

Sprite wants to play ...

Vineet Srivastava

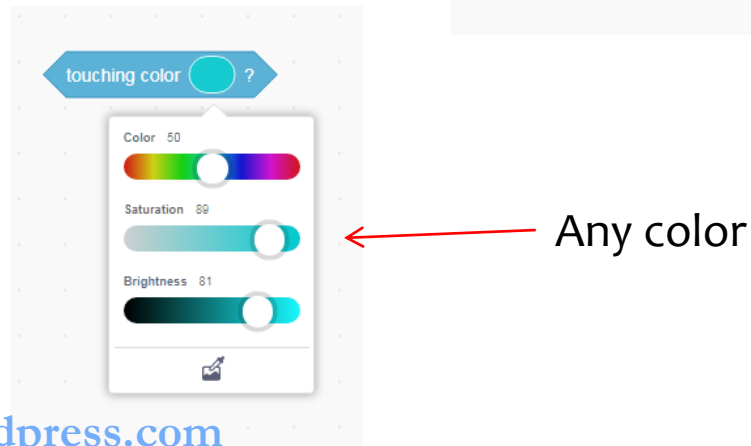
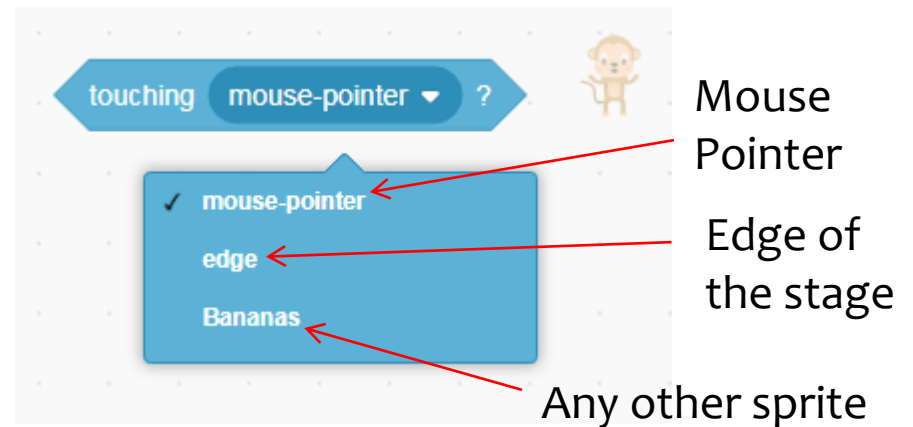
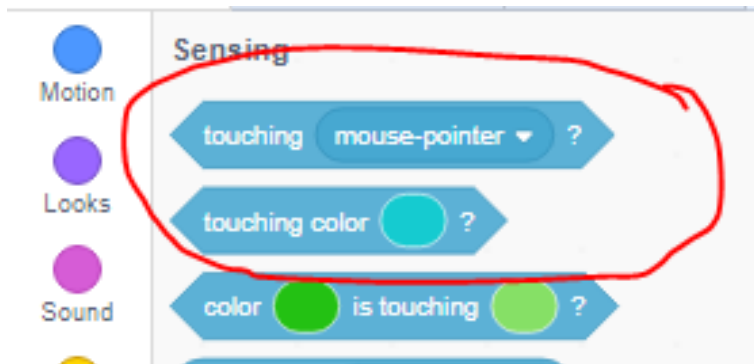
In this lesson, we will learn ...

- * how to use the touch events from the 'SENSING' blocks.
- * how these events can be used in creating games.
- * how to create a simple maze game.

Youtube video of our class: <https://youtu.be/5VpmcRCzqfY>

Touch events

- * There are mainly two blocks in SENSING that help us with the 'touch' events as shown below.

