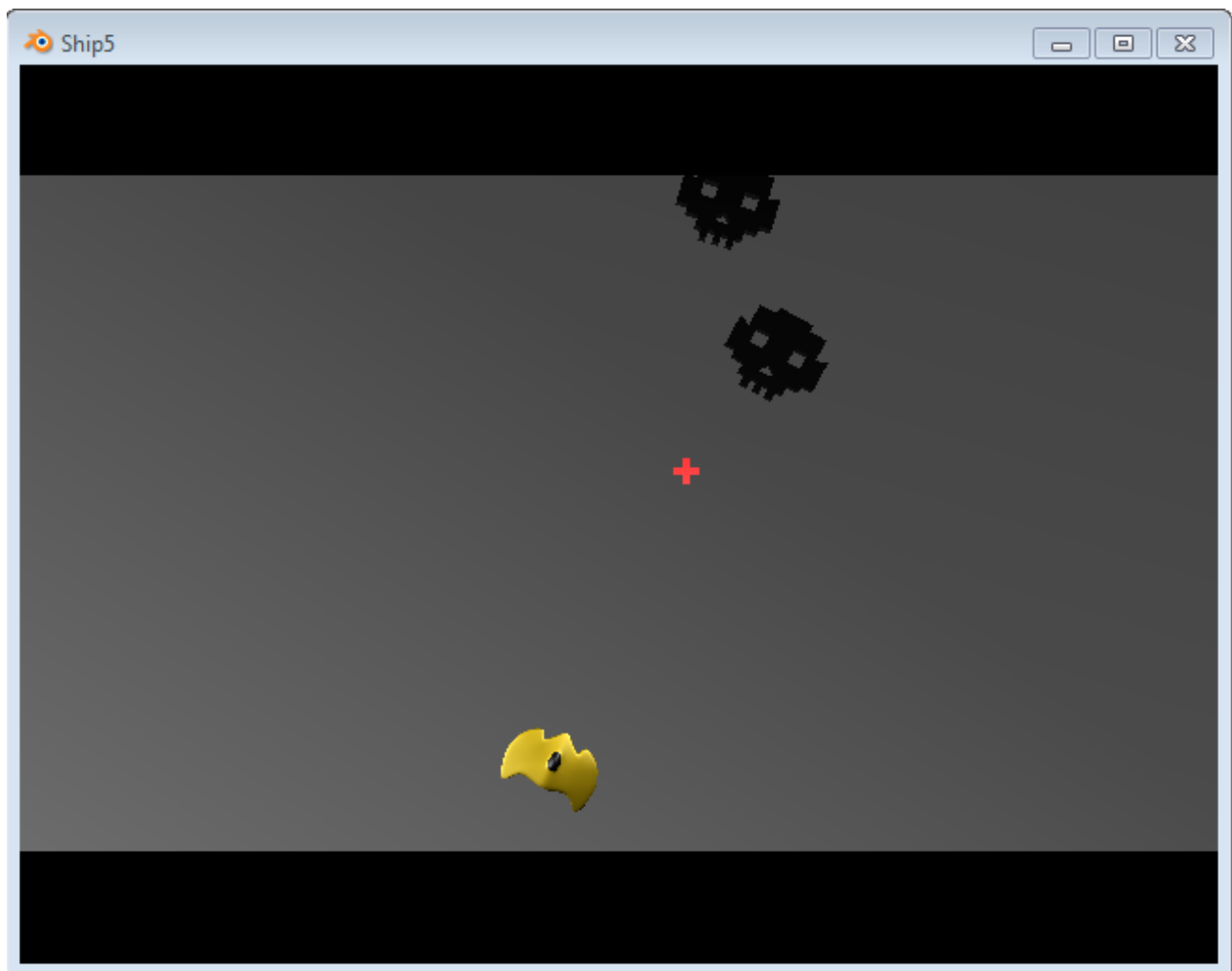# CHAPTER 6:

DAMAGE/ENEMY RESPAWN

IN THIS CHAPTER WE ARE GOING TO SWITCH THE FIRE BUTTON FROM THE SPACEBAR TO THE LEFT-MOUSE BUTTON. WE ARE ALSO GOING TO ADD MORE ENEMIES AND WRITE A SCRIPT THAT WILL ALLOW THEM TO RESPAWN AT A RANDOM RESPAWN LOCATION.

THIS CHAPTER IS ALL ABOUT POLISH. WE SPENT THE LAST FEW CHAPTERS HAMMERING OUT OUR BASIC GAMEPLAY; NOW, WE NEED TO START REFINING OUR GAME TO MAKE IT NOT SO ROUGH AROUND THE EDGES.

I FOUND THIS PYTHON SCRIPT IMPLEMENTATION TO BE A BIT EASIER THAN THAT OF THE PREVIOUS CHAPTER. THIS WILL BE THE LAST PYTHON SCRIPT WE WILL WRITE FOR THIS PROJECT. IF YOU FIND THAT YOU ENJOY SCRIPTING, BE SURE TO GOOGLE DIFFERENT SCRIPTS TO USE IN BLENDER. YOU MIGHT HAVE TO COPY AND PASTE FOR A WHILE, BUT EVENTUALLY THE CODE WILL START MAKING SENSE AND YOU WILL BE ABLE TO BEGIN WRITING YOUR OWN SCRIPTS.

HERE IS A LIST OF BLENDER HOTKEYS:

SHIFT+A: ADD AN OBJECT TO SCENE

TAB: TOGGLE OBJECT AND EDIT MODE

A: SELECT/DESELECT ALL OBJECTS IN A SCENE

S: SCALE

R: ROTATE

G: MOVE

X: DELETE

F: MAKE A FACE

C: SELECT SMALL AREAS

B: SELECT A LARGE AREA

CTRL+R: ADD LOOP CUT

CTRL+Z: UNDO

5: TOGGLE PERSPECTIVE/ORTHO MODE

1 (NUM PAD): FRONT VIEW (CTRL+1=OPPOSITE)

3 (NUM PAD): SIDE VIEW (CTRL+3=OPPOSITE)

7 (NUM PAD): TOP VIEW (CTRL+7=OPPOSITE)

