

POWER OF AR AND VR

UPBGE

Python Scripts



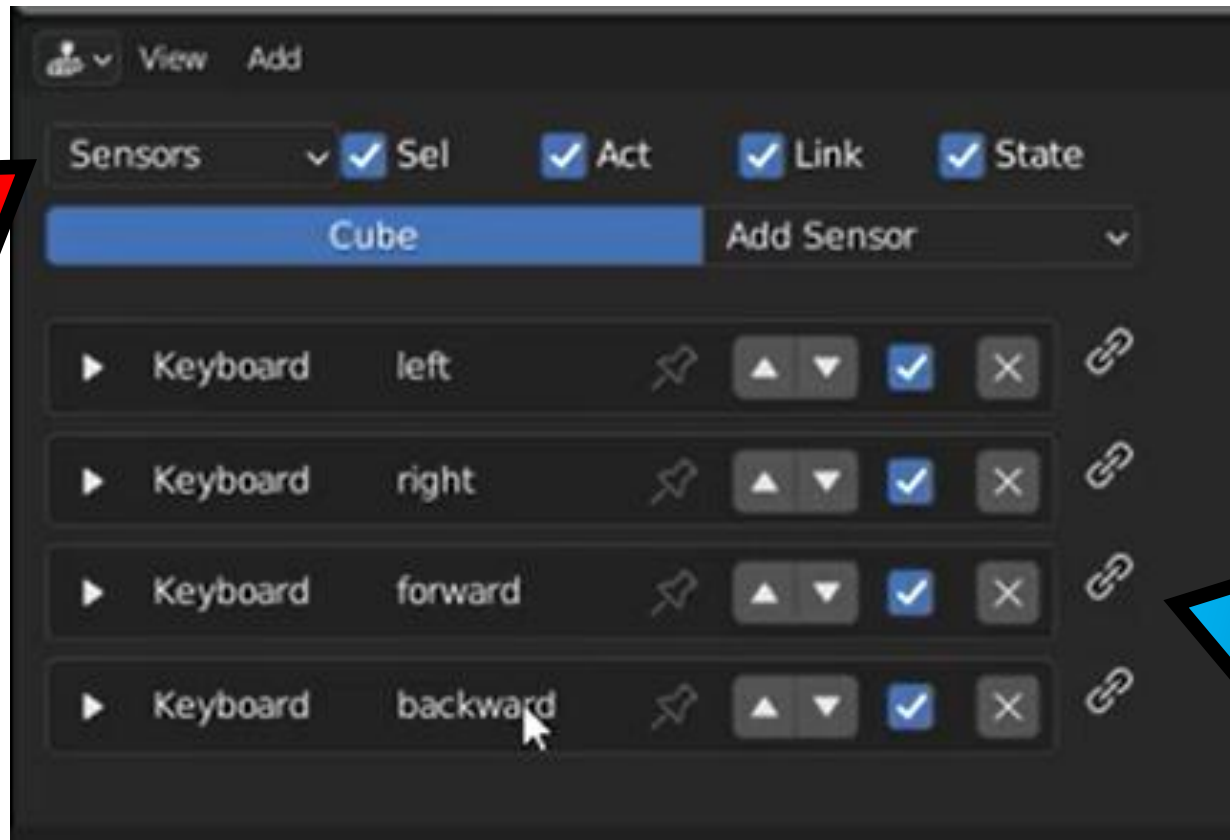
**Co-funded by
the European Union**



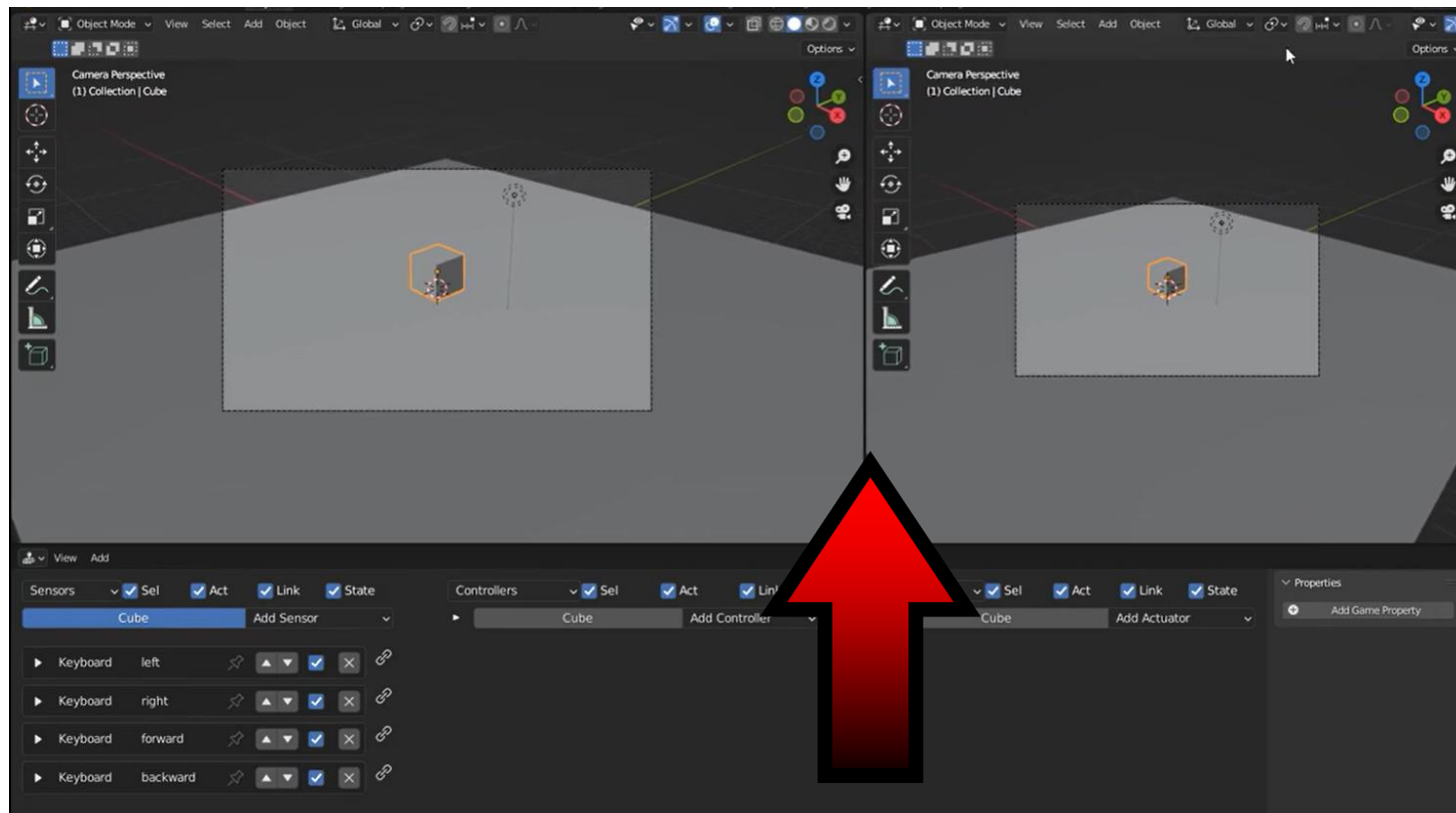
2024-1-PL01-KA220-VET-000243150