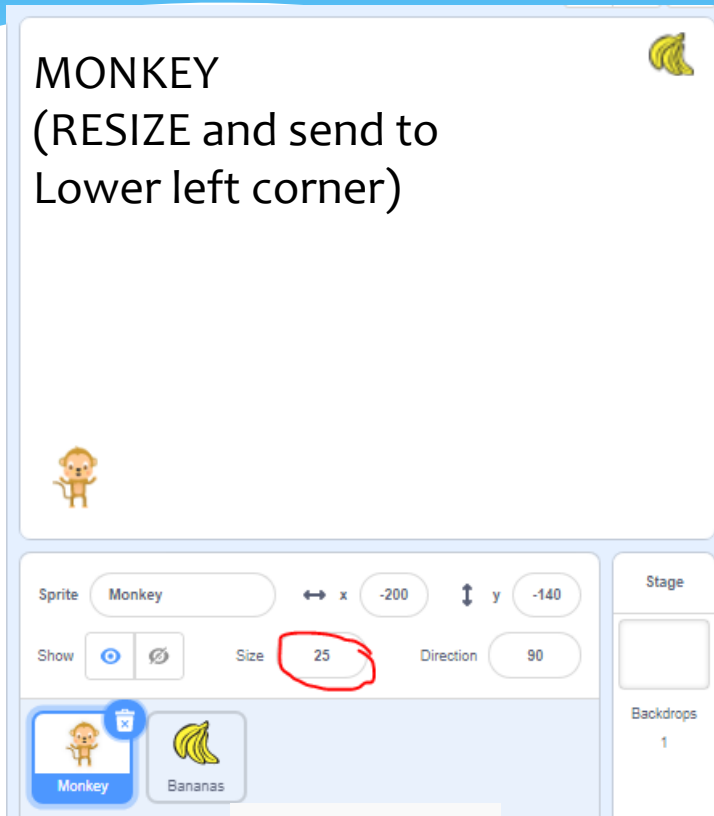


A simple maze game

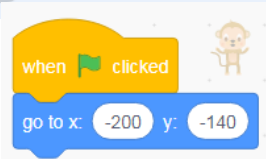
- * Steps
 - * Choose two sprites.
 - * Create a maze backdrop
 - * Enable one sprite to move in the maze.
 - * Create code to detect if the sprite completed the maze, by reaching its target.
 - * Create code to detect if the sprite is touching the maze.
- * In our game, Monkey will try to reach banana, without touching the maze.

Let's add some sprites: Monkey and Banana

MONKEY
(RESIZE and send to
Lower left corner)

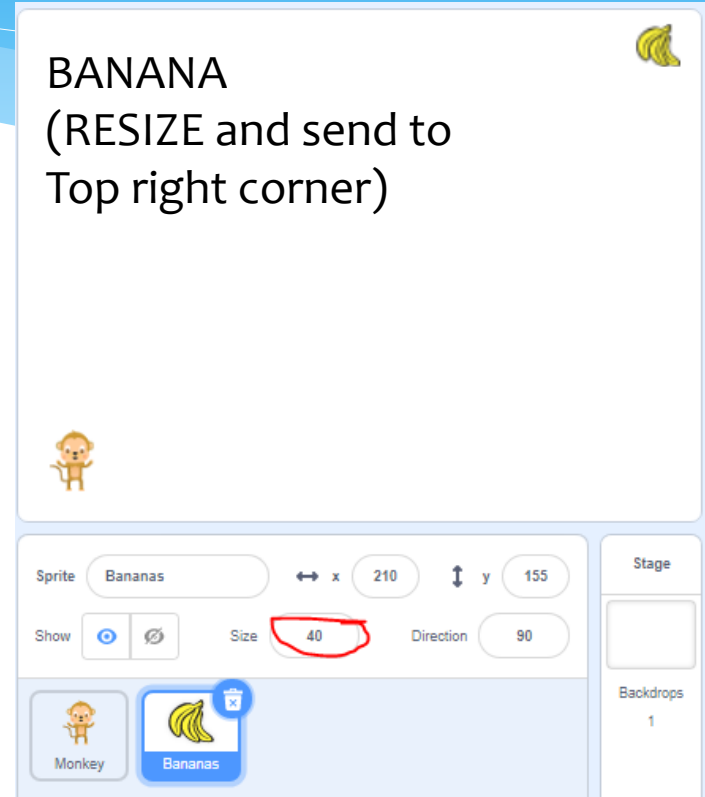


The Scratch stage editor for the Monkey sprite. The stage contains a small monkey icon in the bottom-left corner. The top-right corner has a banana icon. The control panel shows the Sprite set to 'Monkey' with coordinates x: -200 and y: -140. The Size is set to 25 (circled in red) and Direction is 90. The Backdrops panel shows 1 backdrop.

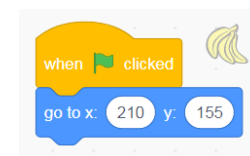


Scratch script for the Monkey sprite: 'when green flag clicked' followed by 'go to x: -200 y: -140'.

BANANA
(RESIZE and send to
Top right corner)



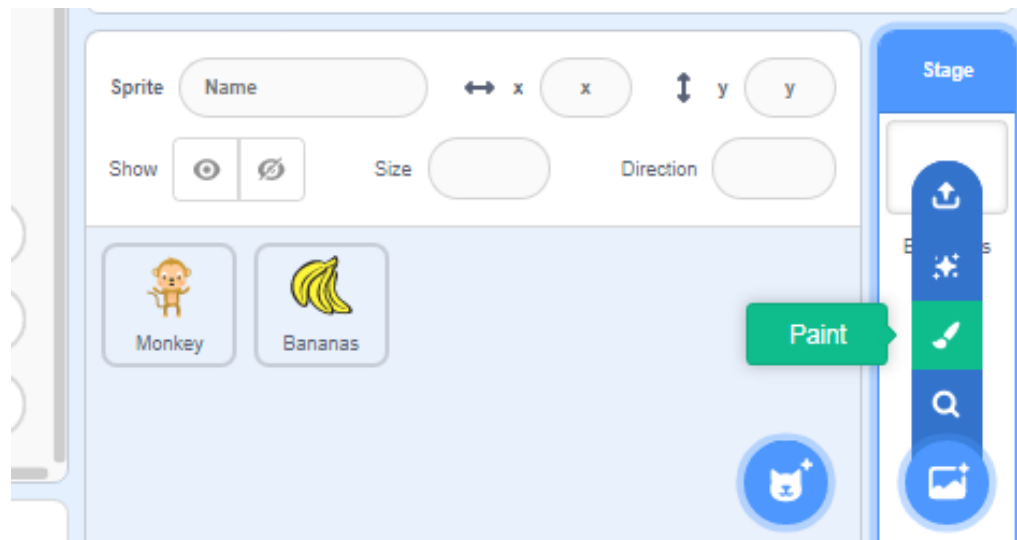
The Scratch stage editor for the Bananas sprite. The stage contains a small monkey icon in the bottom-left corner. The top-right corner has a banana icon. The control panel shows the Sprite set to 'Bananas' with coordinates x: 210 and y: 155. The Size is set to 40 (circled in red) and Direction is 90. The Backdrops panel shows 1 backdrop.



