





# THIRD MOTION TASK



#### Description

In this project we will create a game based on the well-known 'Flappy Bird'. The main objective of the video game is to navigate through both upper and lower obstacles by pressing the jump key.

To do this, we will access MakeCode Arcade and perform the necessary operations.

### Goals

- Create a simulation of flying in the air.
- Create a Sprite for our main character, 'Ducky', that we can control in its jump.
- Create an animation for our character.
- Create Sprites for the different obstacles.
- Implement the mechanics for the appearance of the obstacles.
- Implement the mechanics for scoring points.







## Programming guide





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Here we have the link	with part of the programming and assets done:	
https://makecode.com/ bk8E7fcfJPh3		
We	can find them in "Gallery"	
ASSETS CREATION SPRITE PLAYER CREATION		
		We recommend using a 16 x 16 grid for the character ".
OBSTACLES CREATION		
We create the <mark>Sprites</mark> of the upper obstacles obstacleUp0, obstacleUp1, obstacleUp2 and obstacleUp3 in a grid of 24x16, 24x32, 24x48 y 24x56 px respectively		





**Comentado [RP1]:** Comentar cómo sacar extensión de animación

Comentado [DG2R1]: Arriba lo he puesto







JUMPING AND LOSING MECHANIC		
on any ▼ button pressed ▼ set mySprite ▼ vy (velocity y) ▼ to -100		
activate animation Walking ▼ on mySprite ▼ mySprite ▼ start rings ▼ effect for 300 ▼ ms ⊖		
on game update if mySprite vy (velocity y) • >• 0 then activate animation Walking • on mySprite • of mySprite • bottom • >• 120 or • mySprite • top • (• 0 then game over cost • 0		

OBSTACLES SPAWN		
	New variable name:	8
First, we establish variable gap to select which elements appear.	gap	
		0k 🗸





















LAST DETAILS		
We can add sounds when pressing buttons or effects to finish the game.	on any v button pressed v play sound pew pew v set mySprite v vy (velocity y) v to -100 activate animation Walking v on mySprite v mySprite v start rings v effect for 300 v ms •	

Thanks to this programming, we have created a 'Flappy Bird' game in which we have learned how to create obstacles, place them, and give them speed. We have also learned how to award points when we successfully pass an obstacle. Now it is your turn to customize it and add your own content. Here is ours to inspire you a little:

https://makecode.com/\_37wRA4du7WgX







#### Glossary

Player: Contestant of the game.

**Physics**: In video games, physics refers to the behaviour of different elements within an environment. They often simulate real-world physics.

Acceleration: It is the change in velocity per unit of time.

Velocity: It is a physical quantity that relates position with the change in time.

Scenario: The space where the video game takes place.

Lifecycle: The duration of an element in a program from its creation to its destruction.

Randomness: The generation of numbers that have an equal probability of being generated.

Score: The total points a player earns through certain interactions.

Game Over: The game has ended. It usually displays scores and asks if you want to play another game.

**Animation**: The animation of a sprite is the sensation of movement achieved through different frames.

Image: An element displayed on a screen that represents something (a landscape, people, etc.).

Music: The combination of sounds and silences that create a rhythm.

**Effect**: Something applied to the scenario, object, character, or other elements to convey realism or a specific sensation within the game.

Event: It triggers a sequence of instructions when an external event occurs in the system.

If: A conditional statement that, based on the result of a logical operation, executes a sequence of instructions or skips them.