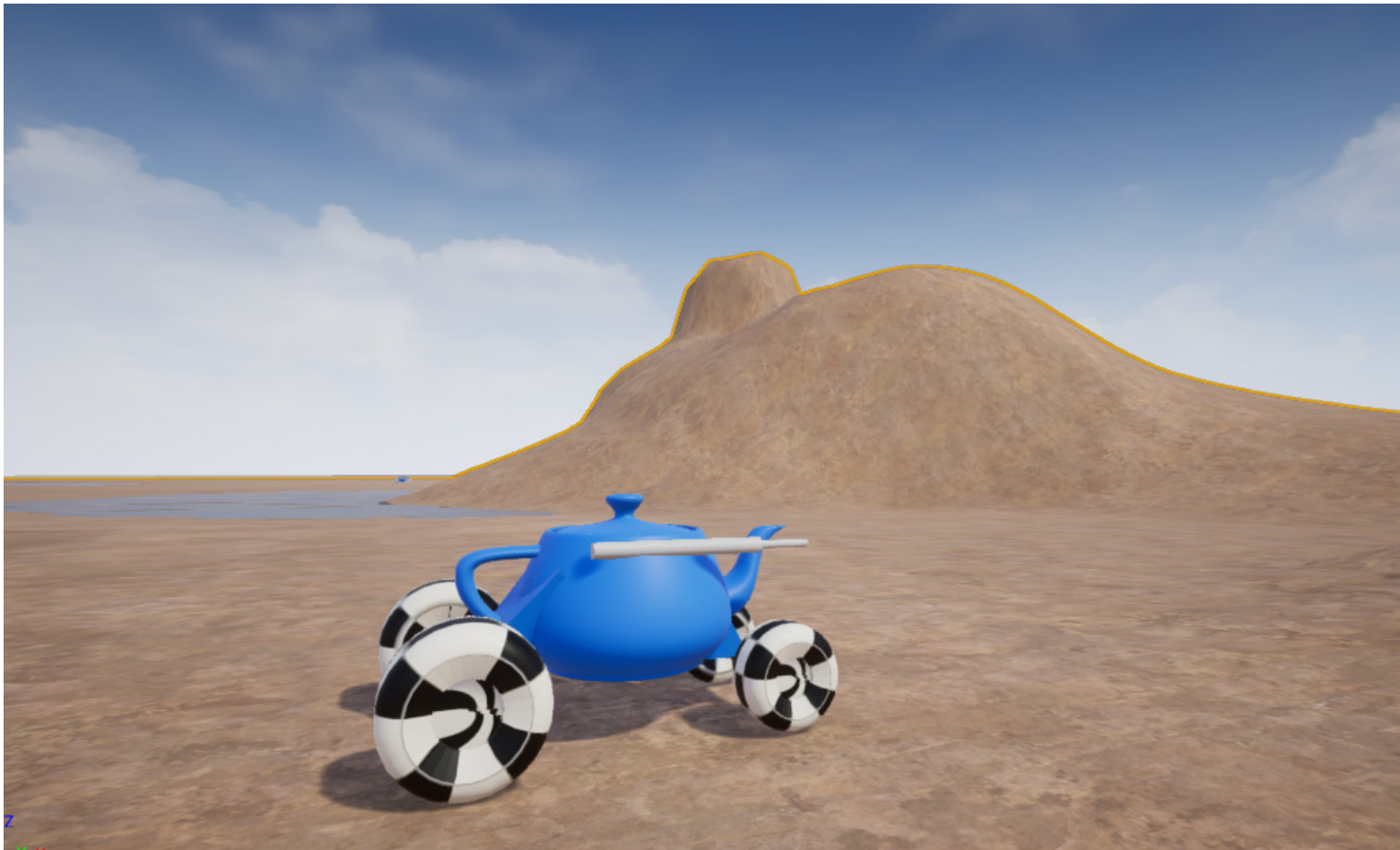


You need to get your buggy prep'd for exporting into Unreal.

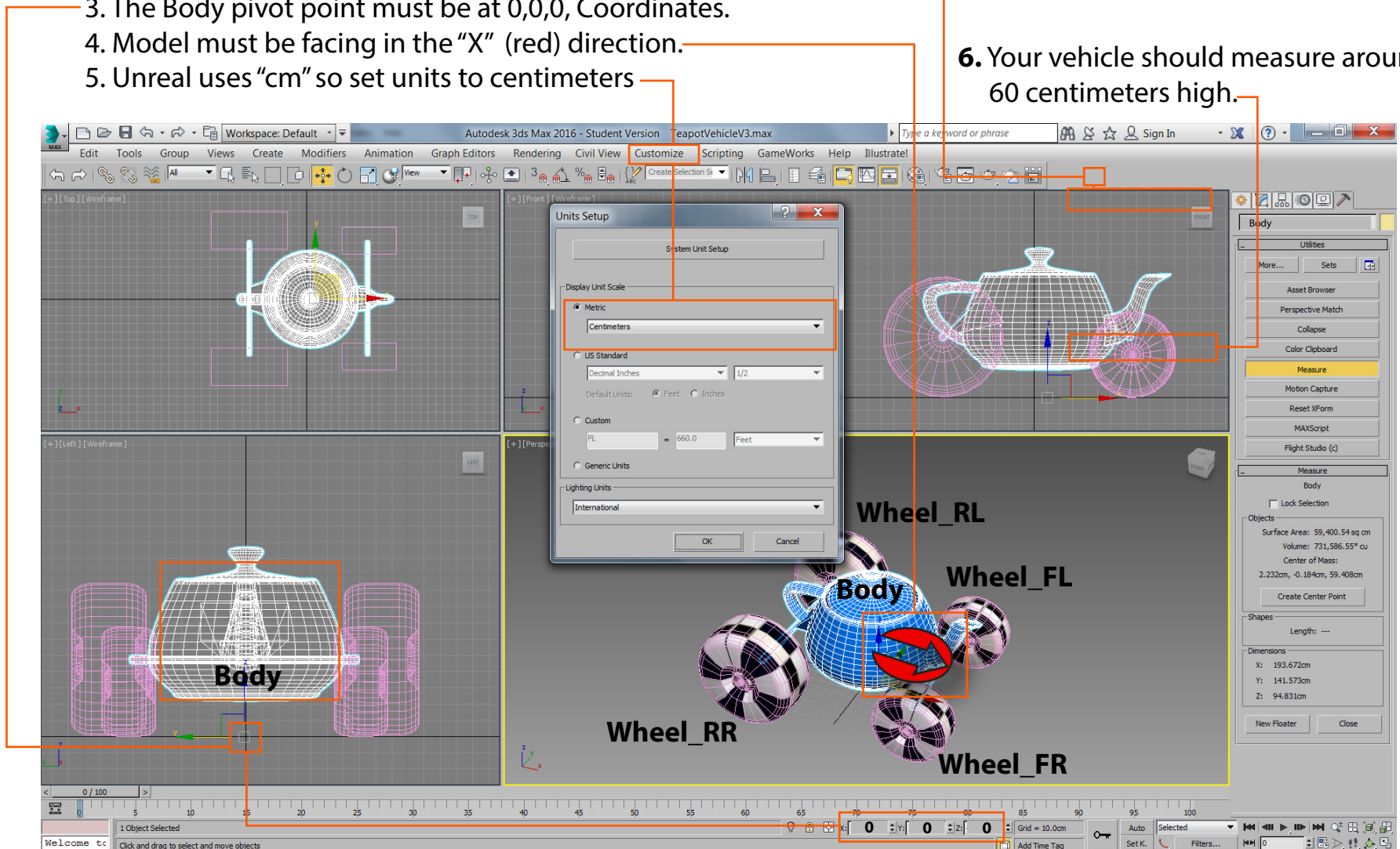
**NOTE - Don't expect to get this process right on the first time. There are dozens of things to go wrong
You may have to start over from the beginning!**



