
- Draw your Asteroid
- Or pick an existing image from the Gallery





Set the Asteroid to fall down the screen

- In the **Set Projectile to Projectile from Side** block, set the Velocity **vx** value to **0**



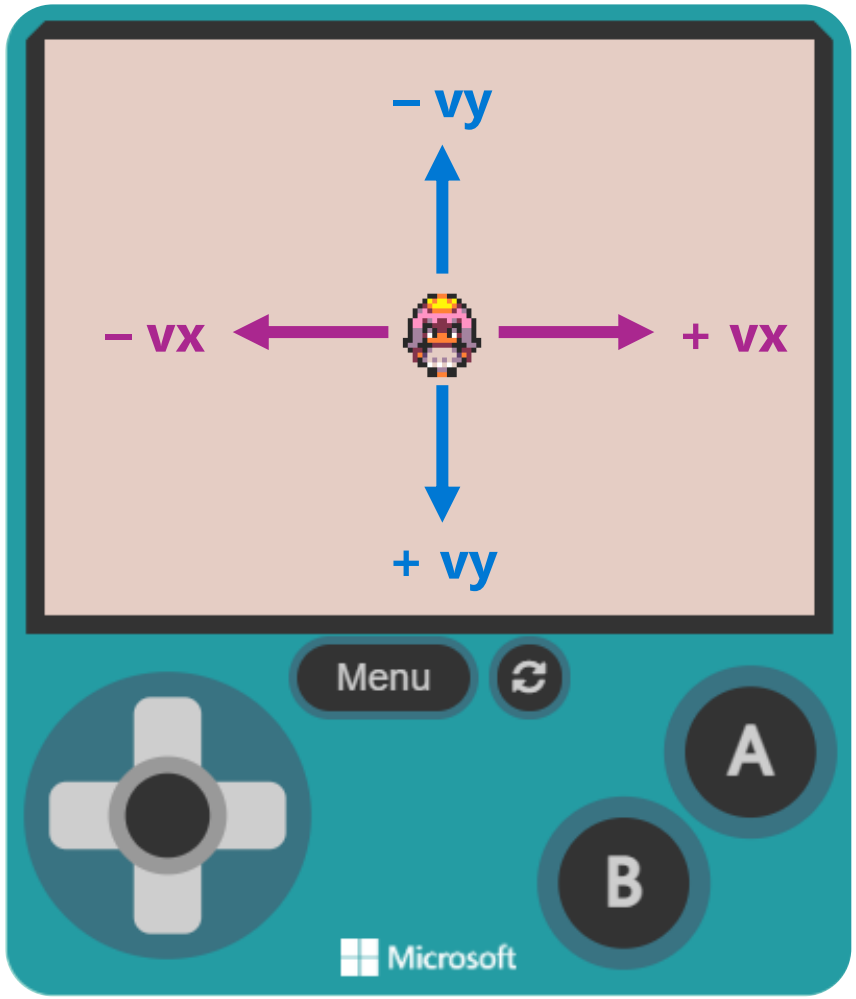
Velocity = speed and direction

vx = horizontal movement

- positive value = left to right
- negative value = right to left

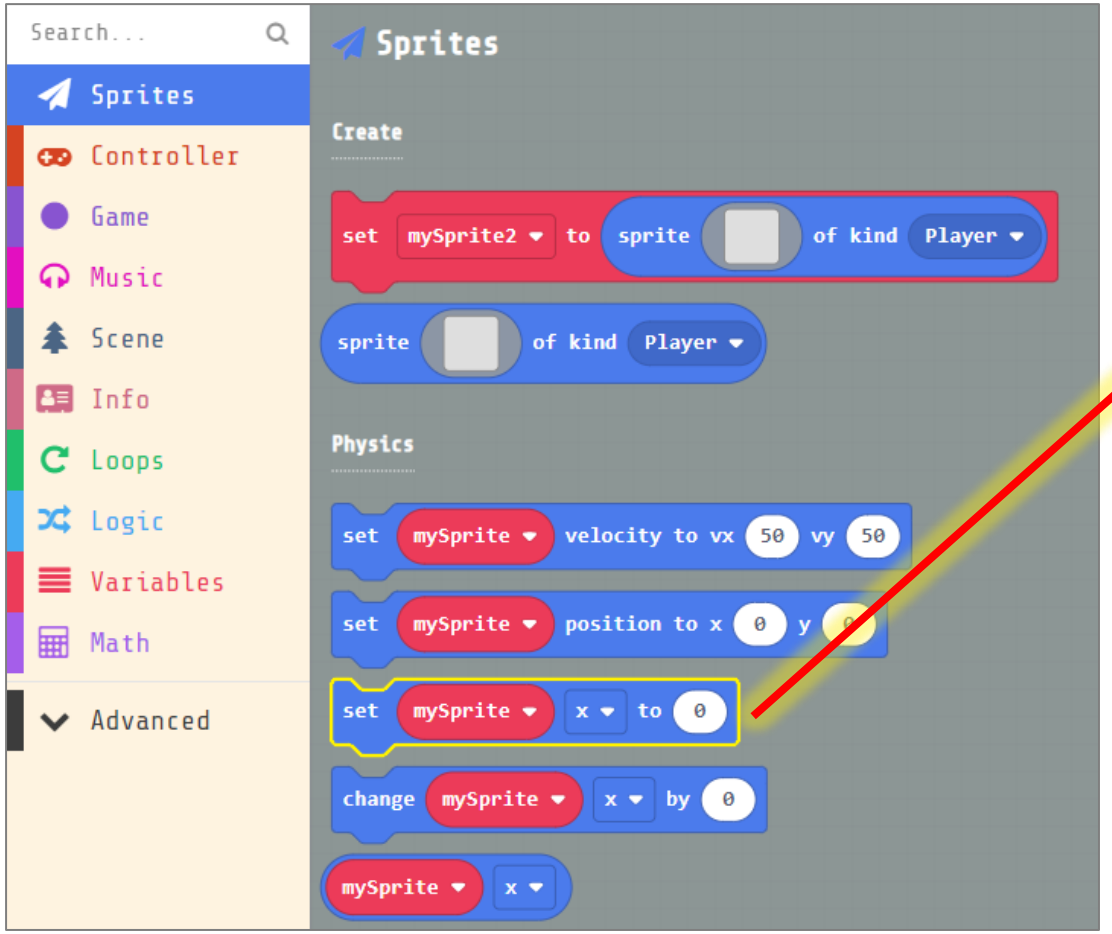
vy = vertical movement

- positive value = top to bottom
- negative value = bottom to top

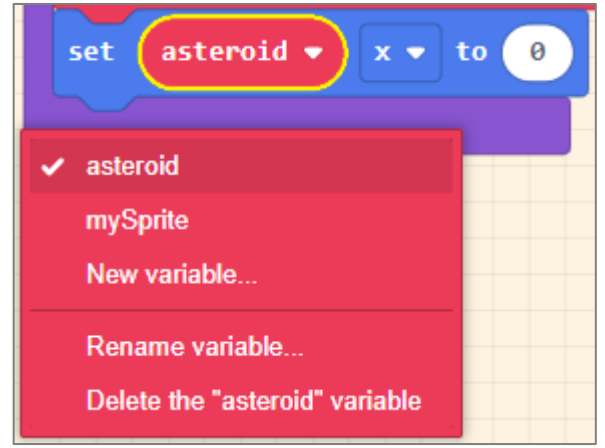


Set the Asteroid to fall from random locations

- From the **Sprites** Toolbox drawer, drag a **Set mySprite x** block into the **On Game Update Every** block

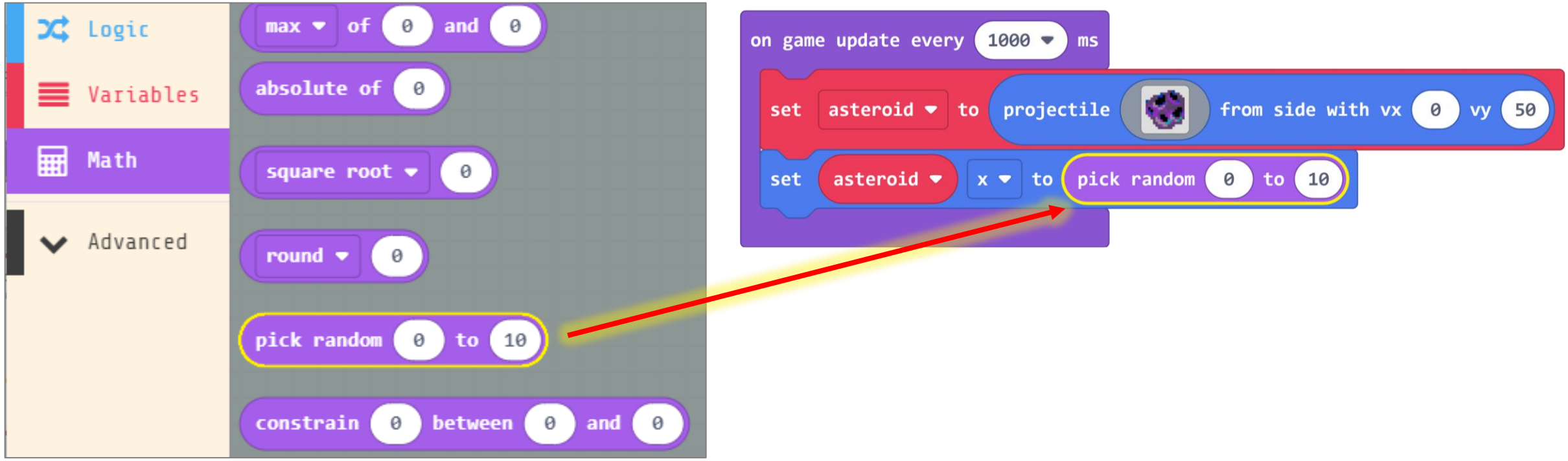


- Click on **mySprite** drop-down menu to select **asteroid**



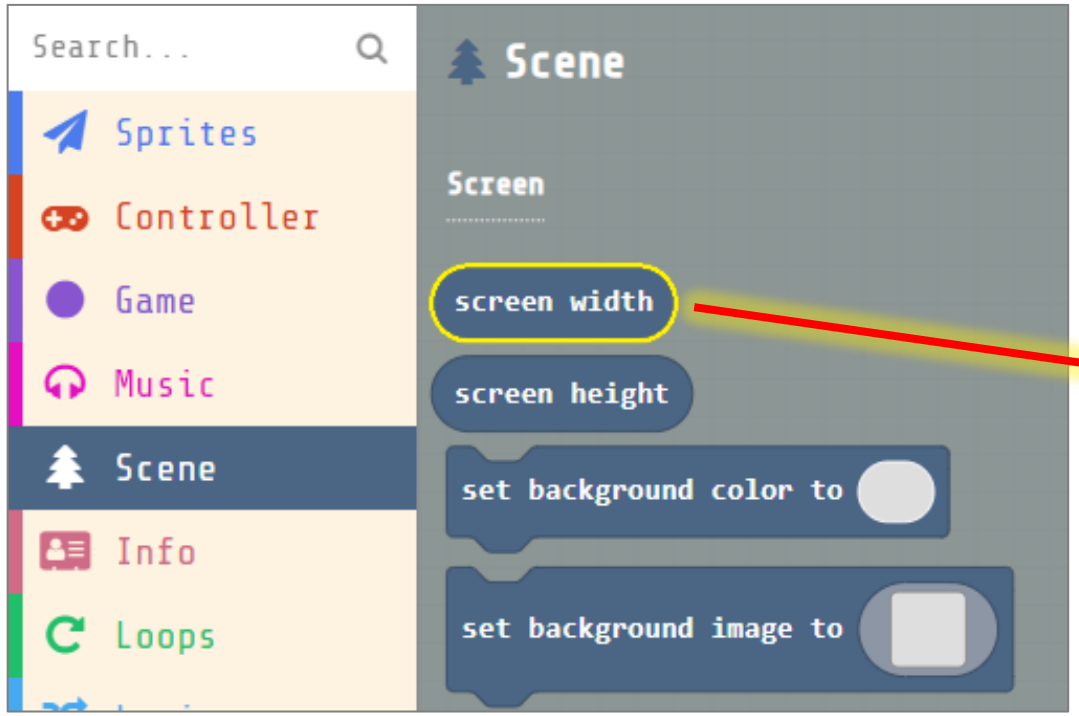
Set the Asteroid to fall from random locations