JACEK KAWAŁEK

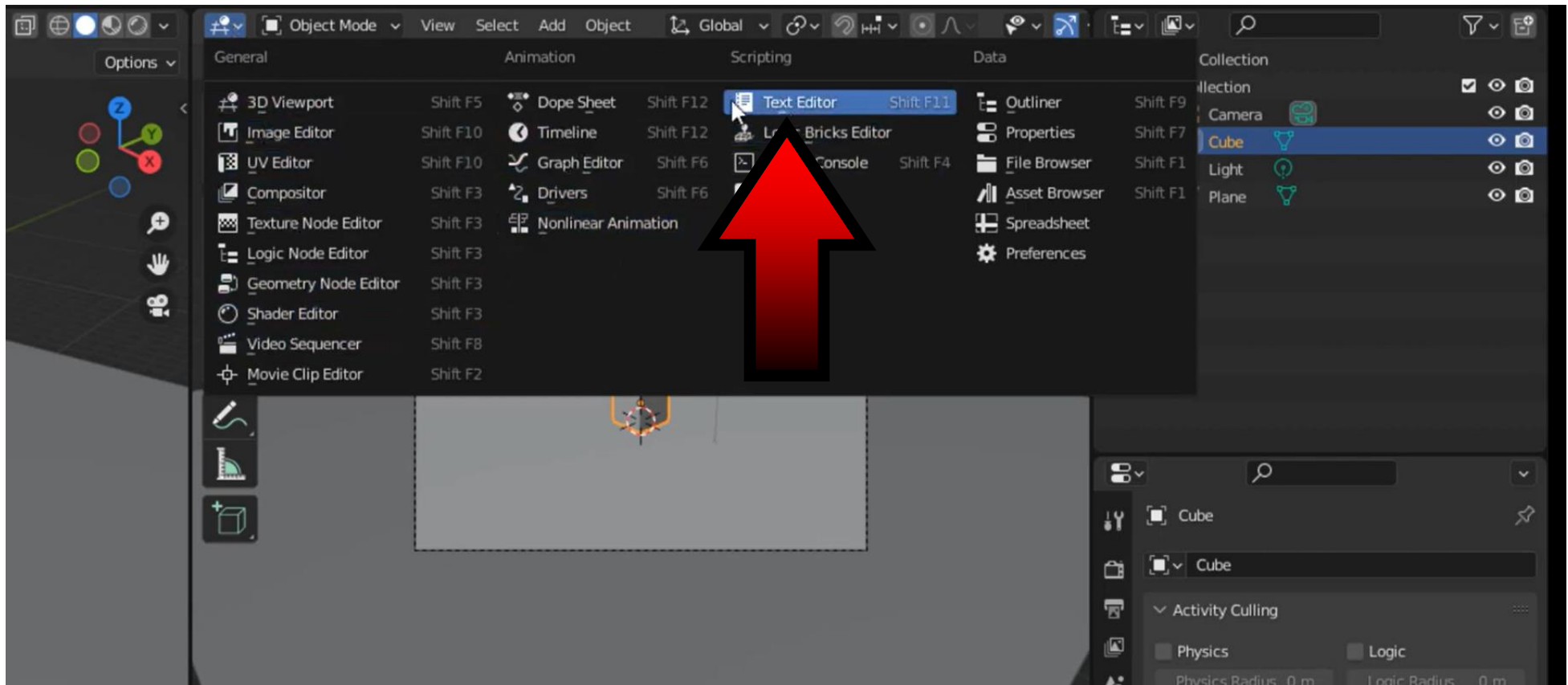
BEGINNING AS BEFORE



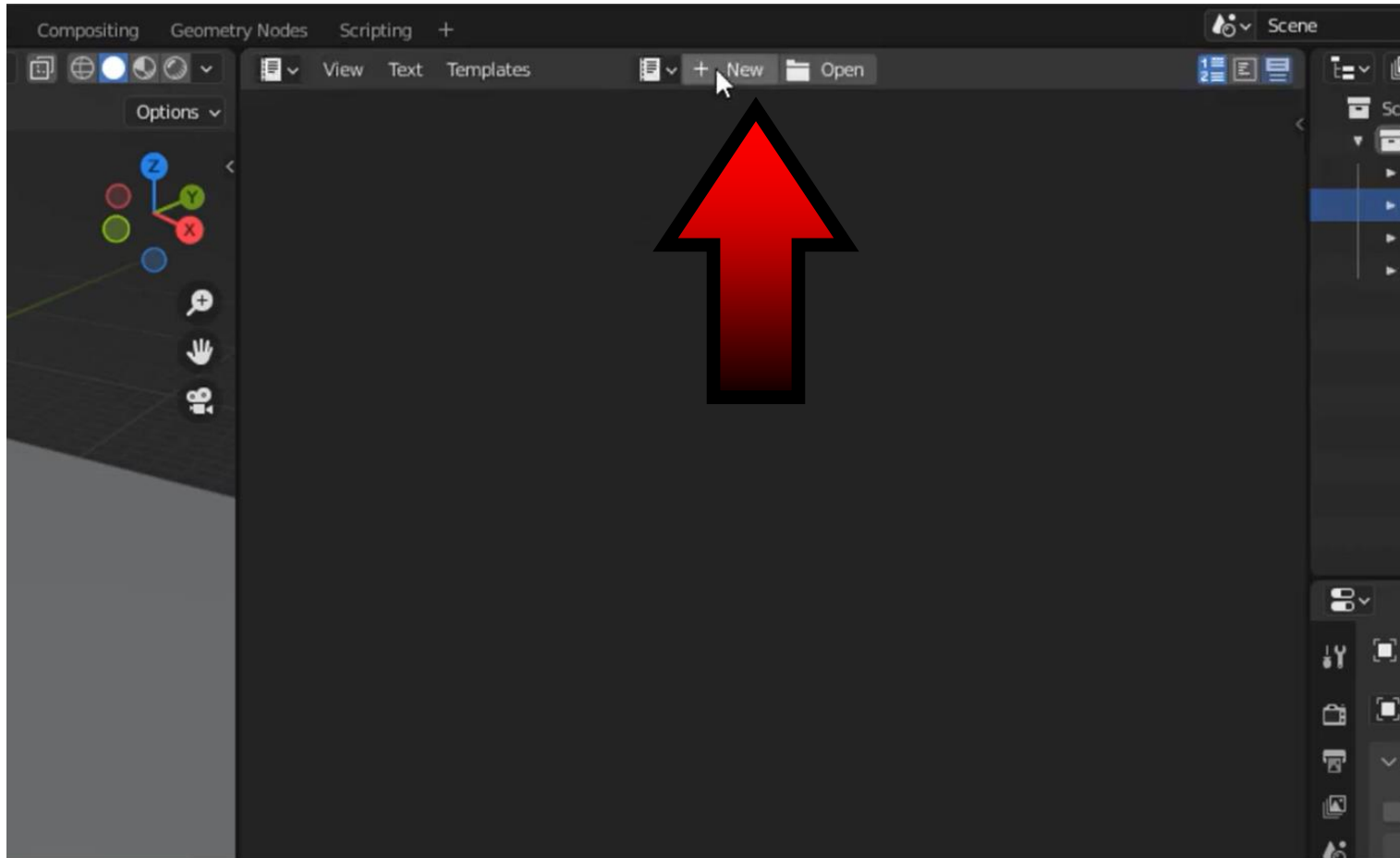
DIVIDE THE WINDOW IN HALF



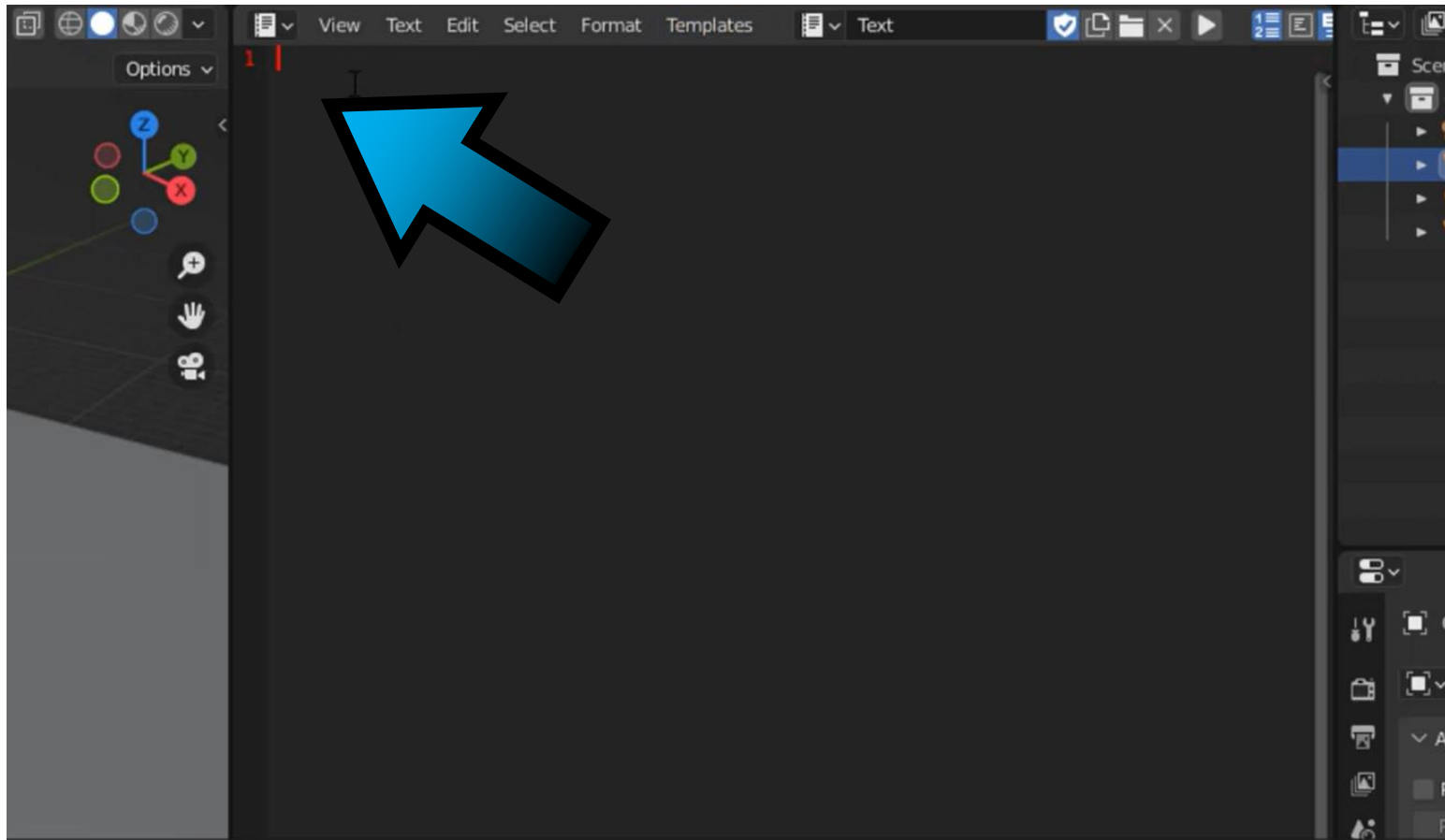
