Collect and Evade Game Guide

Sample: https://makecode.com/_VFx5cuf267v4

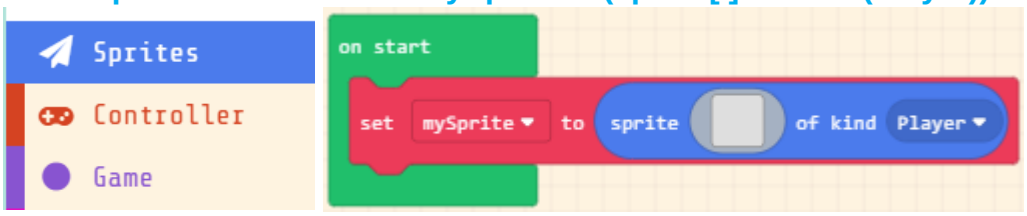
Starting Your Maze Game

Today, you are going to create a Collect and Evade Game. In this style game, the player sprite will be trying to collect things appearing on the screen and will dodge enemies.

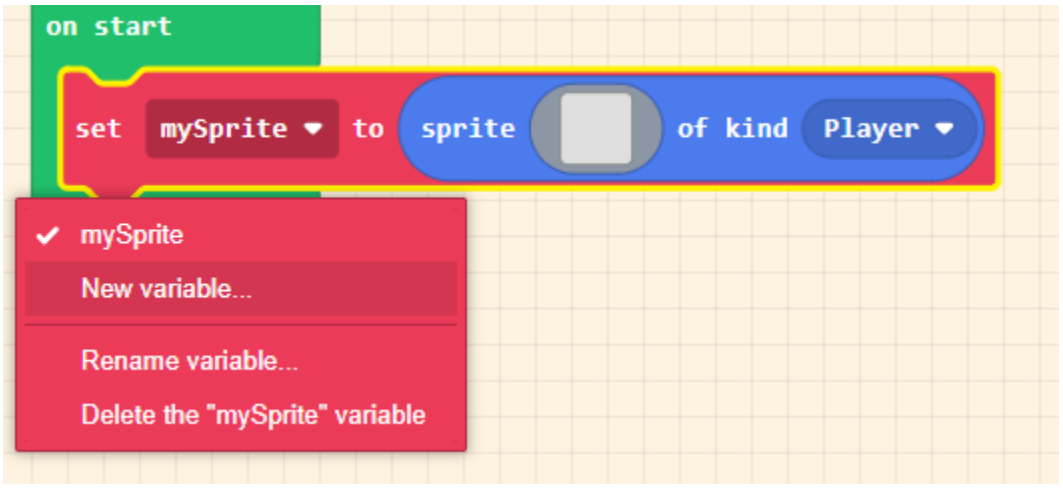
Begin by creating a **new project**.

Create a Sprite

Go to **Sprites** and select **set mySprite to (sprite [ ] of kind (Player))**

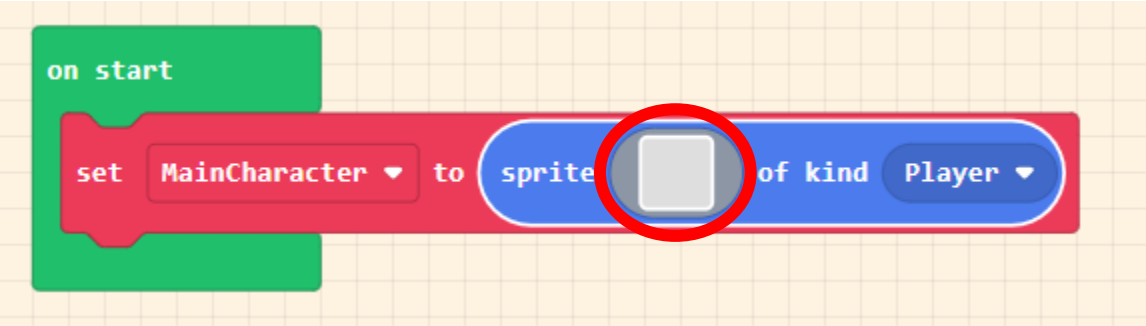


IMPORTANT: Give your sprites a name that is easy to remember and refer to!