Scratch script for the Bananas sprite: 'when green flag clicked' followed by 'go to x: 210 y: 155'.

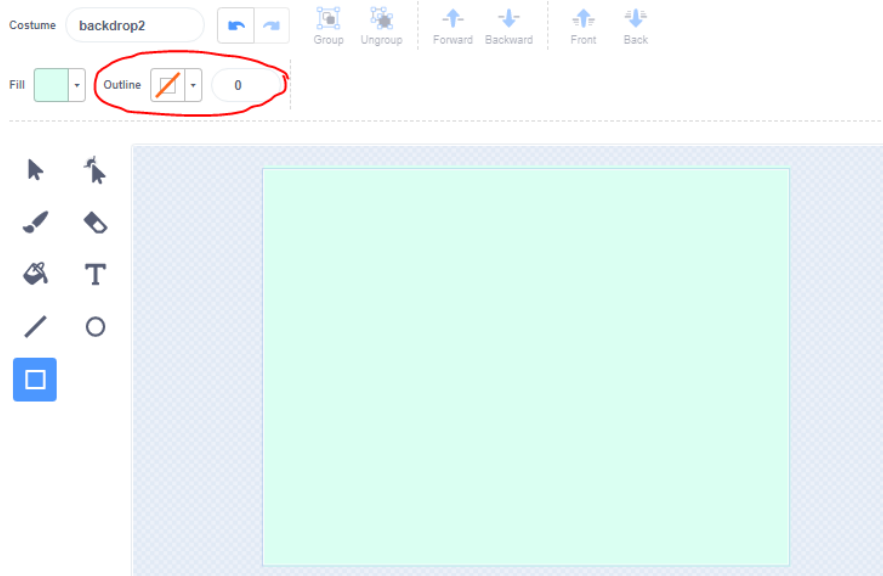
Paint a MAZE backdrop

- * Just like we used the bottom right button to 'CHOOSE' a new backdrop, we will now use the same button to 'PAINT' a new backdrop.

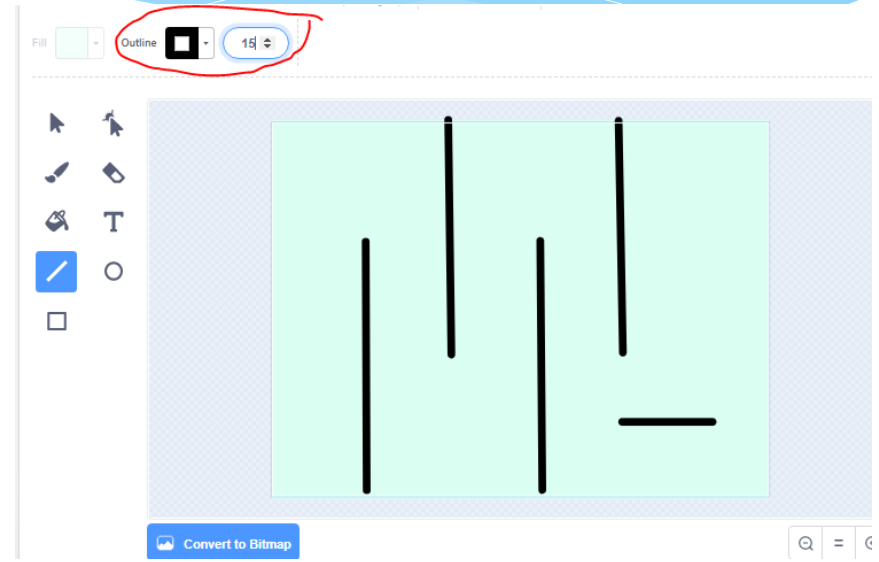


You can also choose to paint on 'top' of an existing backdrop. That is, you can 'choose' a backdrop and paint on top of that.