IN THE RIGHT WINDOW CHOSSE **TEXT EDITOR**



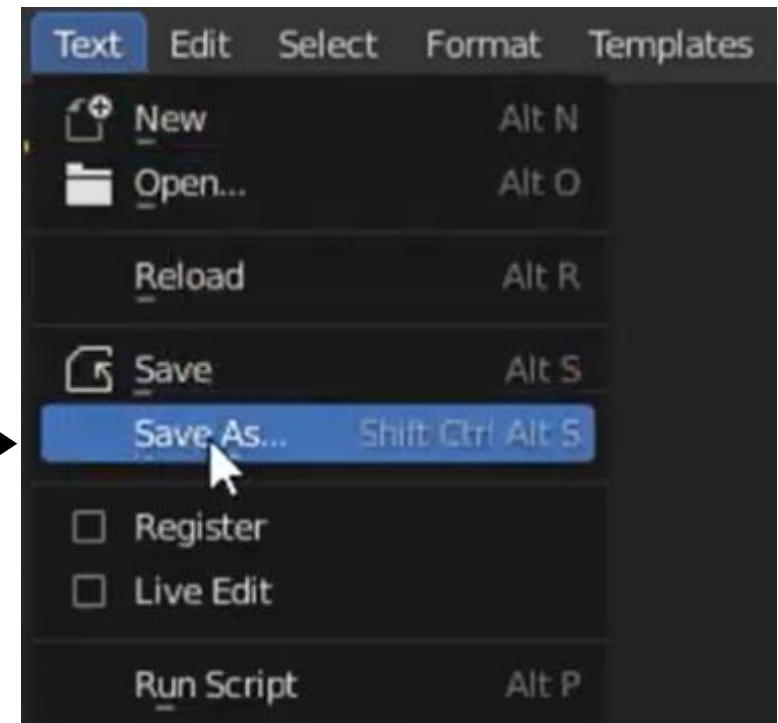
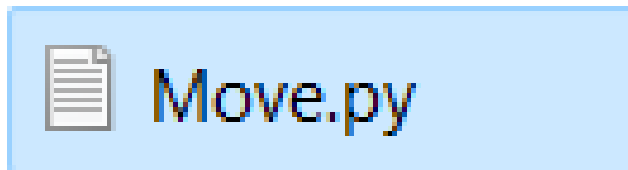
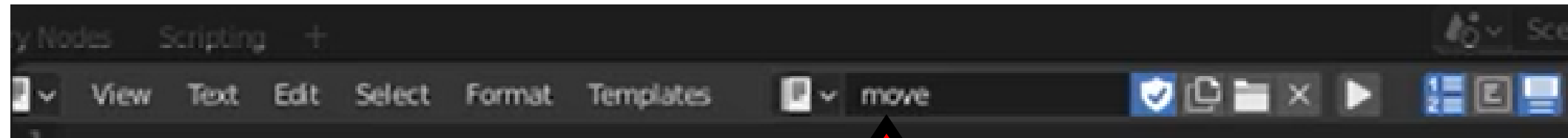
CLICK ON **NEW**



