

AP Computer Science Principles

Unit: Game Design

Lesson 6: Maze Mechanics

Link: [Maze Mechanics](#)

NYS Standards:

9-12.CT.8 Develop a program that effectively uses control structures in order to create a computer program for practical intent, personal expression, or to address a societal issue.

9-12.CT.9 Systematically test and refine programs using a range of test cases, based on anticipating common errors and user behavior.

Learning Intentions:

- ☐ Understand that a maze is a sprite, not a background
- ☐ Understand and explain how to prevent a character from going through or getting stuck in a maze.
- ☐ Use a timer to control the game ending.
- ☐ Program "enemies" to interact with "pak-mon"

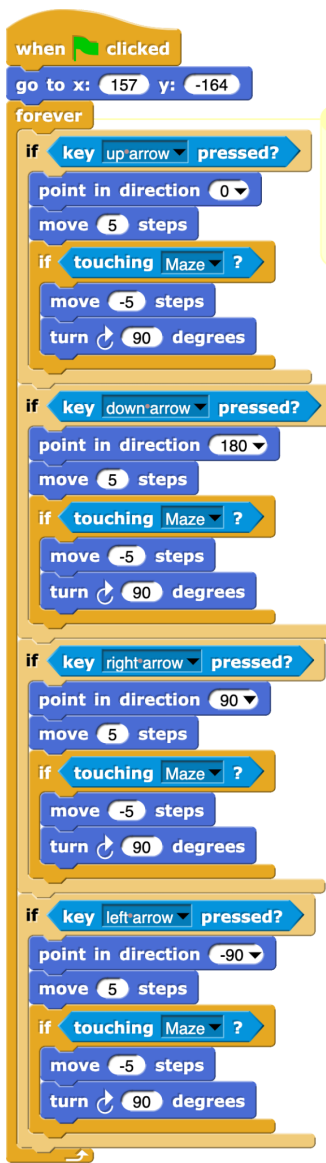
Instructions:

1) Open and save the file [Maze Mechanics](#)

2) Paste a SHARED link to your project here (I will be able to see updates/changes as long as you save them).

3) **Explore** what each sprite can do—click around!
Please read the comments on the code carefully.

4) Explain how this code prevents Pak-Mon from running through the maze

CODE PIC/Costume pic	PURPOSE/FUNCTION/HOW IT WORKS
 <p>The code is a Scratch script for a character named Pak-Mon. It starts with a 'when clicked' event block, followed by a 'go to x: 157 y: -164' block. Then, it enters a 'forever' loop. Inside the loop, there are four 'if' blocks corresponding to the arrow keys: 'up arrow pressed?', 'down arrow pressed?', 'right arrow pressed?', and 'left arrow pressed?'. Each 'if' block contains a sequence of actions: 'point in direction' (0, 180, 90, or -90 degrees), 'move 5 steps', and another 'if' block checking 'touching Maze?'. If the character is touching a maze barrier, the code moves -5 steps and turns 90 degrees. This logic effectively prevents the character from passing through the maze walls.</p>	<p>1</p> <p>For mazes, you need to prevent the character from going through the maze barriers.</p> <p>How does this accomplish that?</p>

5)

a) On the octopus sprite, modify the script so that the octopus can make it out of that small region by itself. (Hint: Should it always turn the same way?)

b) Add code that will end the game if Pak-Mon touches the octopus.

Paste the script here and explain how it works.

CODE PIC/Costume pic	PURPOSE/FUNCTION/HOW IT WORKS