Make a **new variable** for your sprite's name. We'll call ours MainCharacter!

Click on the empty box to choose your sprite – it will open the editor.



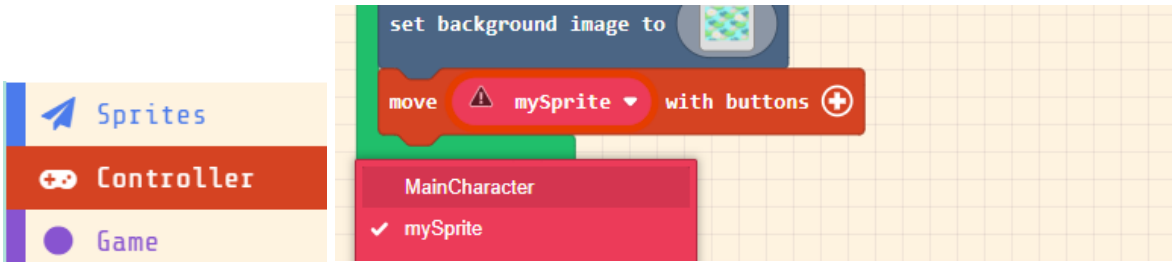
Click on the grey box and either make a sprite yourself or pick one from the gallery. We're choosing the duck sprite!

Now let's add a background. From **Scene** select **set background image () to.**

Click on the grey square and select a background from the gallery or draw your own.

Sprite Movement & Controls

Next step is to make our character move! Go to **Controller** and select **move (mySprite) with buttons.** Make sure to select your sprite's name from the drop-down menu. You can now control your main character with the W A S D keys, arrow keys, or the onscreen D-pad.



Try moving your player sprite around! You'll notice that your sprite can leave the playing screen if you go too far in one direction.

To stop this, go to **Sprites** and drag a **set (mySprites) stay in screen <ON>** into the bottom of the **On start** code block.

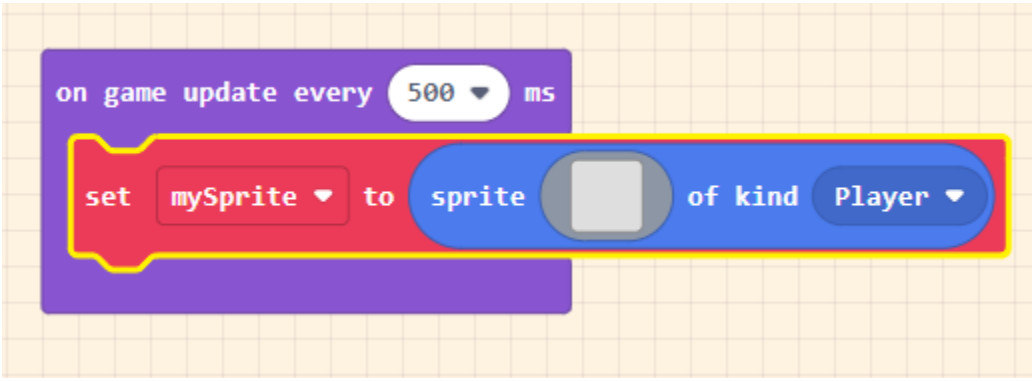
Change the **mySprite** variable to your sprite's name. Ensure that the "stay in screen" switch is turned **<ON>!**

Creating Collectables

We are going to create items to collect that will increase our score as we collect them.

Go to **Sprites** and select a **on game update every 500ms** block.

Go back to **Sprites** and select a **Set [mySprite] to () of kind player.**



Now you need to do three things:

1. Give your collectable a name! We'll call ours **CollectingThing**.
2. Choose an image for your sprite. We chose the pizza slice sprite from the gallery menu.
3. Change the 'kind' drop down menu from **Player** to **Food**.

You can think of 'kind' as a variable type. Just like negative numbers and positive numbers are two different kinds of numbers, Players and Food are two different kinds of sprites! Your sprite's kind will impact how it interacts with other sprites, so always make sure you've chosen the correct kind when you create a new sprite!

