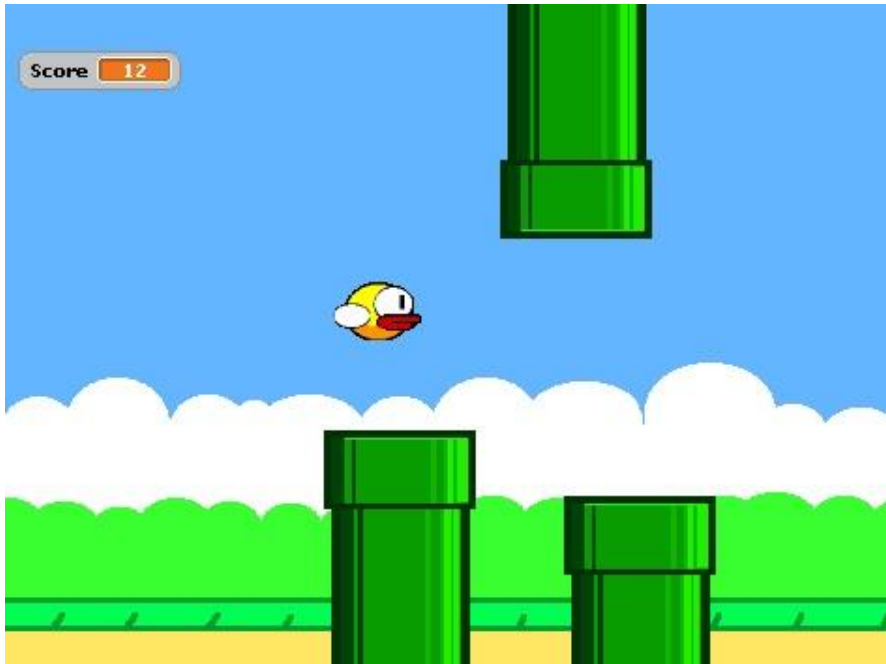


Exercise 15 - FLAPPY BIRD



Make your own Flappy Bird game!!!

1. Open the J Drive on your computer by clicking on **Start** in the bottom left-hand corner. Select **Computer** and double-click on **J Drive**. Double-click on the Scratch folder. Right-click on **Exercise 15 – Flappy Bird**, and select **Open**.

* When you open the game, you will see that all the Sprites are already in the game. The two **Background Sprites** already have scripts written for them as well. The script for **Background 1** tells the Sprite to move across the screen from right to left. The script for **Background 2** tells the Sprite to follow right behind **Background 1**. This gives the impression that the background is never-ending and is always moving! Now we just have to write the scripts for the other Sprites!

Flappy Bird:

2. There are five scripts we have to add to the **Flappy Bird** Sprite. First, add the following script to the Flappy Bird. This script tells the bird to constantly switch between its costume 1 and costume 2. This makes it look like the bird is flapping its wings!



3. Next we will add the following script to the Flappy Bird Sprite. This script sets the starting position of the bird (the **'go to x and y'** block) and tells it to point to the right (the **'point in direction 90'** block). The **'change y by'** blocks tell the bird to move up if you press the **Up arrow** key, or move down if you don't press anything. This will make the bird fly when you press the Up arrow key!



4. Now add the following script to the Flappy Bird Sprite. You will have to create a variable in the **Variables** section. Name this variable **'Score'**. The script tells the Score variable to go up by 1 if you manage to avoid a Pipe obstacle! You can find the **'x position of'** block in the **Sensing** section. You then put this block inside a **'less than'** block, which you can find in the **Operators** section.