Proper set-up is critical.

First you need to set up your model in 3D Max so it is acceptable to Unreal 4. Follow these steps:

1. Model must be in five separate meshes: the body and four separate wheels.
2. Name parts as: Body, Wheel_FR, Wheel_FL, Wheel_RR, Wheel_RL
3. The Body pivot point must be at 0,0,0, Coordinates.
4. Model must be facing in the "X" (red) direction.
5. Unreal uses "cm" so set units to centimeters
6. Your vehicle should measure around 60 centimeters high.

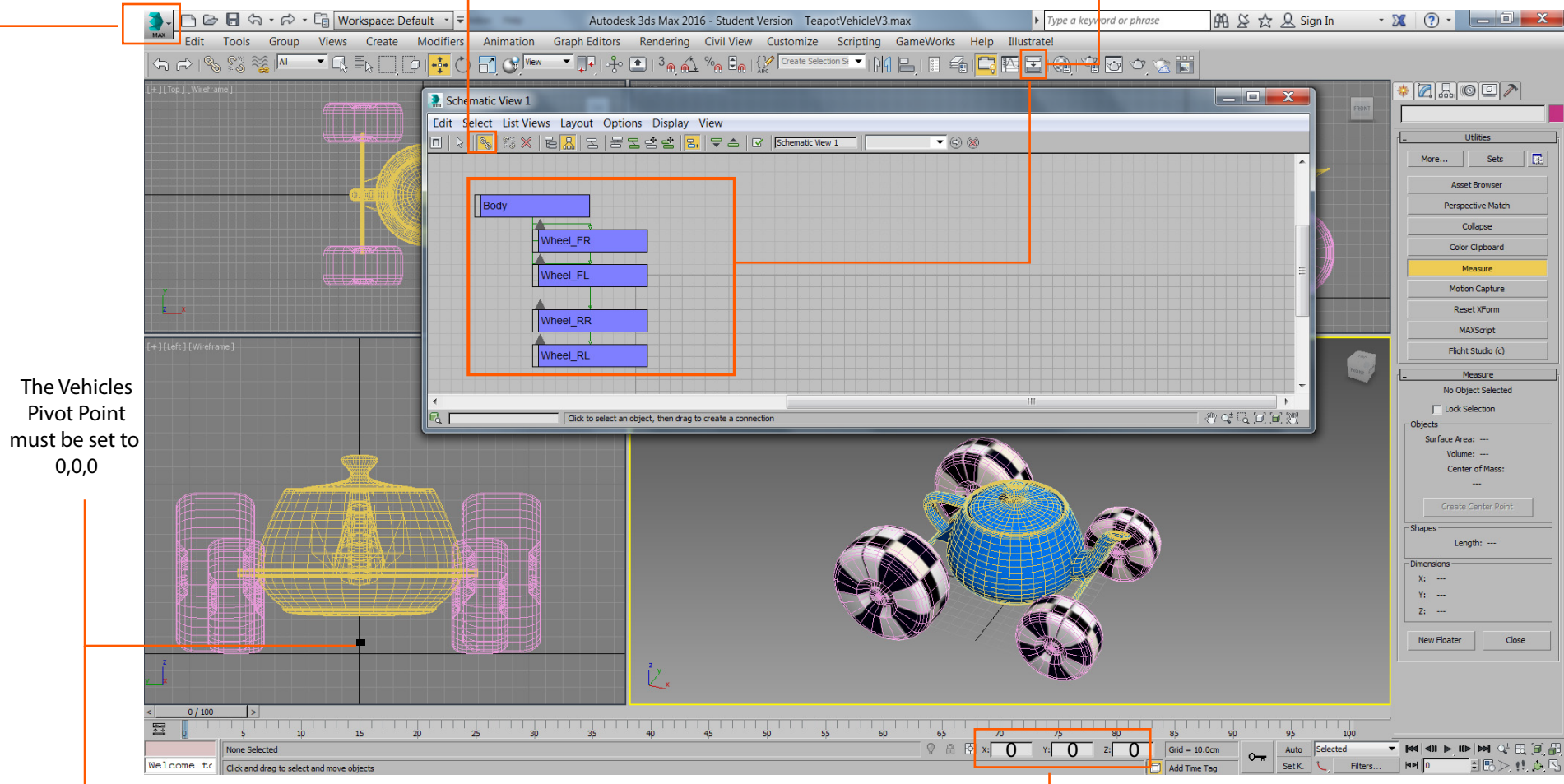


Make sure your wheels are evenly on the dark line (z=0)

The last thing to do is creating a hierarchy making the wheels children of the body. This way wherever the parent (Body) goes the children (wheels) must follow.

(Make sure to link wheels to body - not body to wheels)

5. Open the "Schematic" viewport link the wheels to the body.
Use the "Link" option.



Once prepared, export your buggy as an FBX file and save in your folder on the H drive.

