

*Kershaw County's Youth*

# VIDEO GAME

## Programmers

@ The Kershaw County Library -  
Camden Branch

TAUGHT BY:

CONOR X. ROM

CITADEL CLASS OF 2025 / TAX ACCOUNTANT / SCSSG ADMIN OFFICER

FREE CLASSES

Jan 13th, 27th,  
Feb 10th, & 24th  
3:30-4:30pm



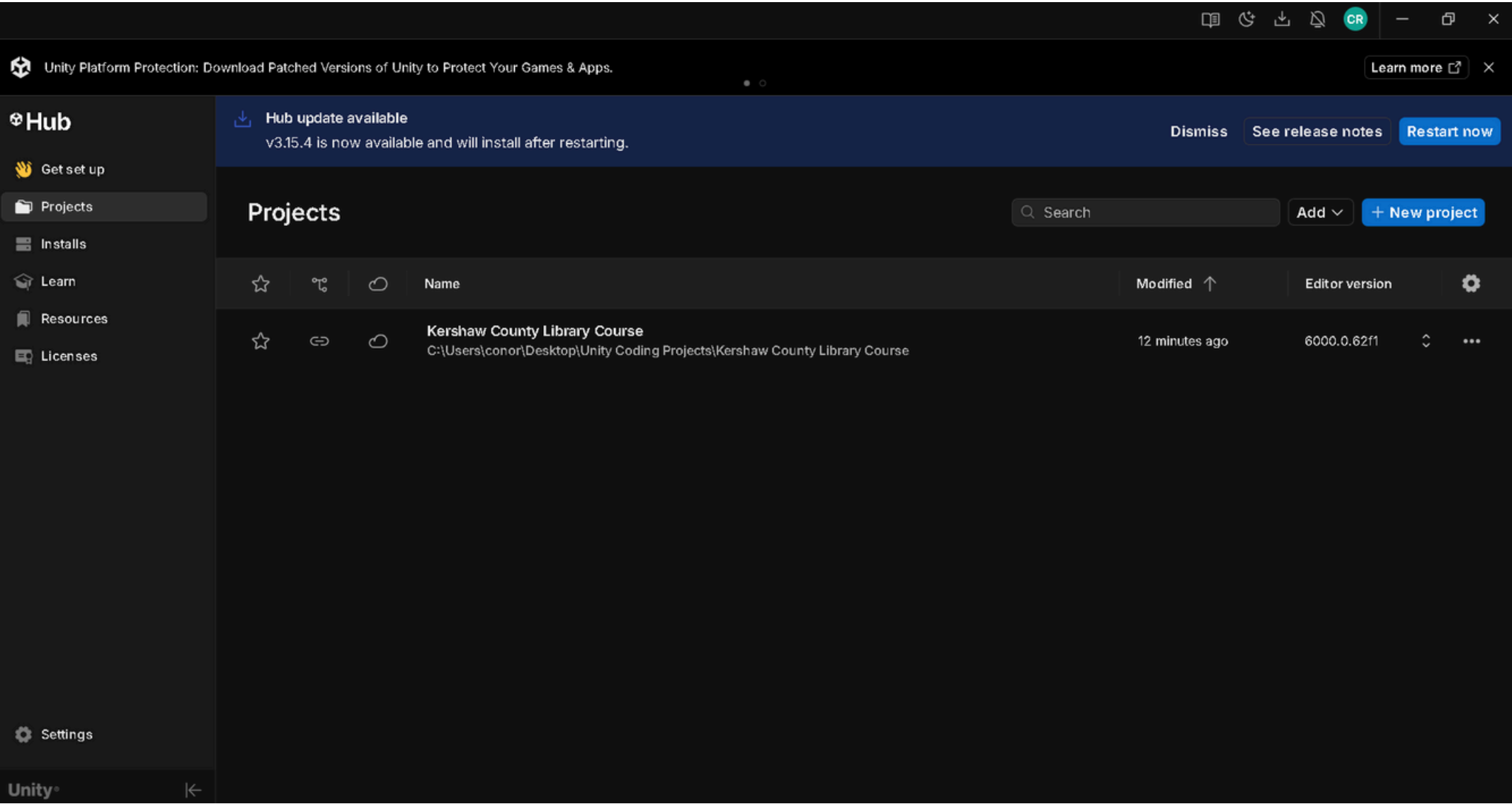