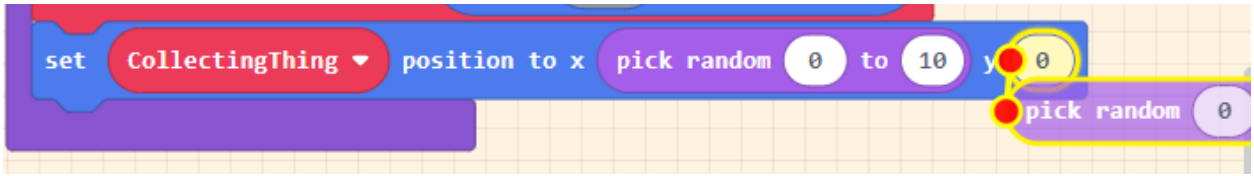
Now, your game should be spawning (or creating a new sprite) of your food every 500 milliseconds. But hey, I only see one slice of pizza!

That's because we haven't told the game WHERE to put our sprites. So it's just stacking all of those slices of pizza directly on top of each other in the centre of the screen, making it look like there is only one slice.

To make the sprites appear all over the screen we need to change their locations. From **Sprites** select **set my sprite position to x (0) y (0)** and place it underneath the sprite creation block inside your **'on game update' block**. Make your variables match by selecting the name of your collectable.

Next, from **Math**, select **pick random (0) to (10)**.The circles inside the **set my sprite position to x (0) y (0)** block should turn yellow when you hover over it with the "pick random" block in the correct location (see picture below). Replace both of the "0" circles with **pick random** blocks.

Note: dragging and dropping blocks is much easier to do with a mouse.



Change the numbers to **x (0) to (160) and y (0) to (120)**. The screen of the emulator is 160 pixels wide and 160 pixels tall, so this will make our collectable item appear all over the screen.

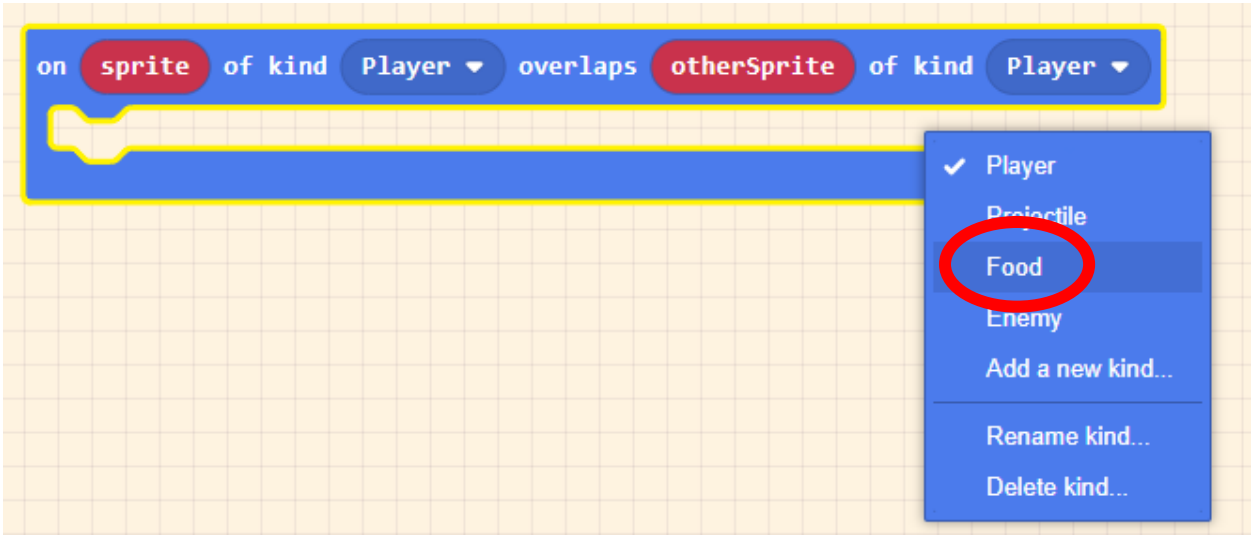
Note: To make your items appear slower or faster, change the "**on game update every (500) ms**" event block to a different time other than 500ms.