OPEN

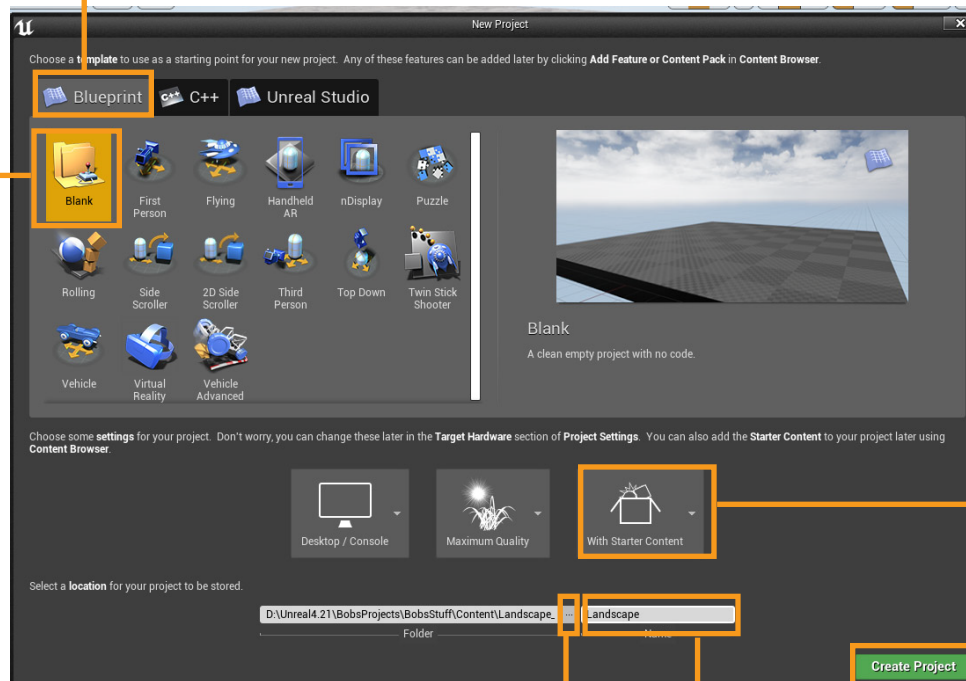
UNREAL 4

NOTE: A most common problem with beginners is where to save your work. I recommend using the "H" drive on our system. It is secure and no one else can see your files. You may also use a flash drive as a back-up. Either way keep your files in one place.

Don't scatter them across the computer or you'll lose them.

1. Select "Blueprint"

2. Choose "Blank"



3. Choose "With Starter Content"

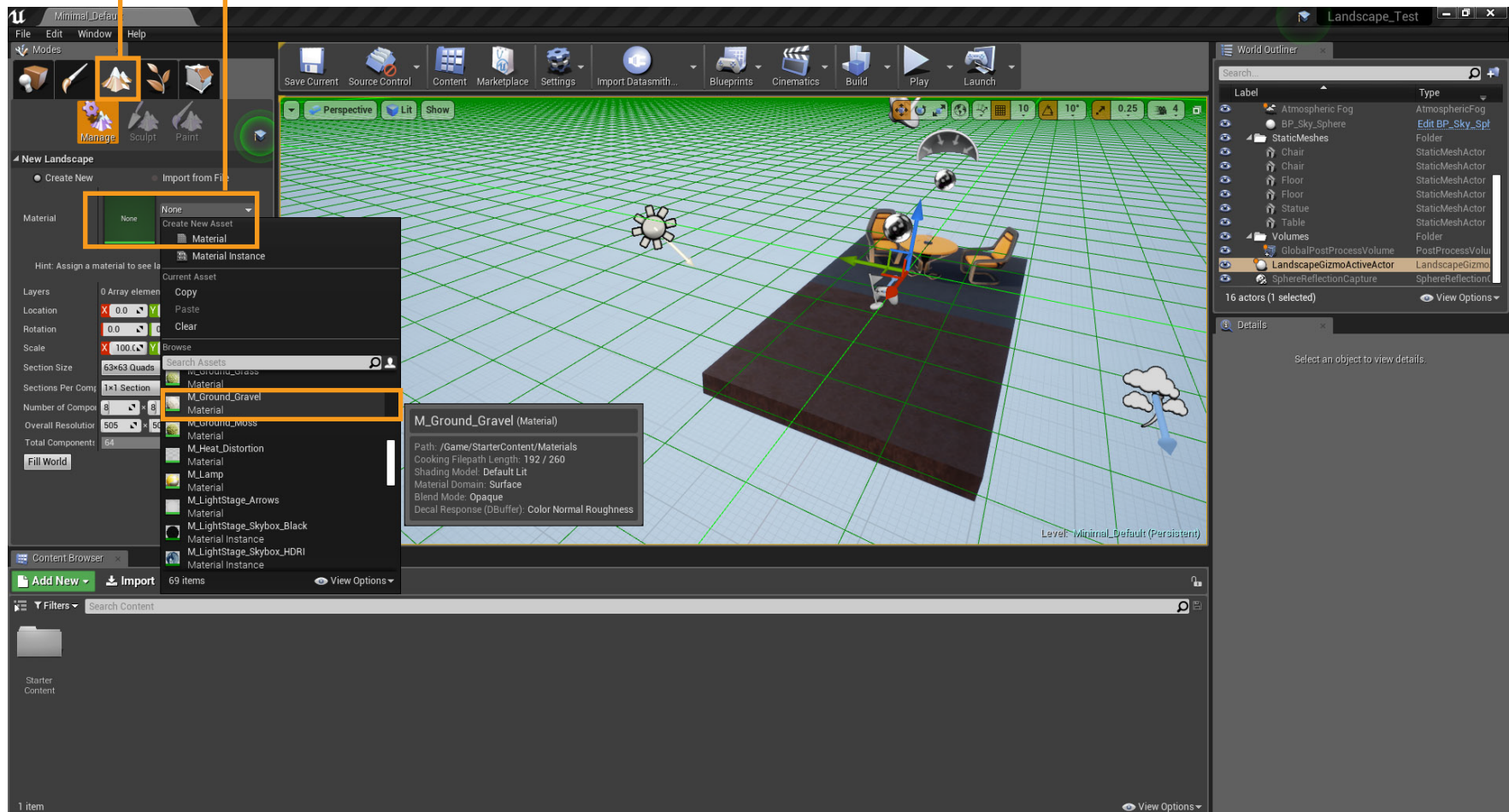
6. Click "Create Project".