**Mana Rock  
Gaming**

**KCL**

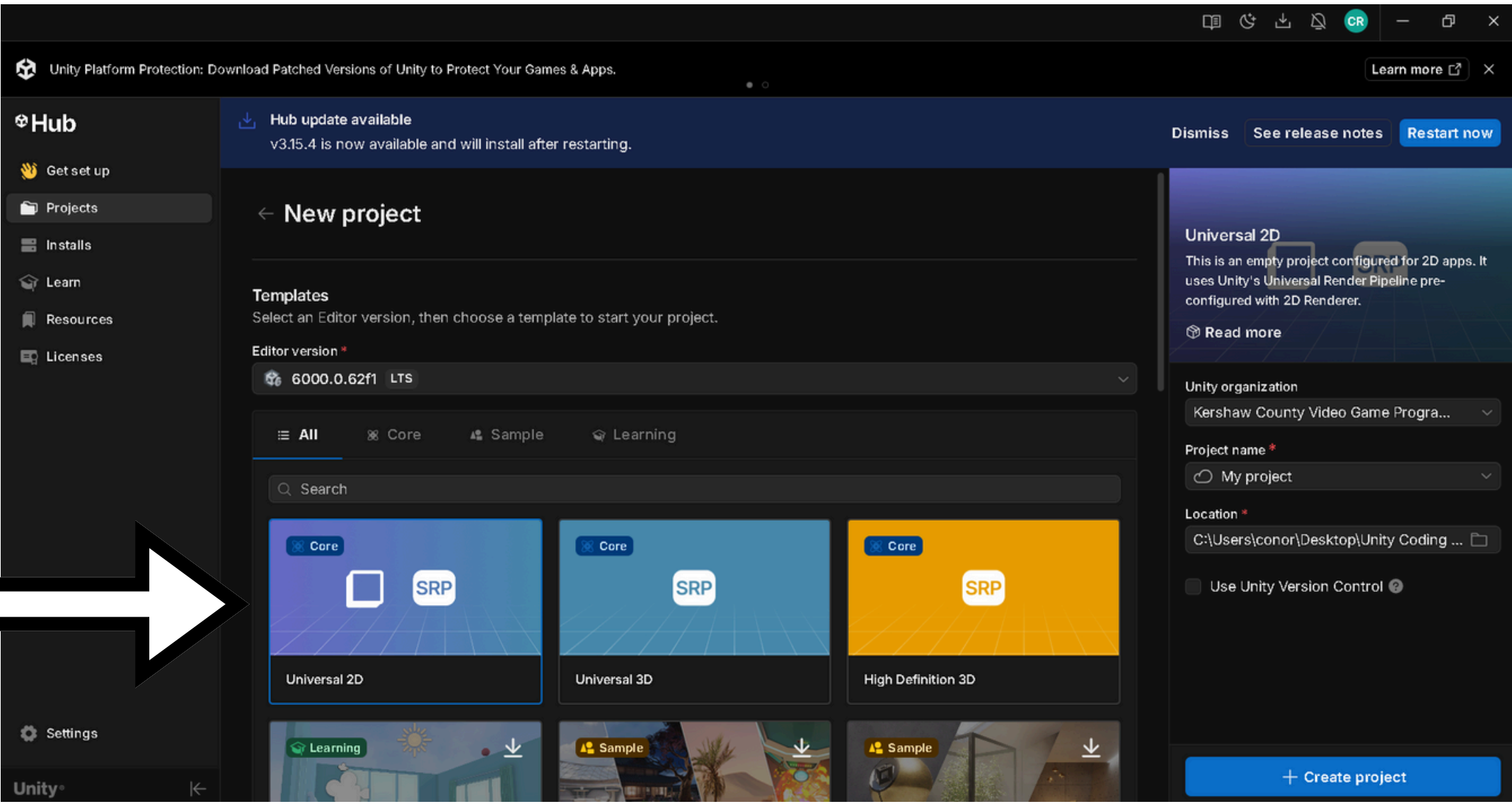
KERSHAW  
COUNTY  
LIBRARY

# LESSON 1: BASIC MOVEMENT

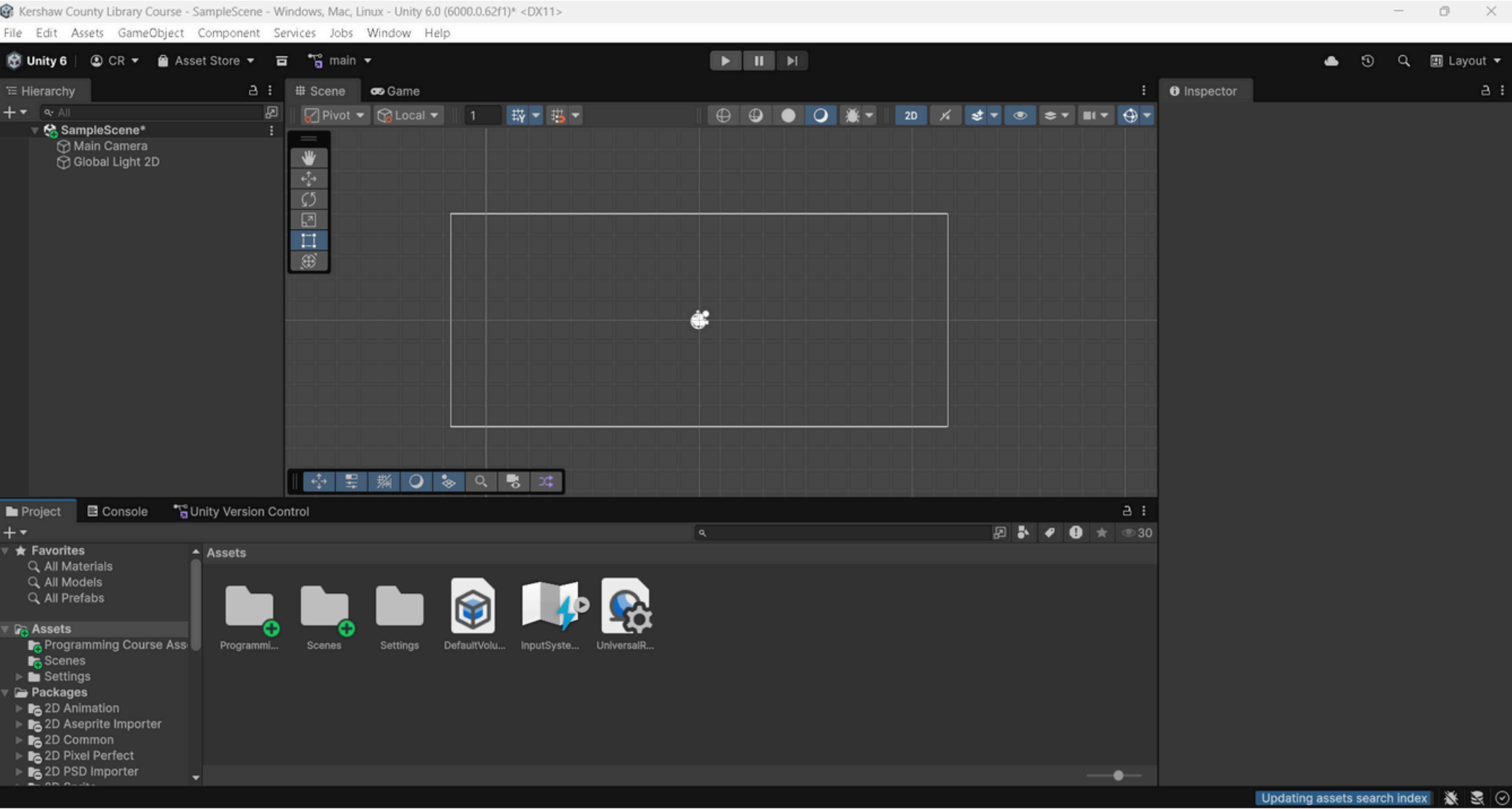
# STARTING A NEW 2D GAME



SET AS 2D

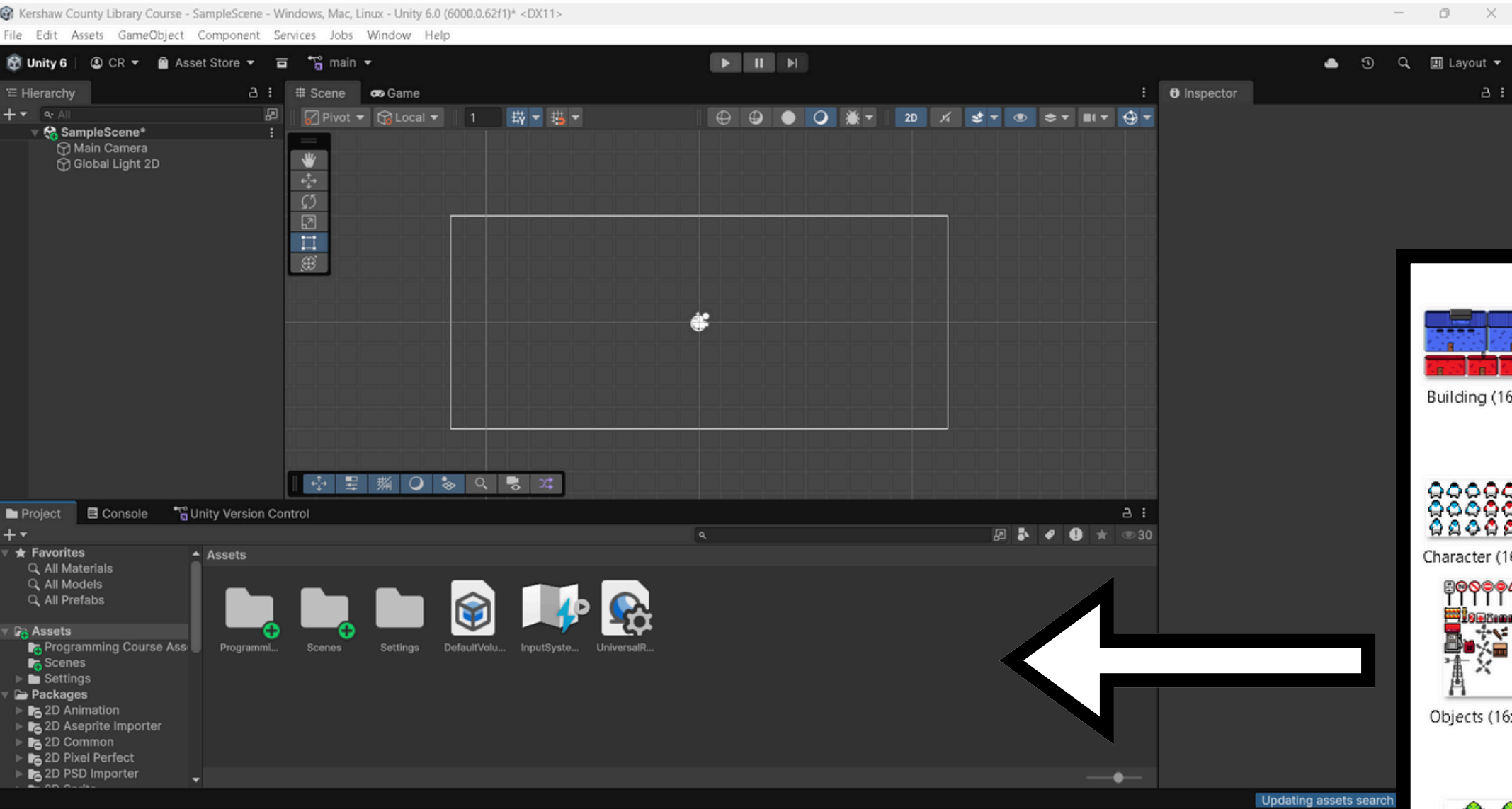


THEN CREATE

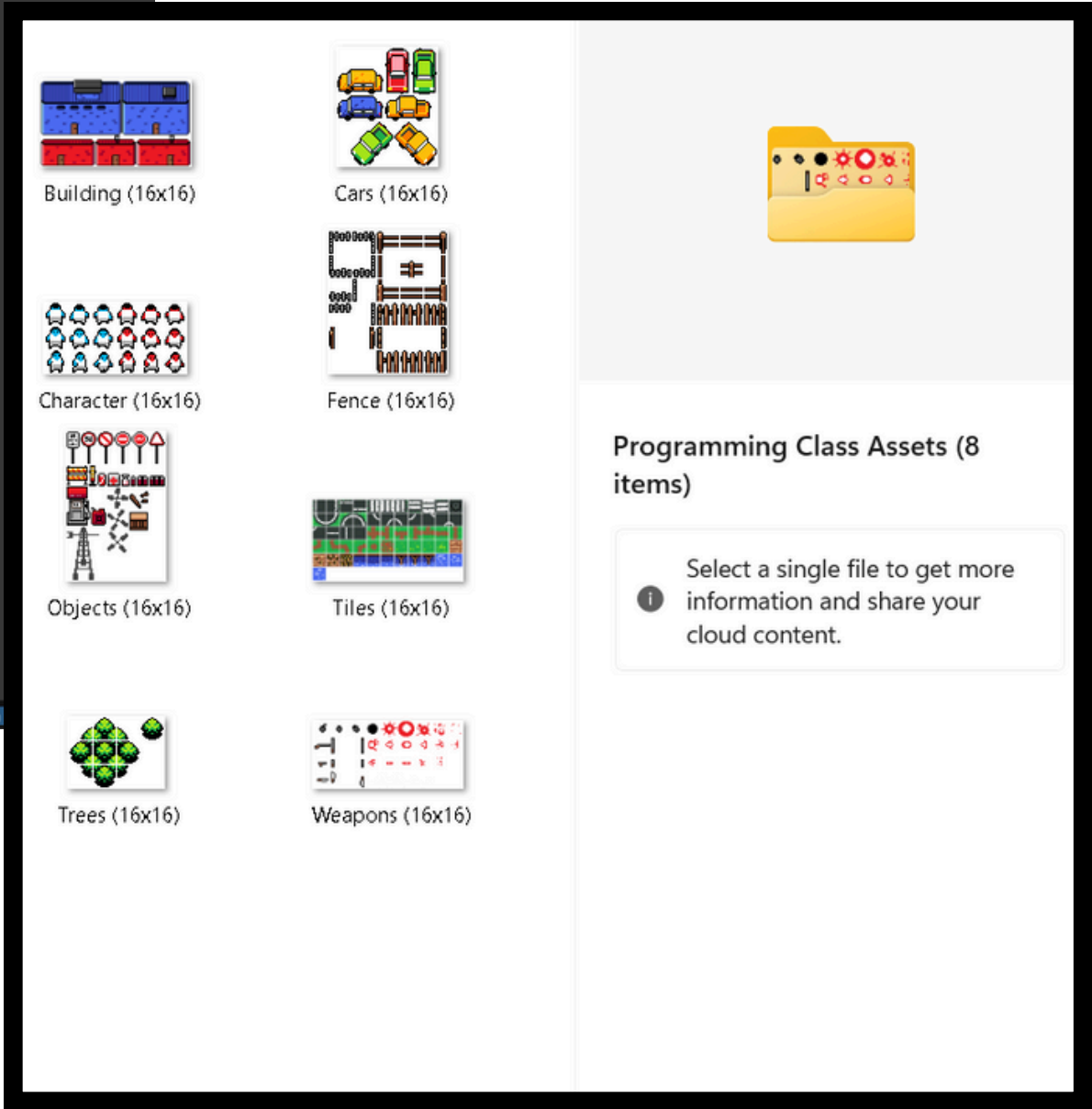