- From the **Math** Toolbox drawer, drag a **Pick Random** block and drop into the **Set asteroid x** block, replacing the **0**



Set the Asteroid to fall from random locations

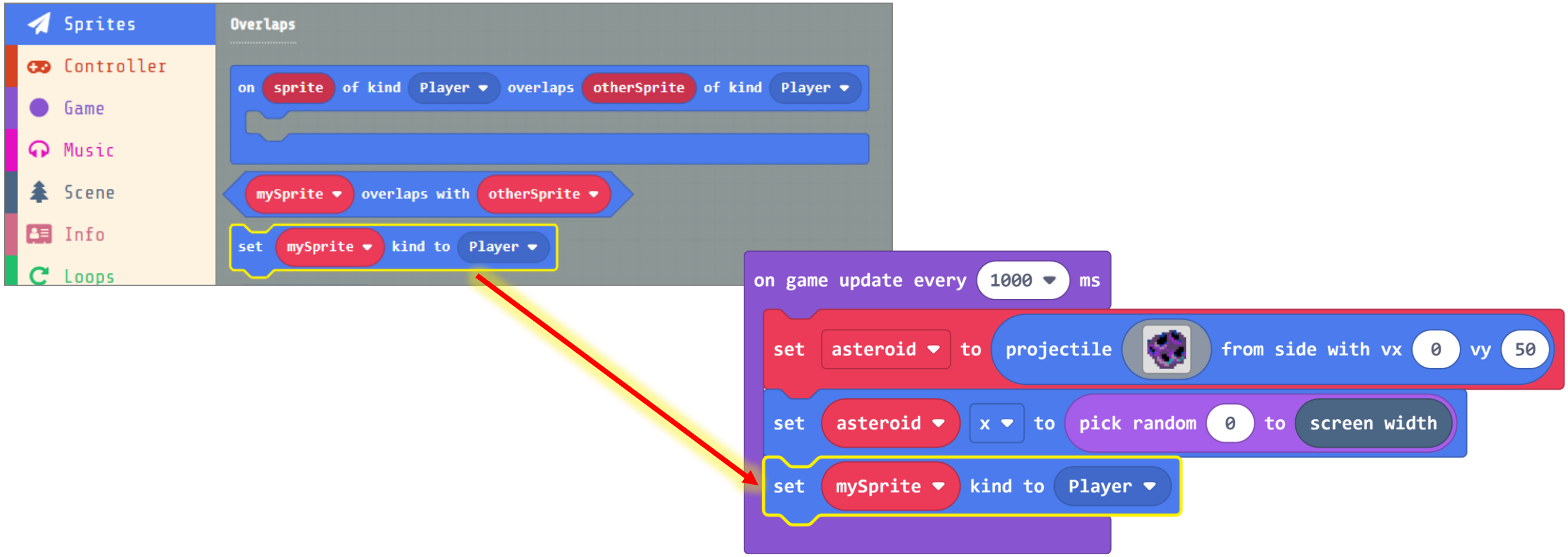
- From the **Scene** Toolbox drawer, drag a **Screen Width** block and drop into the second slot of the **Pick Random** block, replacing the **10**



Asteroid's horizontal (x coordinate) position will be a random number between 0 and the screen width

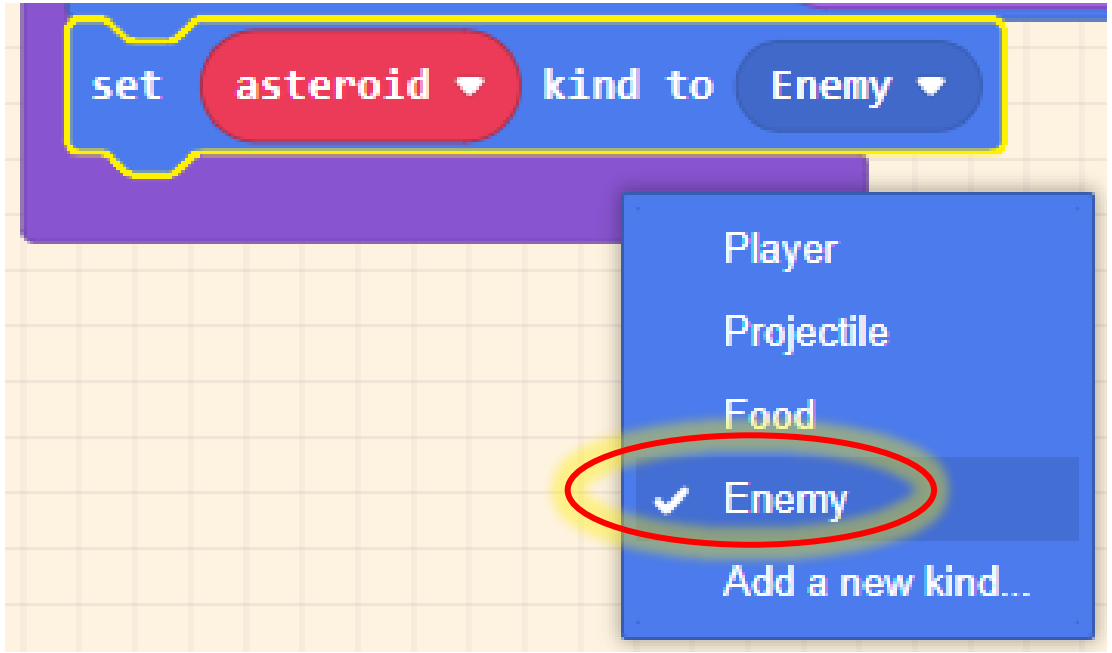
Set the Asteroid to be an Enemy Sprite

- From the **Sprites** Toolbox drawer, in the Overlaps section, drag a **Set mySprite Kind** block and drop into the **On Game Update Every** block



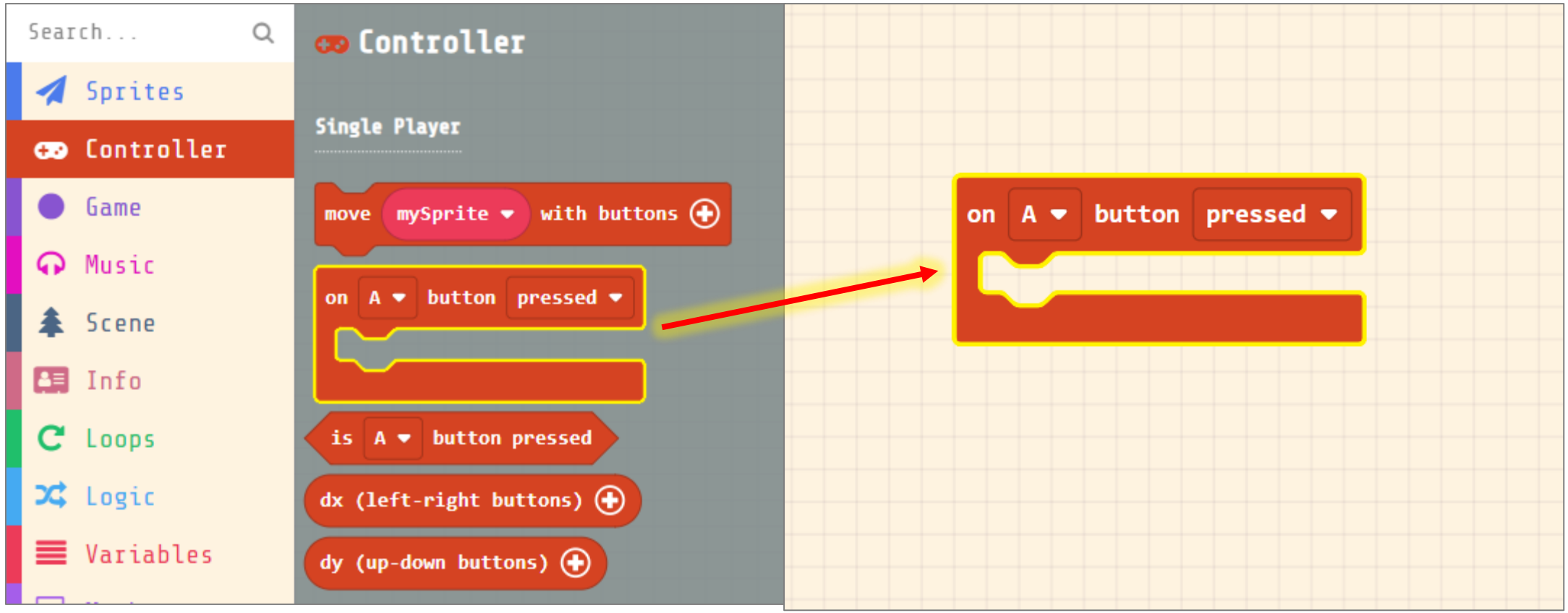
Set the Asteroid to be an Enemy

- In the **Set Kind** block, click on the **mySprite** drop-down menu and select **asteroid**
- In the **Set Kind** block, click on the **Player** drop-down menu and select **Enemy**