HOLD MMB+DRAG: ROTATE VIEWPORT

SCROLL MMB: ZOOM IN/OUT

HOLD SHIFT+MMB: SHIFT VIEWPORT

SHIFT+SPACEBAR: MAXIMIZE VIEWPORT
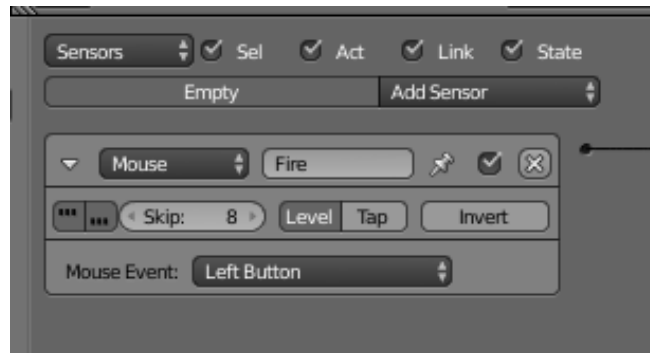
SHIFT+S: SET CURSOR

CTRL+J: JOIN MESHES

Z: TOGGLE WIREFRAME MODE

SHIFT+D: DUPLICATE
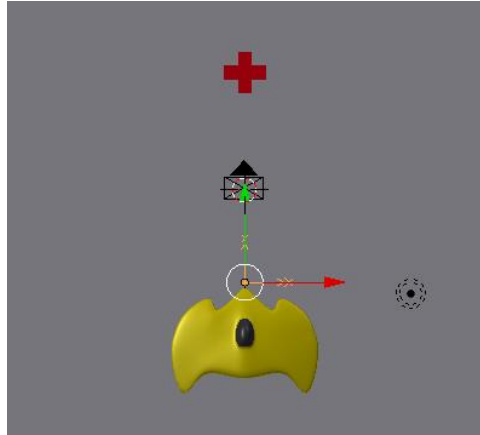
1) FIRST, LET'S SWITCH OUR FIRE BUTTON FROM THE SPACEBAR TO THE LEFT MOUSE BUTTON. RIGHT-CLICK TO SELECT THE EMPTY IN FRONT OF THE SHIP.


2) YOU SHOULD HAVE A 'KEYBOARD' SENSOR ATTACHED TO THE EMPTY. DELETE IT AND ADD A 'MOUSE' SENOR. CLICK BOTH 3-HASHED BOXES, ADJUST THE SKIP TO SOMEWHERE BETWEEN 3 AND 8, SELECT 'LEVEL', AND SET THE MOUSE EVENT TO 'LEFT BUTTON'. CONNECT THE SENSOR TO THE CONTROLLER.

3) YOUR EMPTY LOGIC BRICKS SHOULD LOOK LIKE THE PICTURE ABOVE. IF YOU PRESS 'P' OR 'START' TO PLAY YOUR GAME, YOUR SHIP SHOULD SHOOT WITH THE LEFT-MOUSE BUTTON.
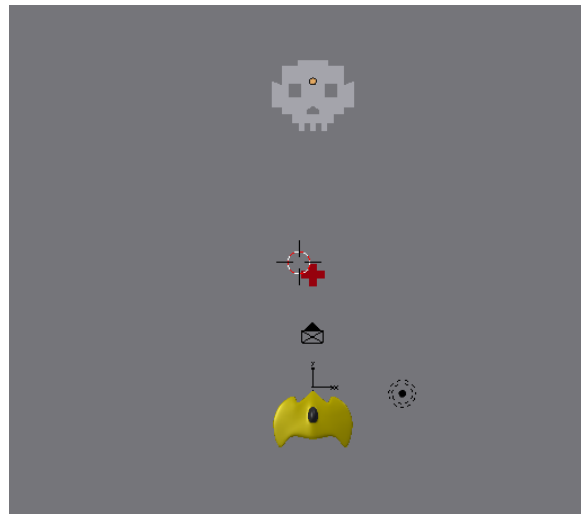

4) LET'S MAKE AN ENEMY. IN A PREVIOUS TUTORIAL, WE LEARNED HOW TO MAKE AN AI ENEMY FOLLOW OUR PLAYER USING A MESH CUBE. IN THIS LESSON I WILL BE USING A SHIP RESEMBLING A SKULL. YOU CAN USE THE SAME ENEMY FROM THE PREVIOUS TUTORIAL OR MAKE A NEW ONE.
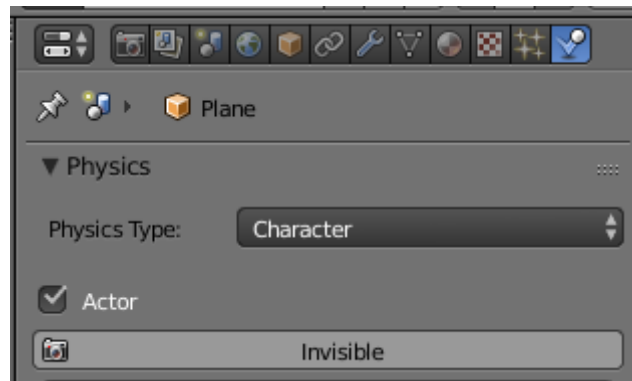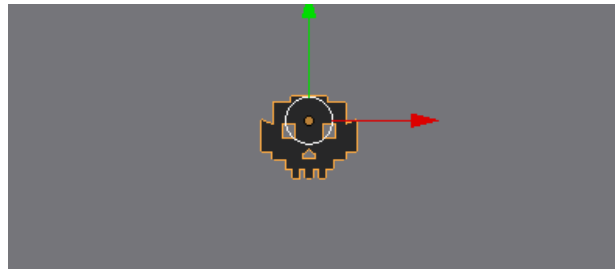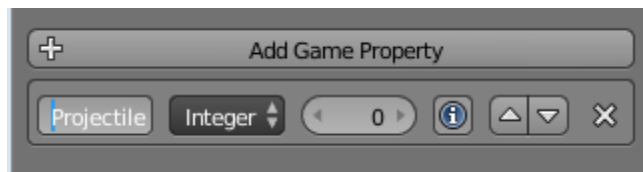
5) RIGHT-CLICK TO SELECT YOUR ENEMY. IN THE PHYSICS PANEL, APPLY CHARACTER PHYSICS AND SELECT 'ACTOR'.
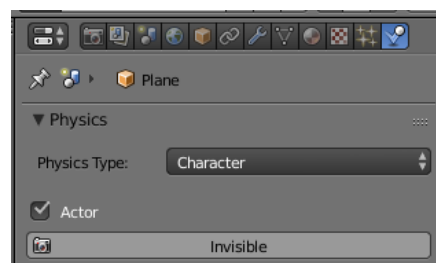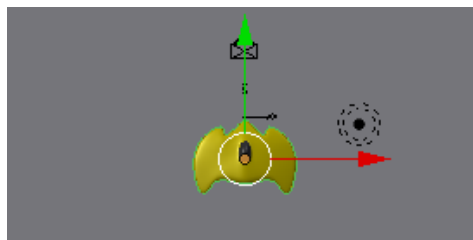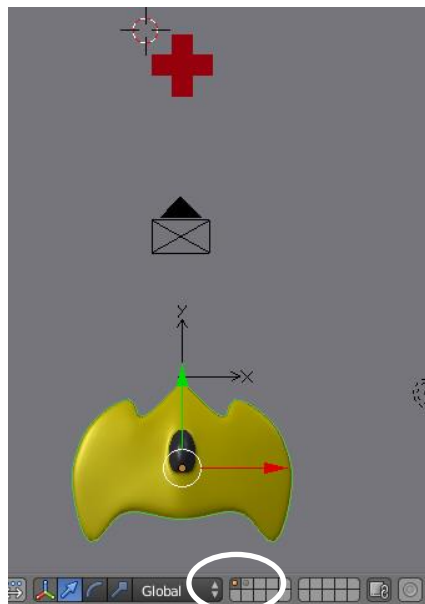