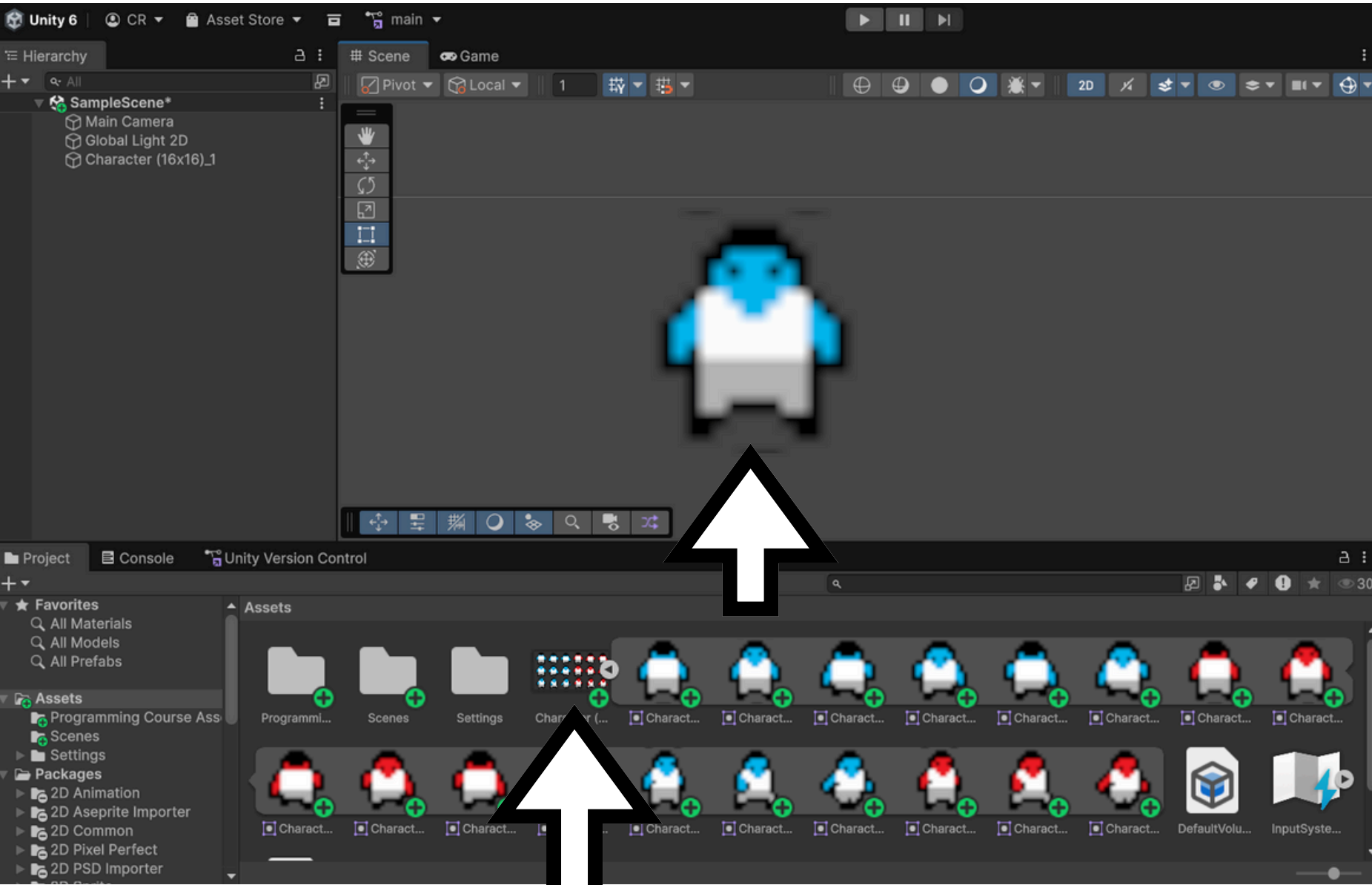
# ADDING A 2D SPRITE



DRAG & DROP



DRAG INTO SCENE

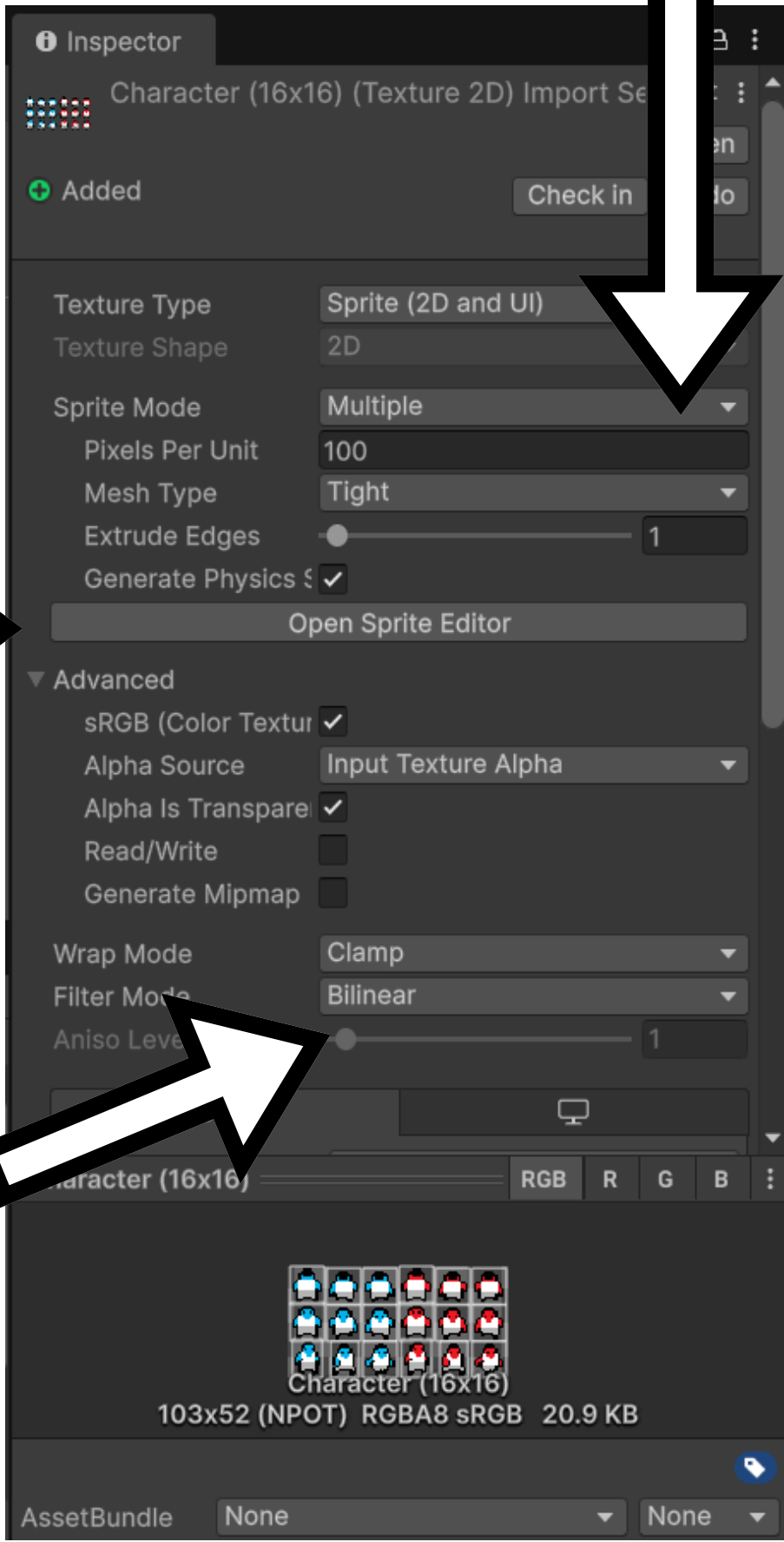
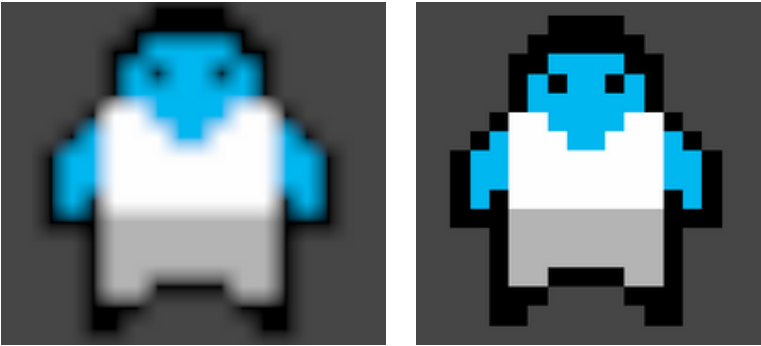


SWITCH TO  
PIXEL SIZE (16)

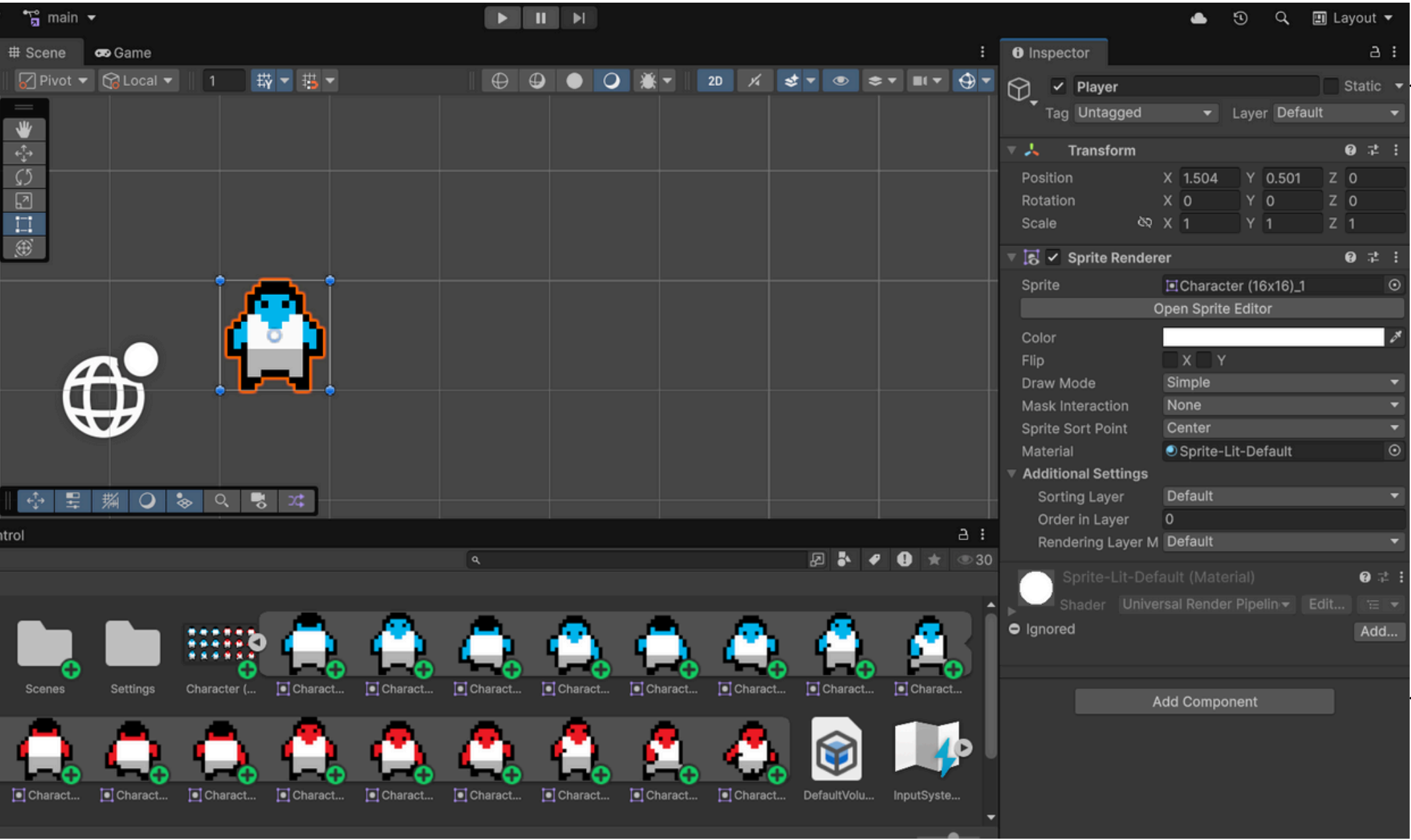
CLICK TO OPEN  
IN INSPECTOR



SWITCH TO POINT (NO FILTER)