Paint a MAZE backdrop

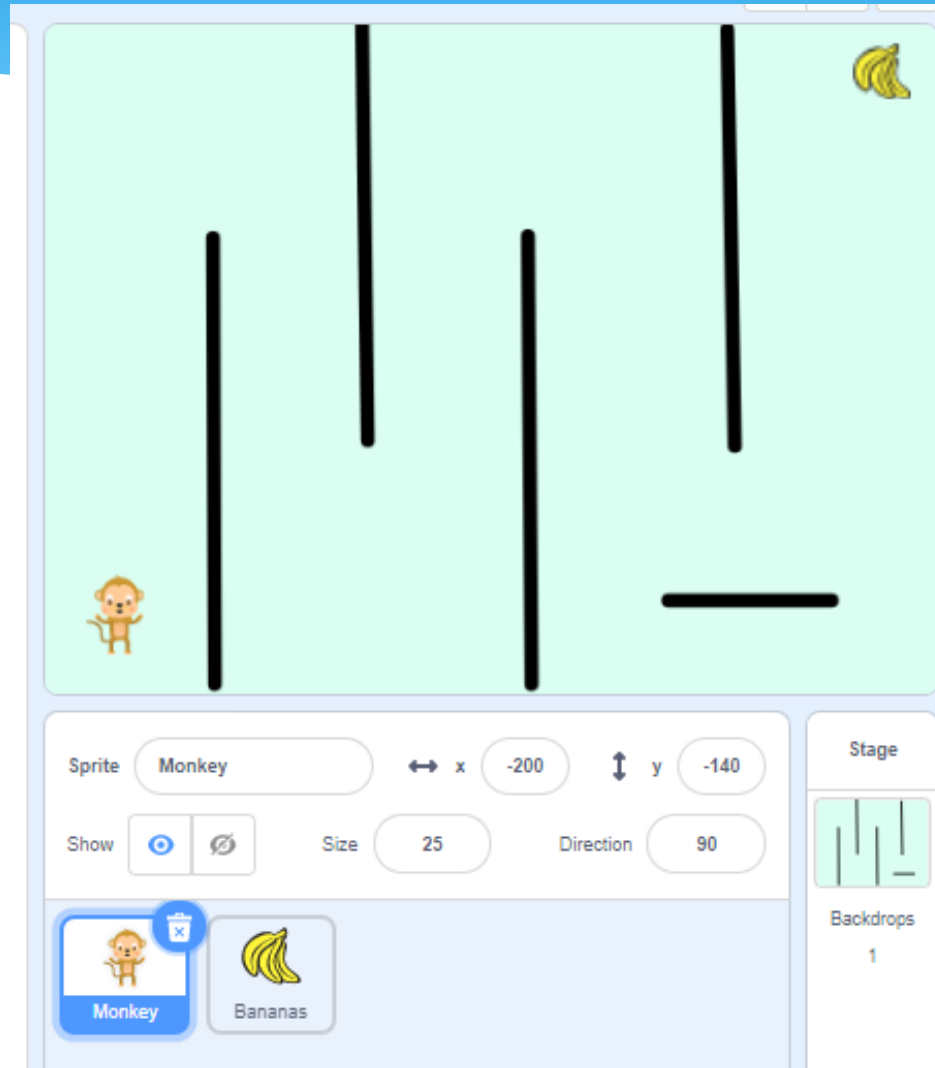


Step 1: Give some colour



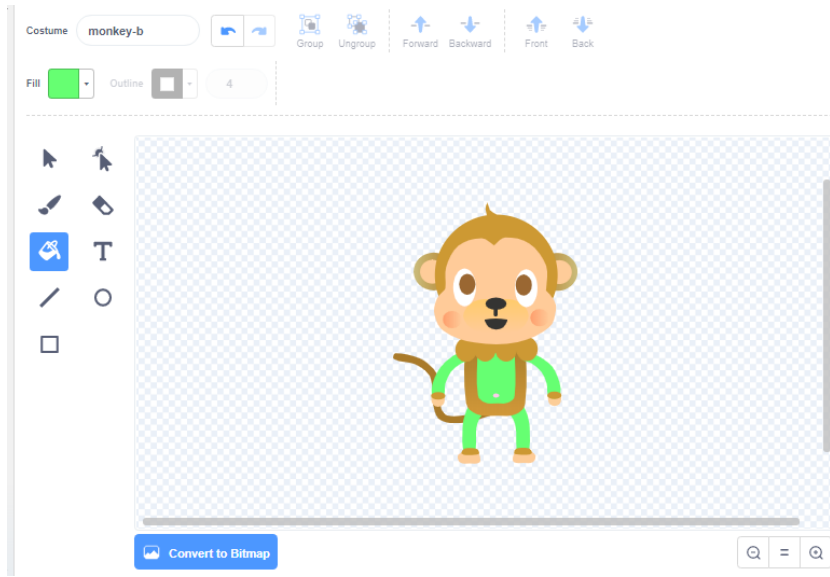
Step 1: Add some 'walls'