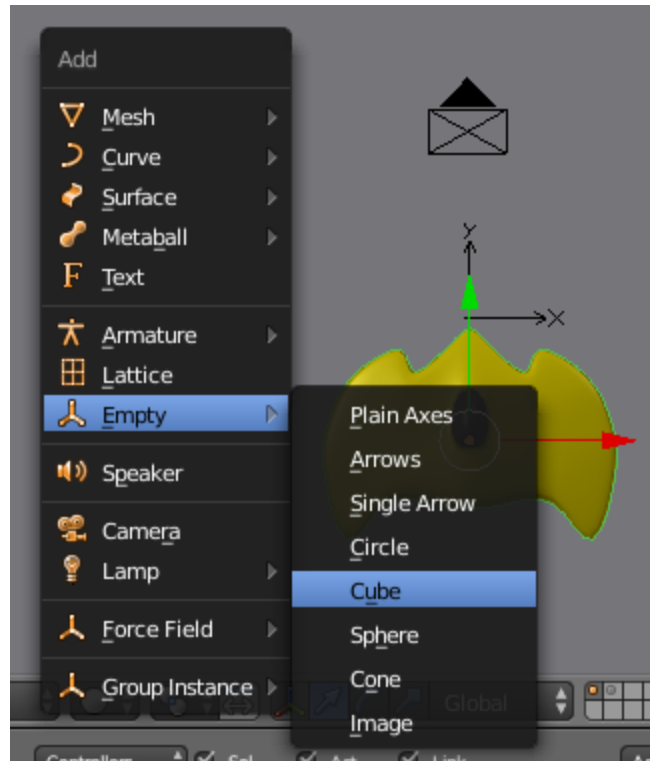6) REPEAT THE SAME STEPS WITH THE PLAYER SHIP.
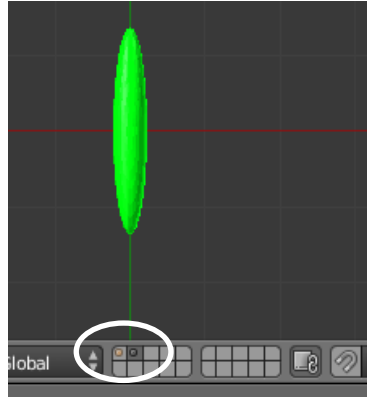
7) GO INTO YOUR SECOND LAYER, WHERE YOUR PROJECTILE IS. SELECT THE PROJECTILE.
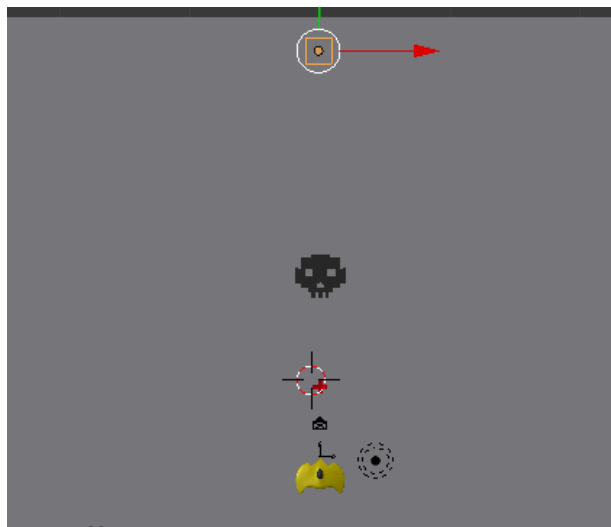

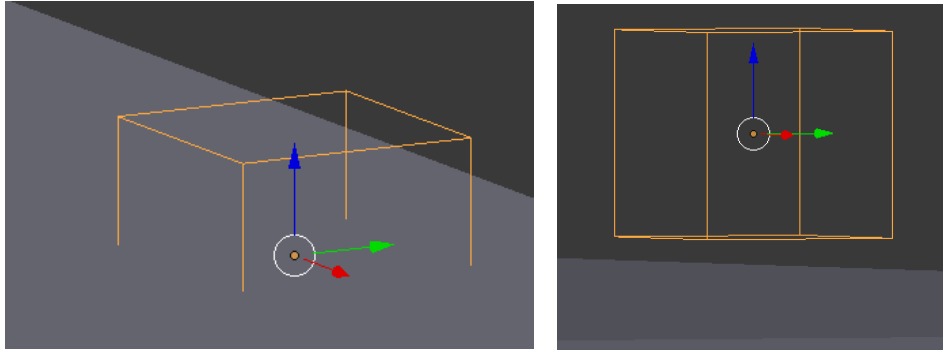**8) IN THE GAME PROPERTIES, ADD AN INTEGER AND CALL IT 'PROJECTILE'.**

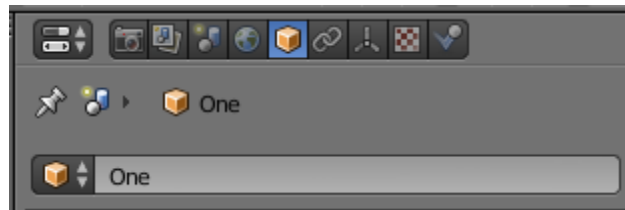**9) GO BACK INTO YOUR FIRST LAYER.**

10) PRESS 'SHIFT+A' TO ADD AN EMPTY
CUBE.

11) (G) MOVE THE CUBE TO THE TOP OF
YOUR SCREEN, OUT OF VIEW OF THE
CAMERA.