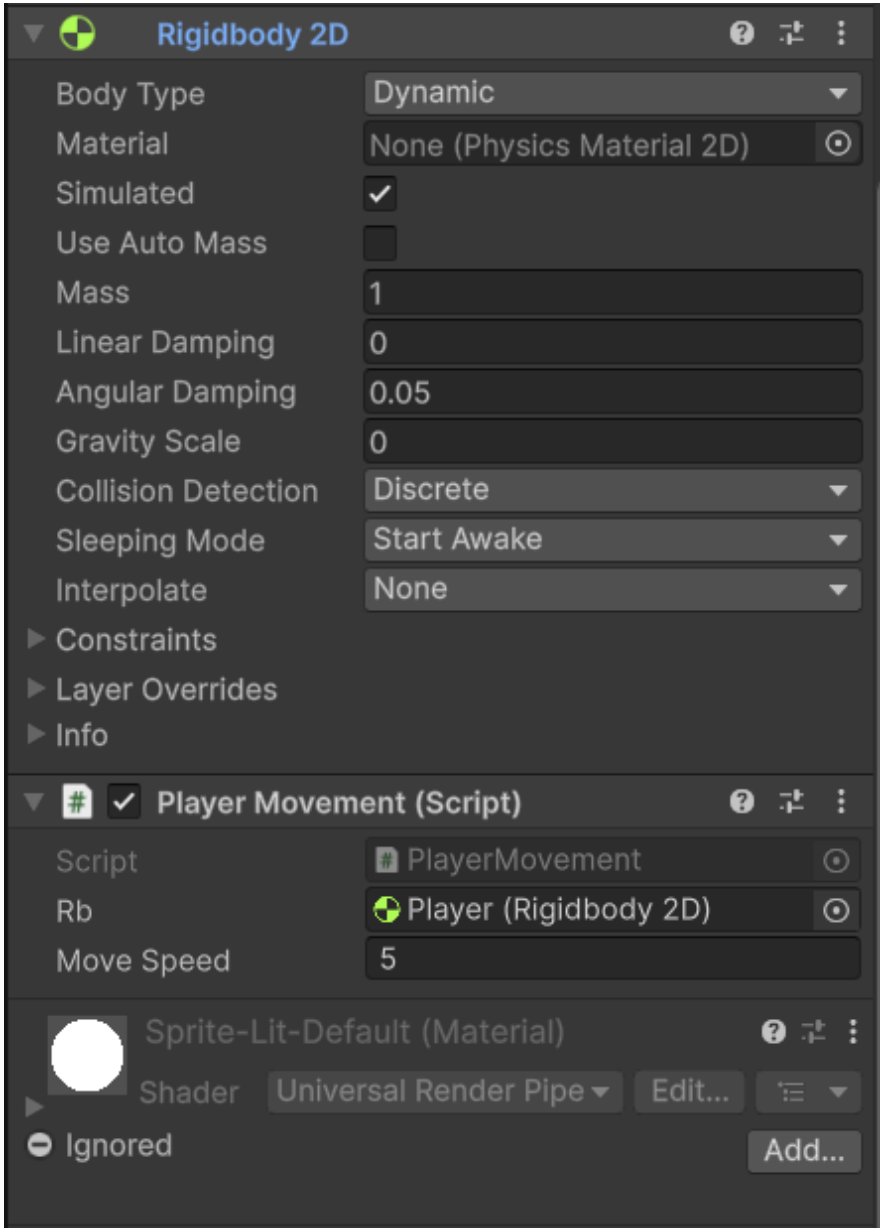
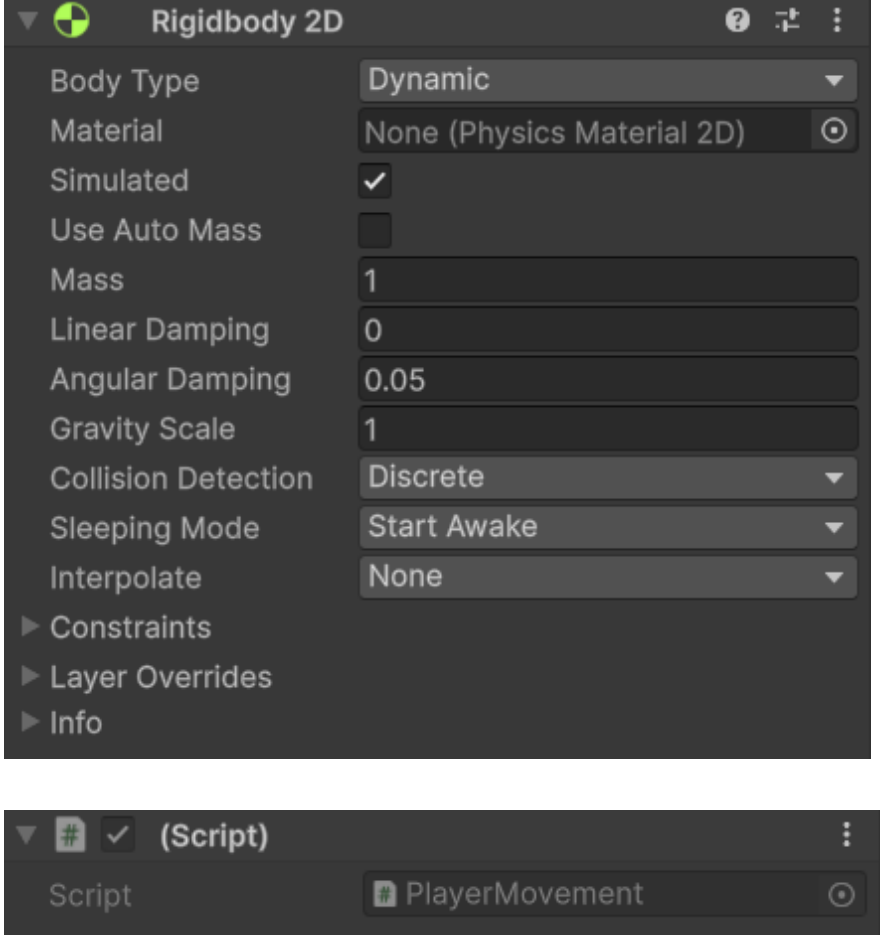
# PLAYER MOVEMENT



← RENAME TO  
“PLAYER”

← ADD  
COMPONENT(S)

```
PlayerMovement.cs X Settings
C:\> Users > conor > Desktop > Unity Coding Projects > Kershaw County Library Course > Assets > PlayerMovement.cs > ...
1 using System.Collections;
2 using System.Collections.Generic;
3 using UnityEngine;
4
5 0 references
6 public class PlayerMovement : MonoBehaviour
7 {
8     2 references
9     public Rigidbody2D rb;
10
11     1 reference
12     public float moveSpeed = 5f;
13
14     3 references
15     Vector2 movement;
16
17     // Update is Called Once Per Frame
18     0 references
19     void Update()
20     {
21         movement.x = Input.GetAxisRaw("Horizontal");
22         movement.y = Input.GetAxisRaw("Vertical");
23     }
24
25     // Fixed Updates are Called At A Fixed Frame Rate
26     0 references
27     void FixedUpdate()
28     {
29         rb.MovePosition(rb.position + movement * moveSpeed * Time.fixedDeltaTime);
30     }
31 }
```



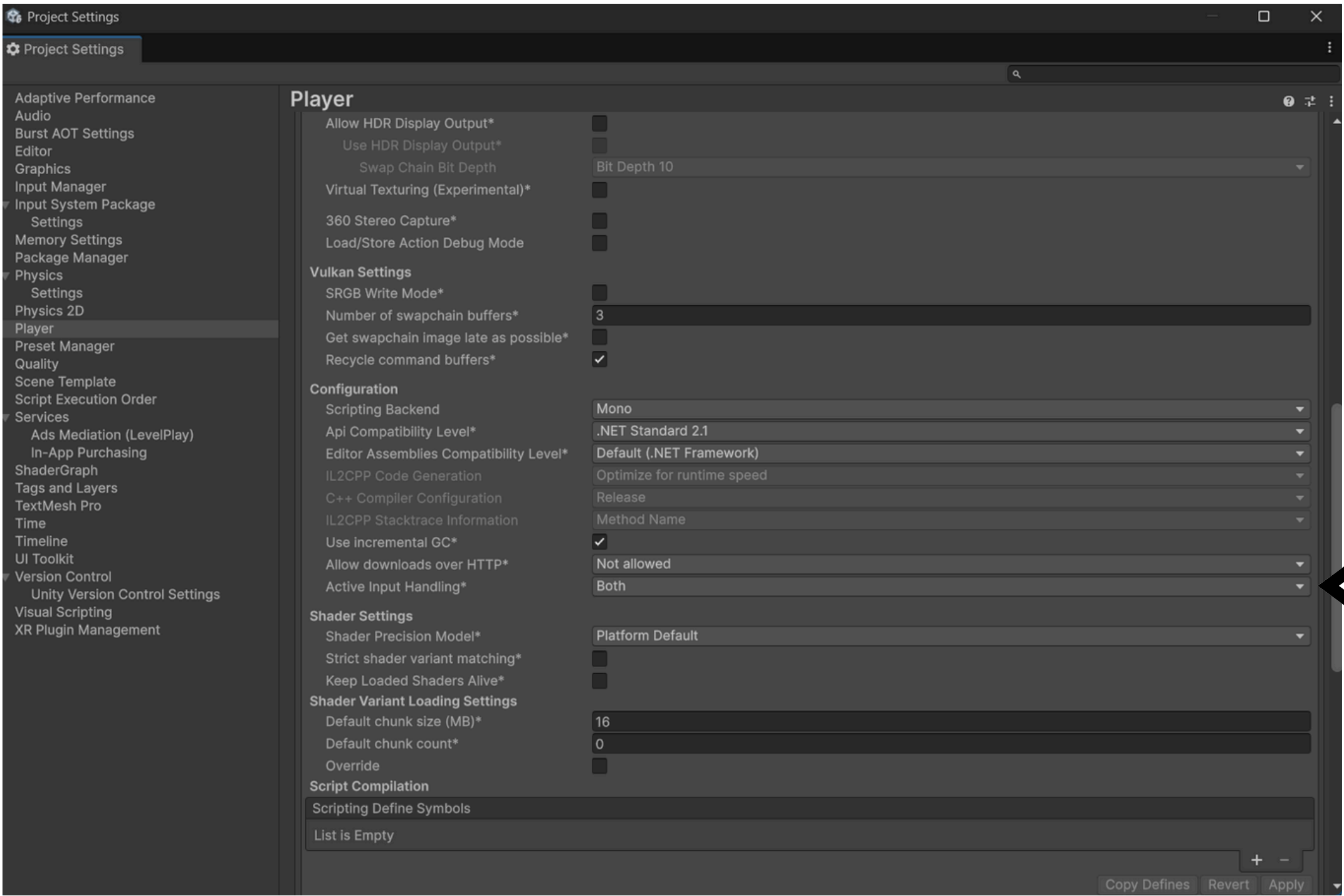
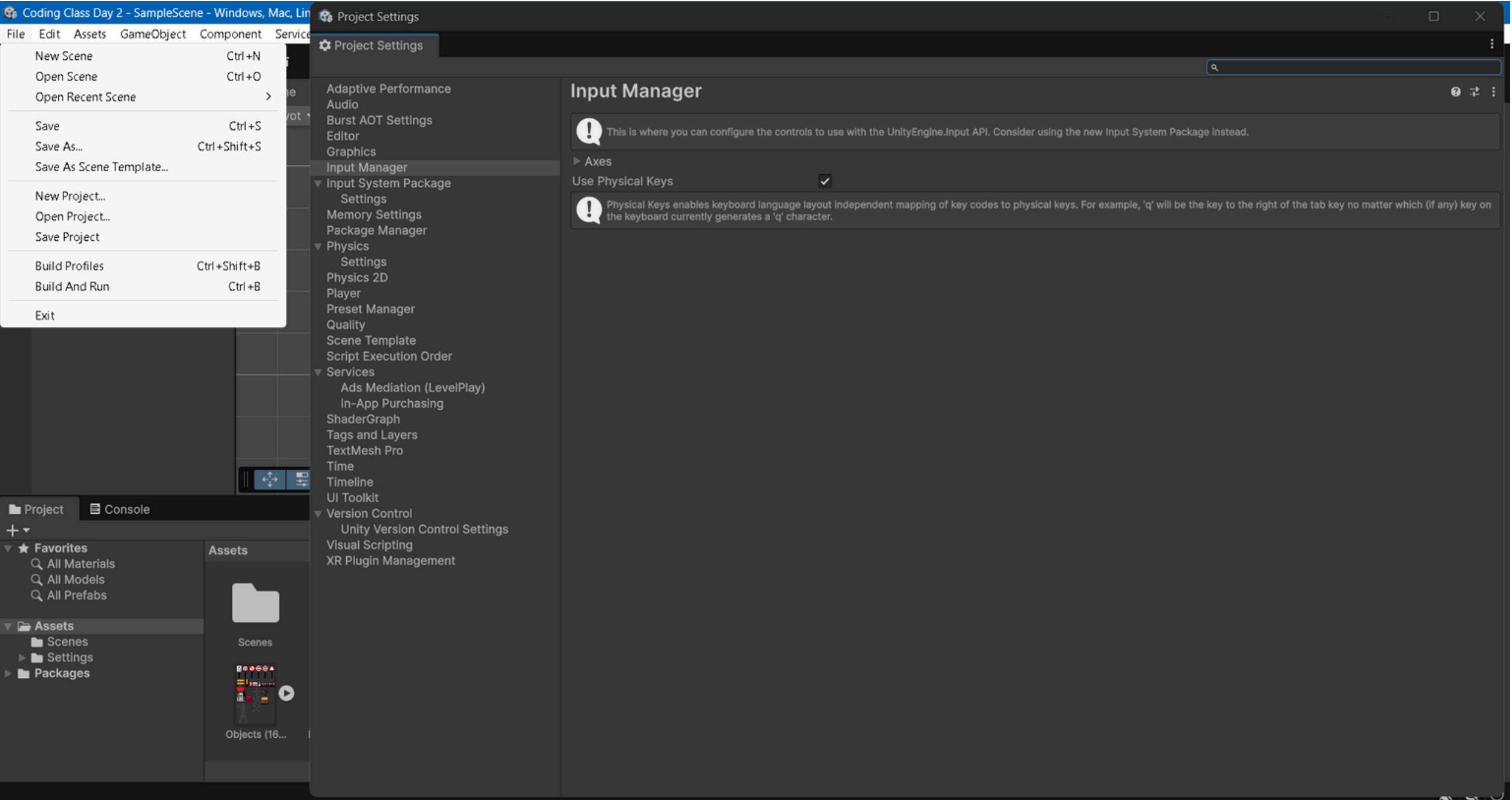
SET GRAVITY  
TO ZERO