WE HAVE THE ABILITY **WRITE SCRIPTS**



DETERMINE THE NAME AND SAVE THE SCRIPT





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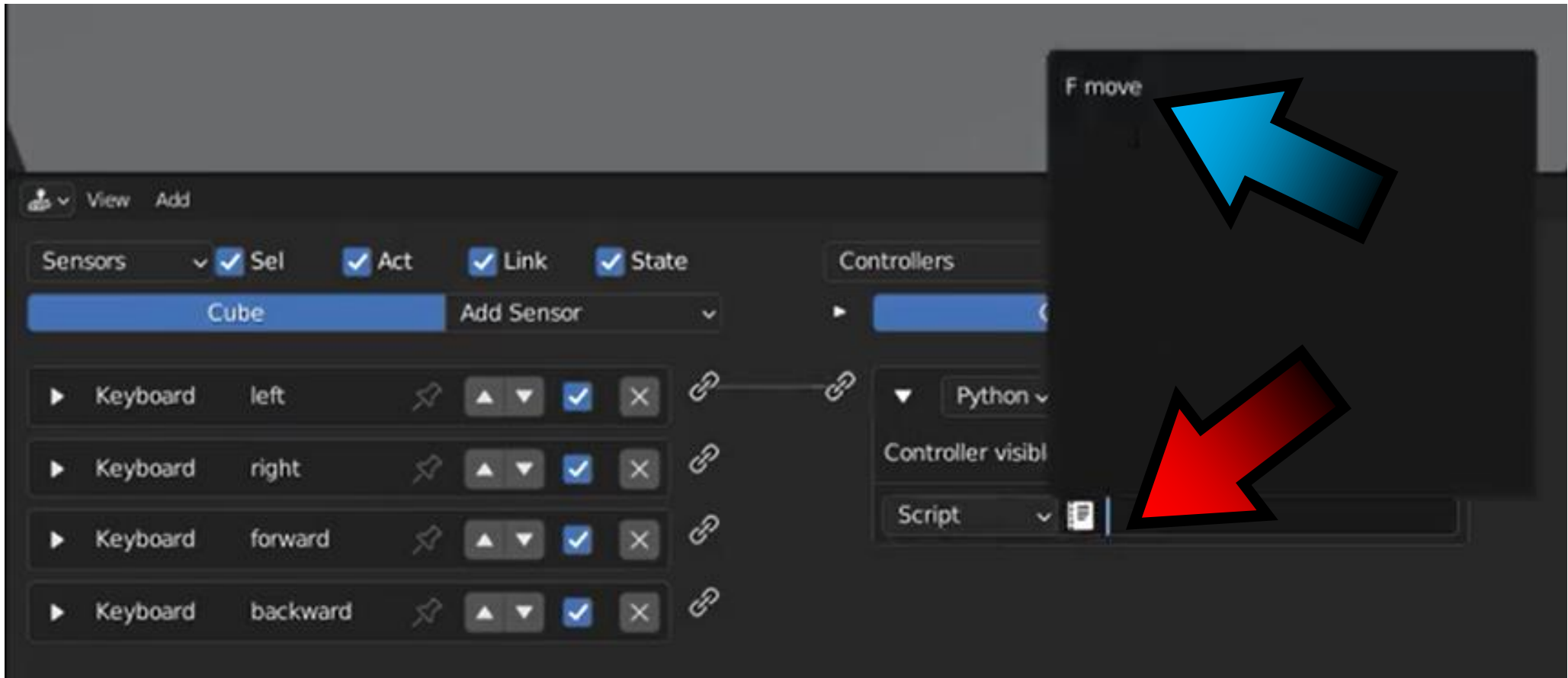


IN **CONTROLLERS** WE CHOOSE **PYTHON**

The screenshot displays a game engine's configuration panel for a 'Cube' object. On the left, under the 'Sensors' tab, four keyboard sensors are listed: 'left', 'right', 'forward', and 'backward'. Each sensor has a play button, a name, a pin icon, a directional pad icon, a checked status box, an 'X' icon, and a link icon. On the right, under the 'Controllers' tab, a dropdown menu is open, showing various logic options: '_And', '_Or', '_Nand', '_Nor', '_Xor', '_Xnor', '_Expression', and 'Python'. A red arrow points to the 'Cube' object name, and a blue arrow points to the 'Python' option in the dropdown menu.