4. Click on the three dots.
Create a folder on the "H" Drive.
Label the folder with your complete name.

5. Name the project "Landscape".

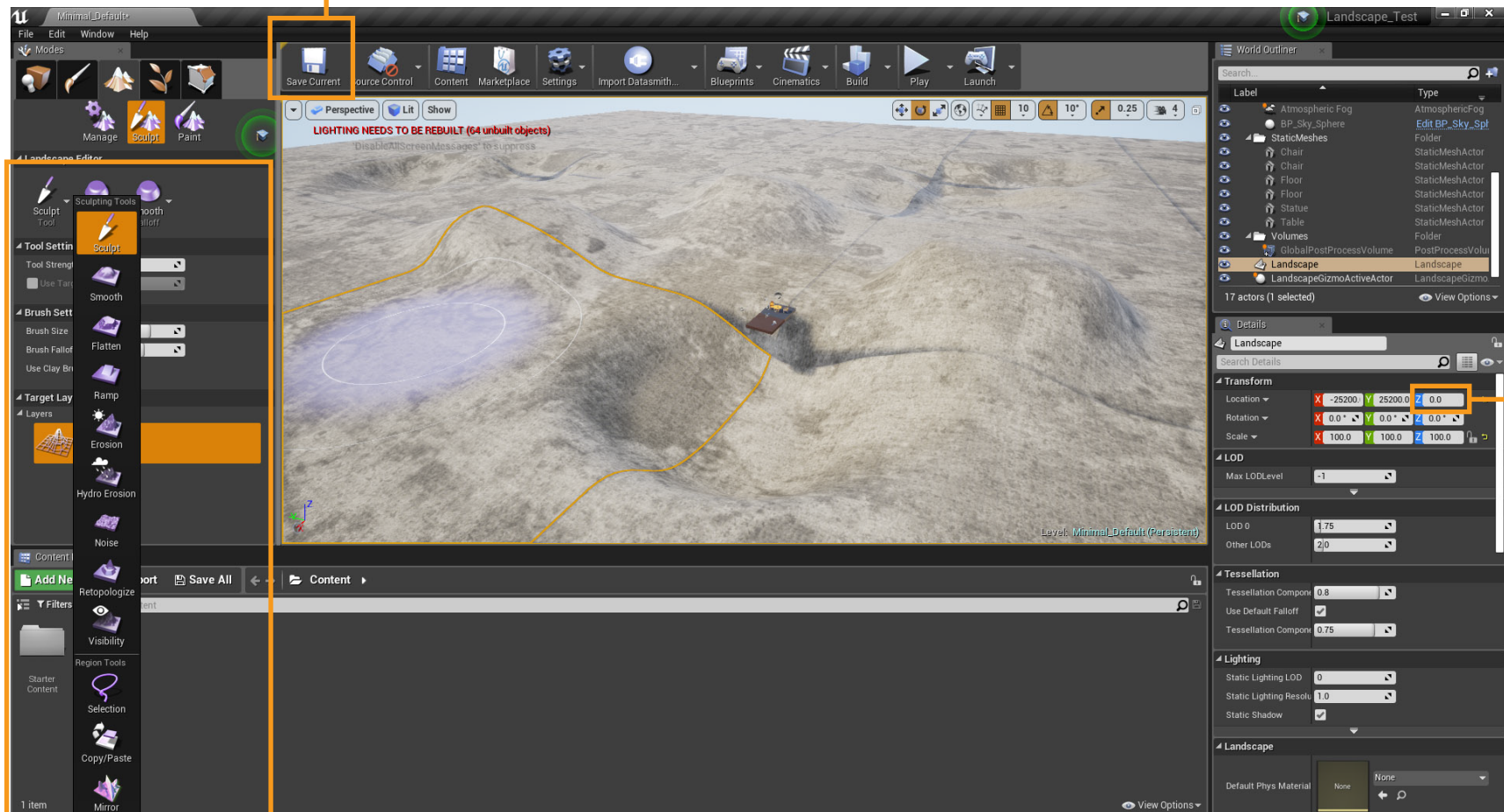
7. Click the "Terrain" button. A green grid appears in your viewport.

8. Next we'll put a material on the grid. I like "Gravel" but you can pick your own. We can always change it later.



MAKE SURE TO SAVE YOUR LEVEL FREQUENTLY.