12) IF YOUR EMPTY CUBE IS GOING THROUGH THE FLOOR, MOVE IT UP (G,Z) UNTIL IT IS ABOVE THE FLOOR.
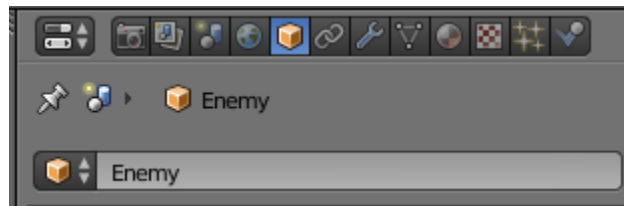

13) THIS WILL BE YOUR FIRST SPAWN POINT. WITH THE EMPTY CUBE STILL SELECTED, FIND THE OBJECT TAB AND RENAME IT 'ONE'.
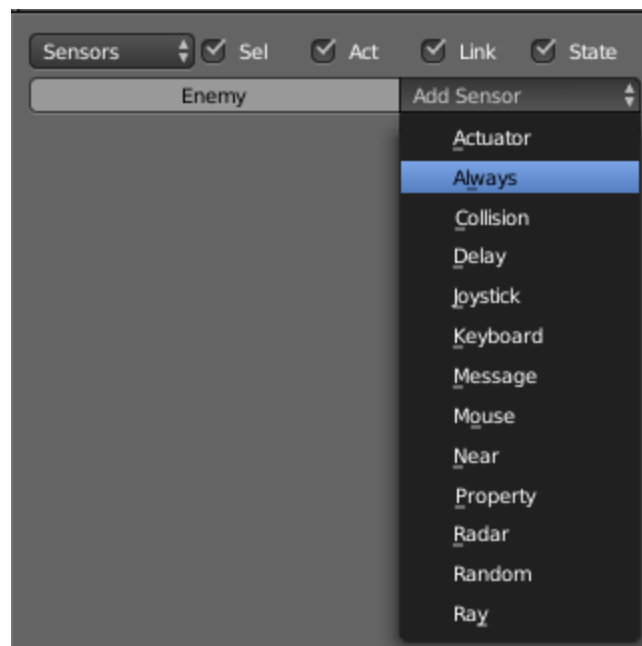

14) PRESS SHIFT+D TO DUPLICATE THE EMPTY FOUR MORE TIMES. LABEL EACH ONE THE NEXT SUCCESSIVE NUMBER. EACH CUBE SHOULD BE NAMED 'TWO', 'THREE', 'FOUR', AND 'FIVE'. (THIS IS IMPORTANT-DON'T FORGET THIS STEP!!!)
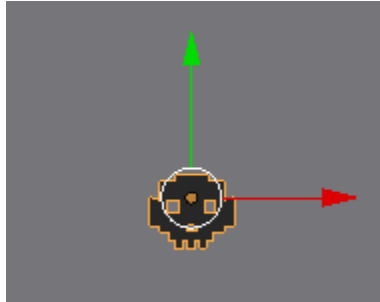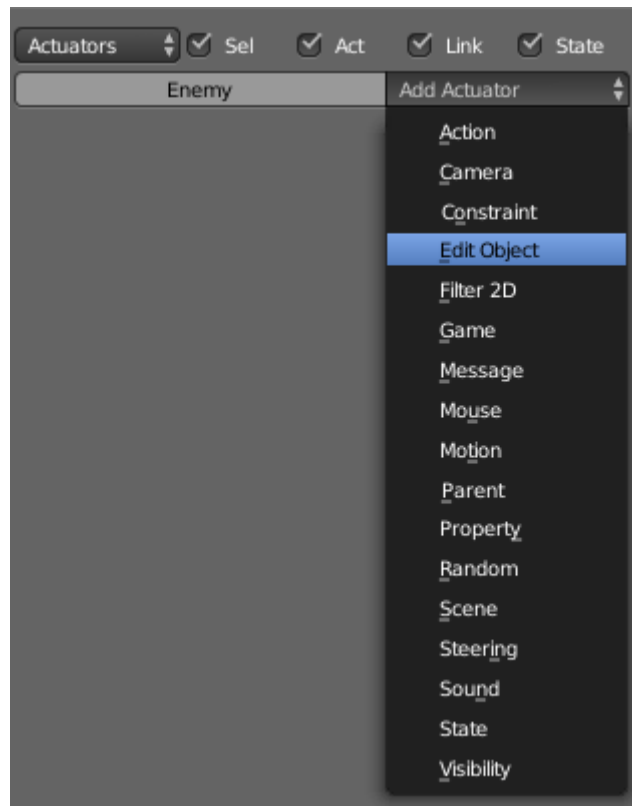
15) SELECT YOUR ENEMY.

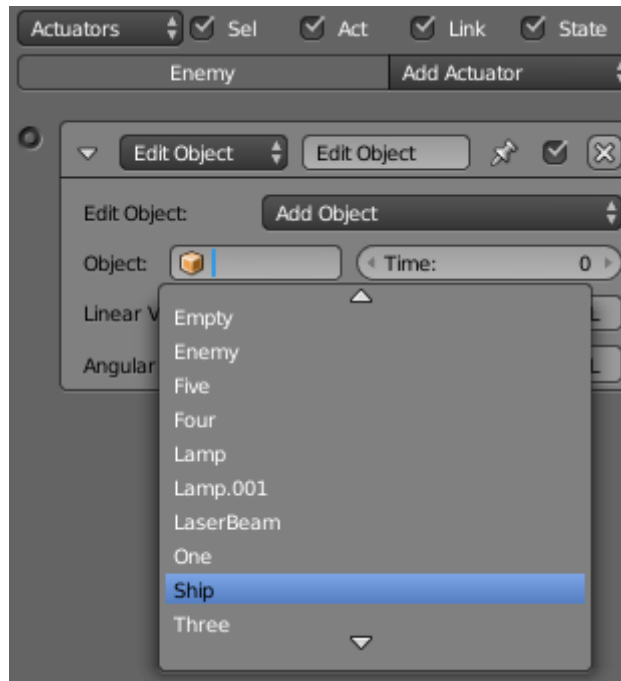**16)** MAKE SURE YOUR ENEMY IS LABELED 'ENEMY' IN THE OBJECT TAB.

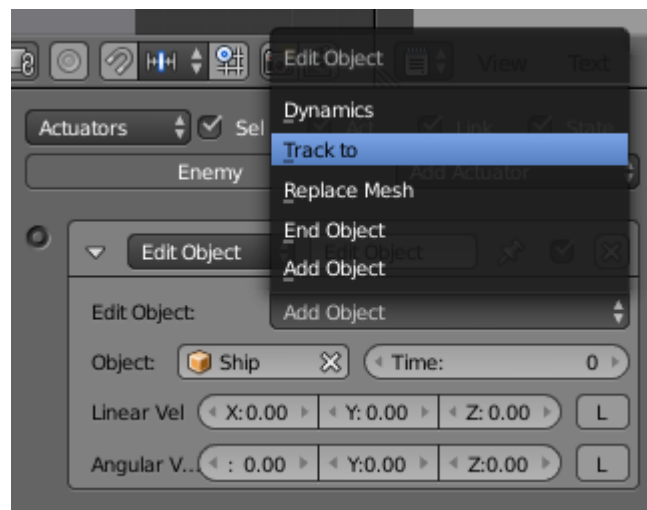**17)** ADD AN 'ALWAYS' SENSOR

18) CLICK THE BOX WITH THREE HASHES.