Sprite Interactions

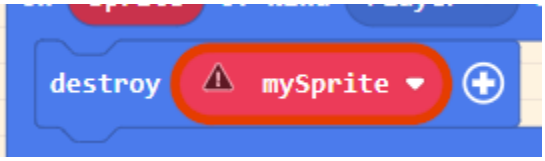
Yay, we have items appearing! But nothing happens when we touch them. Next, we want to make it so our score increases and our collectable "gets eaten" (disappears) when our character sprite overlaps it.

Start by going to **Sprites** and dragging a C-shaped **On (sprite) of kind (player) overlaps (otherSprite) of kind (Player)** event block into an empty space.

At the end of this block, click on the word player and change it to say **Food.**



First, let's make the collectable item disappear when we overlap to make it look like we are eating it. From **Sprites** select **destroy mySprite.**



To make the SPECIFIC sprite your player is touching disappear, you will need to click and drag the word **otherSprite** down from the overlap block and replace the variable bubble in the destroy block.

This will pop out the variable bubble 'mySprite', which can be thrown away by dragging the bubble into the menu space (the area where Sprites, Controller, Game, etc. are listed on your screen).

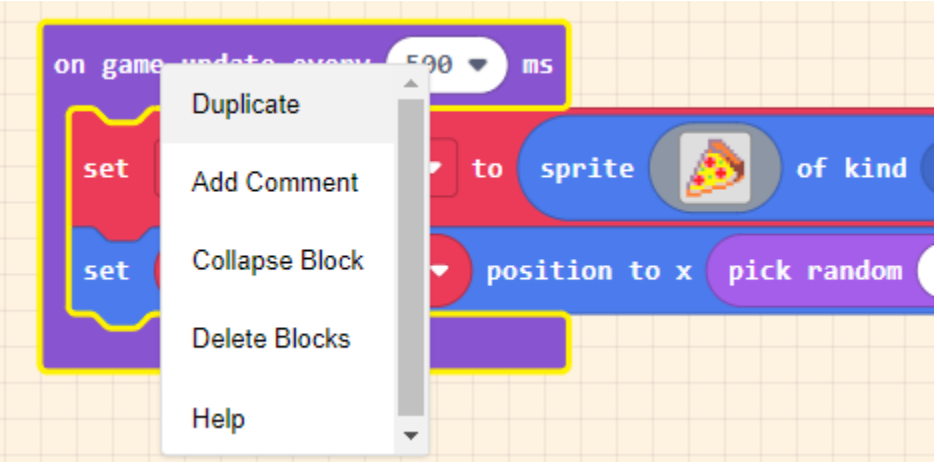
Now let's add points! MakeCode makes creating a score super easy with blocks from the **Info** section. From **Info** grab the **change score by (1)** block and place it underneath the destroy block.

Now your collectables should disappear when your player sprite touches them, and your score should increase by one when this happens.

Note: This is now a workable game, and you can stop here with your class if you'd like. To create an enemy, read on!