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SELECT OR ENTER THE NAME

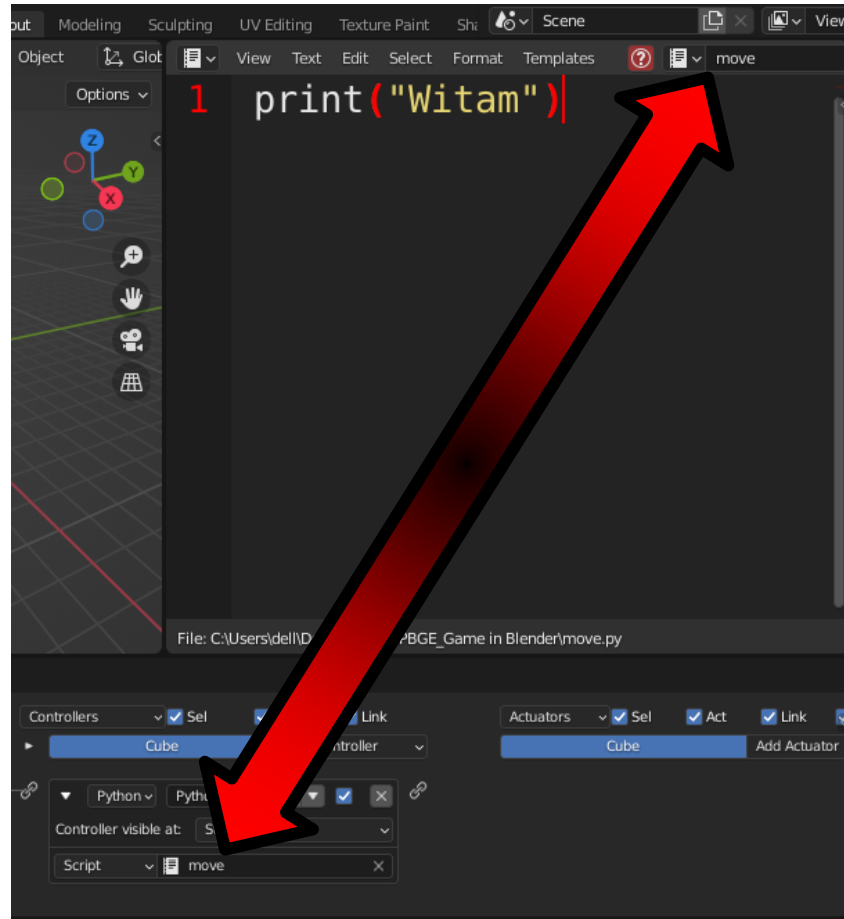




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THIS POSITIONS SHOULD BE THE SAME



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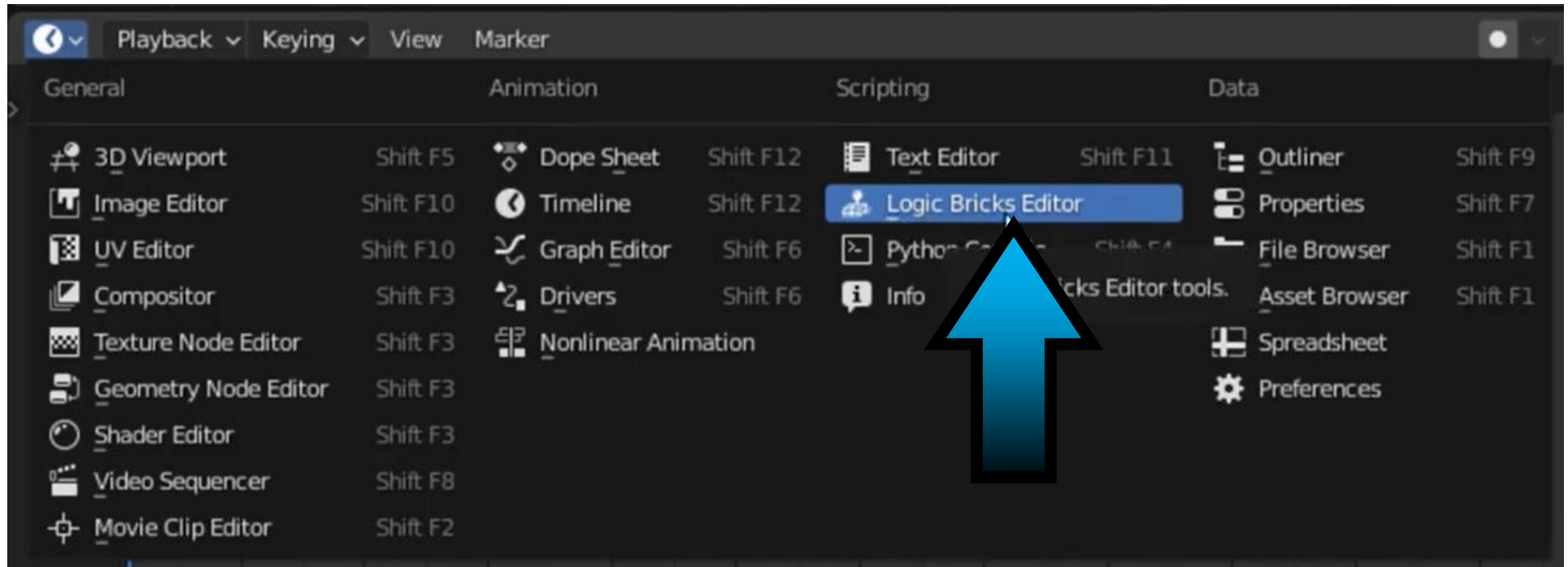


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**THIS IS AN IMPORT
FROM
LOGIC BRICKS
EDITOR**

```
1  
2 from bge import logic
```



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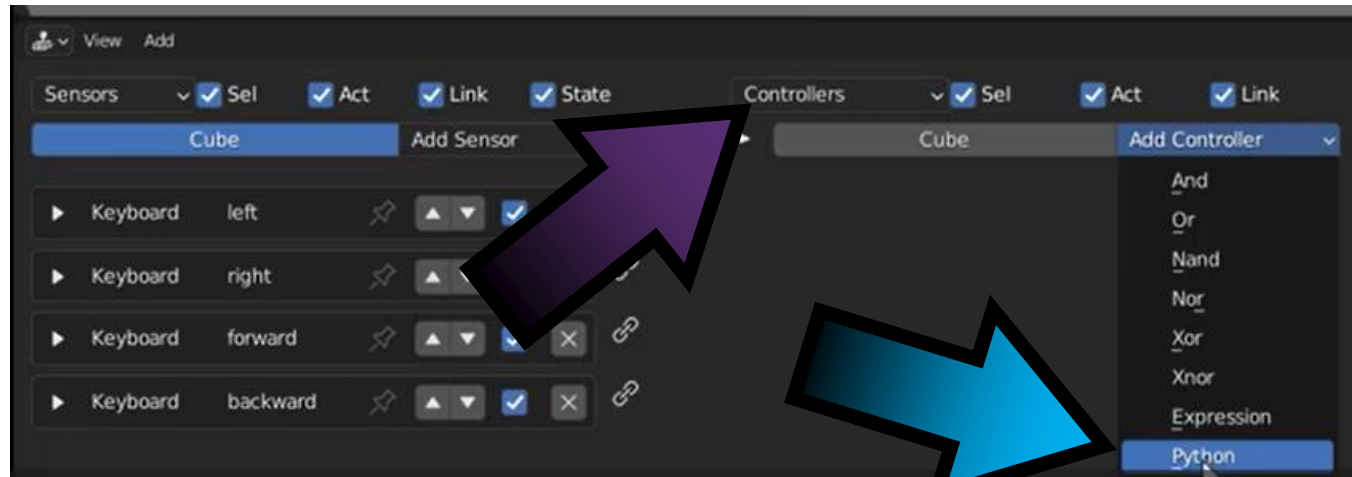
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```
1  
2 from bge import logic  
3  
4 cont = logic.getCurrentController()
```



**THIS IS GETTING
THE SETTINGS
FROM CONTROLLER
WHICH IS
THE PYTHON SCRIPT**

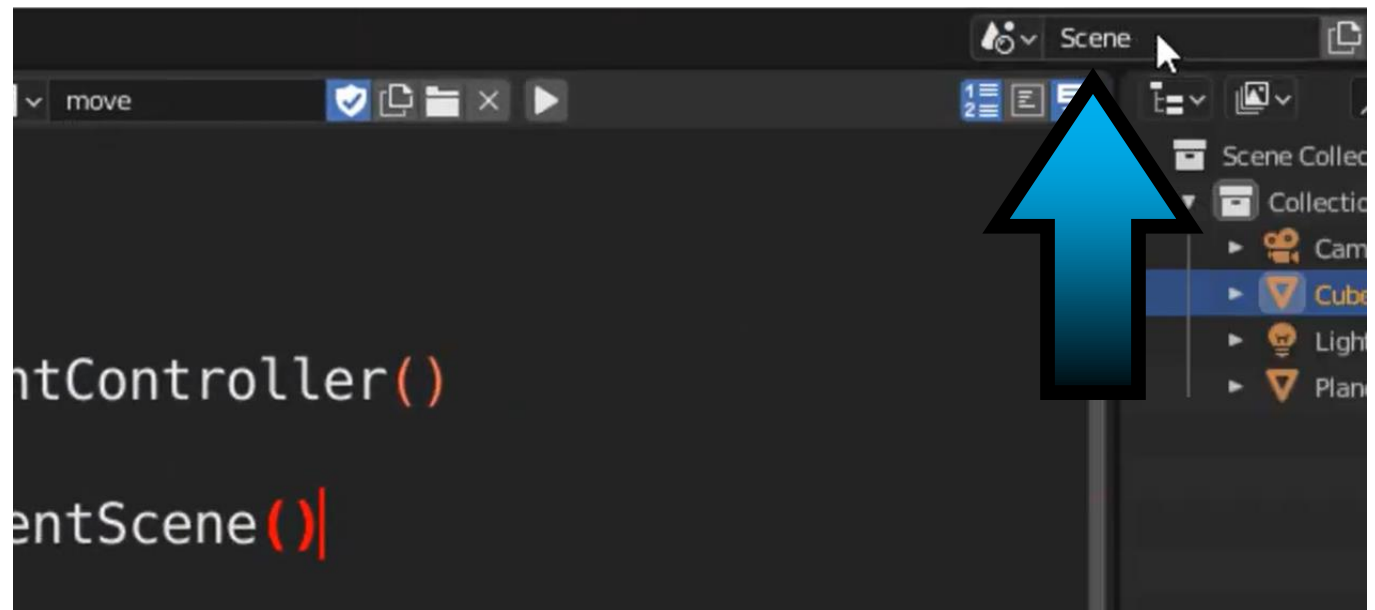


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```
1  
2 from bge import logic  
3  
4 cont = logic.getCurrentController()  
5  
6 scene = logic.getCurrentScene()
```