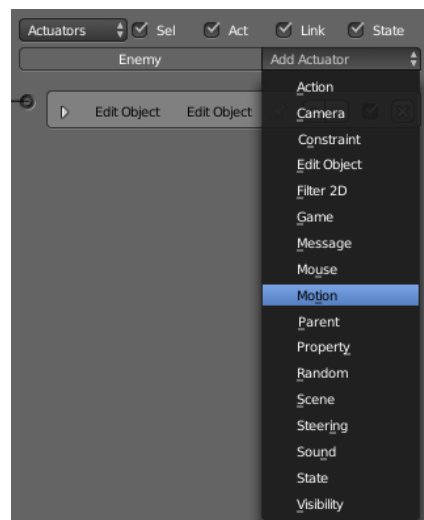19) ADD AN 'EDIT OBJECT' ACTUATOR.

20) SET THE OBJECT TO YOUR
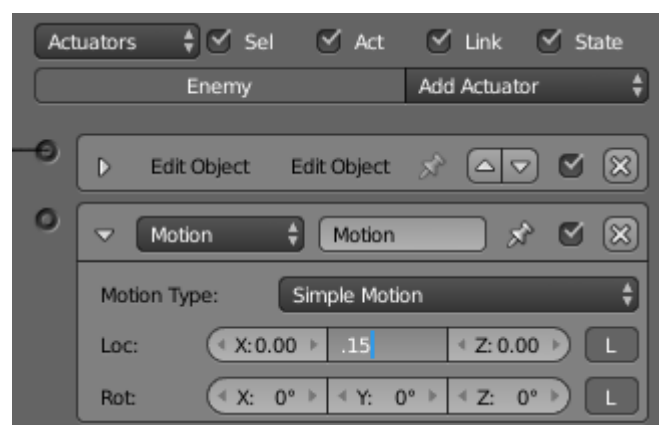   PLAYER CHARACTER (IN THIS CASE
    'SHIP').

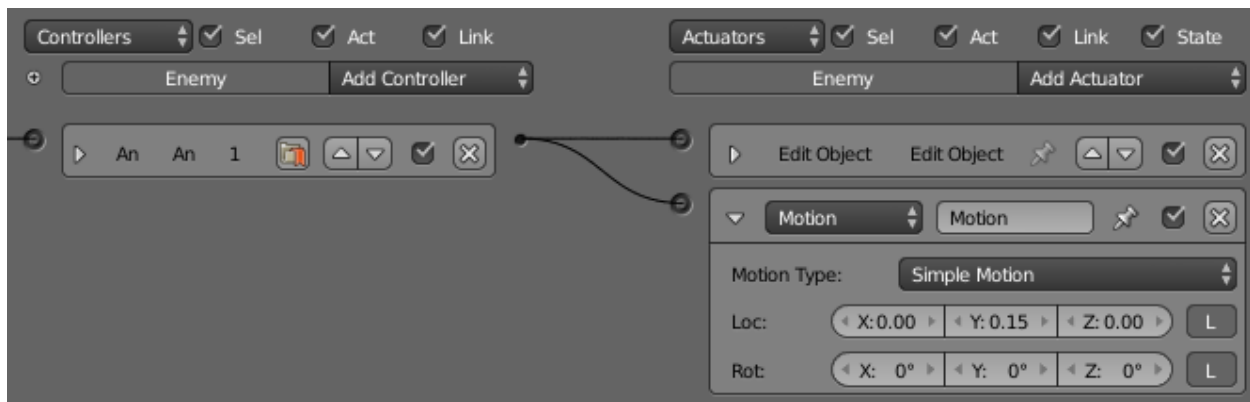21) NEXT TO 'EDIT OBJECT', SELECT
    'TRACK TO'.

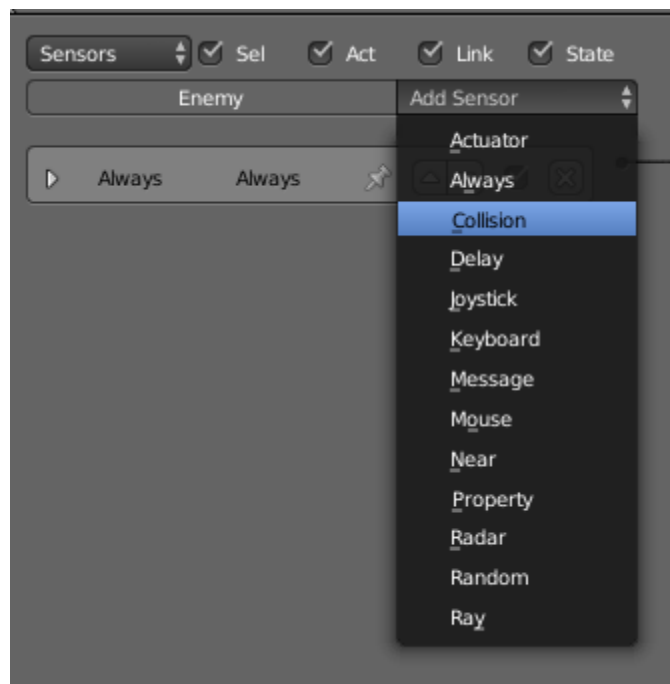## 22) CONNECT THE SENSOR AND THE ACTUATOR.

23) WITH THE ENEMY STILL SELECTED, ADD A 'MOTION' ACTUATOR.

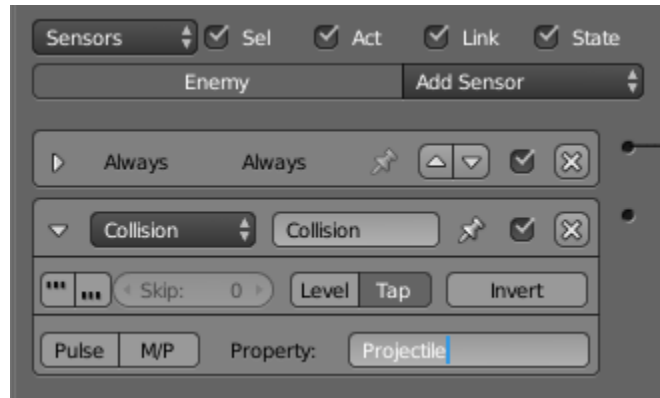
24) CHANGE THE Y-LOC TO '.15'.

25) CONNECT THE MOTION ACTUATOR TO THE 'AND' CONTROLLER. IF YOU PLAY YOUR GAME, THE ENEMY WILL FOLLOW THE SHIP.

26) WITH YOUR ENEMY STILL SELECTED, ADD A 'COLLISION' SENSOR.