Banana and Monkey with the MAZE

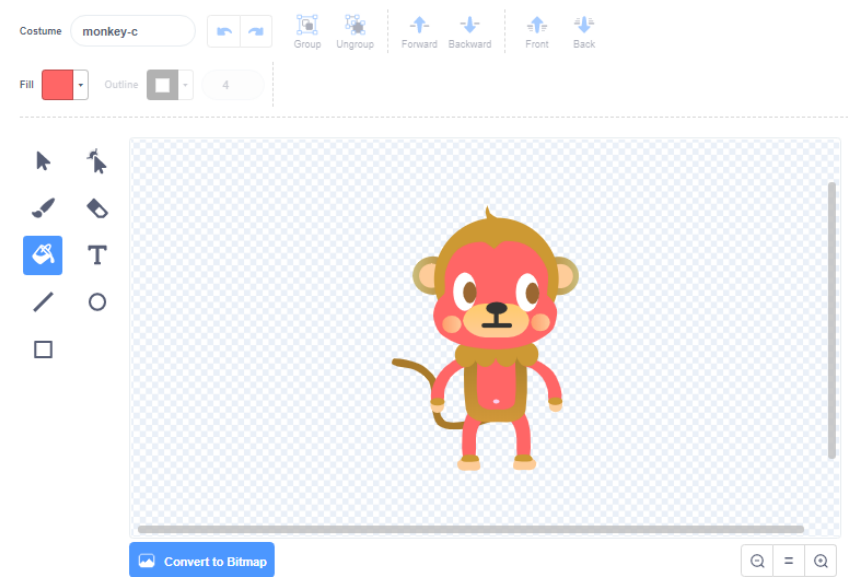


Modify monkey's costumes

- * Change the costumes monkey-b and monkey-c. In Our game, monkey-b will be the costume after monkey wins. monkey-C will be the costume if monkey loses.



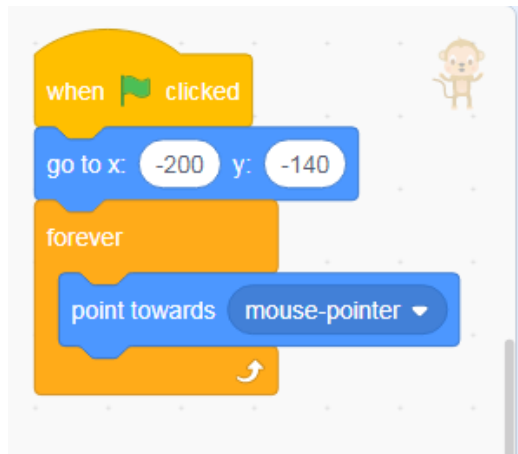
Monkey-b



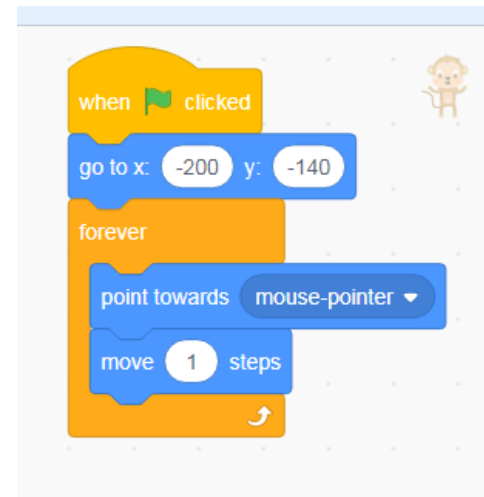
Monkey-c

Making Monkey Move (Follow the mouse pointer)

See how the monkey's direction changes as the mouse is moved.



See how monkey moves towards the mouse pointer ...



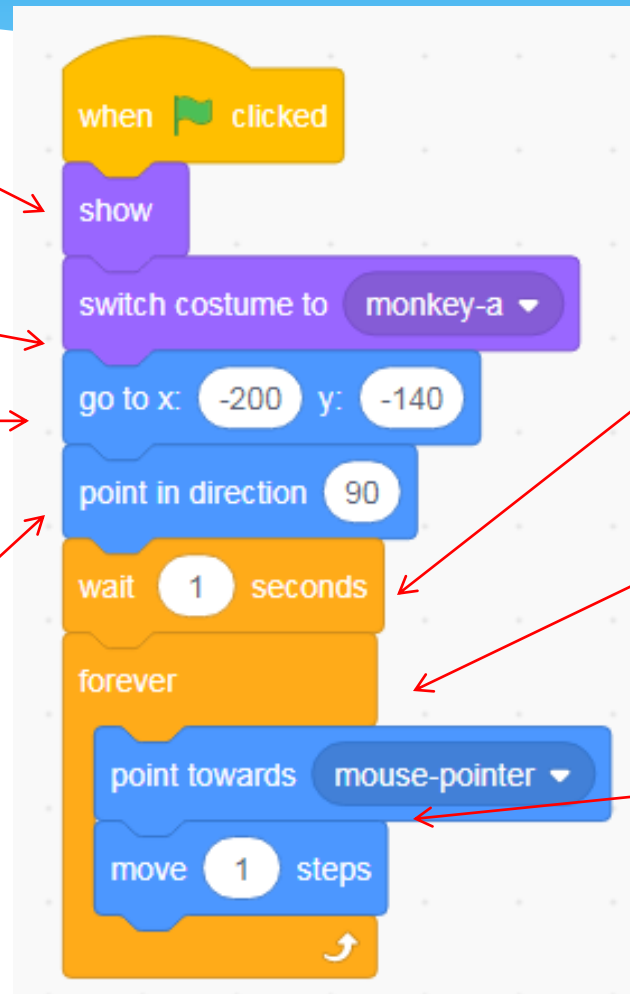
Note: We do NOT need two separate 'WHEN FLAG CLICKED' loops in the final code, We are just showing the 'development' of the code here. Please see next slide for the complete code for Monkey for movement.

Final Monkey Code (For Movement)

Show, because in the end monkey hides.