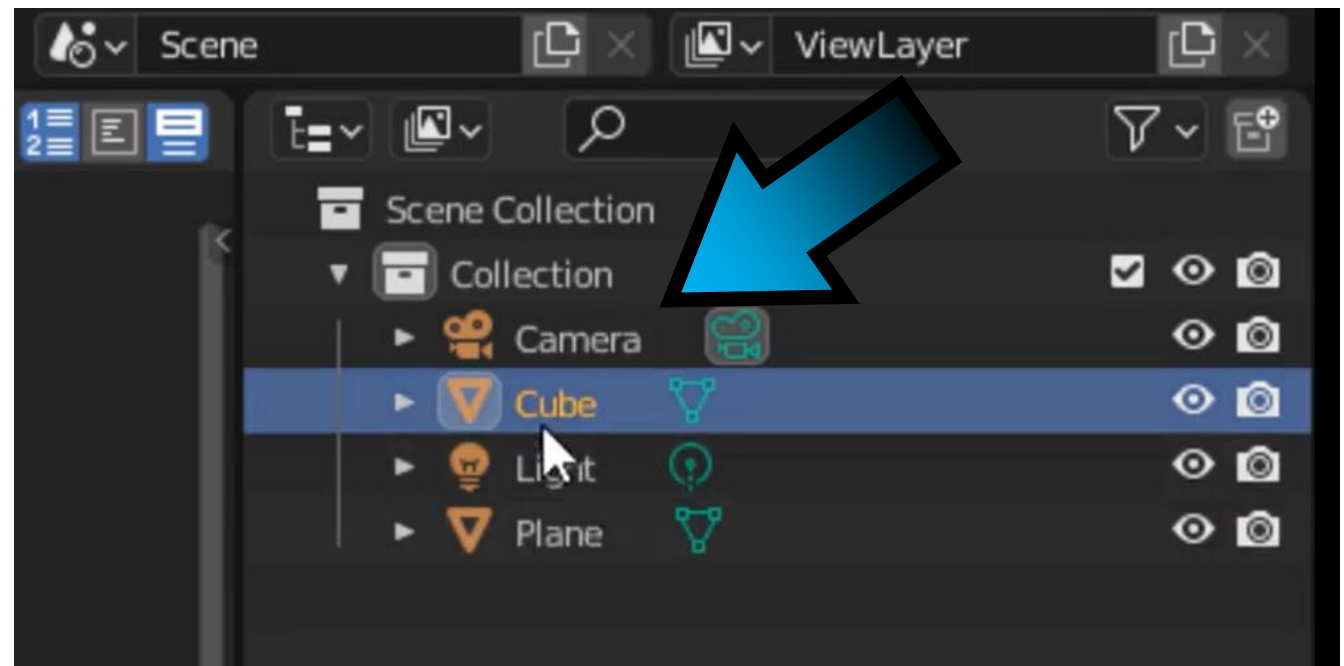
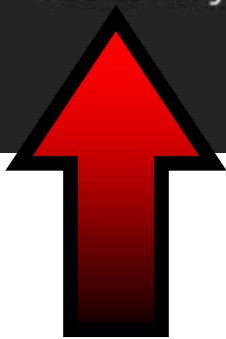


**HERE WE
INDICATE
SCENE**



```
1  
2 from bge import logic  
3  
4 cont = logic.getCurrentController()  
5  
6 scene = logic.getCurrentScene()  
7 objects = scene.objects  
8 |  
9
```