8. Set the Landscapes location in space at 0.0

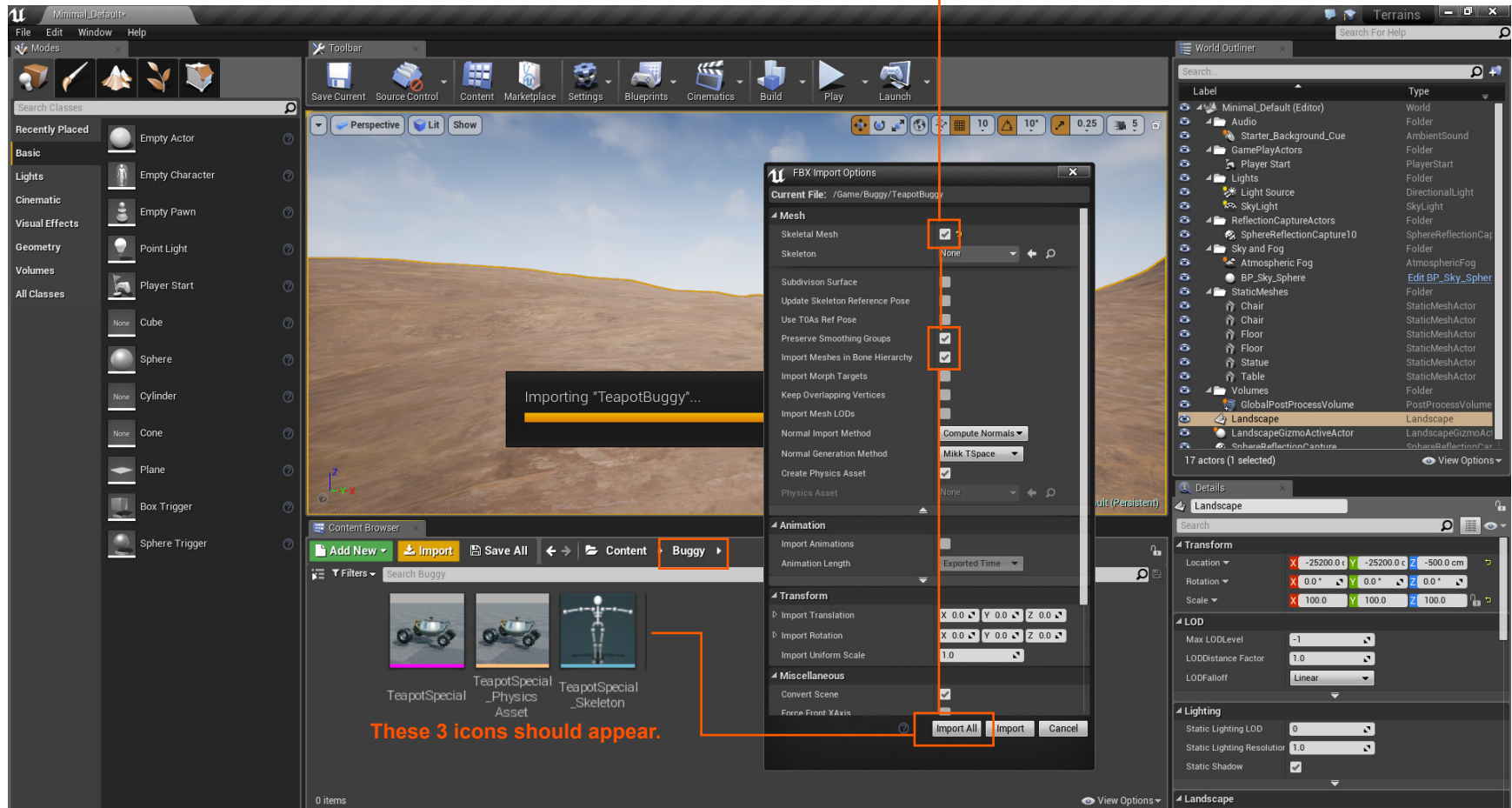


BRUSH SETTINGS

9. Create mountains and valleys with the "Brush". Hold the "Shift" key on your keyboard for making valleys.

Create a new "Blank" project in Unreal 4

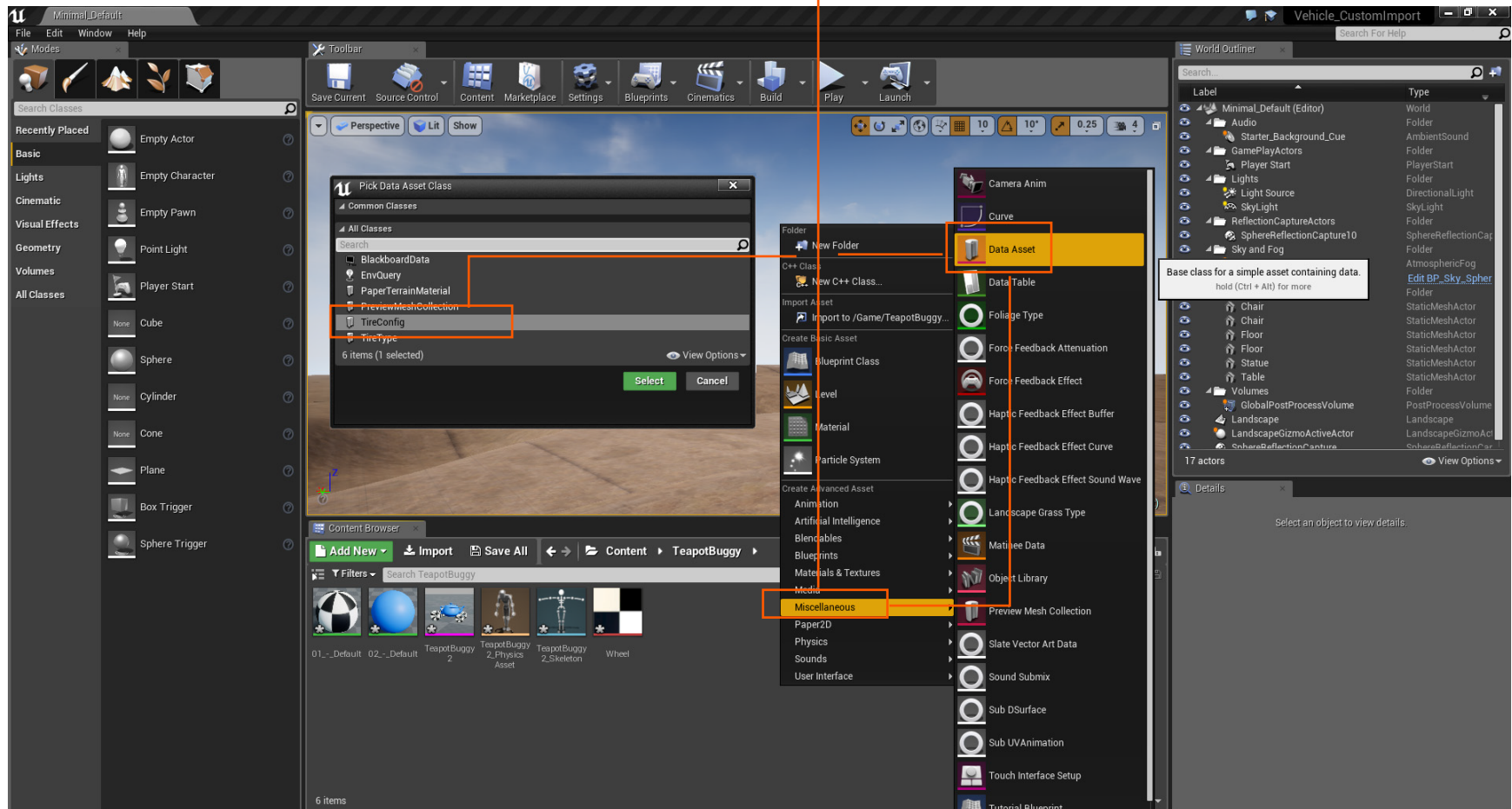
5. Create a new folder in the Content folder, name it after your vehicle.
6. Import the vehicle
7. Select the settings as shown



NOTE- If 4 separate wheels appear in this window, you made a mistake in 3D Max and either linked the body to the wheels or the wheels to one another. Go back and fix.