Set the initial costume
Set the initial position

Ensure monkey starts in UPRIGHT position

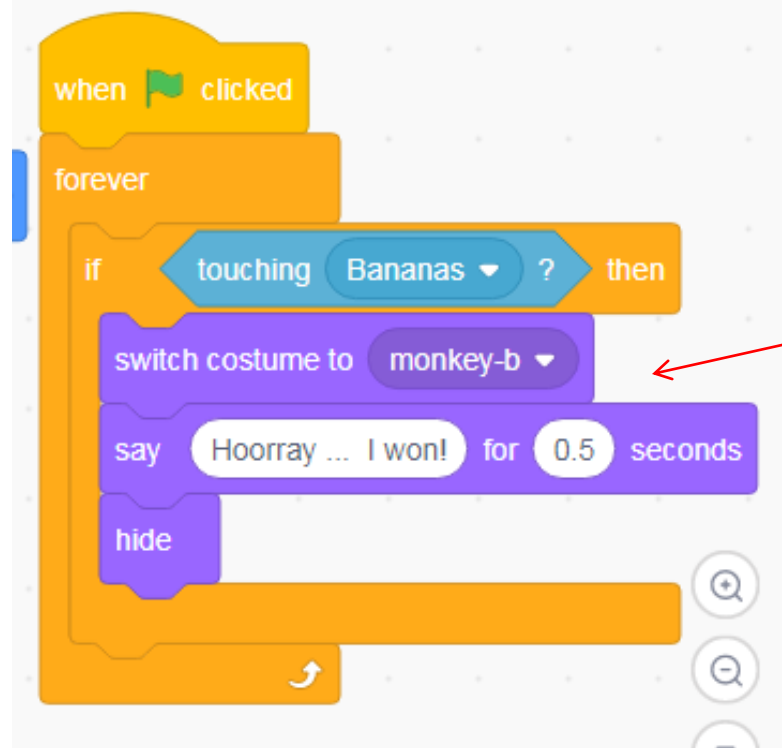


Wait for the USER to get ready

Forever move towards the mouse pointer

If you want monkey to move faster, you can change '1' to a larger number.

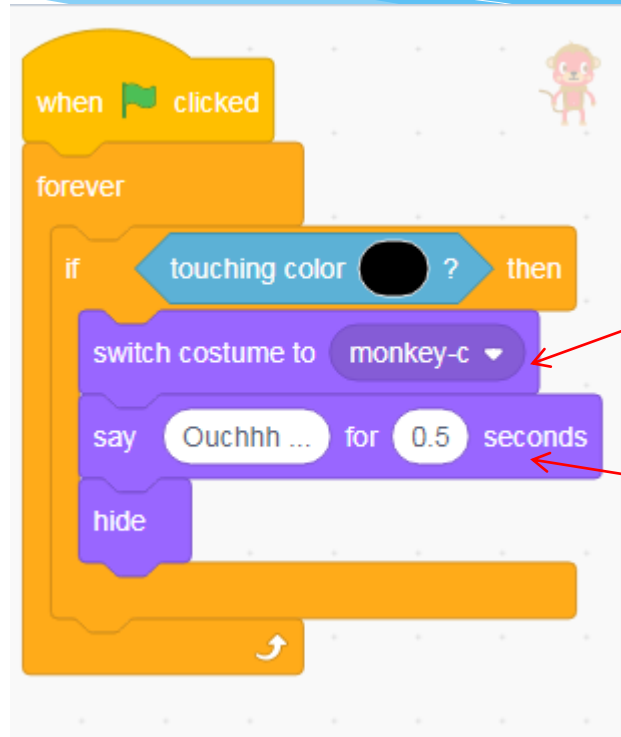
Monkey Code (Touching Banana)



Change the costume to the winning costume.

Note that the 'FOREVER' here is very important. If you do not put the FOREVER, the touching condition will work only once and not 'forever'.
(Experiment by not adding FOREVER)

Monkey Code (Touching Maze)



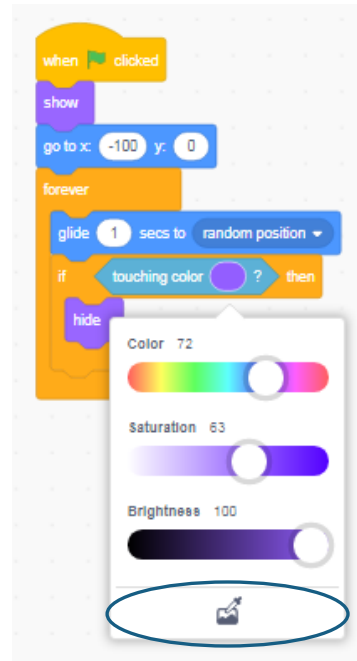
Notice how we have used touching color.