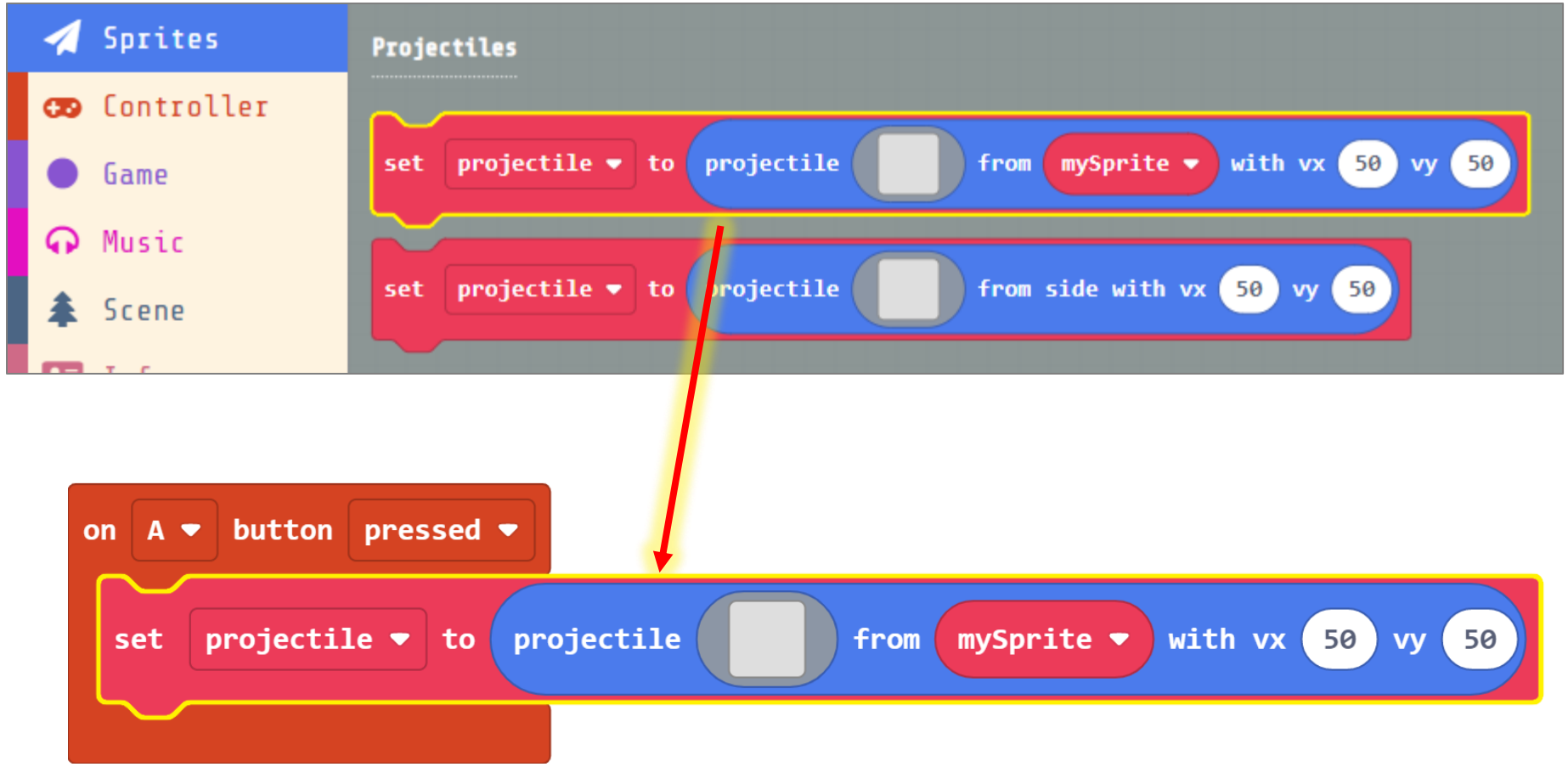
Shoot Lasers when you press a button

- From the **Controller** Toolbox drawer, drag an **On Button A Pressed** block onto the Workspace



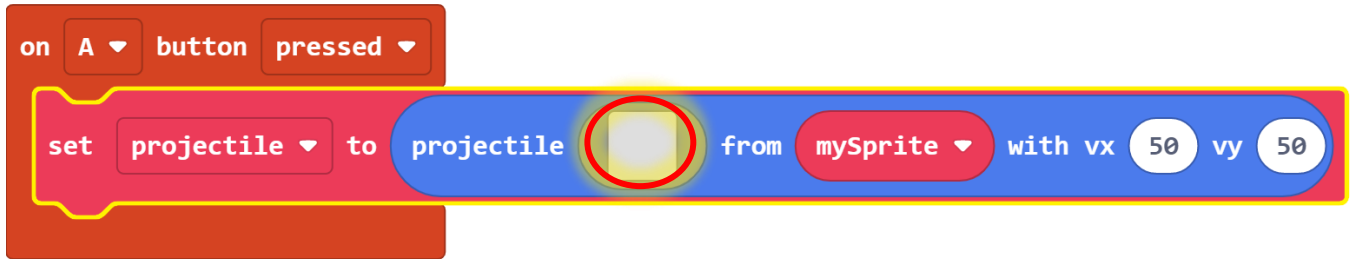
Shoot Lasers when you press a button

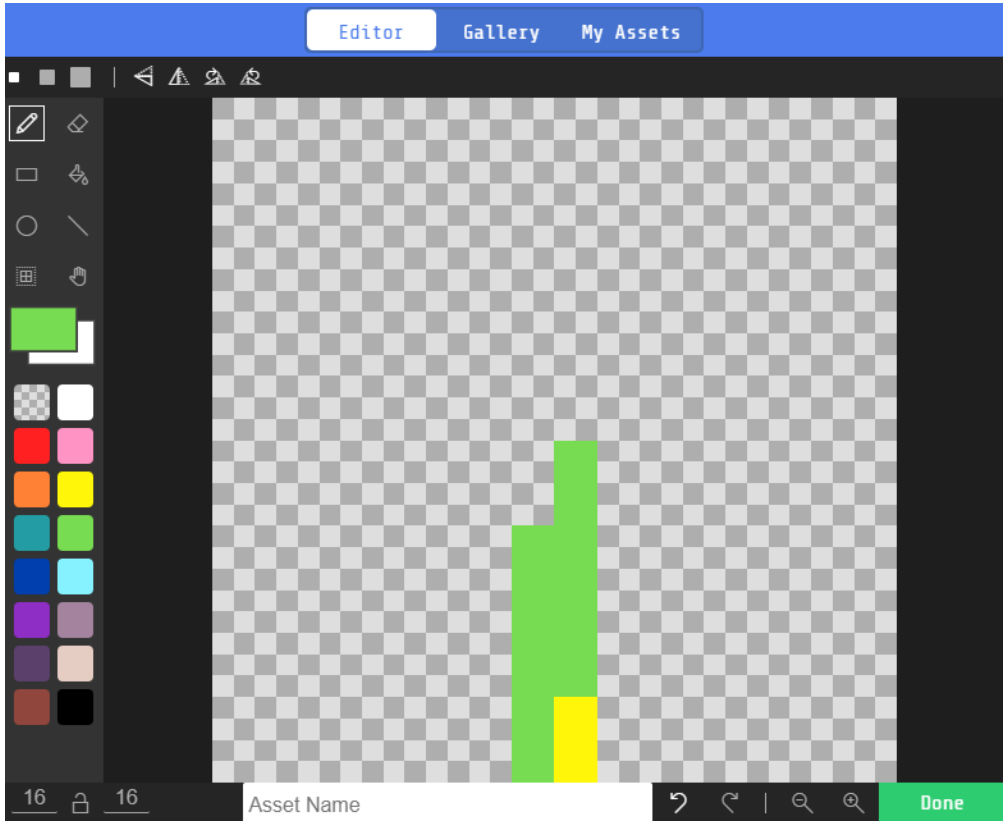
- From the **Sprites** Toolbox drawer, drag a **Set Projectile to Projectile from mySprite** block into the **On Button A Pressed** block



Draw your Laser

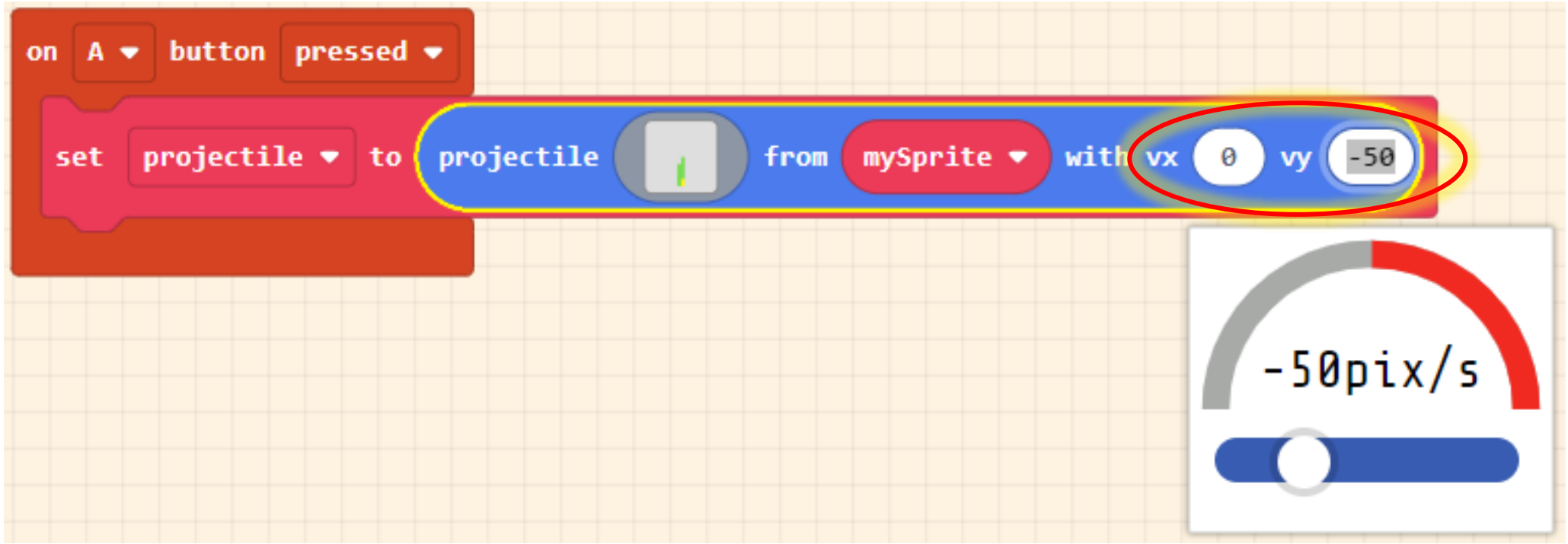
- In the **Set Projectile to Projectile from mySprite** block, click on the grey square to open the Image Editor
- Draw your Laser





Set the Velocity of your Lasers

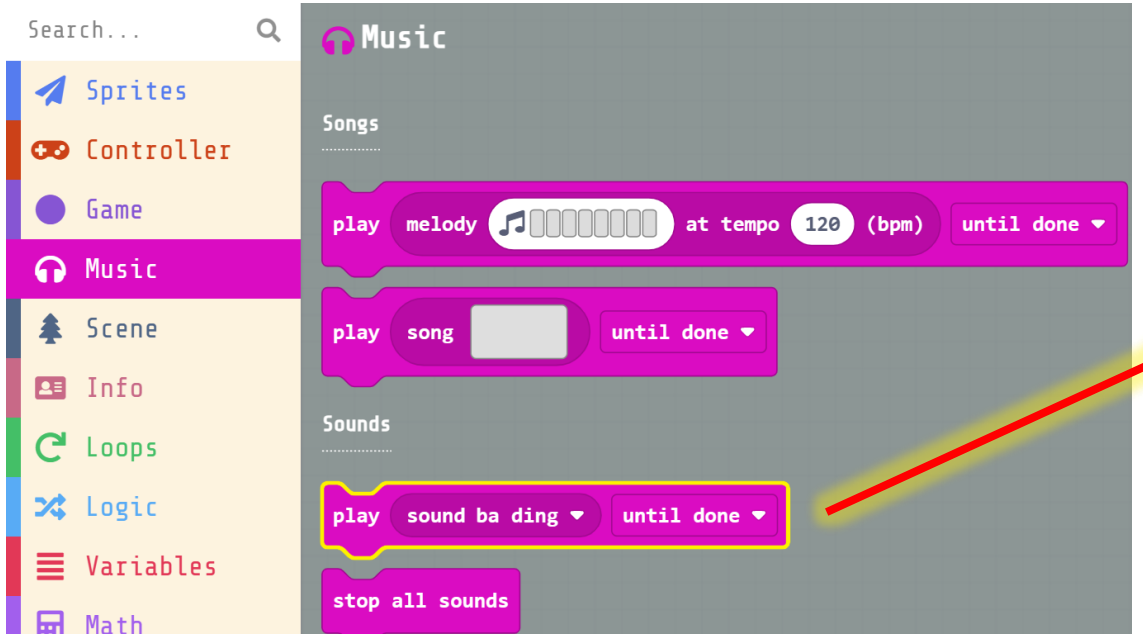
- In the **Set Projectile to Projectile from mySprite** block, set the Velocity **vx** value to **0**, and the **vy** value to **-50**