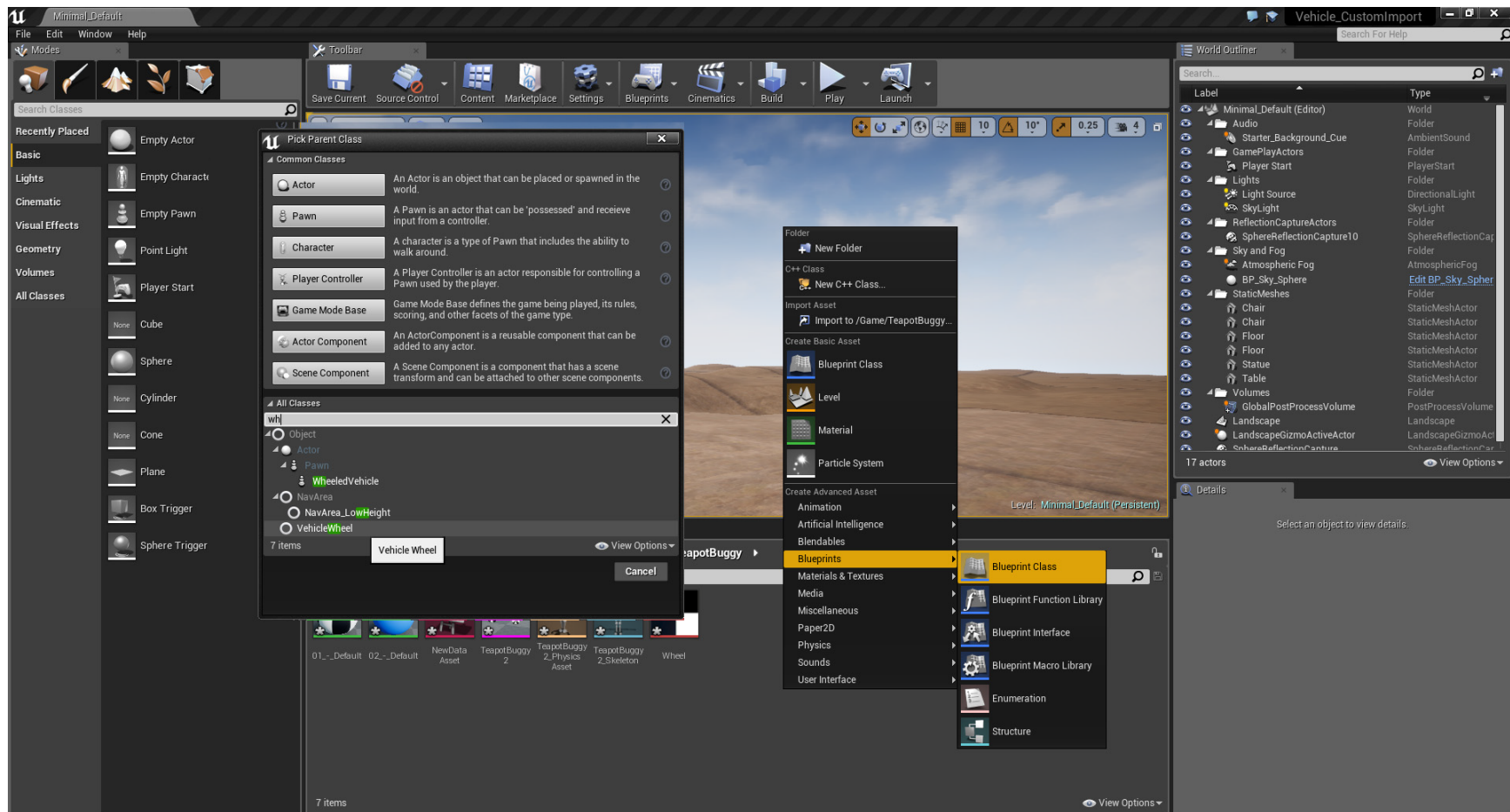
Your Vehicle Blueprint will be composed of several elements:
A Skeletal Mesh (automatically created when you import the vehicle from 3D Max)
A Physics Asset (automatically created when you import the vehicle from 3D Max)
TireConfig Data Asset
Two Wheel Blueprints. (Front and Back)
An Animation Blueprint

8. Right click in the right Content area and select Miscellaneous - Data Set - Tire Config.



9. Right click in Content and select Blueprint - Blueprint Class - VehicleWheel. Rename this as "MyFrontWheel".

10. Repeat step 9 and name "MyBackWheel"



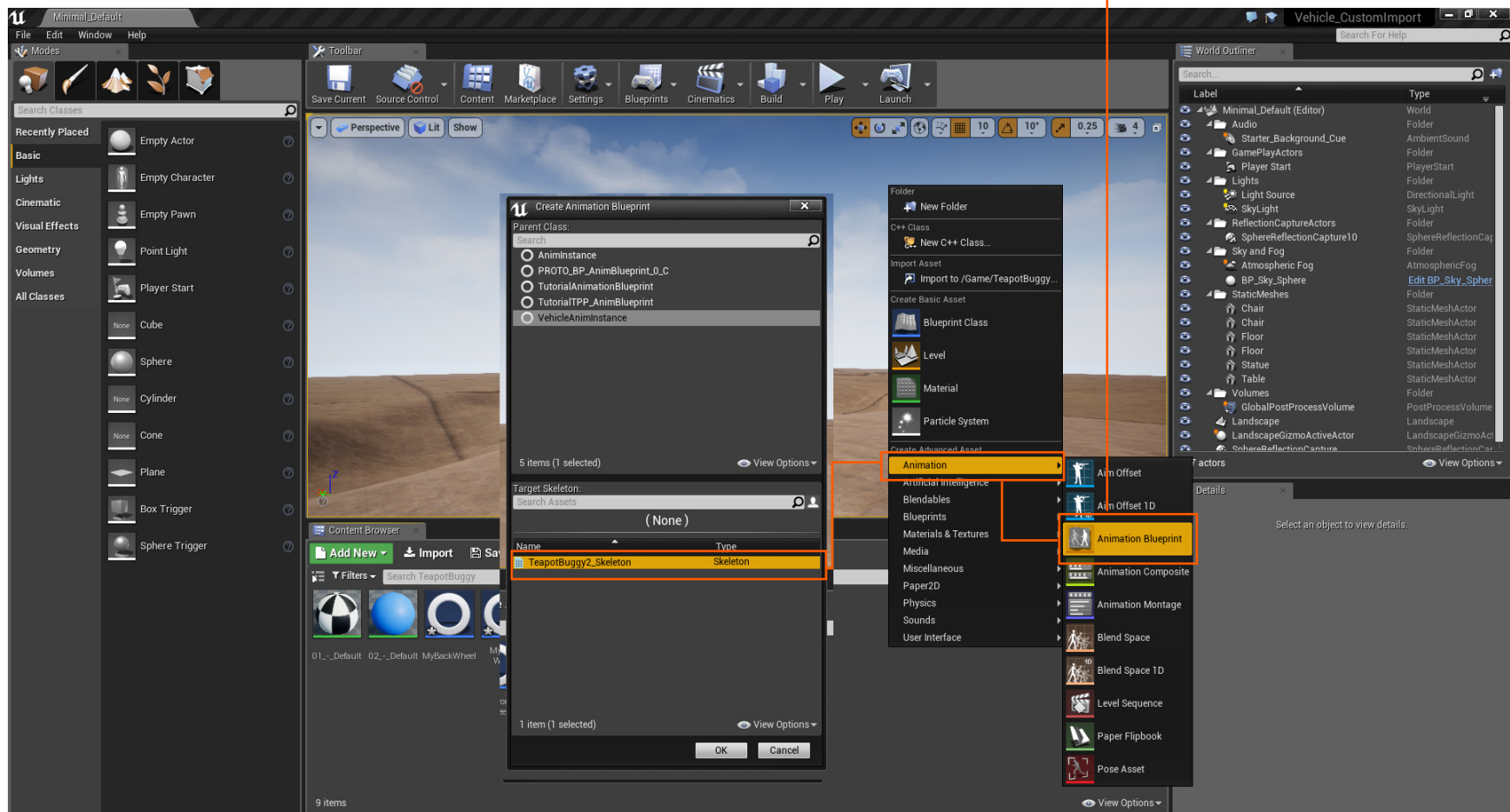
11. Click on your BackWheel blueprint and turn the Steering Angle to “0”. (You don’t want the back wheels to turn) and place the “MyTire” config that you made in step 8 into the TireConfig slot.