CONNECT RIGIDBODY  
2D TO SCRIPT



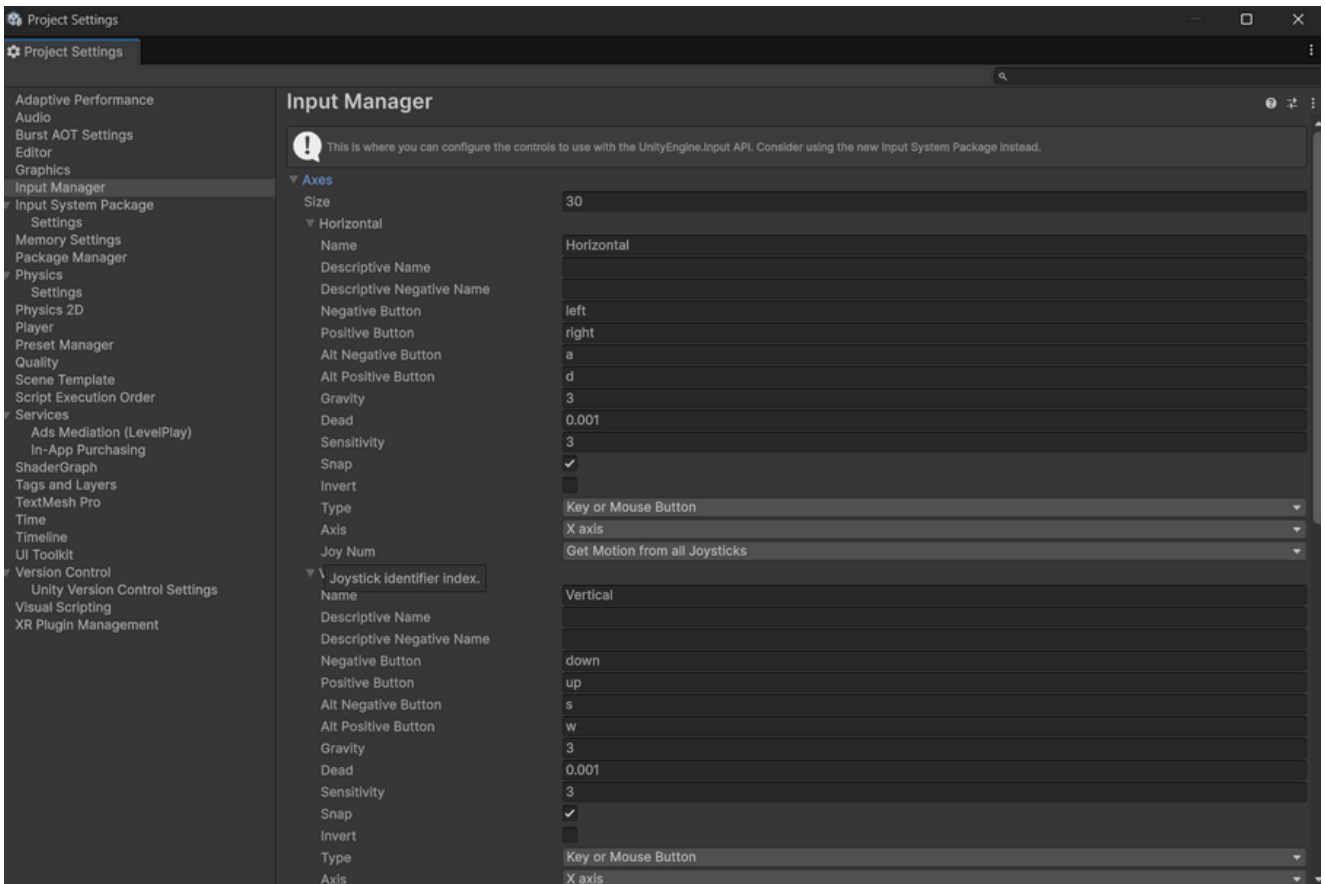
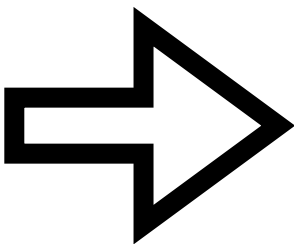
# ACTIVATE PLAYER INPUT

➡  
**GO TO EDIT  
THEN PROJECT  
SETTINGS**

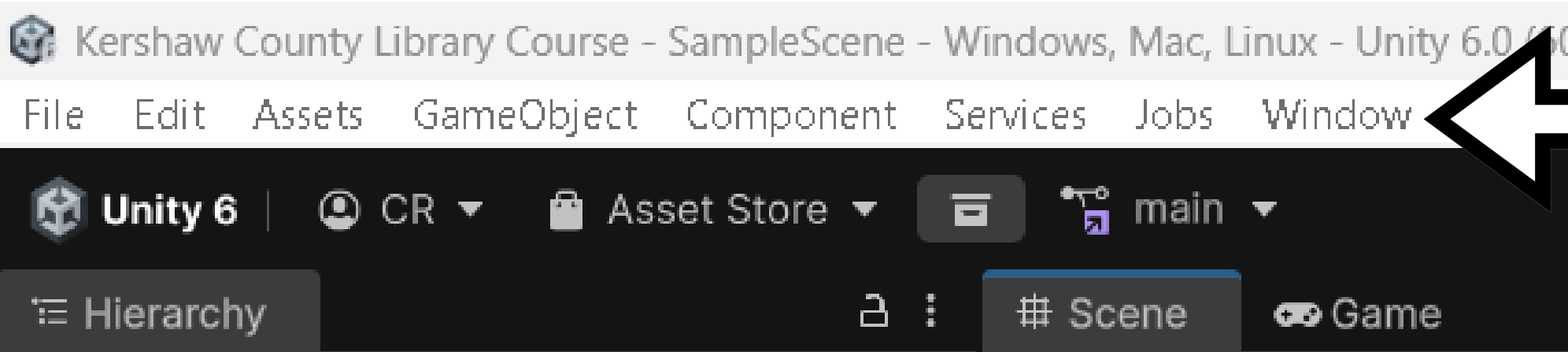


⬅ **SWITCH TO  
BOTH**

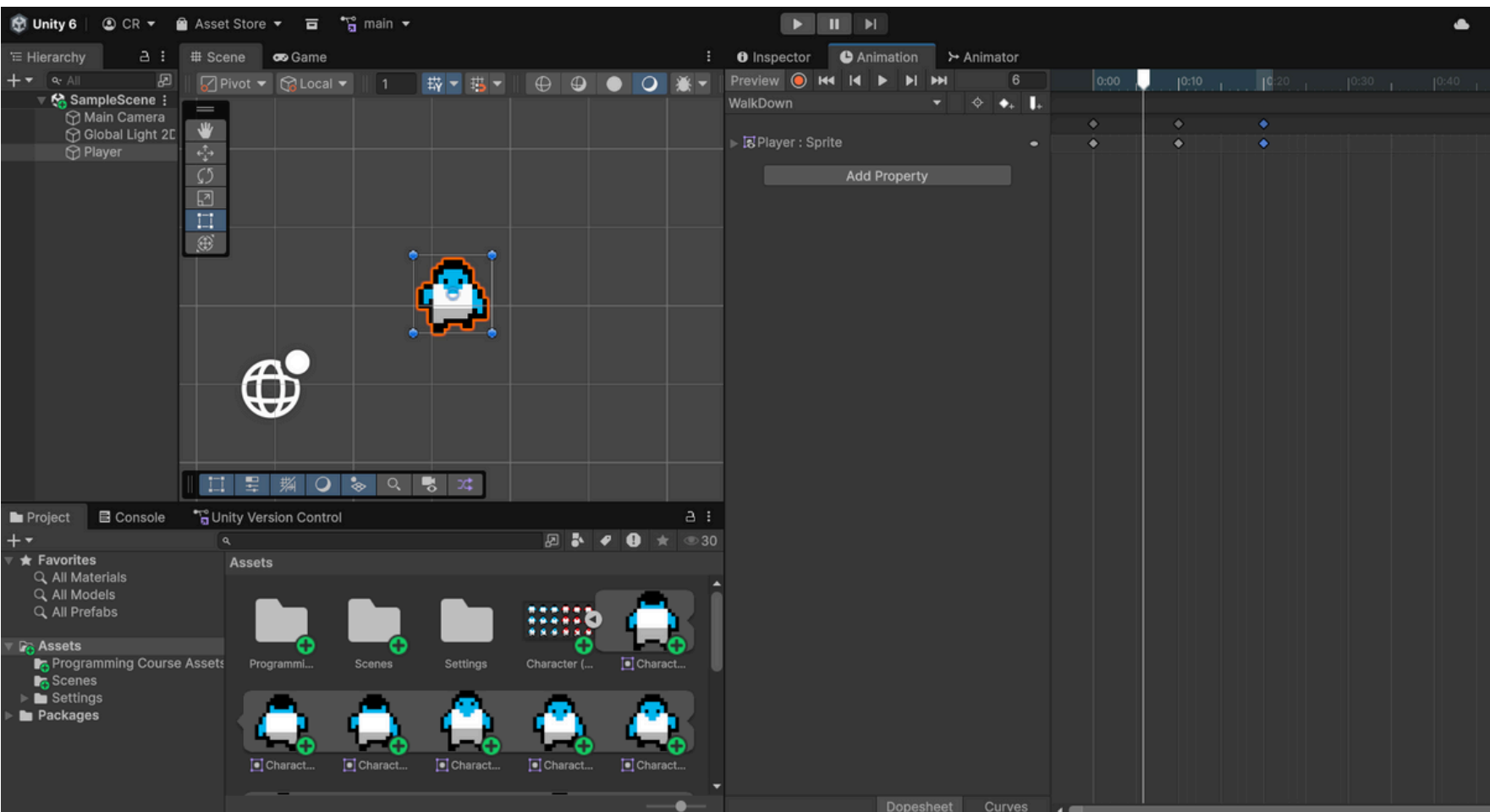
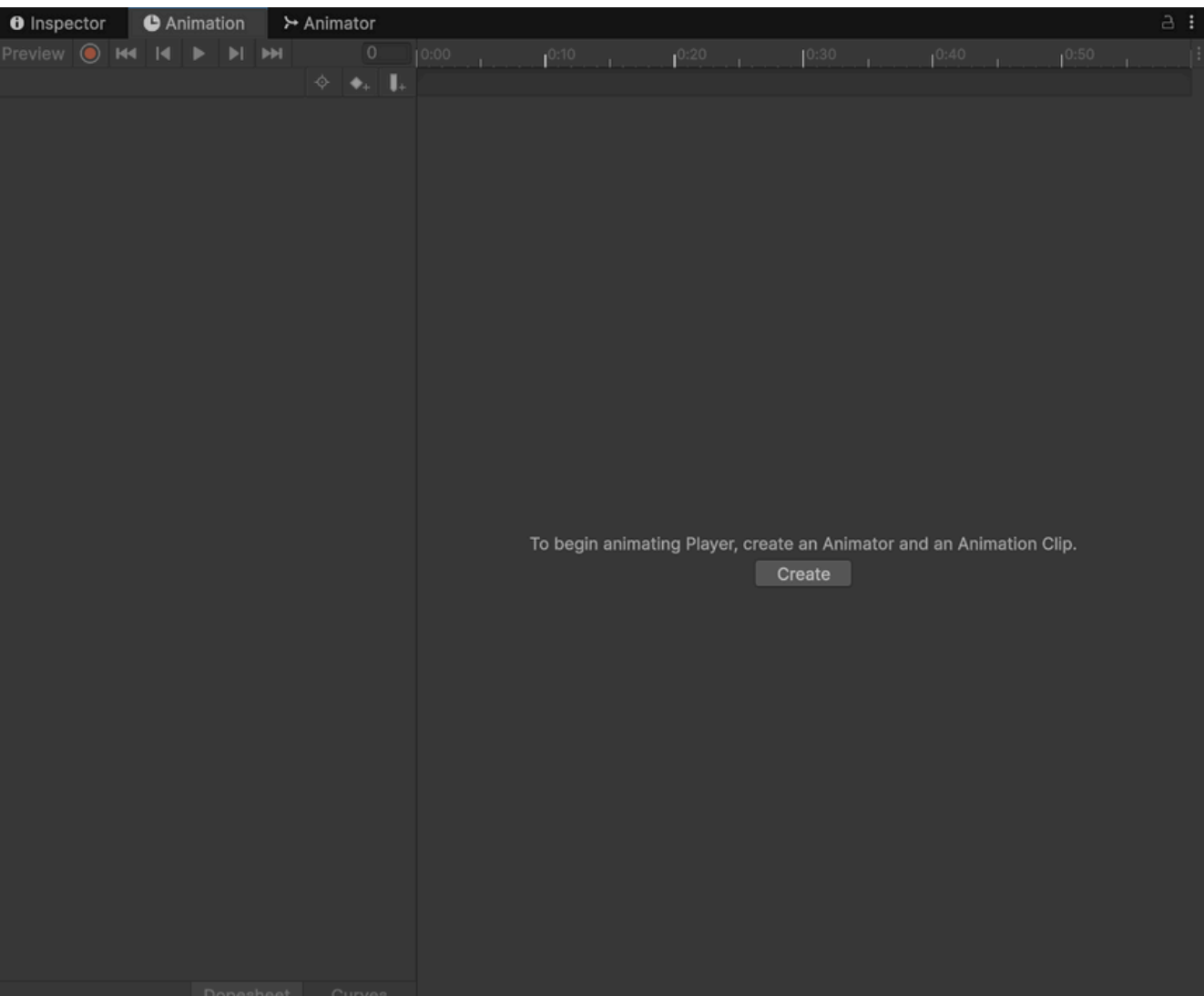
**SEE ALL INPUTS IN  
INPUT MANAGER**



