

Intro to Programming

Scratch #11 – Maze

Objective: Demonstrate your understanding of Scratch learned up until now to complete the maze game. The directions have been provided.

1. Download *first_last_scratch_11.sb3* file from the www.missblomeyer.com website and save it on your flash drive (if you are using a MacBook) or your downloads folder if you are using a Chromebook.
2. Rename the Scratch file to be your first name and your last name. (*first_last_scratch_11.sb3*)
3. Now, login to the Scratch website. Create a new project. Do *File>Load from your computer*. Find your *first_last_scratch_11.sb3* file and click *Open*. When asked if you want to replace the contents of the current project, click *OK*.
4. Start by creating these scripts for the *Orange Cat*:

- a. When Green Flag clicked

```
set rotation style left-right
set size to 15%
go to x: 10 y: -170
go to front layer
show
forever
  if key up arrow pressed? Then
    change y by 4
    if touching Maze then
      change y by -4
  if key down arrow pressed? Then
    change y by -4
    if touching Maze then
      change y by 4
  if key right arrow pressed? Then
    point in direction 90
    change x by 4
    if touching Maze then
      change x by -4
  if key left arrow pressed? Then
    point in direction -90
    change x by -4
    if touching Maze then
      change x by 4
  if touching Apple then
    play sound cheer until done
    broadcast next maze
```

- b. When I receive *next maze*

```
go to x: 10 y: -170
```

5. Next, add this script for the *Apple*:
 - a. When Green Flag clicked
 - Go to x: -10 y: 170
 - set size to 25%

6. Now, add 2 scripts for the *Maze*
 - a. When Green Flag clicked
 - Go to x: 0 y: 0
 - Switch costume to *maze1*
 - b. When I receive next maze
 - Next costume

7. Play the game to get a feel for how it works. If it doesn't appear to be working correctly, find and fix your errors.

8. Now, make it a 2-player game by adding a second cat and another apple. The second cat will respond to the WASD keys instead of the arrow keys. Here are the directions:
 - a. Duplicate the *Apple*.
 - b. Change the color of this new sprite (called *Apple2*) to be green.
 - c. Change the script for *Apple2* so that when the Green Flag is clicked, the sprite goes to x: 10 y: -170
 - d. Duplicate the *Orange Cat*.
 - e. Change the color of this new sprite (currently called *Orange Cat2*) to a blue color. Then rename the sprite to *Blue Cat*.
 - f. Modify the *Blue Cat's* *When Green Flag clicked* script to respond to the WASD keys instead of the arrow keys. This should be the mapping:



Continue to modify the script so that the *Blue Cat* starts at (-10, 170) at the top of the maze instead of at the bottom and goes to this same spot when the maze changes. In addition, the *Blue Cat's* goal is to touch *Apple2* instead of *Apple*. It should still cheer and broadcast *next maze*.

9. Add variables for *Orange-Cat-Wins* and *Blue-Cat-Wins*. Set them both to 0 when the Green Flag is clicked. Figure out the best way to keep track of how many times the *Orange Cat* won, and how many times the *Blue Cat* won.
10. Test out your game by having someone sit next to you and play with you as you play. Make sure that the *Orange Cat* wins sometimes and the *Blue Cat* wins other times. Make any changes to your code so that it works.
11. Always do *File->Save now* before you log out of the Scratch website.
12. Now do *File->Save to your computer*. If you are using a MacBook make sure to save to your flash drive. If you are on a Chromebook, it should download automatically to the downloads folder.

13. Turn in your *first_last_scratch_11.sb3* file to *missblomeyer.com* in the usual way.

Note: In the screen shot below, the red apple is at the top of the maze with the blue cat directly on top of it. The green apple is at the bottom of the maze with the orange cat directly on top of it.