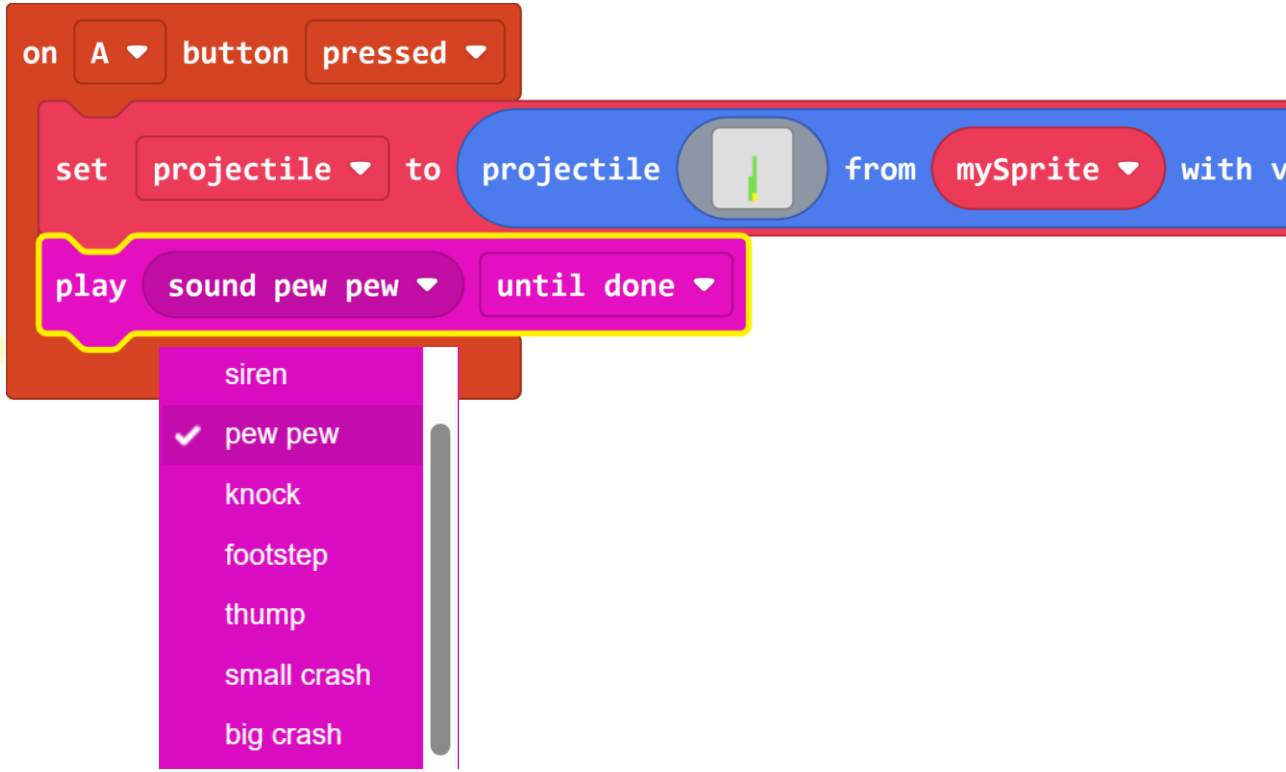


This will make your lasers shoot vertically from the bottom to the top of the screen

Add Sound effect

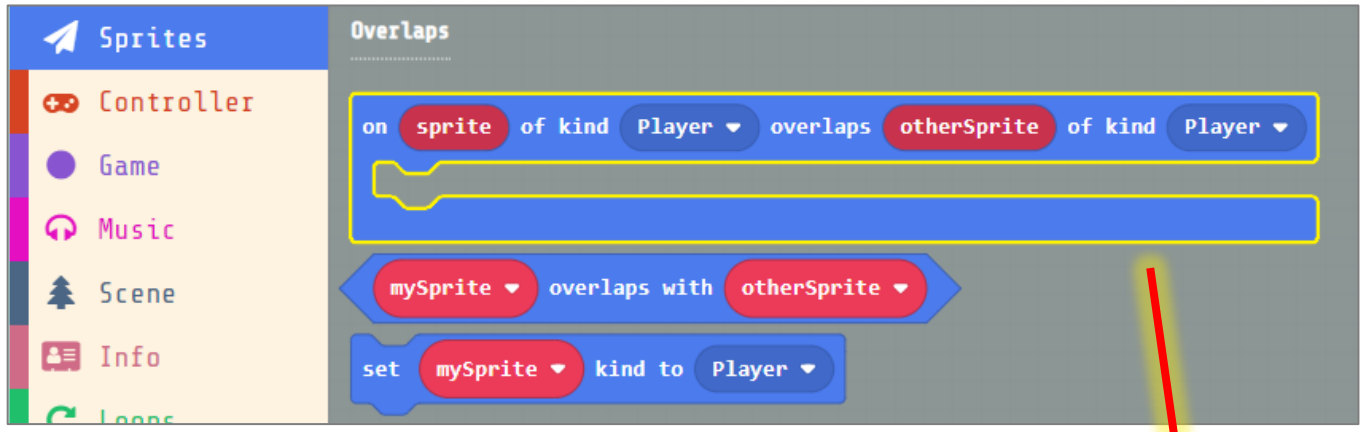
- From the **Music** Toolbox drawer, drag a **Play Sound** block into the **On Button A Pressed** block
- Click on the **ba ding** drop-down menu to select a sound

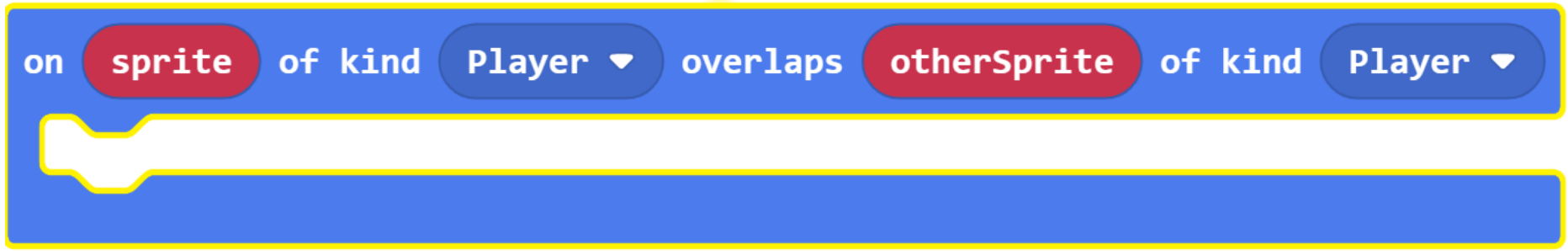




When an Asteroid crashes into your Spaceship

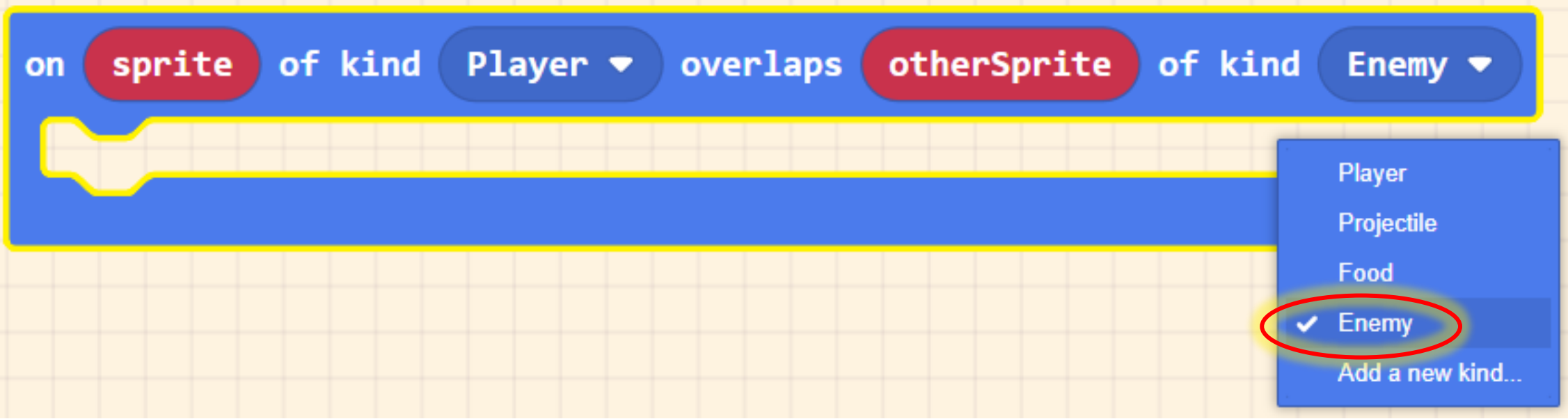
- From the **Sprites** Toolbox drawer, in the Overlaps section, drag a **On Sprite Overlaps OtherSprite** block onto the Workspace





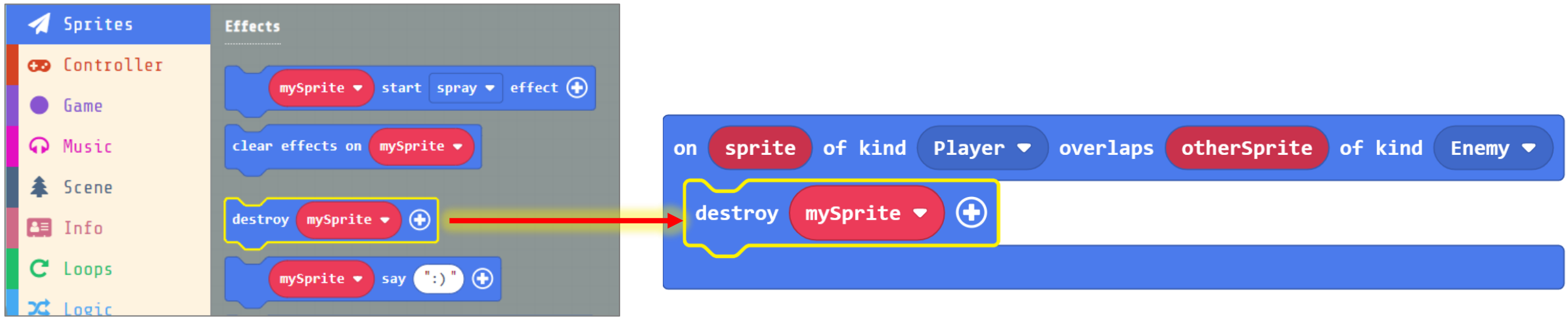
When an Asteroid crashes into your Spaceship

- In the **On Sprite Overlaps OtherSprite** block, click on the 2nd **Player** drop-down menu and select **Enemy**