Pick up appropriate costume

Note that the 'FOREVER' here is very important. If you do not put the FOREVER, the touching condition will work only once and not 'forever'.
(Experiment by not adding FOREVER)

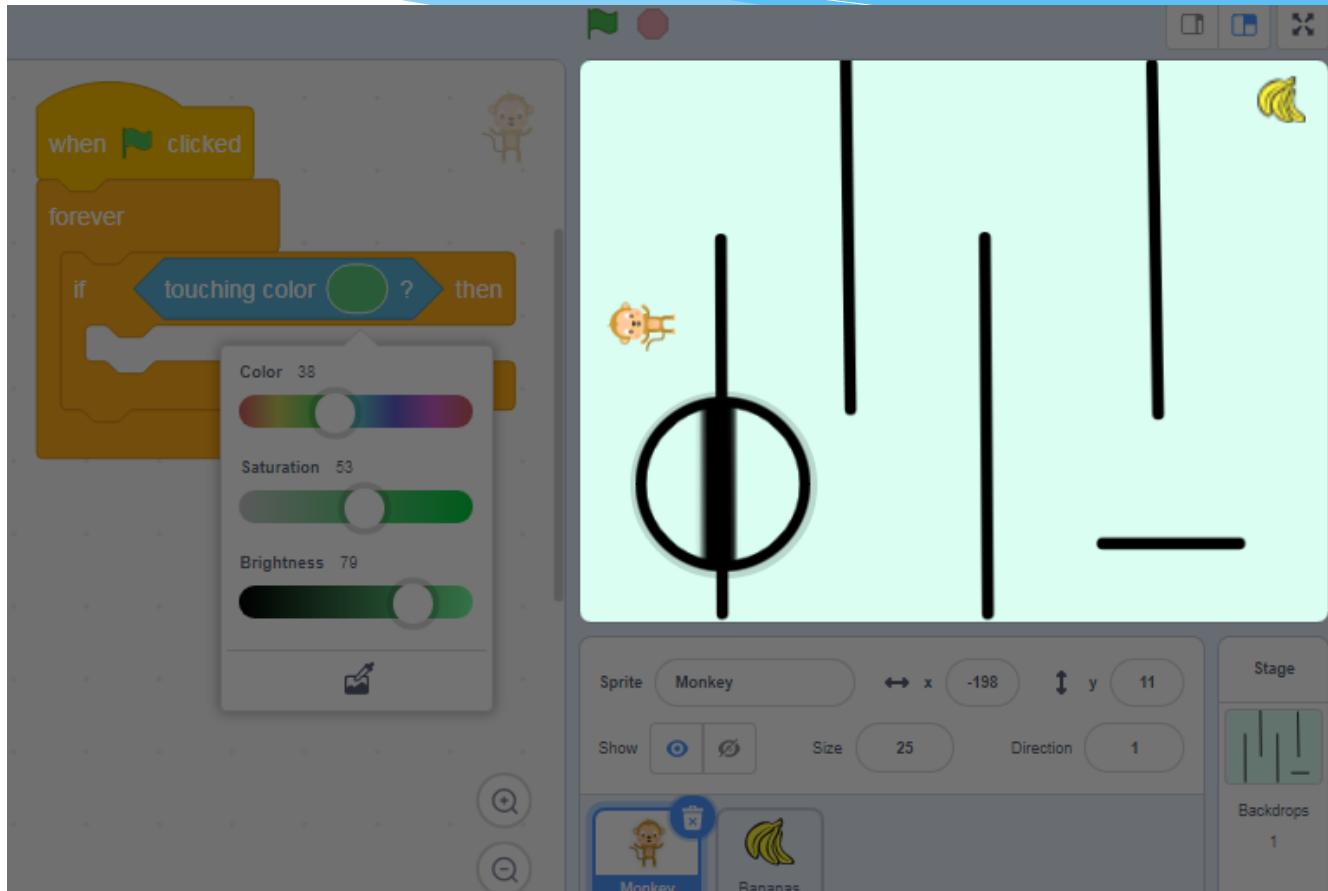
Be very careful with the color

- * What looks the same to your eye may not be the same to the sprite! Use the dropper tool. (See next slide/class video)



Take the dropper tool to the object whose color you want, and click on the object.

Use the DROPPER tool



Banana Code (Hide if touching Monkey)

Scratch code blocks for a banana character:

- when green flag clicked
- show
- forever loop:
 - if touching Monkey then
 - wait 0.1 seconds
 - hide

Annotations:

- Show in the beginning (points to the 'show' block)
- Hide if touching monkey (points to the 'if touching Monkey' block)
- A small wait just to ensure that the BANANA does not hide before MONKEY senses it. (points to the 'wait 0.1 seconds' block)

Note that the 'FOREVER' here is very important. If you do not put the FOREVER, the touching condition will work only once and not 'forever'.
(Experiment by not adding FOREVER)

And you are all set!

- * Clearly this is a very simple game. You can add many elements to it, like more lives, more obstacles, timer etc.
- * With this, you are all set for your fifth independent activity of this program – a maze game.

Appendix

How to make MONKEY move with ARROWS



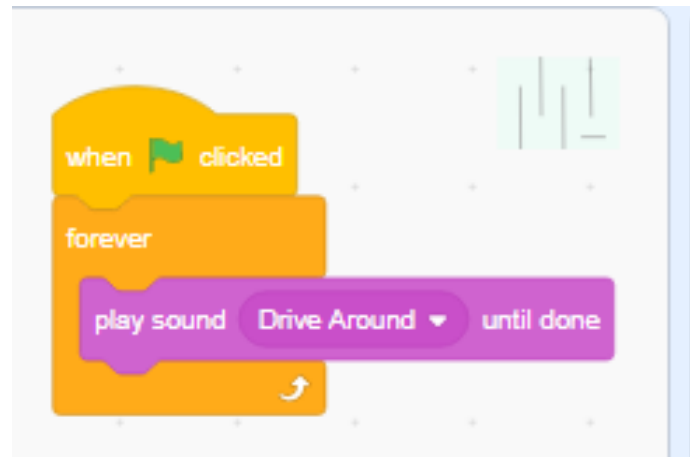
In this code, when the UP ARROW is clicked, the 'y' position will change by 1, which means the Monkey will go UP.