27) NAME THE SENSOR 'COLLISION' AND TYPE 'PROJECTILE' NEXT TO PROPERTY. SELECT 'TAP'.
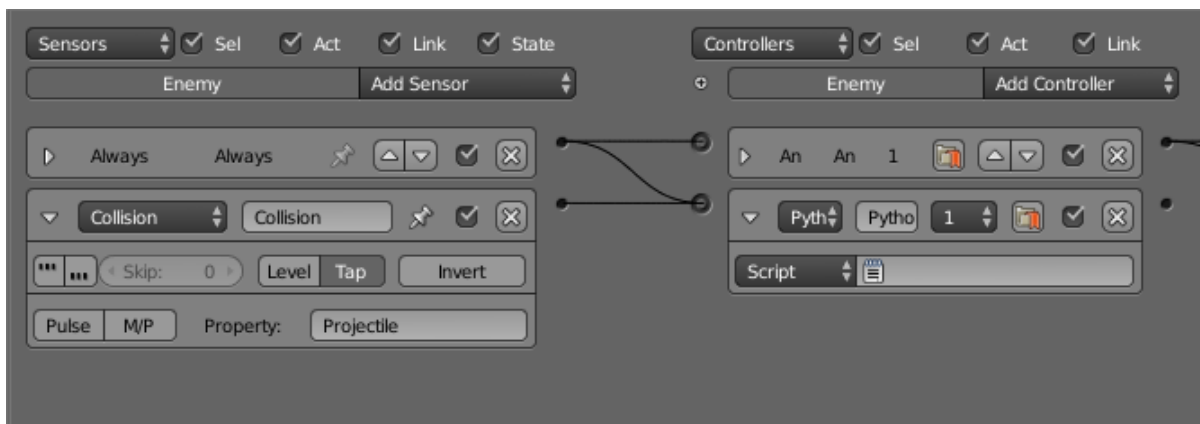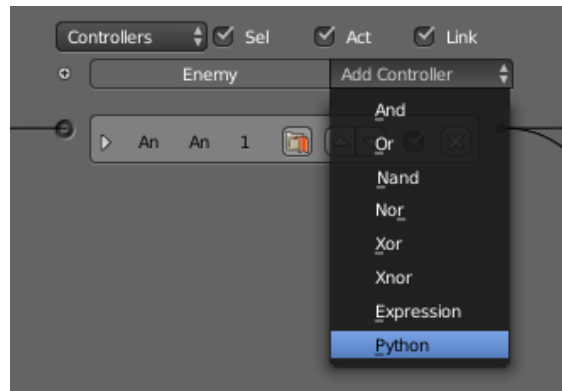
28) ADD A 'PYTHON CONTROLLER'. CONNECT IT TO THE 'COLLISION' SENSOR AND THE 'ALWAYS' SENSOR.

29) IN YOUR TEMPLATES, SELECT
    PYTHON AND GAMELOGIC SIMPLE.

30) HIT THE PLUS SIGN AND RENAME
    THE SCRIPT 'ENEMYSCRIPT.PY'

```
1 import bge
2
3
4 def main():
5
6     cont = bge.logic.getCurrentController()
7     own = cont.owner
8
9     sens = cont.sensors['Mouse']
10    if own['Crosshair']=="Empty":
11        scene=bge.logic.getCurrentScene()
12        own['Crosshair']=scene.objects['Crosshair']
13
14    if sens.positive:
15        T=own['Crosshair']
16        T.worldPosition=sens.hitPosition
17
18 main()
```
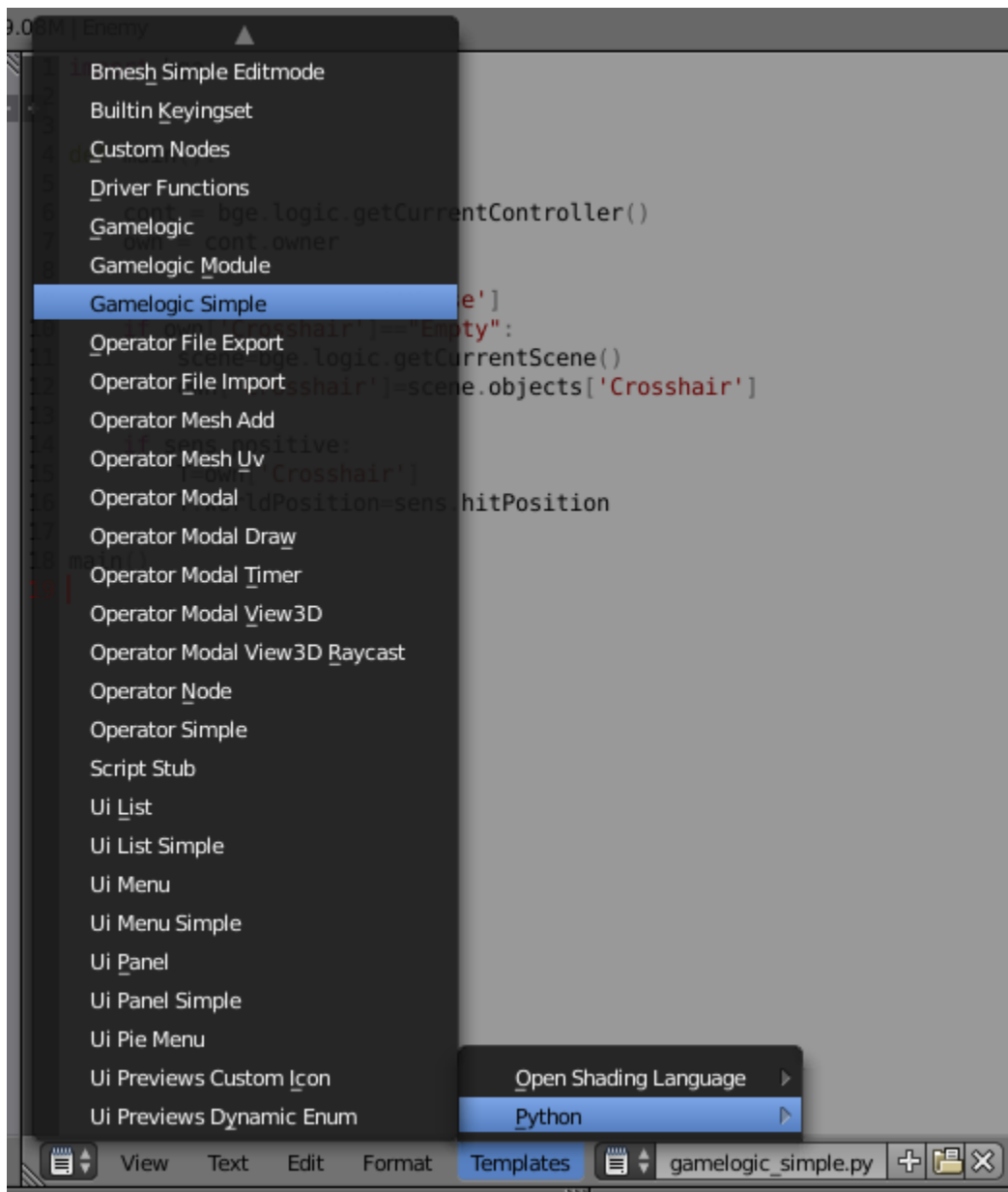
```
1 import bge
2
3
4 def main():
5
6     cont = bge.logic.getCurrentController()
7     own = cont.owner
8
9
10 main()
11
```