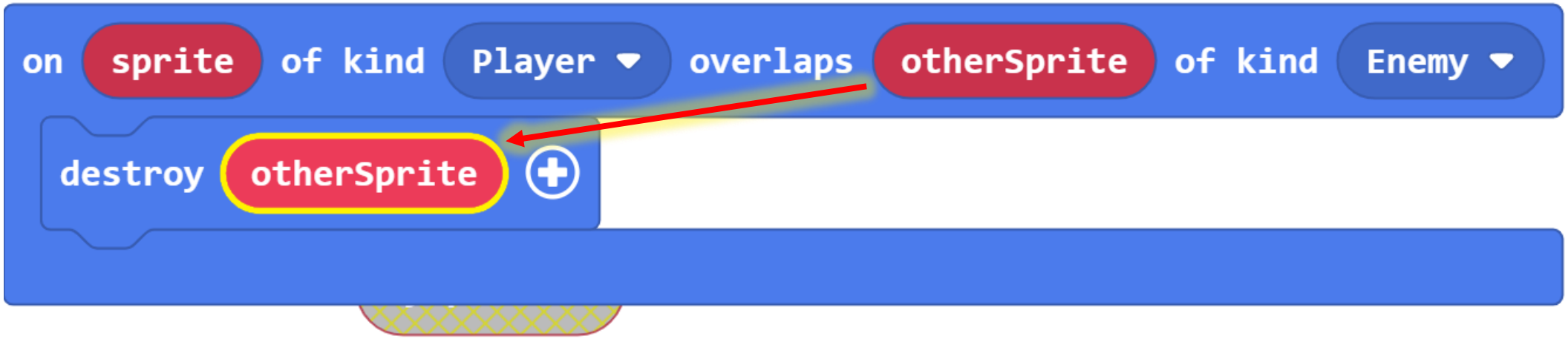
Destroy Asteroid

- From the **Sprites** Toolbox drawer, in the Effects section, drag a **Destroy mySprite** block into the **On Sprite Overlaps OtherSprite** block



Destroy Asteroid

- From the **On Sprite Overlaps OtherSprite** block, drag the **otherSprite** variable into the **Destroy** block replacing **mySprite**

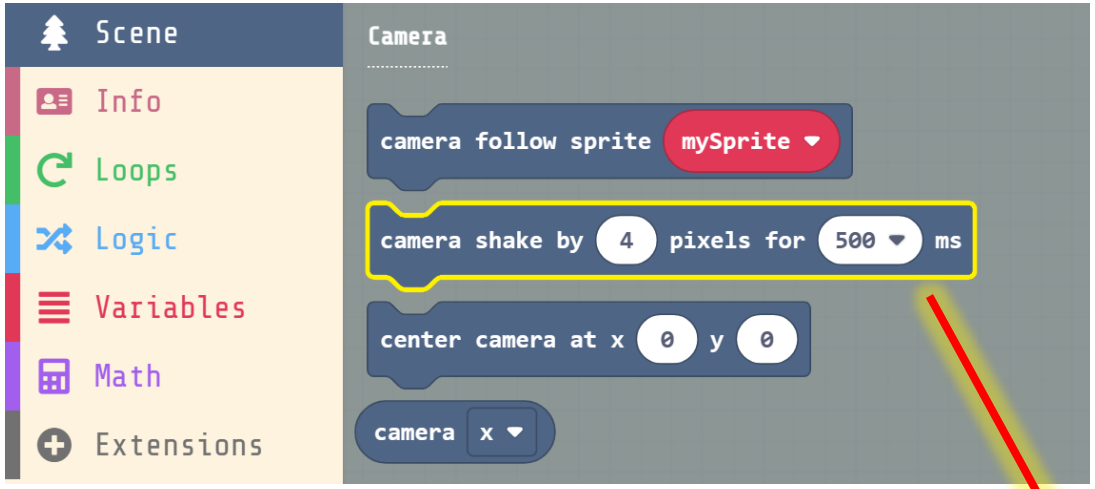


Add an Effect

- In the **Destroy** block, click the plus (+) icon to expand
- Click on the **spray** drop-down menu to select an effect

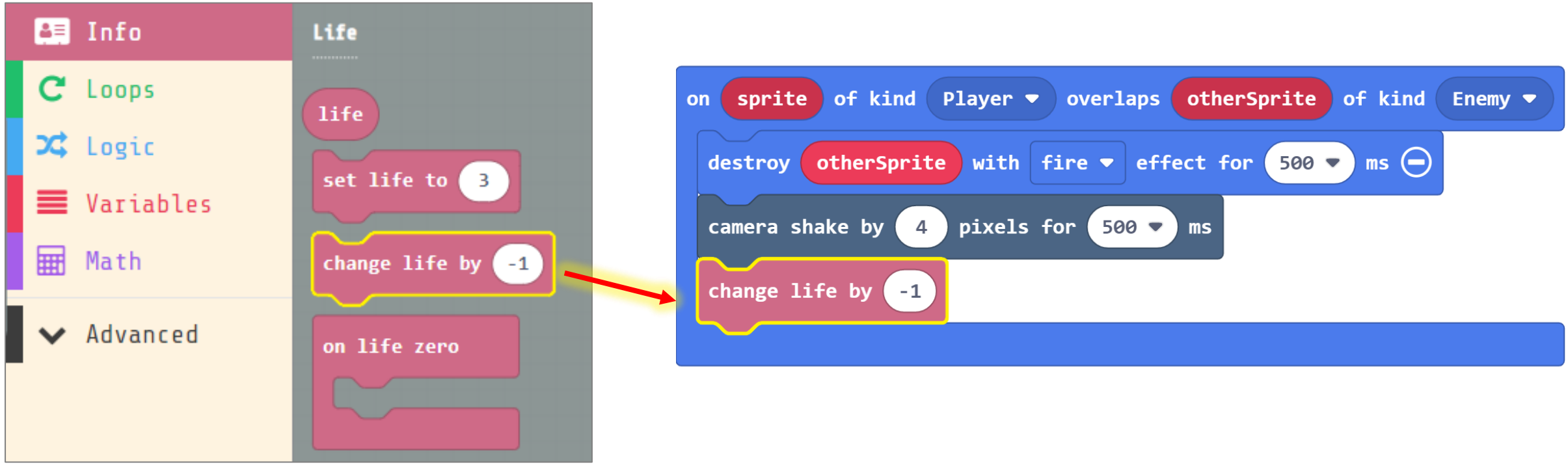
Add a Camera Shake

- From the **Scene** Toolbox drawer, drag a **Camera Shake** block and drop into the **On Sprite Overlaps OtherSprite** block



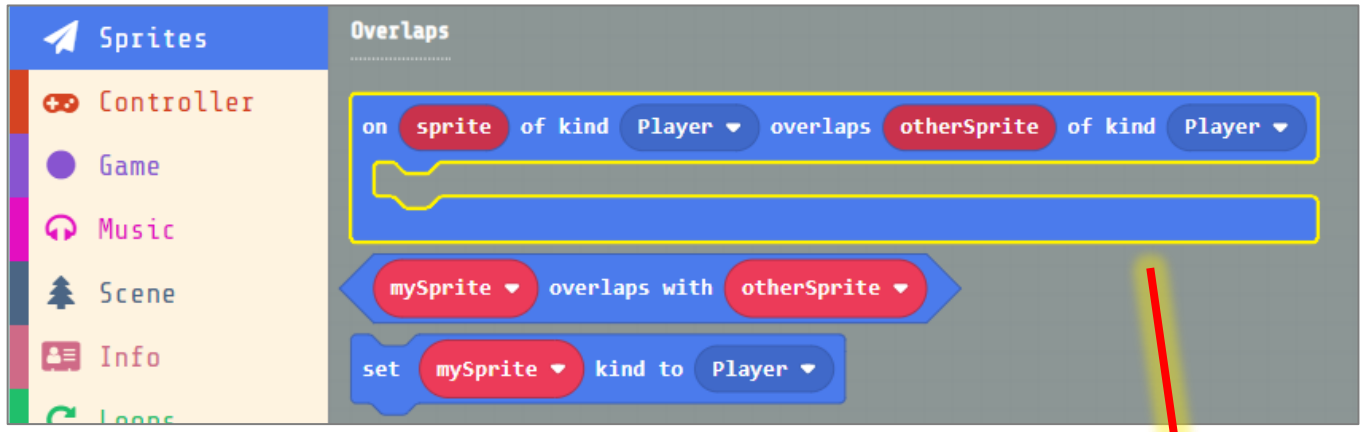
Decrease Life

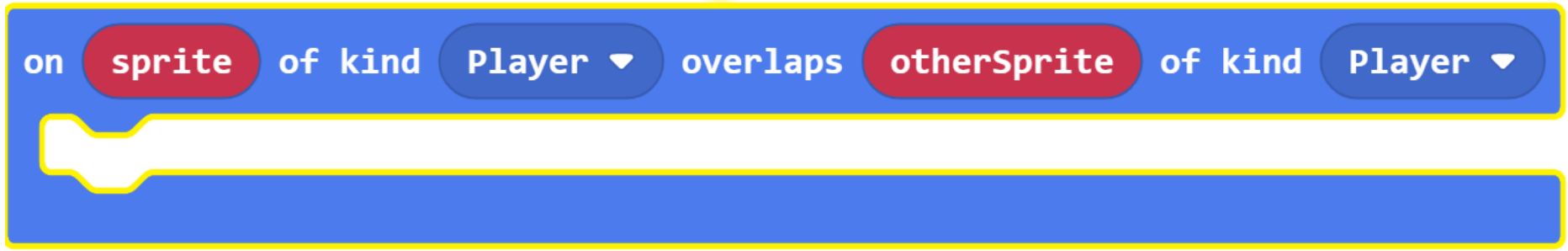
- From the **Info** Toolbox drawer, drag a **Change Life** block and drop into the **On Sprite Overlaps OtherSprite** block



When your Laser hits an Asteroid

- From the **Sprites** Toolbox drawer, in the Overlaps section, drag another **On Sprite Overlaps OtherSprite** block onto the Workspace