12. Next, open the FrontWheel blueprint and turn off “Affected by Handbrake” (only the back wheels should be affected) and as in step 11, place the “MyTire” into the Tire Config slot.



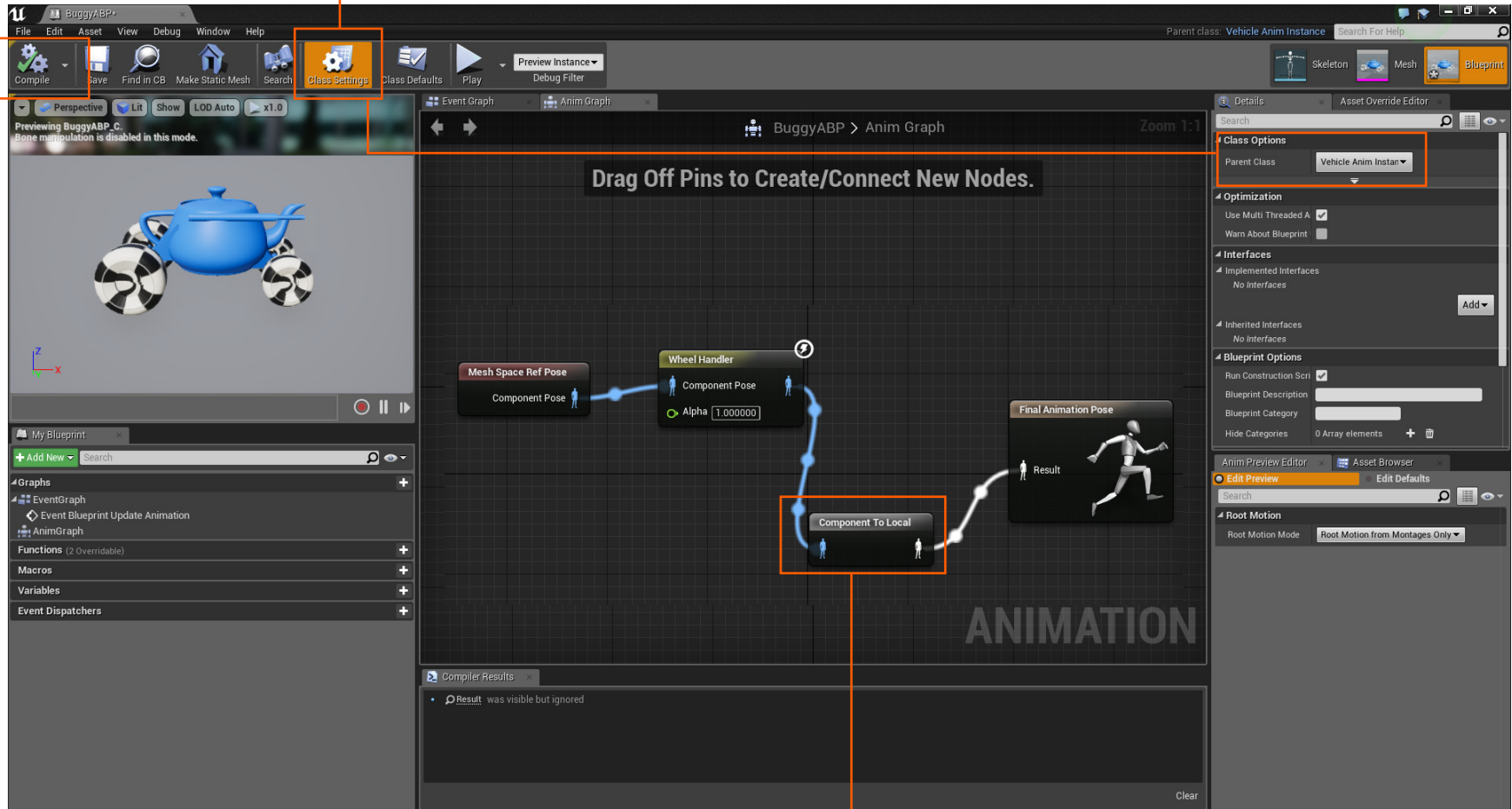
Next make an Animation Blueprint for controlling the vehicle.

13. Right click in the gray Content area



Name and open the Blueprint.