31) HIGHLIGHT THE PORTION SHOWN IN THE PICTURE. DELETE IT.

```
1 import bge
2 import random
3
4 def main():
5
6     cont = bge.logic.getCurrentController()
7     own = cont.owner
8
9     collision = cont.sensors ["Collision"]
10
11    scene = bge.logic.getCurrentScene()
12
13    one = scene.objects ["One"]
14    two = scene.objects ["Two"]
15    three = scene.objects ["Three"]
16    four = scene.objects ["Four"]
17    five = scene.objects ["Five"]
18
19    if collision.positive:
20        respawnList = [one,two,three,four,five]
21        choice = random.choice(respawnList)
22        own.worldPosition = choice.worldPosition
23
24 main()
25
```
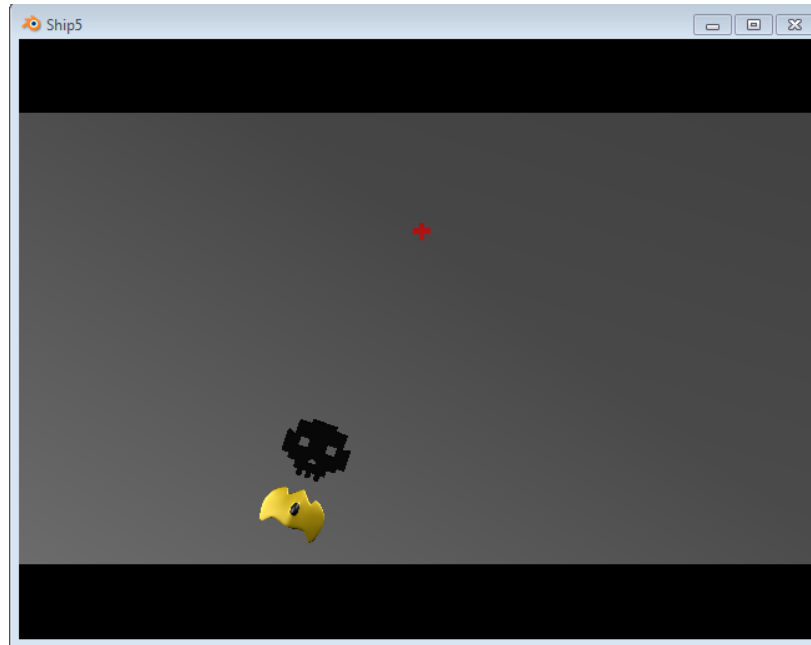
32) HERE IS YOUR SCRIPT: YOU ARE ASSIGNING THE SPAWN POINTS TO THE SCENE, AND YOU ARE TELLING THE COMPUTER TO CHOOSE ONE OF THE FIVE SPAWN POINT EACH TIME THE ENEMY DIES.
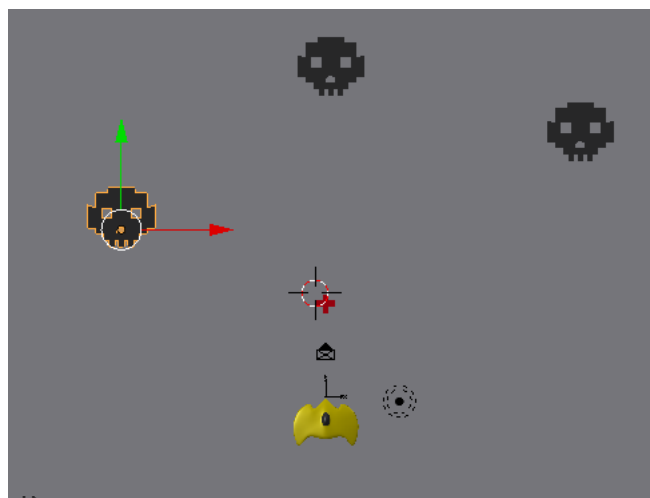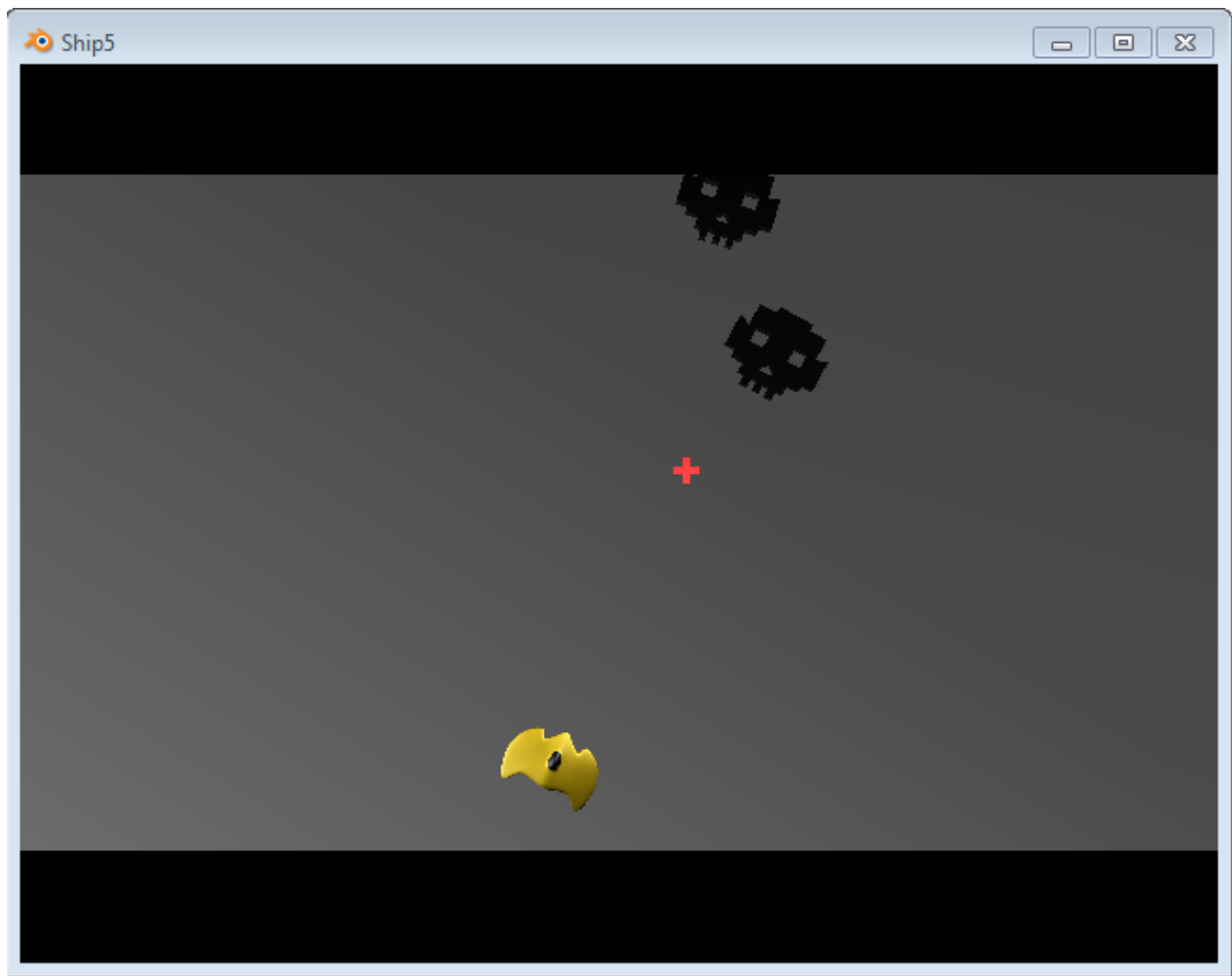
33) GO TO YOUR ENEMY CONTROLLER.
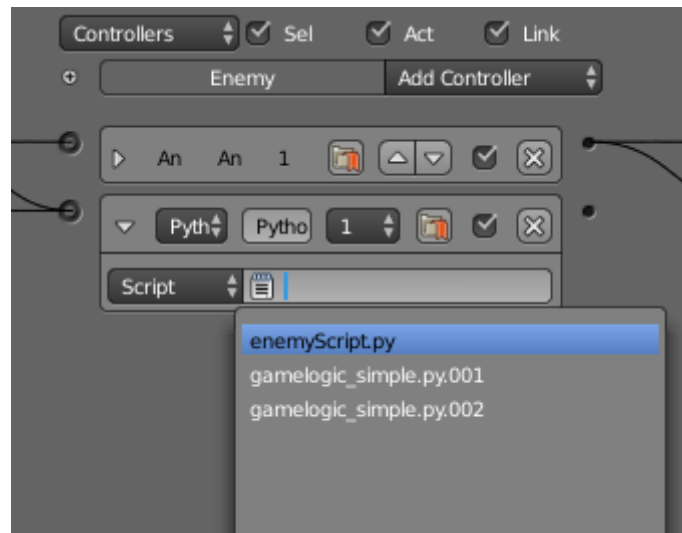
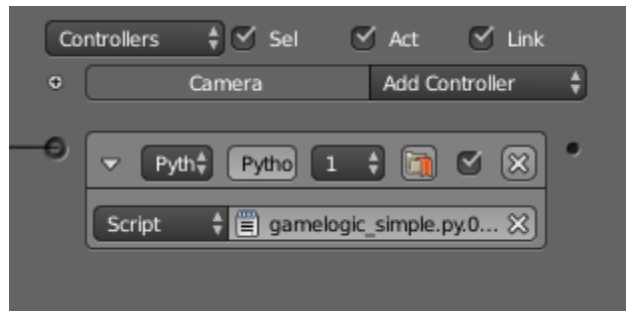## 34) IN THE SCRIPT SECTION, ADD YOUR 'ENEMYSCRIPT.PY'.