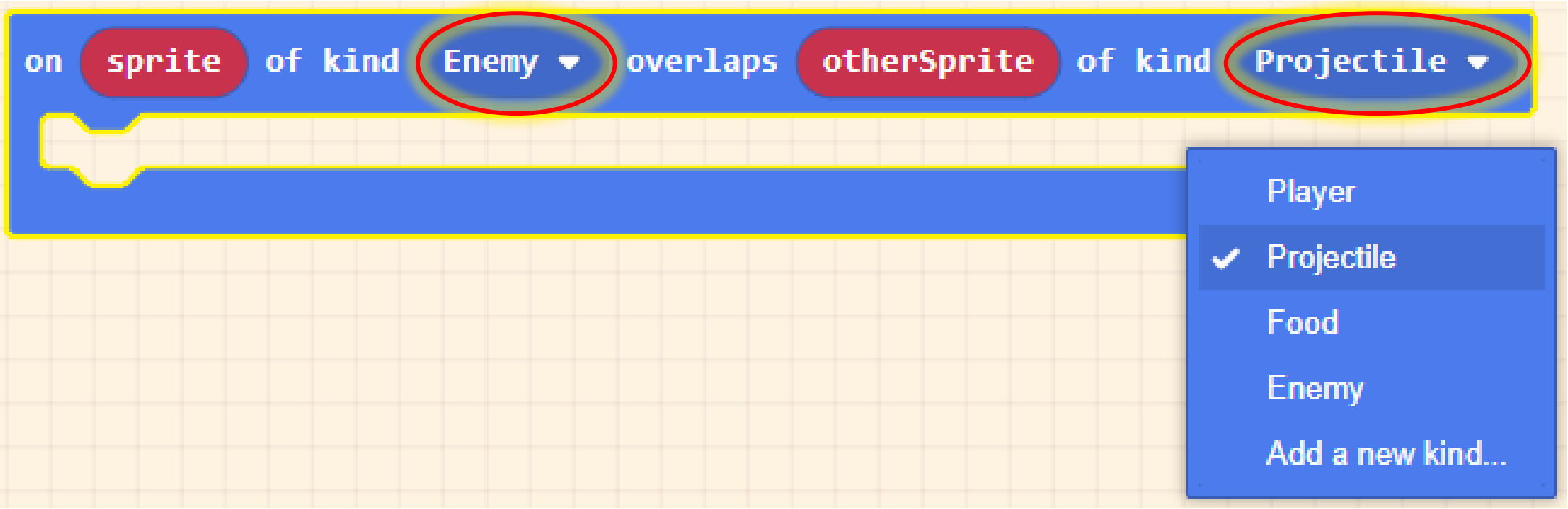




When your Laser hits an Asteroid

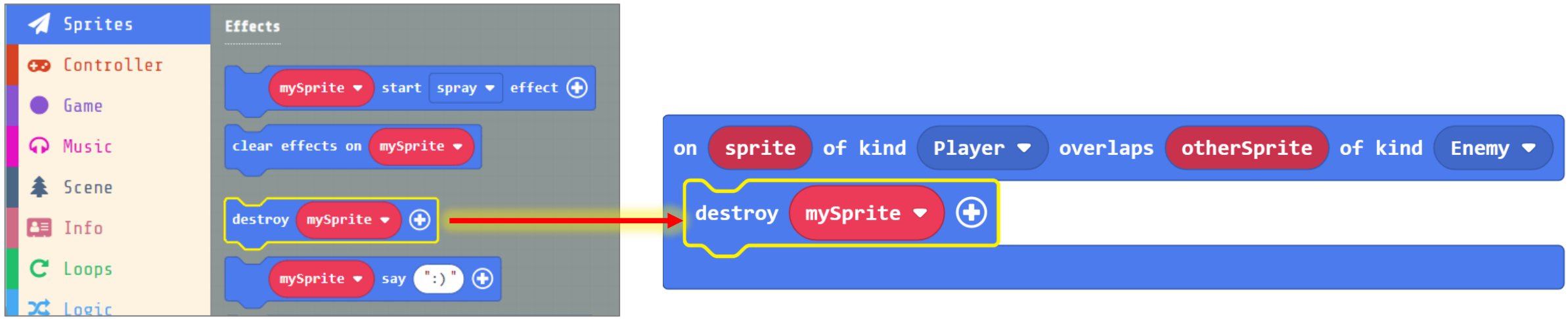
In the **On Sprite Overlaps OtherSprite** block,

- Click on the 1st **Player** drop-down menu and select **Enemy**
- Click on the 2nd **Player** drop-down menu and select **Projectile**



Destroy Laser

- From the **Sprites** Toolbox drawer, in the Effects section,
  drag a **Destroy mySprite** block into the **On Sprite Overlaps OtherSprite** block

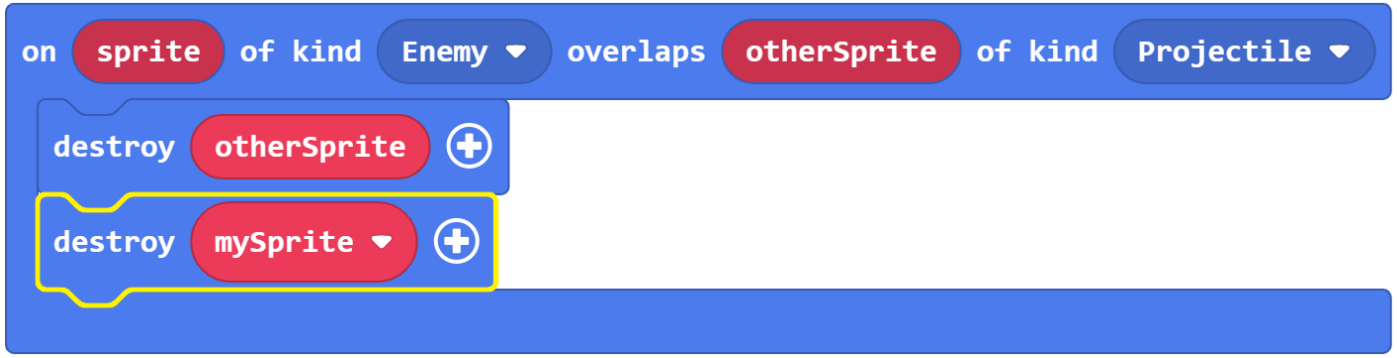


Destroy Laser

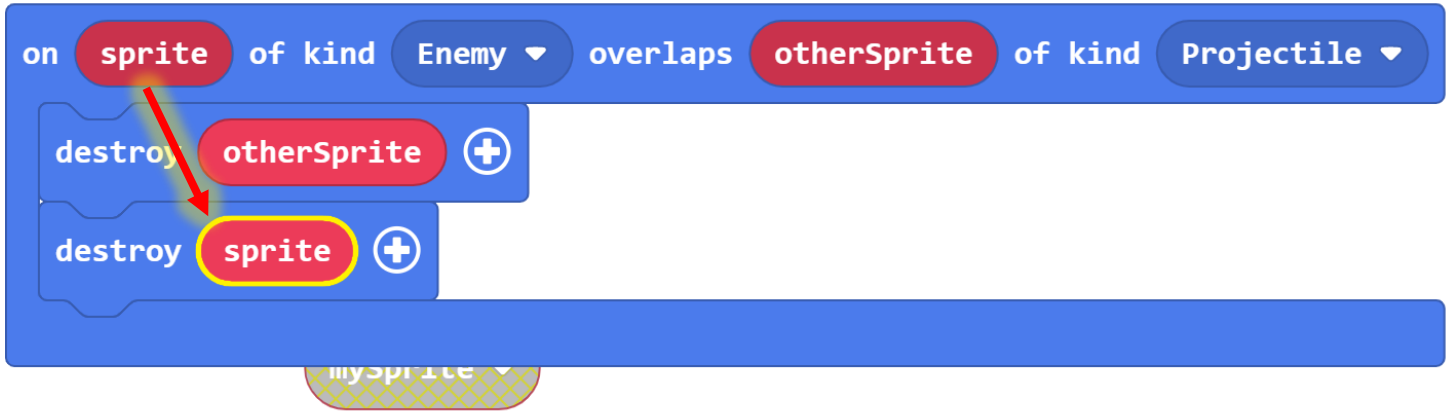
- From the **On Sprite Overlaps OtherSprite** block, drag the **otherSprite** variable into the **Destroy** block replacing **mySprite**

Destroy Asteroid

- From the **Sprites** Toolbox drawer, drag another **Destroy mySprite** block into the **On Sprite Overlaps OtherSprite** block

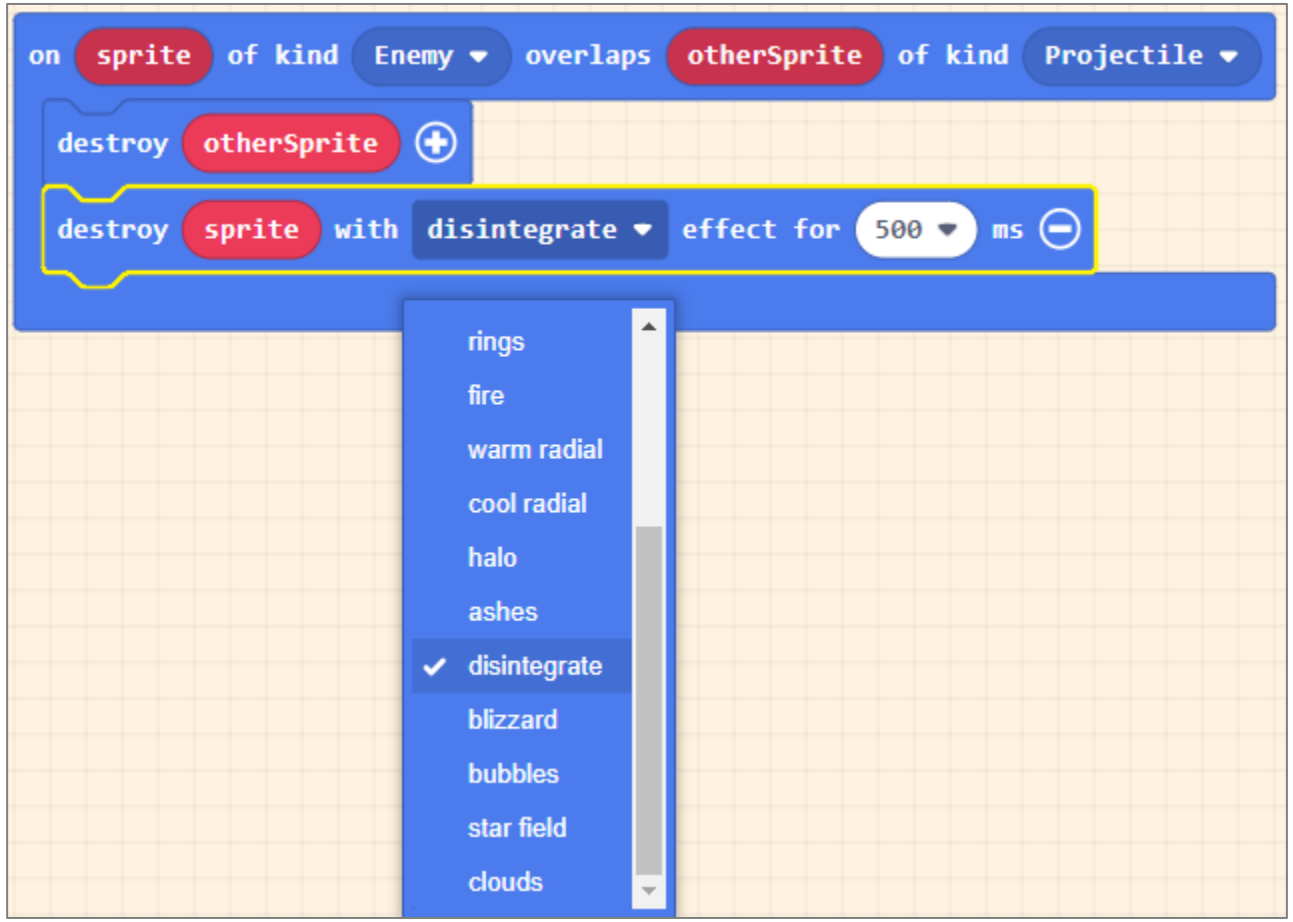


- Drag the **Sprite** variable into the second **Destroy** block replacing **mySprite**