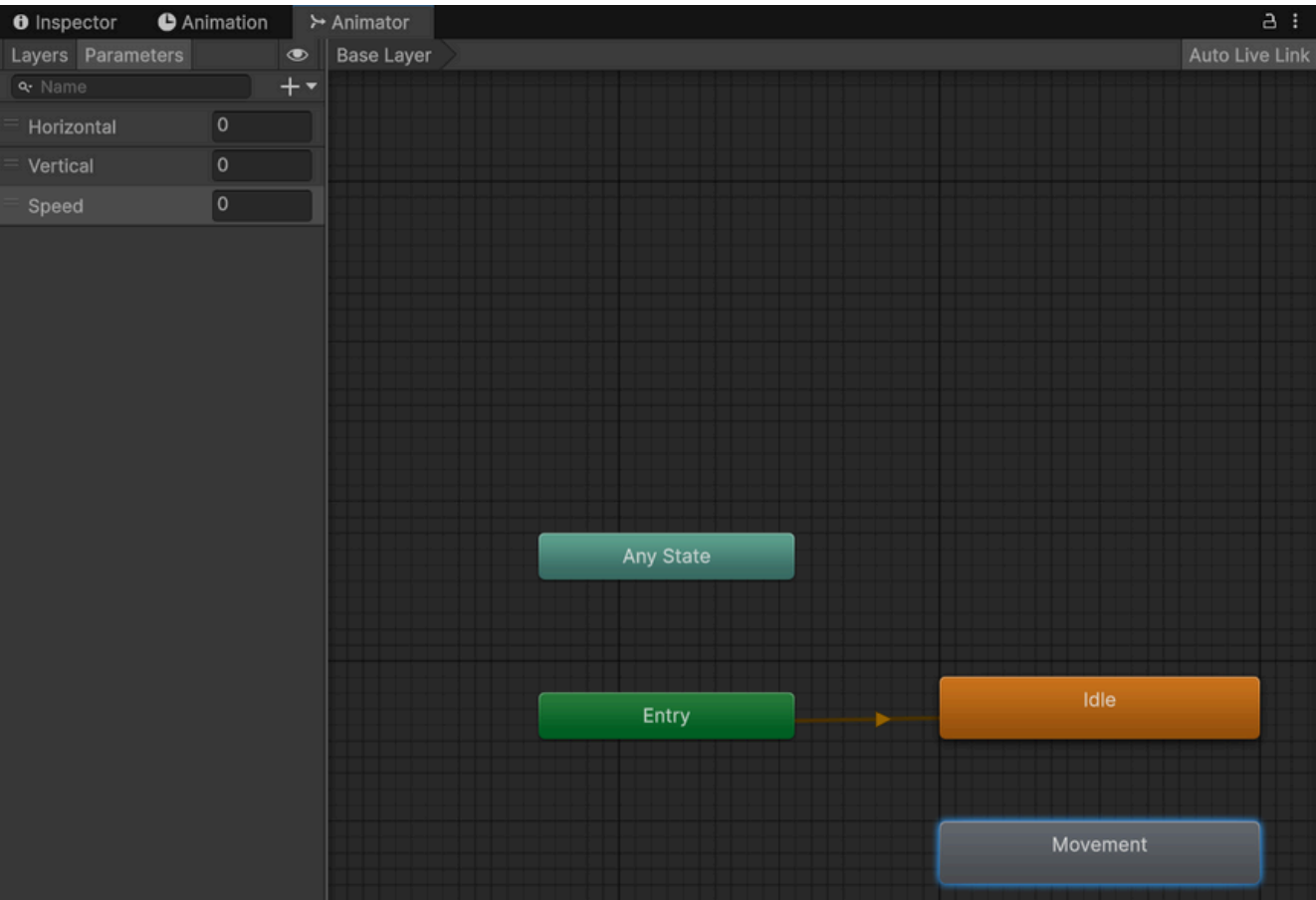
# ADDING AN ANIMATION



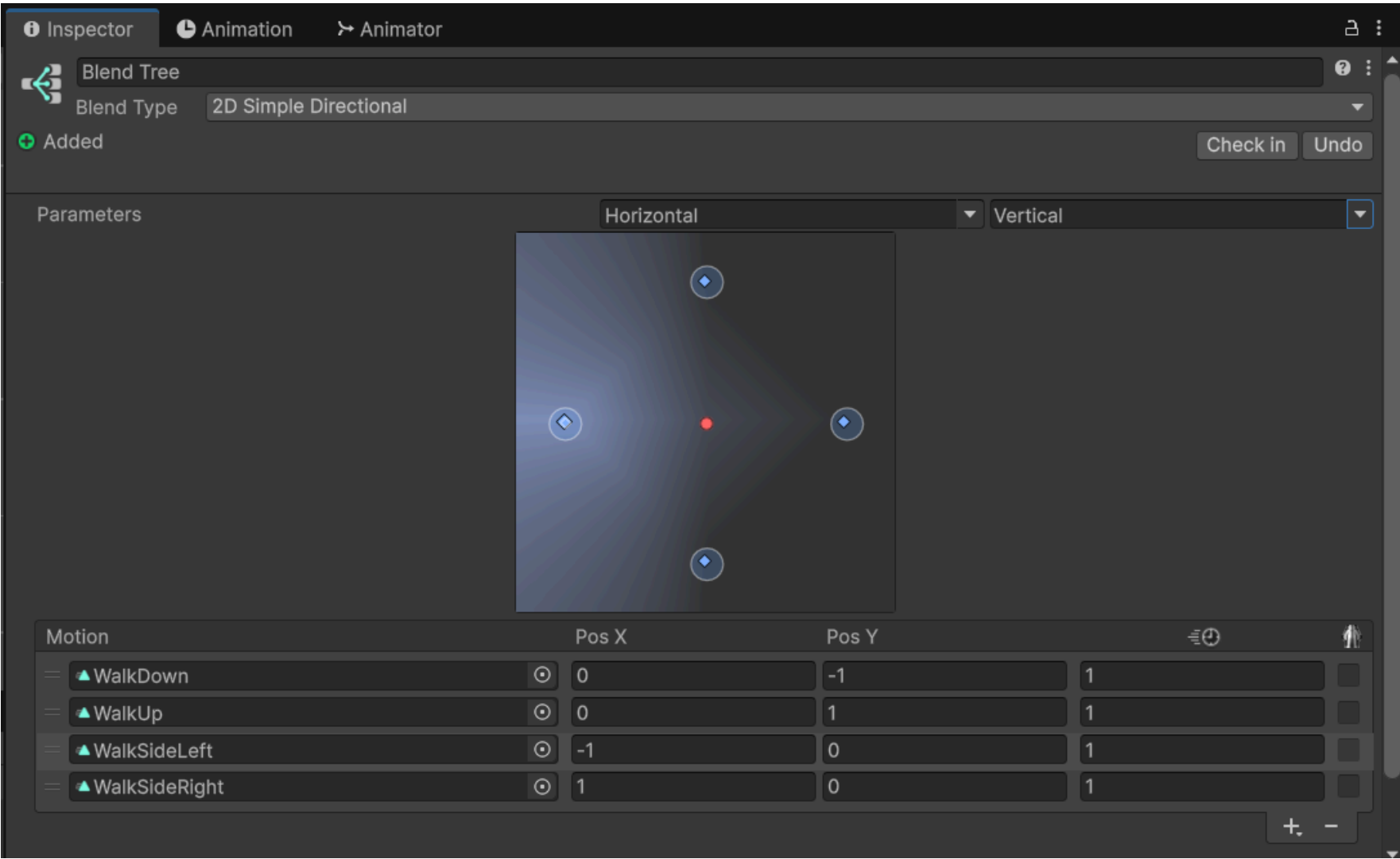
OPEN THE  
“ANIMATION” AND  
“ANIMATOR” WINDOW



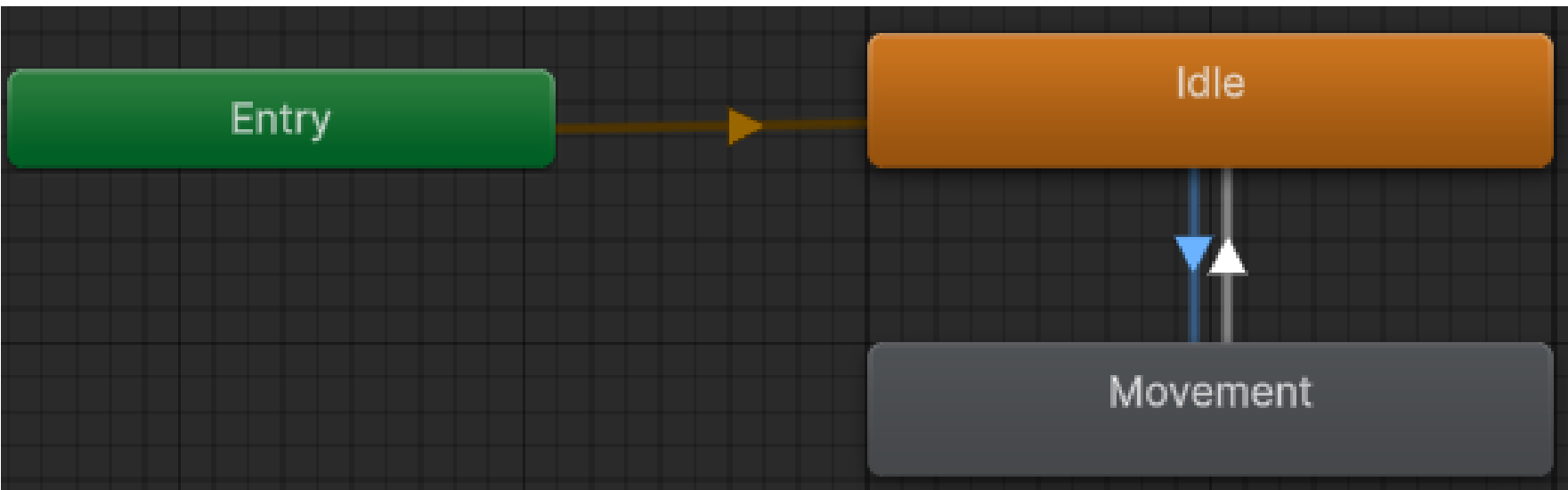
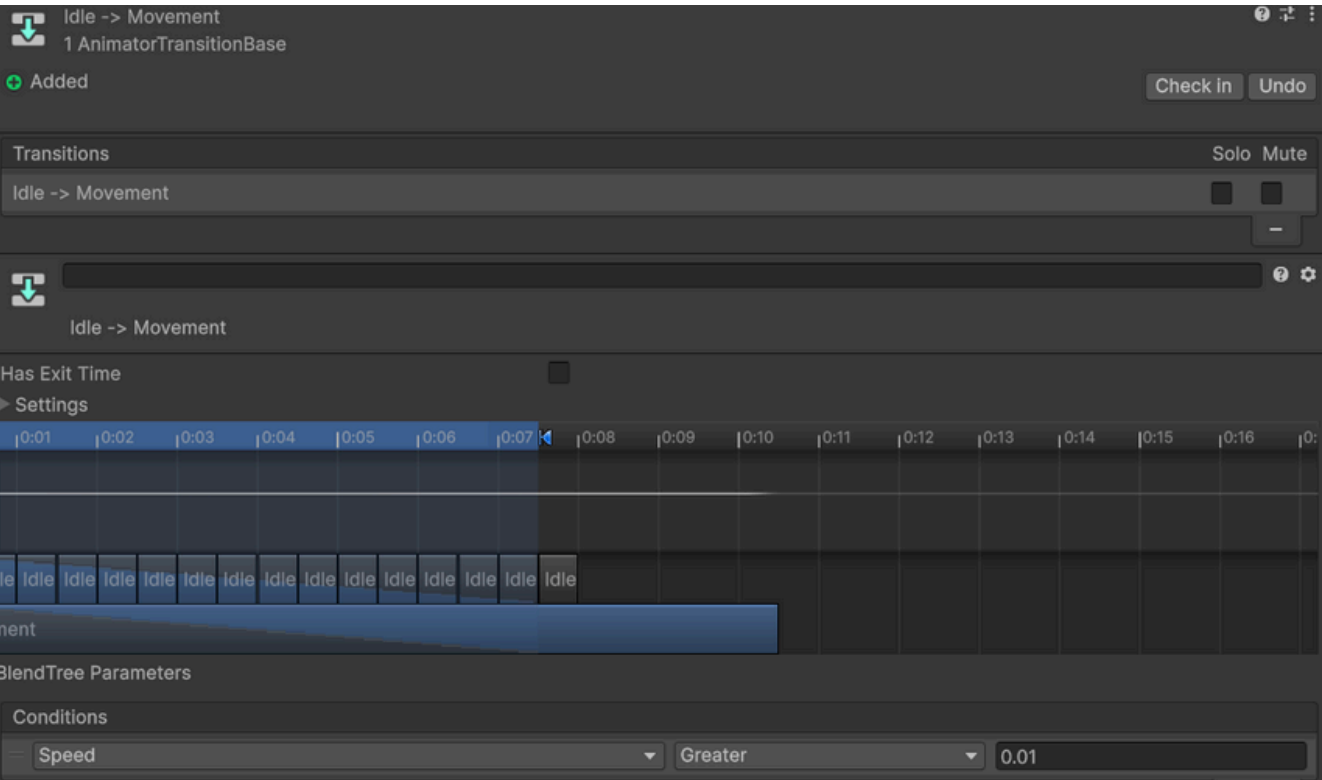
LETS START WITH A DOWN ANIMATION



CREATE THREE FLOAT  
PARAMETERS



CREATE A BLEND TREE  
CREATE FOUR MOTIONS  
SET TYPE TO 2D SIMPLE DIRECTION



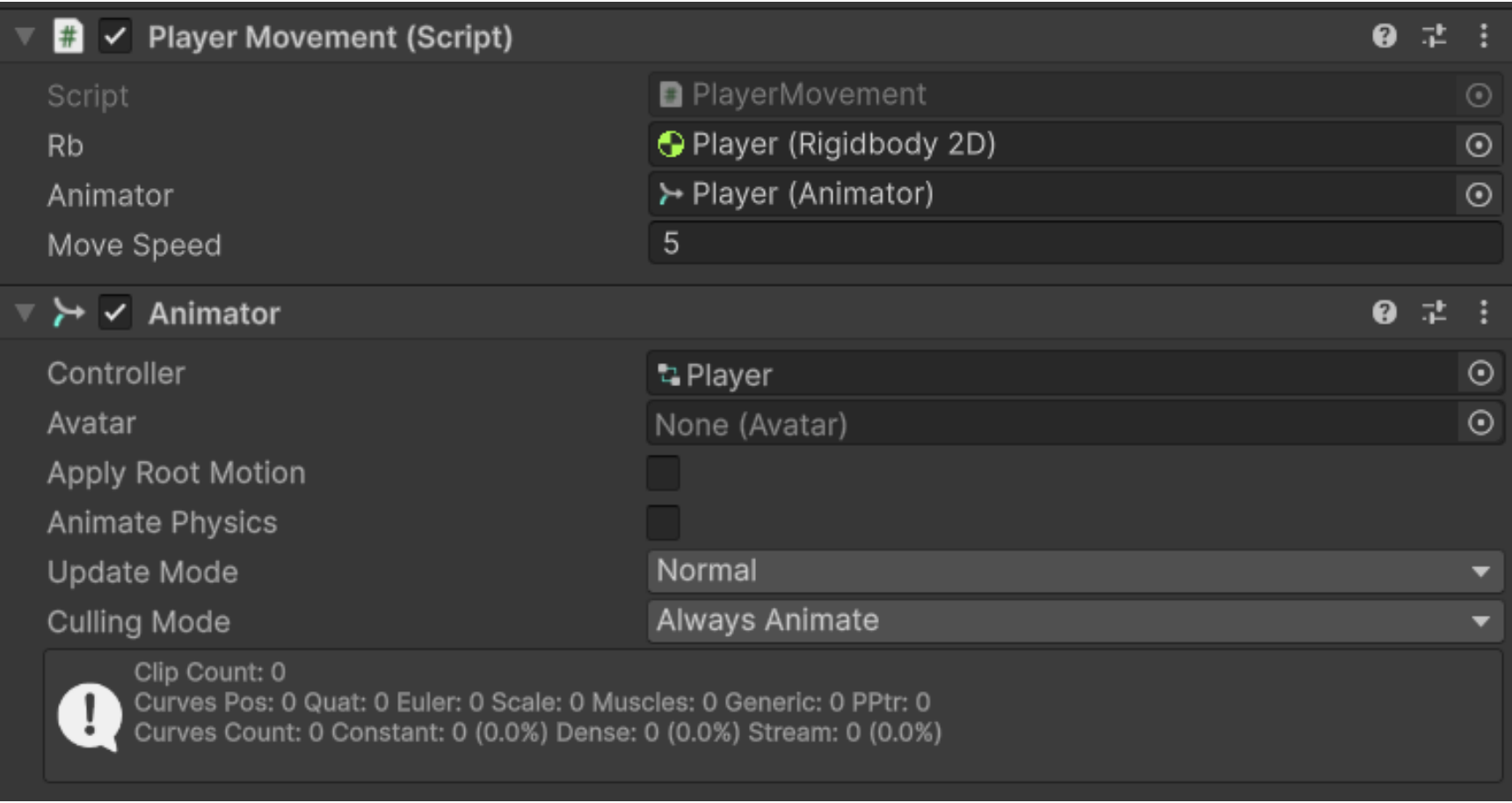
# ANIMATION CONTINUED

```
PlayerMovement.cs X Settings
C:\Users\conor\Desktop> Unity Coding Projects > Kershaw County Library Course > Assets > PlayerMovement.cs > P
1 using System.Collections;
2 using System.Collections.Generic;
3 using UnityEngine;
4
5 // 0 references
6 public class PlayerMovement : MonoBehaviour
7 {
8     // 2 references
9     public Rigidbody2D rb;
10    // 3 references
11    public Animator animator;
12
13    // 1 reference
14    public float moveSpeed = 5f;
15
16    // 6 references
17    Vector2 movement;
18
19    // Update is called once per frame
20    // 0 references
21    void Update()
22    {
23        movement.x = Input.GetAxisRaw("Horizontal");
24        movement.y = Input.GetAxisRaw("Vertical");
25
26        animator.SetFloat("Horizontal", movement.x);
27        animator.SetFloat("Vertical", movement.y);
28        animator.SetFloat("Speed", movement.sqrMagnitude);
29    }
30
31    // Fixed updates are called at a fixed frame rate
32    // 0 references
33    void FixedUpdate()
34    {
35        rb.MovePosition(rb.position + movement * moveSpeed * Time.fixedDeltaTime);
36    }
37 }
```

YOU MAY NOTICE  
CHARACTER MOVES  
EXTREMELY FAST  
DIAGONALLY

```
// Fixed updates are called at a fixed frame rate
// 0 references
void FixedUpdate()
{
    Vector2 normalizedMovement = movement.normalized;
    rb.MovePosition(rb.position + normalizedMovement * moveSpeed * Time.fixedDeltaTime);
}
```