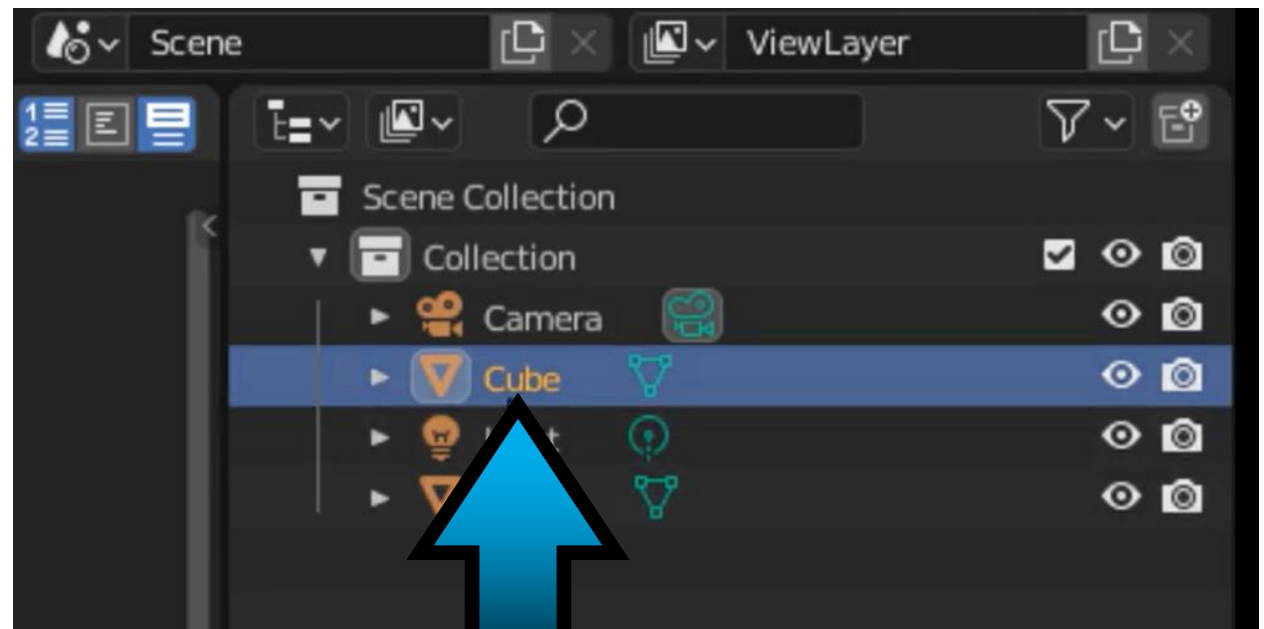
**HERE WE DEFINE
ACCESS TO OBJECTS
WITH
THE ASSIGNED
SCENE**



```
1  
2 from bge import logic  
3  
4 cont = logic.getCurrentController()  
5  
6 scene = logic.getCurrentScene()  
7 objects = scene.objects  
8  
9 cube = objects["Cube"]
```

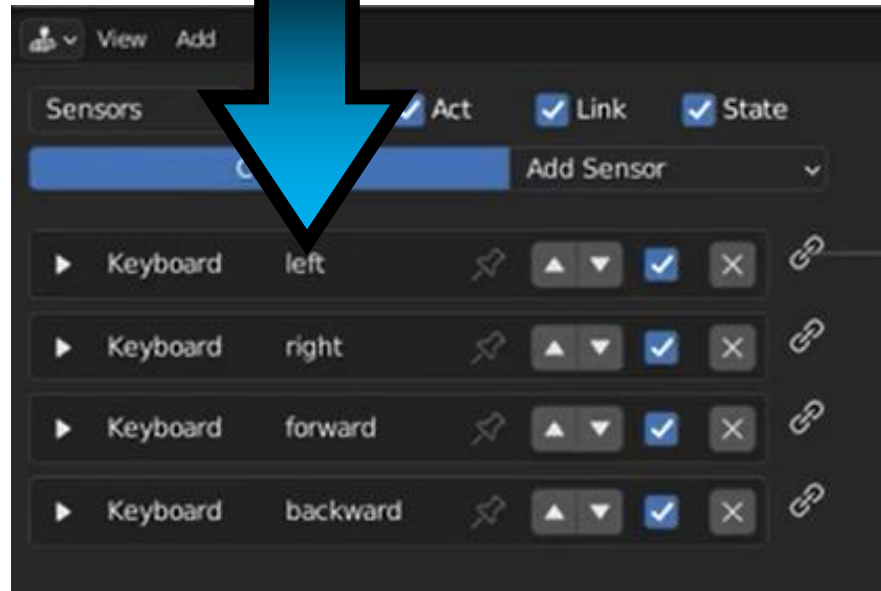
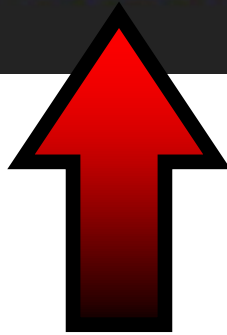


**ASSIGNING
A VARIABLE
TO
THE OBJECT NAME**

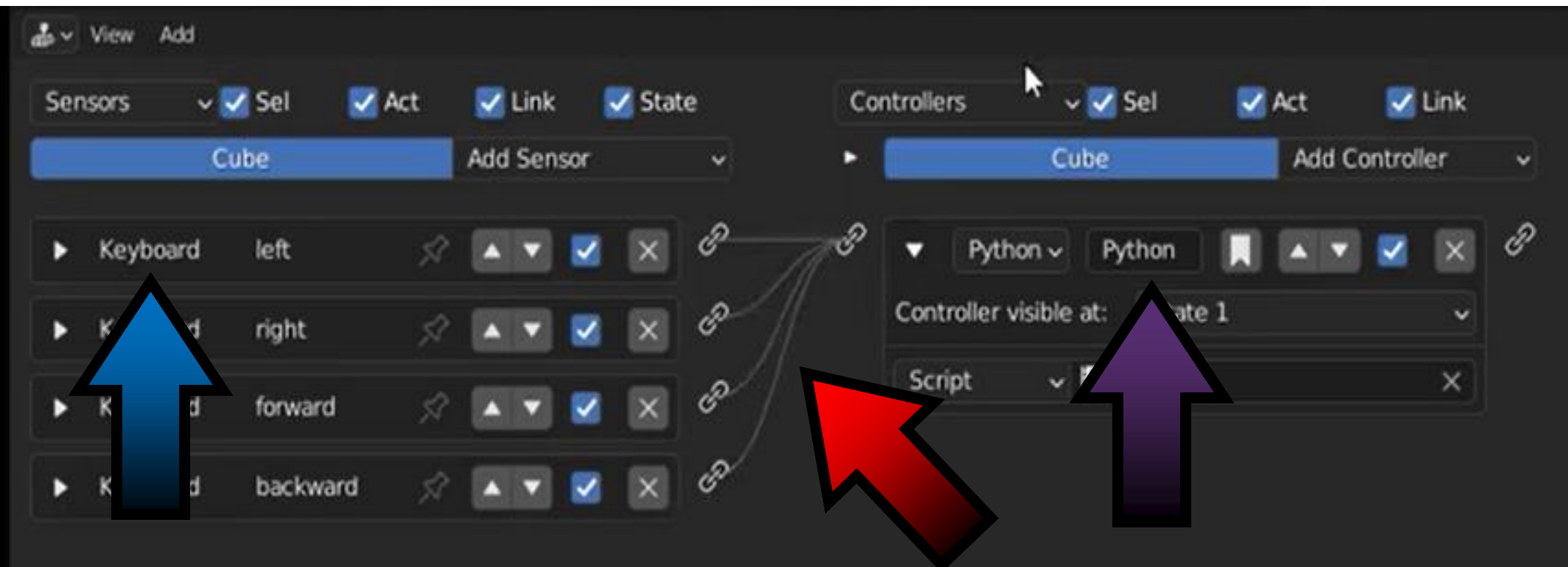


```
8  
9 cube = objects["Cube"]  
10  
11 left = cont.sensors['left']  
12 right = cont.sensors['right']  
13 forward = cont.sensors['forward']  
14 backward = cont.sensors['backward']
```