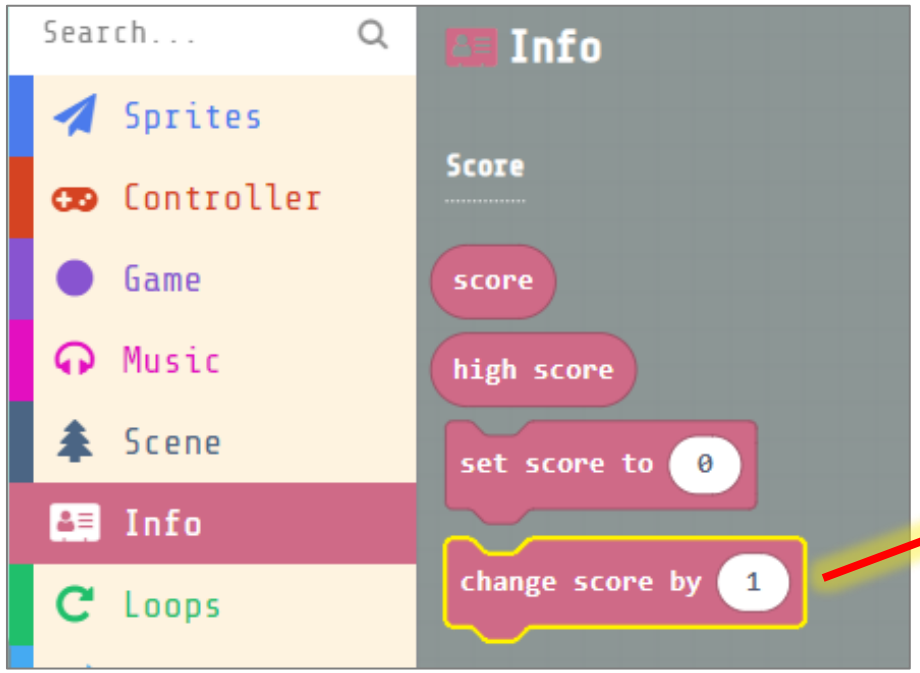
Add an Effect

- In the second **Destroy** block, click the plus (+) icon to expand
- Click on the **spray** drop-down menu to select an effect

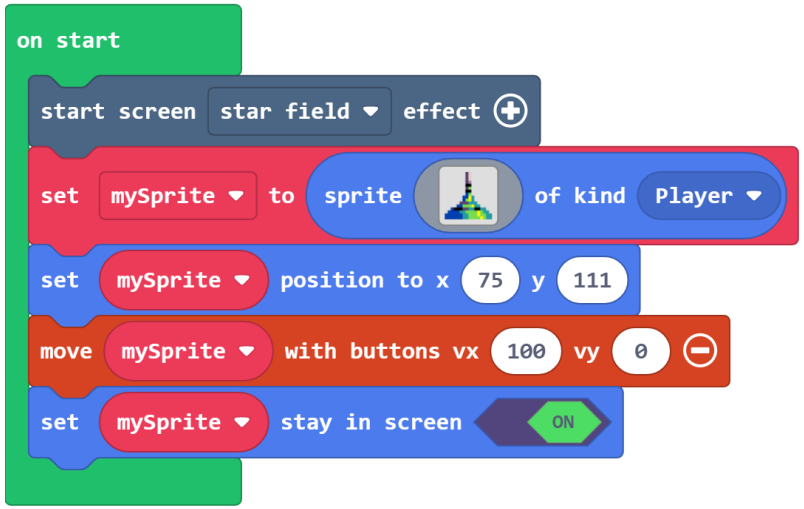


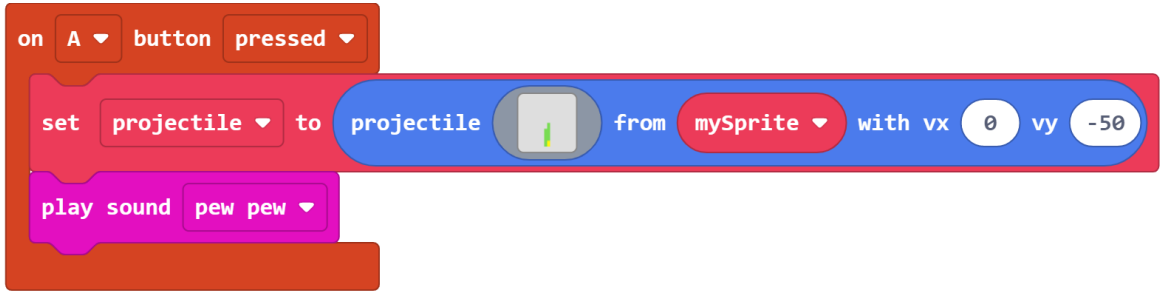
Add to your Score

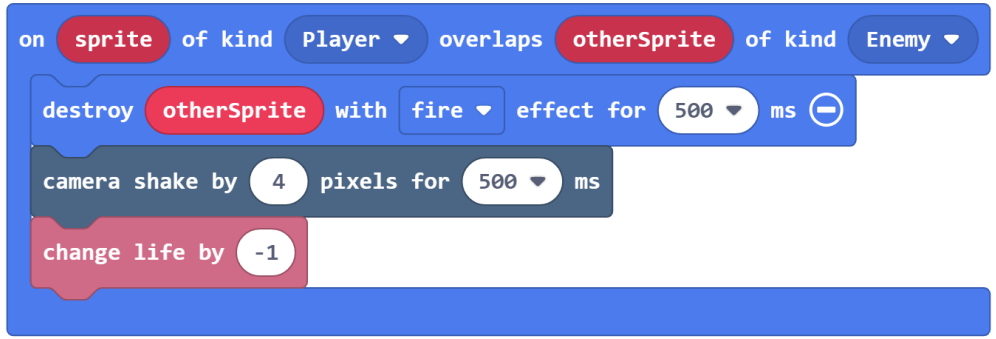
- From the **Info** Toolbox drawer, drag a **Change Score** block and drop into the **On Sprite Overlaps OtherSprite** block



Complete Code







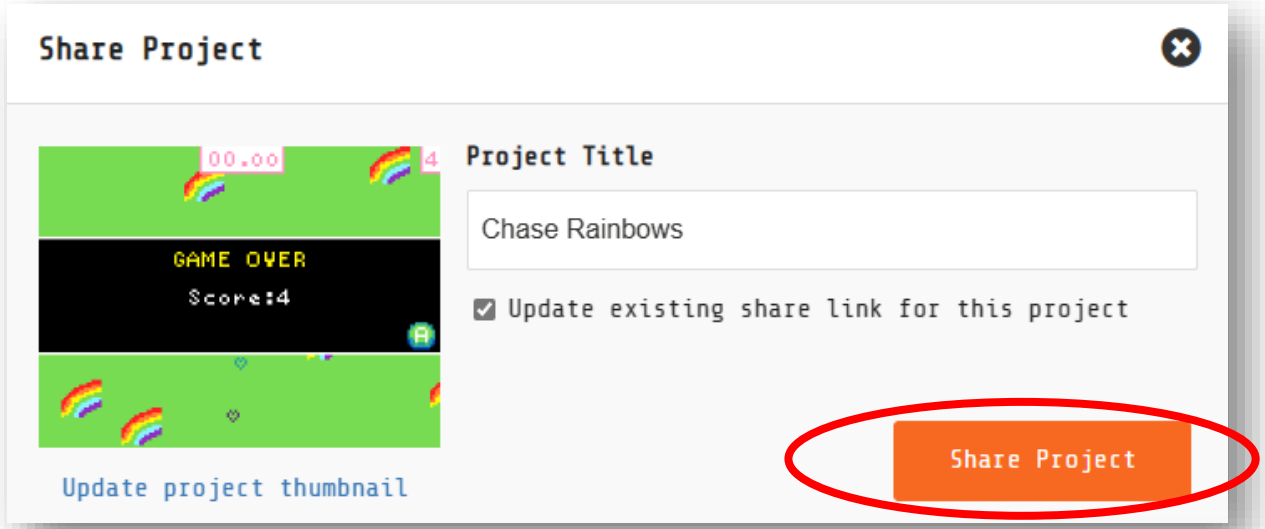
https://makecode.com/_HsDWwvbFs12F

Try modding your game

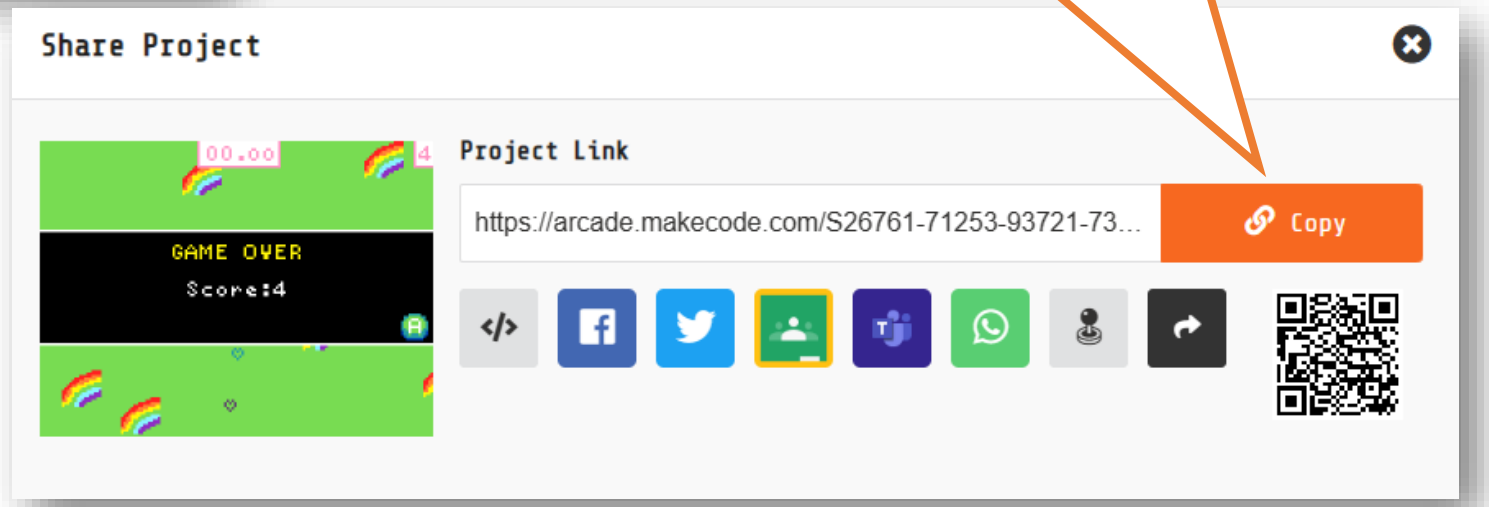
- Add more sounds and effects
- Change how often asteroids appear
- Change the speed of your spaceship, asteroids or lasers
- Add a background image
- Add a beginning Splash screen with instructions
- Add Power-ups
- Add Animations

Share your game!