35) IF YOU PLAY YOUR GAME NOW, YOUR ENEMY SHOULD FOLLOW YOU. YOU SHOULD BE ABLE TO SHOOT THE ENEMY, AND IT SHOULD DIE AND RESPAWN AT ONE OF THE FIVE EMPTY CUBES YOU MADE.
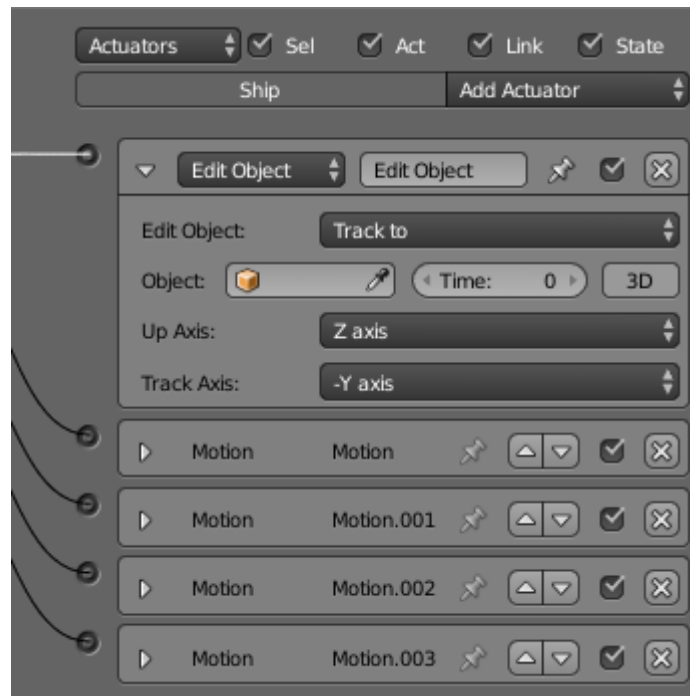

36) SELECT THE ENEMY. PRESS 'SHIFT+D' TO DUPLICATE. MAKE TWO MORE.

37) PLAY YOUR GAME: YOUR ENEMIES SHOULD NOW SPAWN AT THE DIFFERENT SPAWN-CUBES WE SET UP.

38) ***IF YOU WOULD LIKE TO REMOVE THE CURSOR*** DELETE THE CURSOR. SELECT THE CAMERA. CHANGE THE PYTHON SCRIPT BACK TO DEFAULT.

39) THEN, SELECT THE SHIP AND MAKE SURE THE OBJECT IS NOT TRACKING TO ANYTHING. YOUR SHIP WILL NOT FOLLOW THE CURSOR ANYMORE, WHICH WILL GIVE YOUR GAME AN OLD-SCHOOL FEEL.

40) NOW THAT WE CAN DESTROY OUR
     ENEMY, WE ARE ALMOST
     COMPLETELY DONE WITH OUR CORE
     GAMEPLAY. NOW WE JUST NEED TO
     MAKE SURE OUR HERO CAN BE
     DESTROYED.