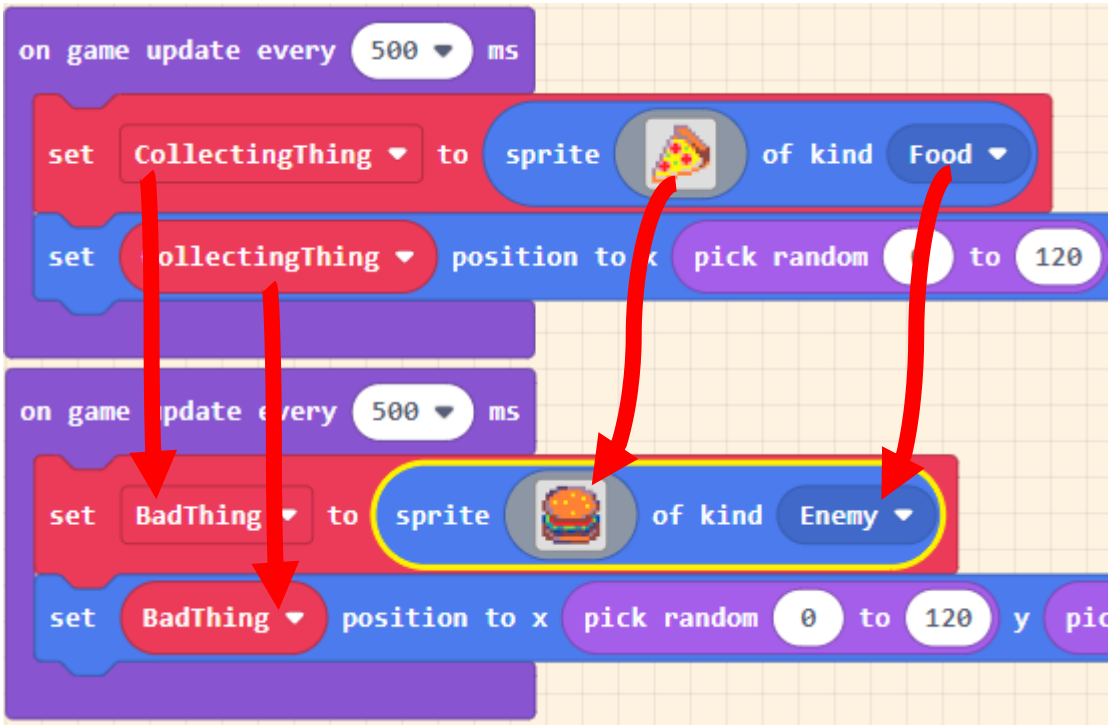
Creating an Enemy

One thing coders don't like to do is repeat the same work over and over again! To make an enemy, we are going to right click on the **on game update (500 ms)** block and duplicate that entire section of code.



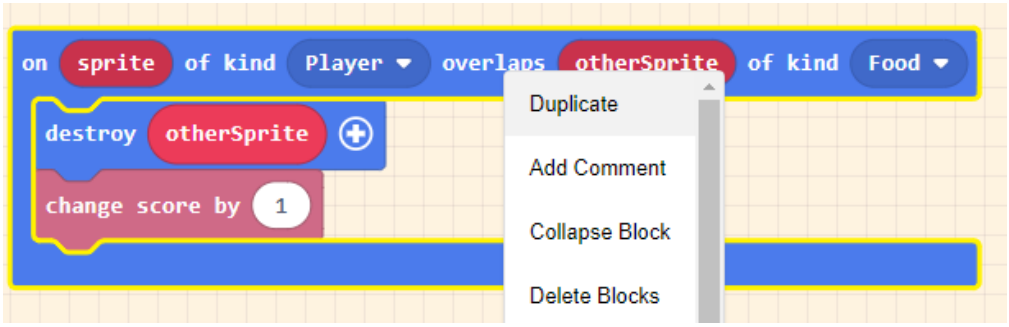
Inside this update block:

1. Give your enemy a new name. We'll call ours BadThing! Make sure you choose "create variable" and not "rename variable" – otherwise your food variable will get changed, too.
2. Choose a sprite image for your enemy. We choose a hamburger! An evil, evil hamburger!
3. Change the Kind from Player to Enemy
4. Change the "**set (CollectableThing) position to x () y ()**" block so that instead of CollectableThing we use the name of our enemy.

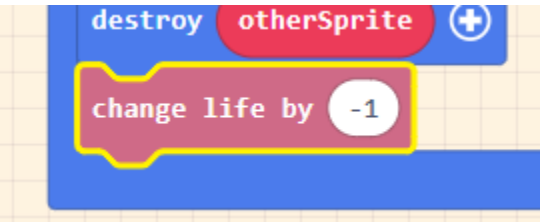


To make your game easier, you can change “500ms” to a larger time interval so that your enemies appear more slowly than your food.

Next, you will need to duplicate the overlap block you created previously. Right click and select duplicate!