**ASSIGNING
VARIABLES
TO
NAMES IN
SENSORS**

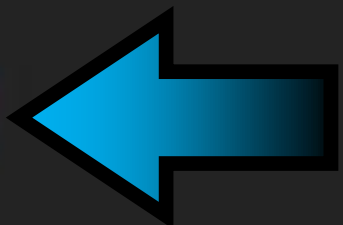



SENSORS TO CONTROLLERS CONNECTION





MOVING LEFT

```
10
11 left = cont.sensors['left']
12 right = cont.sensors['right']
13 forward = cont.sensors['forward']
14 backward = cont.sensors['backward']
15
16 if left.positive:
17     cube.position.x -= 0.5
```





MOVIN RIGHT

```
15  
16  if left.positive:  
17     cube.position.x -= 0.5  
18  
19  if right.positive:  
20     cube.position.x += 0.5
```



MOVING FORWARD

```
15
16 if left.positive:
17     cube.position.x -= 0.5
18
19 if right.positive:
20     cube.position.x += 0.5
21
22 if forward.positive:
23     cube.position.y += 0.5
```



MOVING BACKWARD

```
15  
16 if left.positive:  
17     cube.position.x -= 0.5  
18  
19 if right.positive:  
20     cube.position.x += 0.5  
21  
22 if forward.positive:  
23     cube.position.y += 0.5  
24  
25 if backward.positive:  
26     cube.position.y -= 0.5
```





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CHECK BY RUNNING THE GAME WITH THE P KEY

The screenshot displays the Blender 2.80 interface. On the left, the 'Profile' panel shows performance metrics: Frametime: 16.70ms (59.9fps), Physics: 0.01ms (0%), Logic: 0.01ms (0%), Animations: 0.00ms (0%), Depsgraph: 0.02ms (0%), Network: 0.00ms (0%), Scenegraph: 0.00ms (0%), Rasterizer: 0.56ms (3%), Services: 1.55ms (9%), Overhead: 0.20ms (1%), Outside: 11.48ms (68%), GPU Latency: 2.88ms (17%).

The central 3D Viewport shows a simple grey cube. A large red arrow with a black outline points towards the cube from the bottom-left.

On the right, the 'Scripting' workspace shows a Python script named 'Move.py' with the following code:

```
1 from bge import logic
2 cont=logic.getCurrentController()
3 scene=logic.getCurrentScene()
4 objects=scene.objects
5 cube=objects["Cube"]
6
7 left=cont.sensors['left']
8 right=cont.sensors['right']
9 forward=cont.sensors['forward']
10 backward=cont.sensors['backward']
11
12 if left.positive:
13     cube.position.x -=0.5
14 if right.positive:
15     cube.position.x +=0.5
16 if forward.positive:
17     cube.position.y +=0.5
18 if backward.positive:
19     cube.position.y -=0.5
```

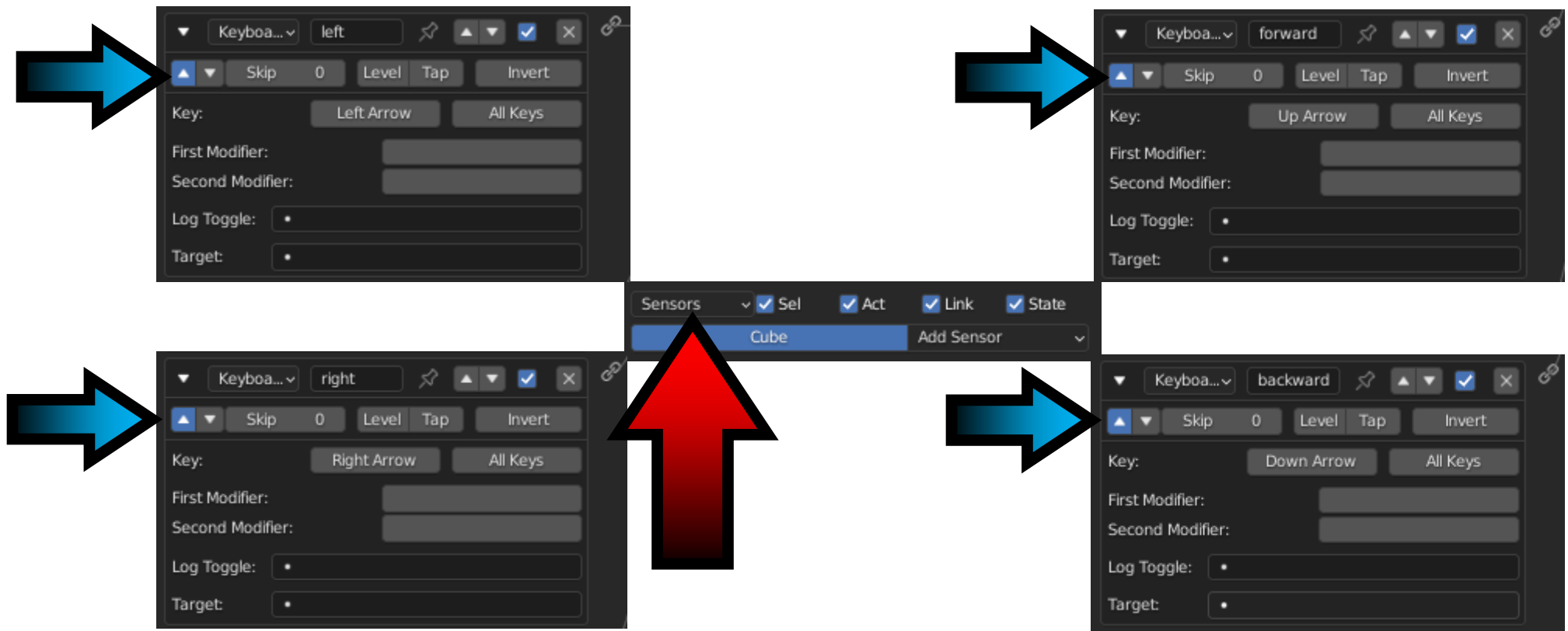
At the bottom, the 'Logic Editor' is visible, showing a sensor for 'Keyboard' with the key 'left' (Left Arrow) and an actuator for 'Python' with the script 'Move.py'.



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TO MAKE CONTINUOUS MOTION FOR SENSORS WE TURN ON THE STRANDS



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**THANK YOU FOR
YOUR ATTENTION**



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