We can similarly use DOWN ARROW to change y position by say '-1' to make sprite go DOWN.

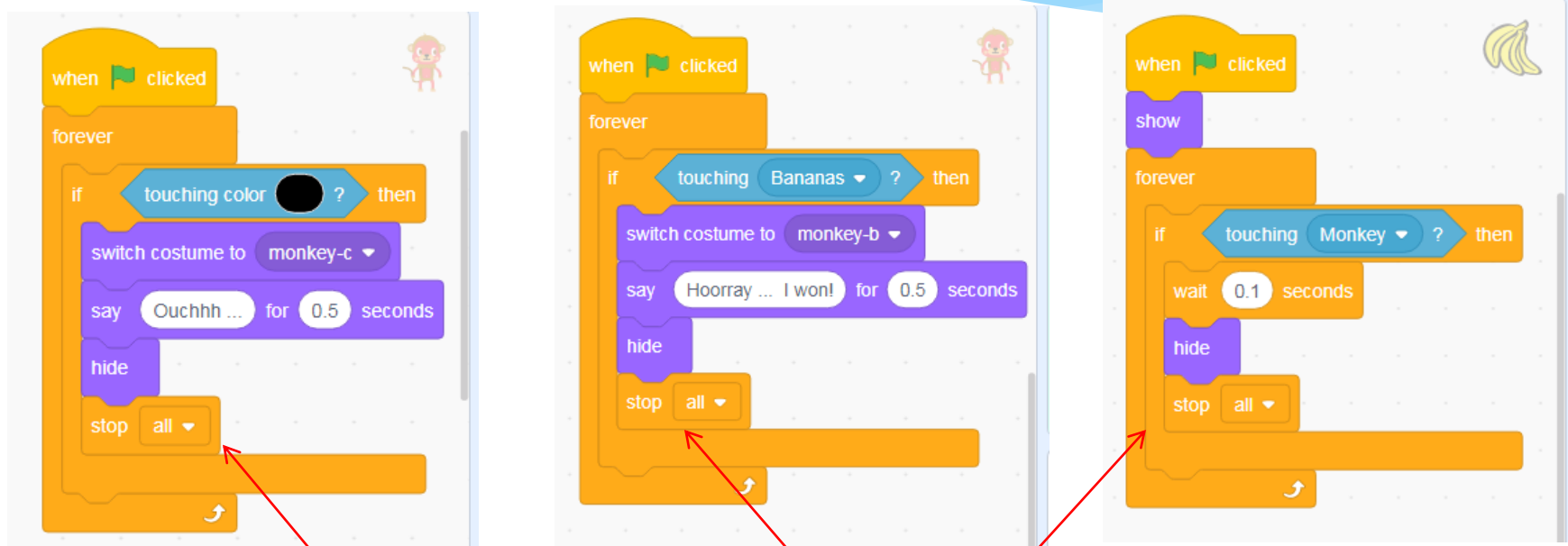
For horizontal motion, we can use LEFT and RIGHT arrows and change x similarly.

Adding Background Music

- * We can add background music to make the game lively.
- * Since background music is 'Common' to all sprites, we can put it in one of the sprites OR in the backdrop.



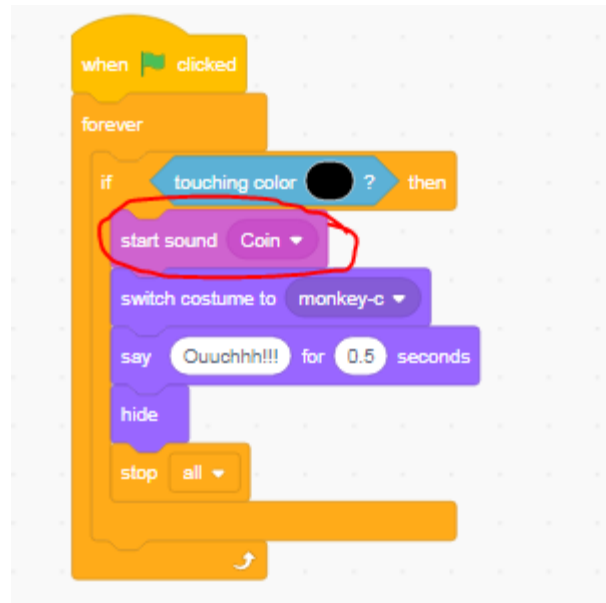
But remember to STOP music when the game ends.



Stop 'ALL' stops ALL the scripts, including background music.

Adding Music for individual events

- * Along with background music, we can also add small bits of sound, for example, when the monkey touches the maze, or the banana. For example:



Notice the usage of 'START SOUND' here. This ensures that the other code does not get interrupted by the music.