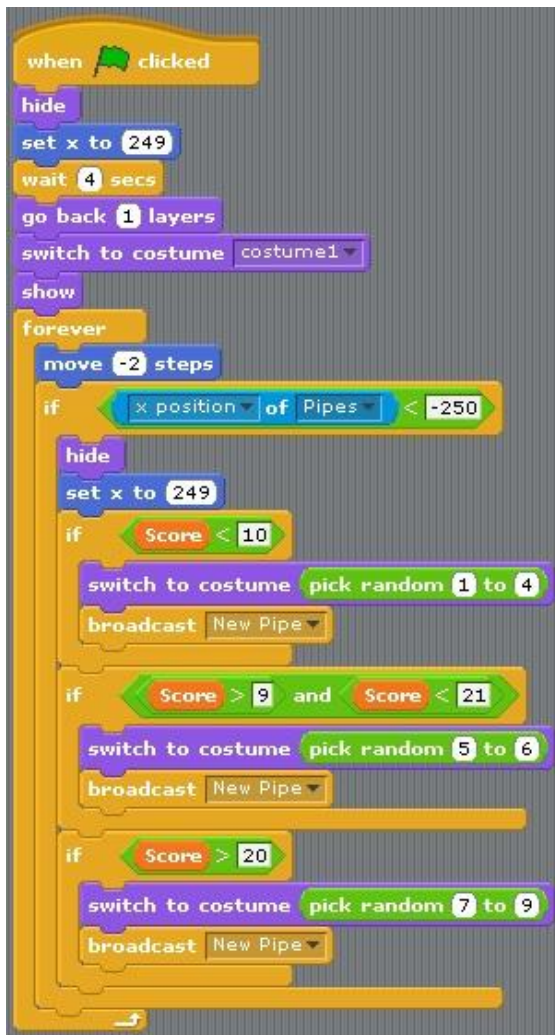


5. The script below is the last script for the Flappy Bird Sprite. It uses the **'glide to x and y'** block to tell the bird to nosedive into the ground if it hits off one of the Pipe Sprites! It then broadcasts a message telling the game to end by using the two **'broadcast'** blocks. Select **'Pipes'** from the drop-down menu of the **'touching'** block. Write a new message in the first **'broadcast'** block that says **'Stop Pipe'** and write a new message that says **'Game Over'** in the second **'broadcast'** block.

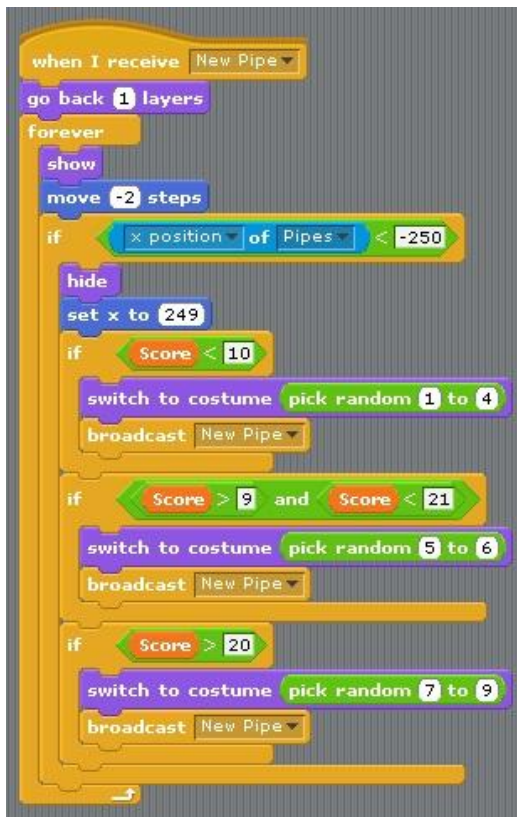


The Pipe obstacles:

6. Now we will add the following script to the **Pipes** Sprite. The first part of this script sets the Pipes starting position. Also, if the Pipes reach the left-hand side of the screen, then the script tells the Pipes to return to the right hand side of the screen. The second part of the script sets the difficulty of the game. We do this by changing the Pipes costumes to become more difficult as the game goes on. If you check the Pipes **costumes** you will see it has nine costumes! If the player's score is less than 10 points, the script will randomly use only the Pipes' first four costumes. If the player gets past 10 points, then the script randomly chooses between the next two more difficult Pipe costumes for the player to try to avoid. This part contains a '**greater than**' and a '**less than**' block inside an '**and**' block. All of these can be found in the **Operators** section. If the player gets past 20 points, then the script chooses randomly from the most difficult Pipe costumes! It also broadcasts a message every time it changes costume. Write a new message in the first '**broadcast**' block that says 'New Pipe' and then select the 'New Pipe' message from the drop-down menu of the next two '**broadcast**' blocks. This makes the Pipe Sprites continually keep appearing throughout your game.



7. Now add the following script to the Pipes Sprite. This script is almost exactly the same as the previous script, but this is the script that gets used whenever it receives the '**New Pipe**' message that you just broadcast with the previous script!

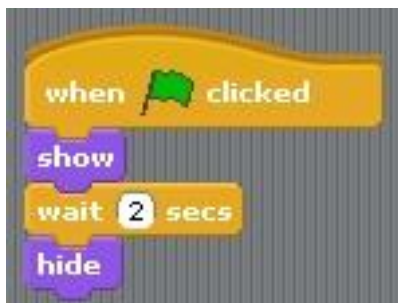


8. Now just add this last script to the Pipes Sprite. It just tells the Pipes to stop moving when they receive the **'Stop Pipe'** message.



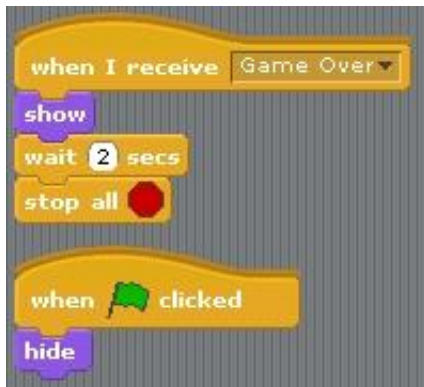
The Start of the game:

9. Add the following script to the **Start** Sprite. This script is very simple. It just tells the Start Sprite to appear at the start of the game, introducing the player to the Flappy Bird game.



Game Over:

10. Now add the following script to the **Game Over** Sprite. It tells the Game Over Sprite to hide, and only appear if the bird hits a pipe and ends the game (by using the '**When I receive Game Over**' block).



**Well done!!! You've just made your very own Flappy Bird game!!
Now go play it and try to beat your best score!!**