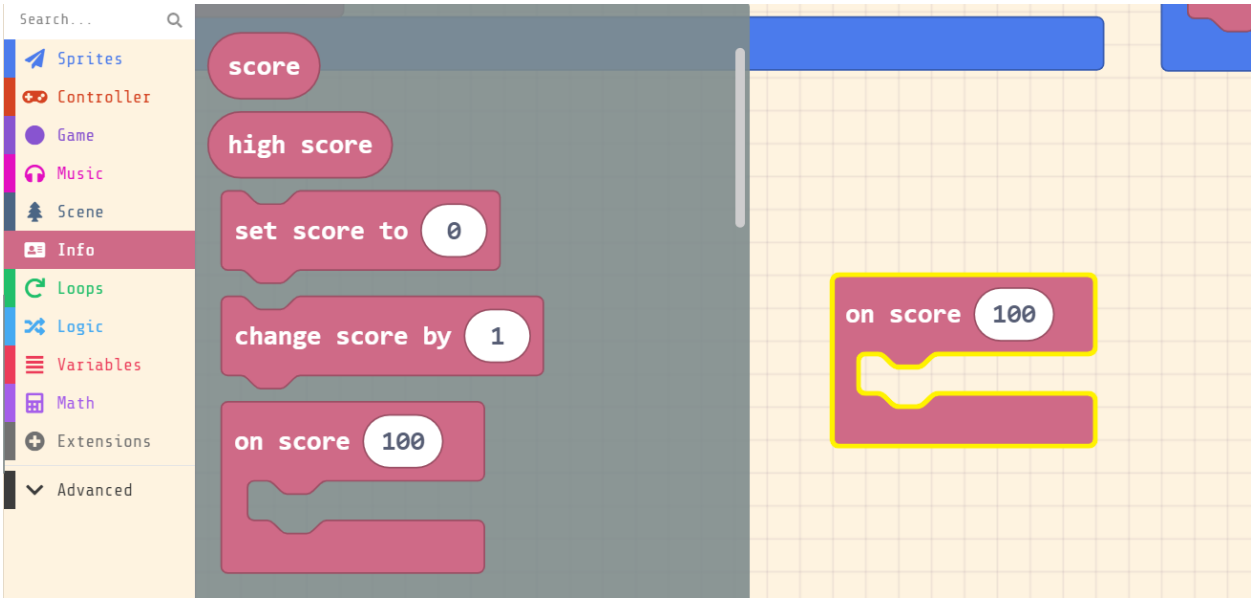
Remove the **change score by (1)** block and replace with a **change life by (-1)** block from the **Info** menu.



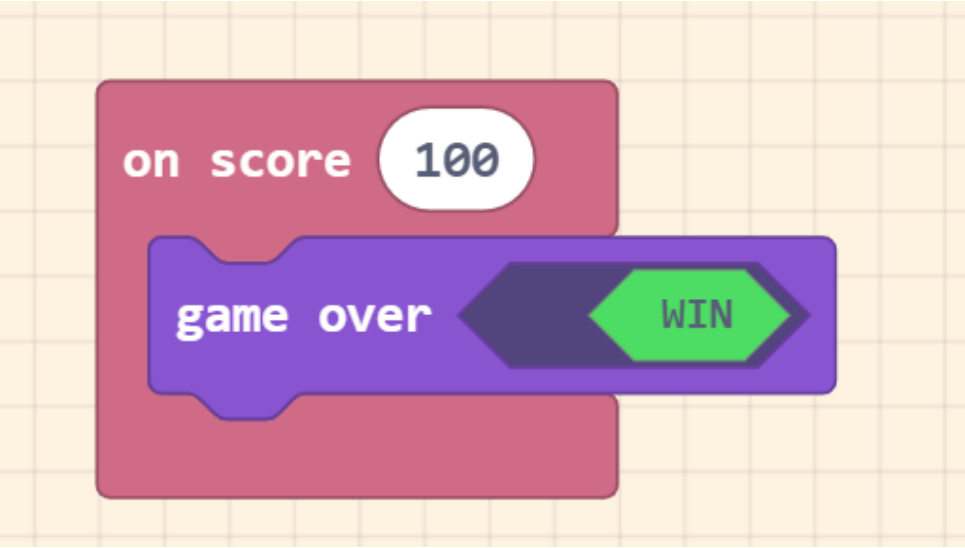
By default, you have three lives in a MakeCode Arcade game. To give yourself more lives, take a "**set life to ()"** block from the **Info** menu and place it in your On Start block.

Creating a Winning Condition

Right now there is no way to win our game! To add a winning condition, take a C-shaped "**on score ()**" block from the **Info** menu. Choose a score needed to win! I'll choose 100 points.



Then, take a "**game over <win>**" block from the **Game** menu and place it inside the "**on score ()**" block.



You're all done! Have fun playing your new game 😊 .