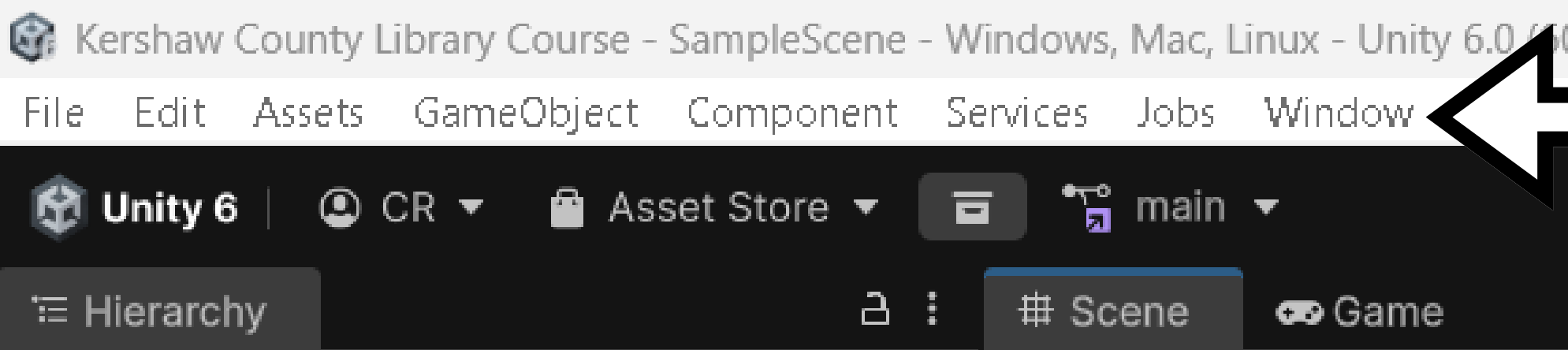
BUG FIX:  
PLAYERMOVEMENT CODE  
CHANGE TO NORMALIZE  
DIAGONAL MOVEMENT



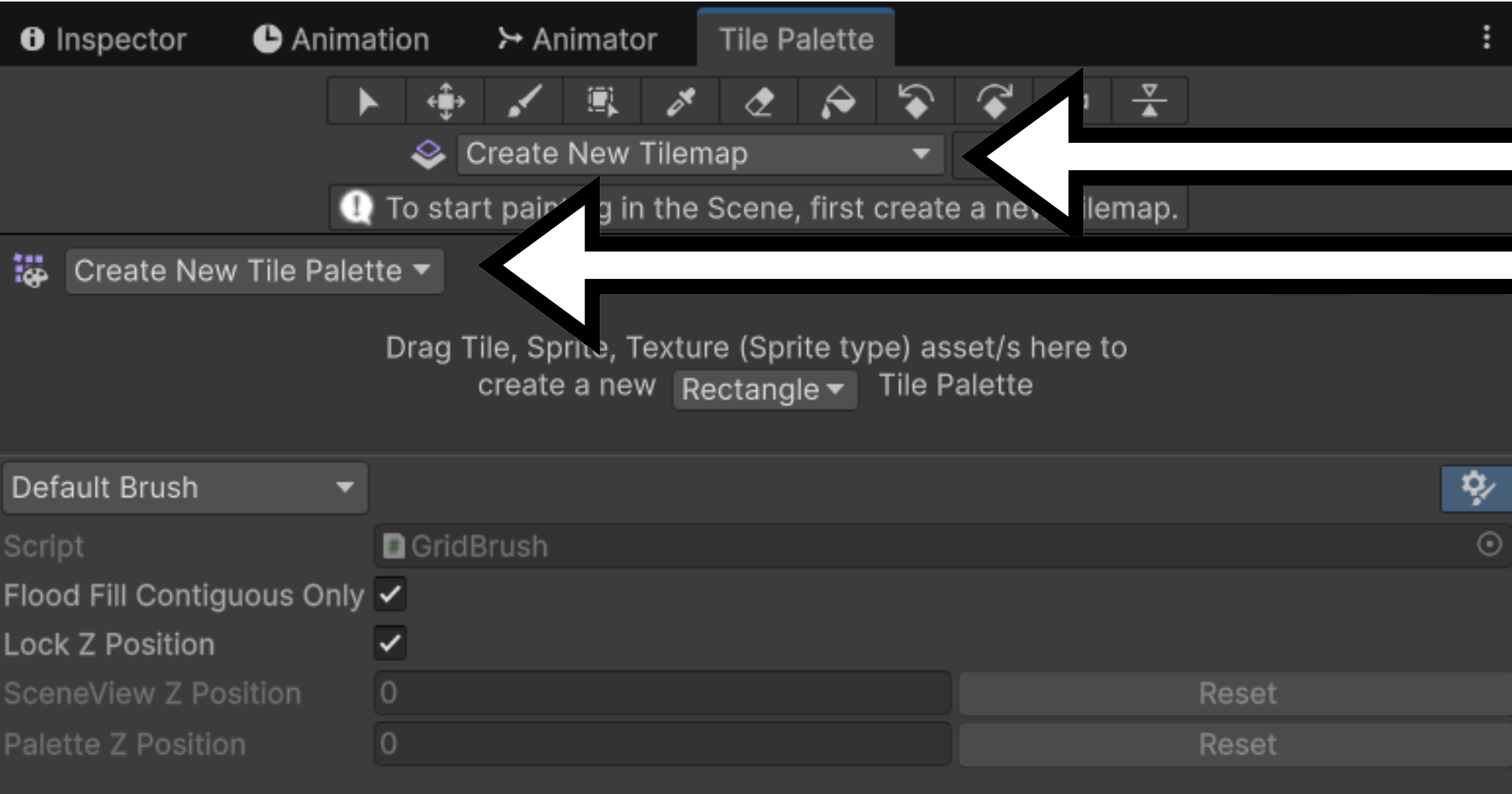
## CONNECT ANIMATOR



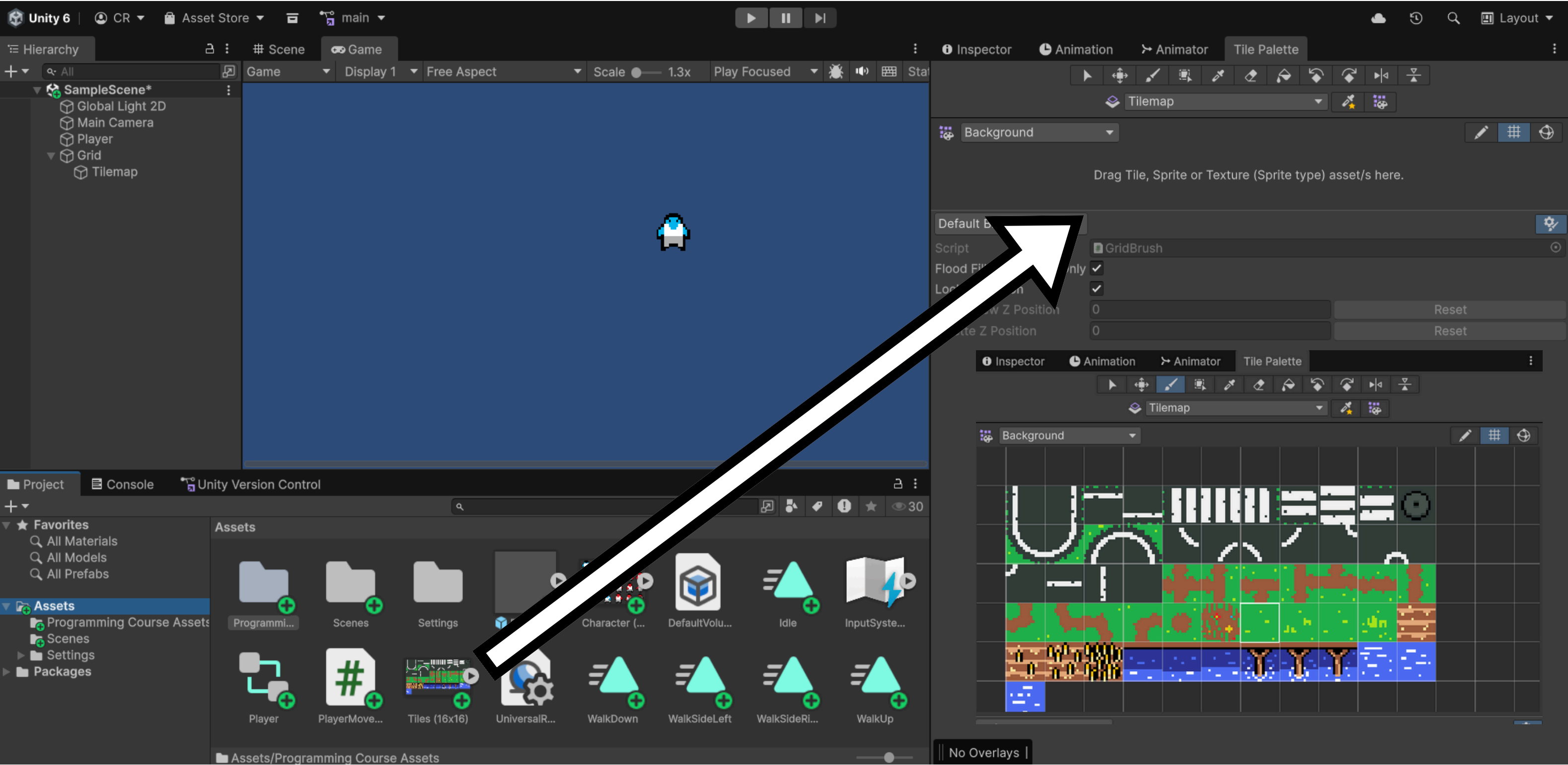
# CREATE TILE BACKGROUND



OPEN THE “2D - TILE PALETTE” WINDOW

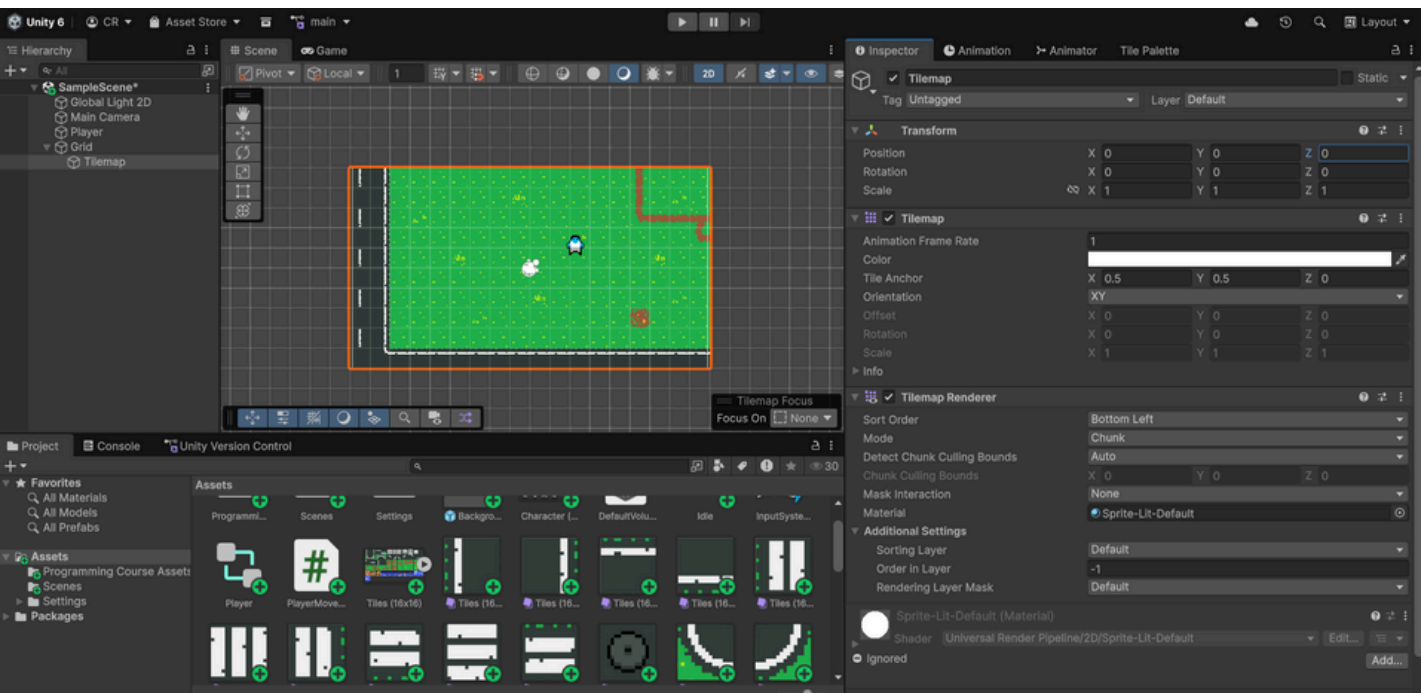


CREATE A TILEMAP & TILE PALETTE



DRAG TILES INTO TILE PALETTE

PAINT YOUR WORLD THEN SET TILEMAP RENDER LAYER TO -1





# CONCLUSION



## Mana Rock Gaming

**MANA ROCK GAMING WEBSITE**

[HTTPS://WWW.MANAROCKGAMING.COM/](https://www.manarockgaming.com/)



**KERSHAW COUNTY VIDEO GAME PROGRAMMERS, DESIGNERS, & ARTISTS**

[HTTPS://DISCORD.GG/3DGAPPVKCS](https://discord.gg/3DGAPPVKCS)



KERSHAW  
COUNTY  
LIBRARY

**KERSHAW COUNTY EVENTS PAGE**

[HTTPS://WWW.KERSHAWCOUNTYLIBRARY.ORG/EVENTS/PROGRAMMING-WITH-CONOR/](https://www.kershawcountylibrary.org/events/programming-with-conor/)

**YOUTUBE TUTORIAL**

[HTTPS://WWW.YOUTUBE.COM/WATCH?V=WHZOMFGJT50](https://www.youtube.com/watch?v=WHZOMFGJT50)