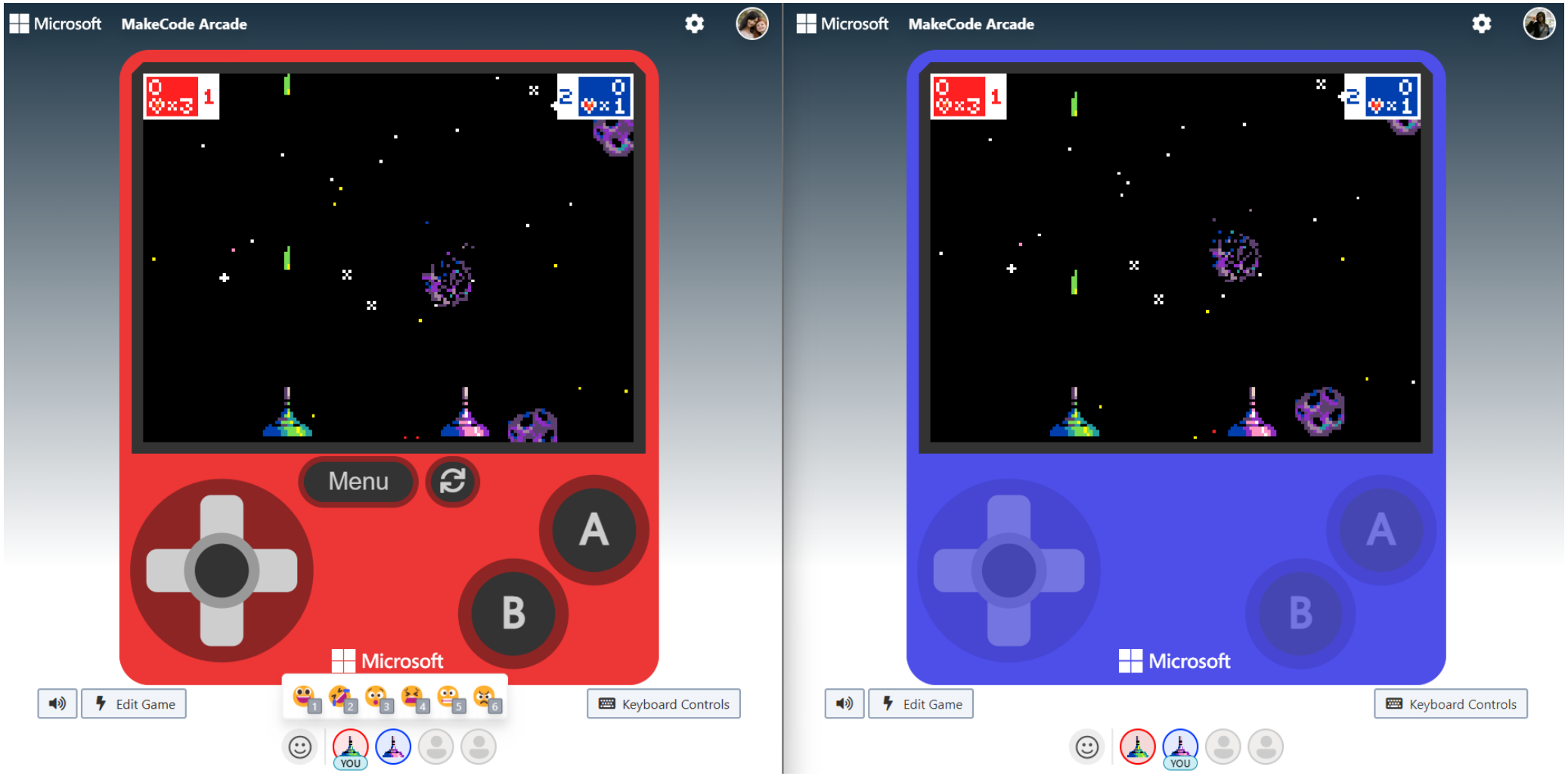
Click the Share button in the top left of the screen



Copy and Paste link into Chat window

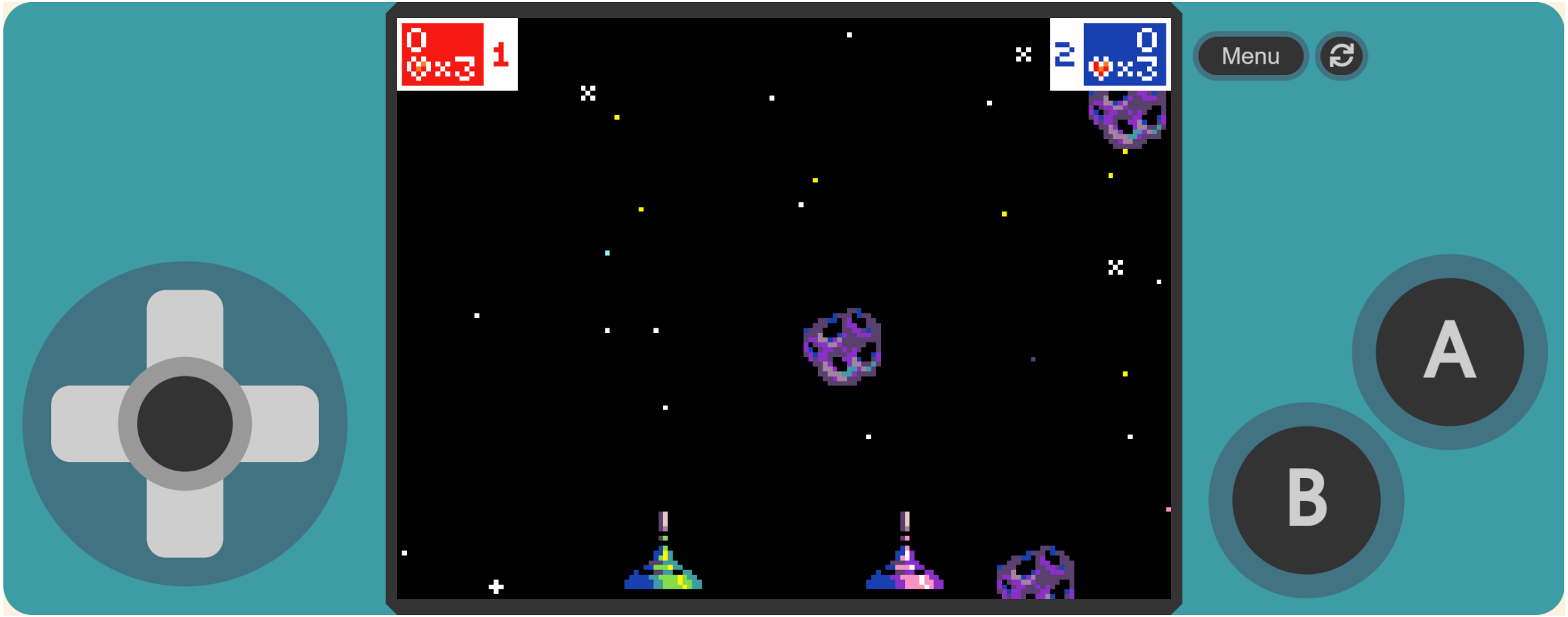


Playing games together



arcade.makecode.com/--multiplayer

Multiplayer Space Game!



https://makecode.com/_f4EgCyUR86eH

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

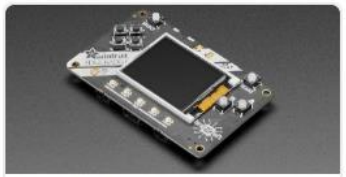
The upgraded PyBadge.

Kitronik ARCADE

ARCADE is a programmable gamepad for use with MakeCode Arcade.

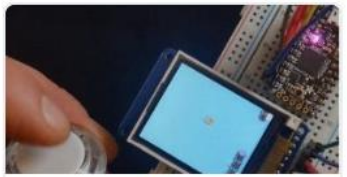
Ovobot Xtron

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

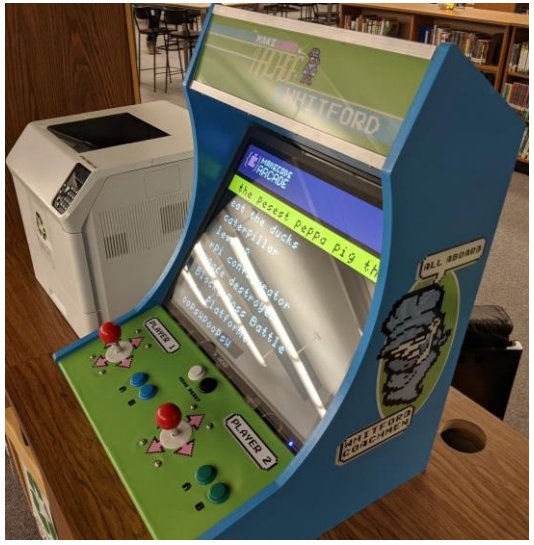
Arcade Cabinets & Controllers

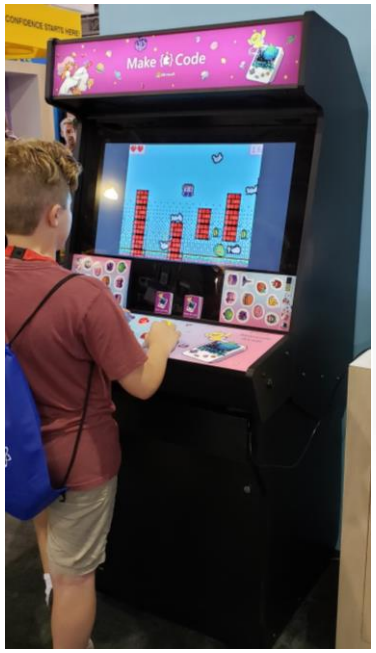
Cardboard Panel

Turn a cardboard box into a tabletop arcade.

Arcade table

Turn an IKEA FLISAT table into an arcade.





Arcade Kiosk Mode

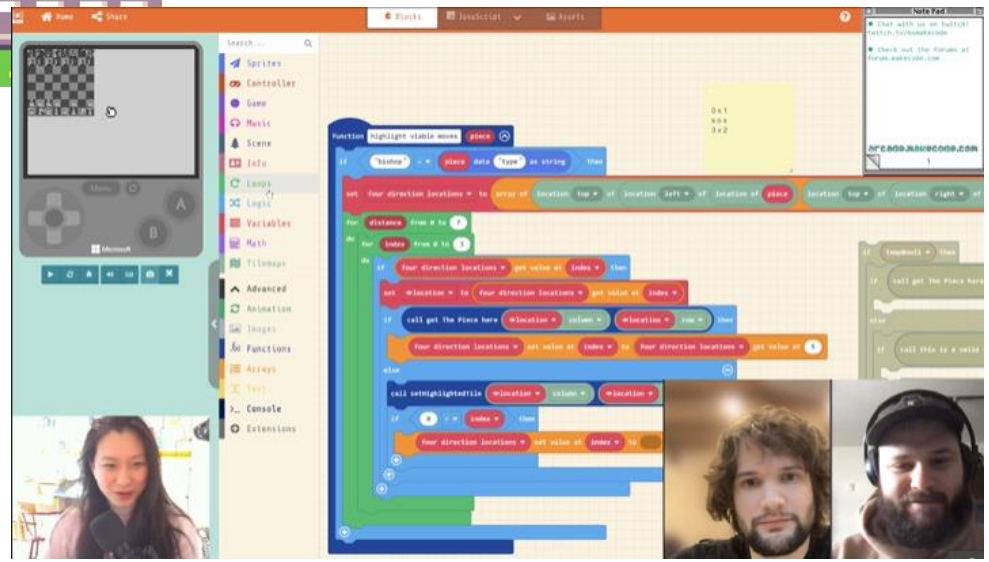
arcade.makecode.com/hardware/kiosk

MakeCode Arcade Live Stream & Forum

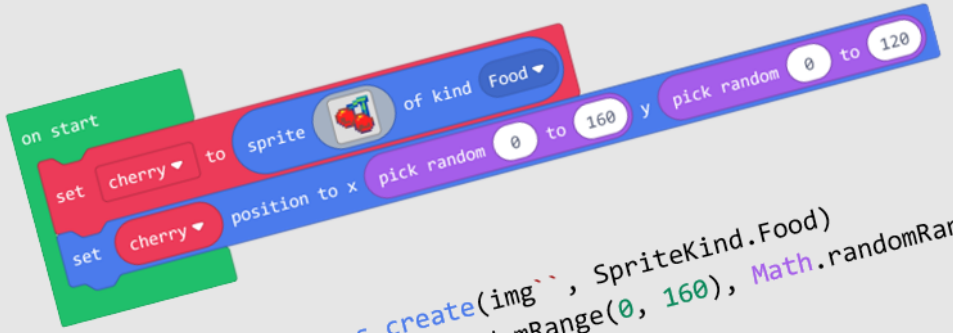
1pm Pacific / 3pm Eastern MWF

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!