14. Open the Blueprint and select



15. Create the following system of nodes

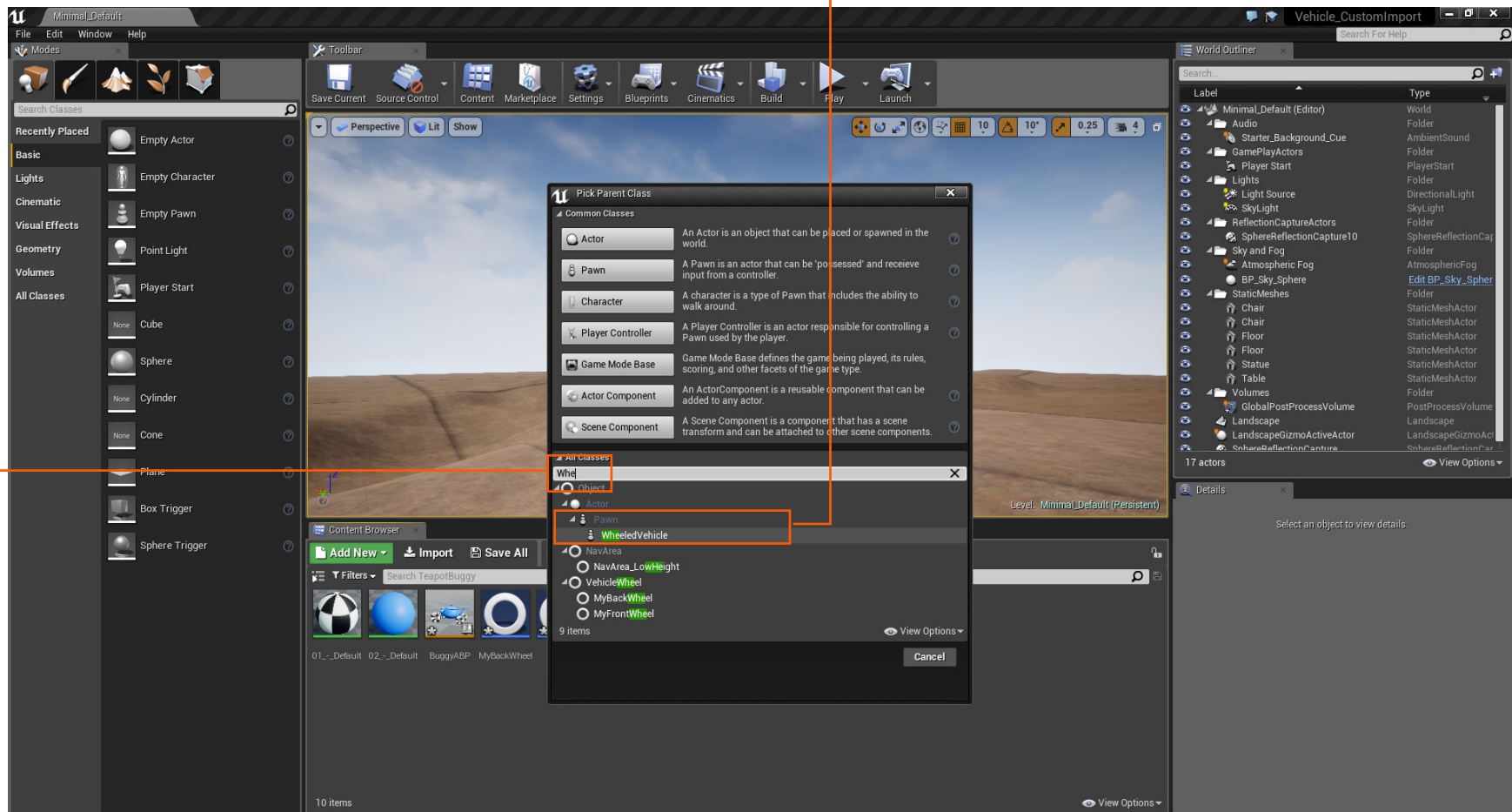
(note- the Component to Local node will appear when you connect the Handler to the Final Animation Pose

16. Compile

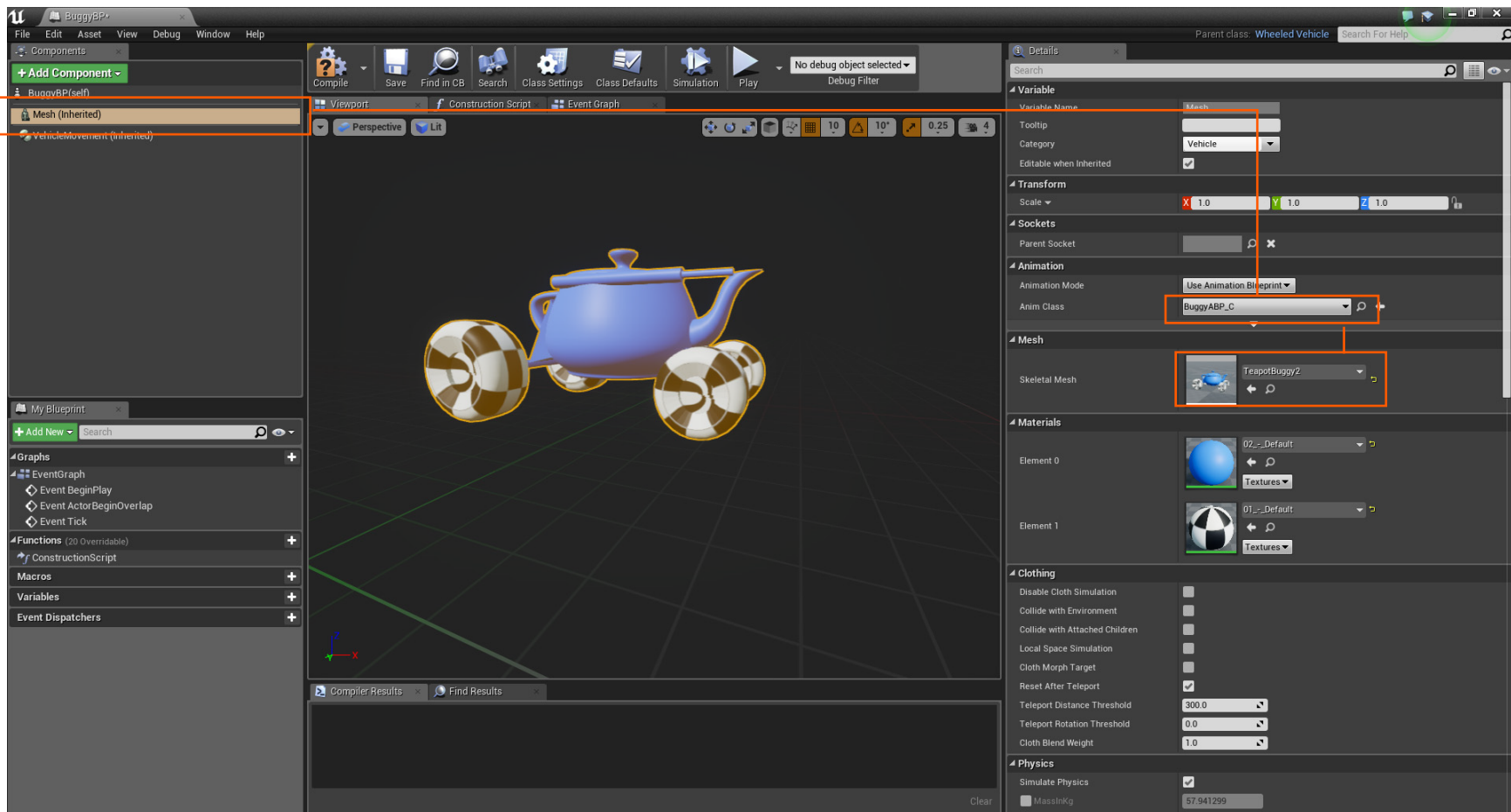
Now you'll create another blueprint to bring together all the assets you just made.

NOTE: The surest way for selecting the proper 'Parent Class' is to type "Wheel" in this slot.

16. Click and select "WheeledVehicle". Name the blueprint and open.



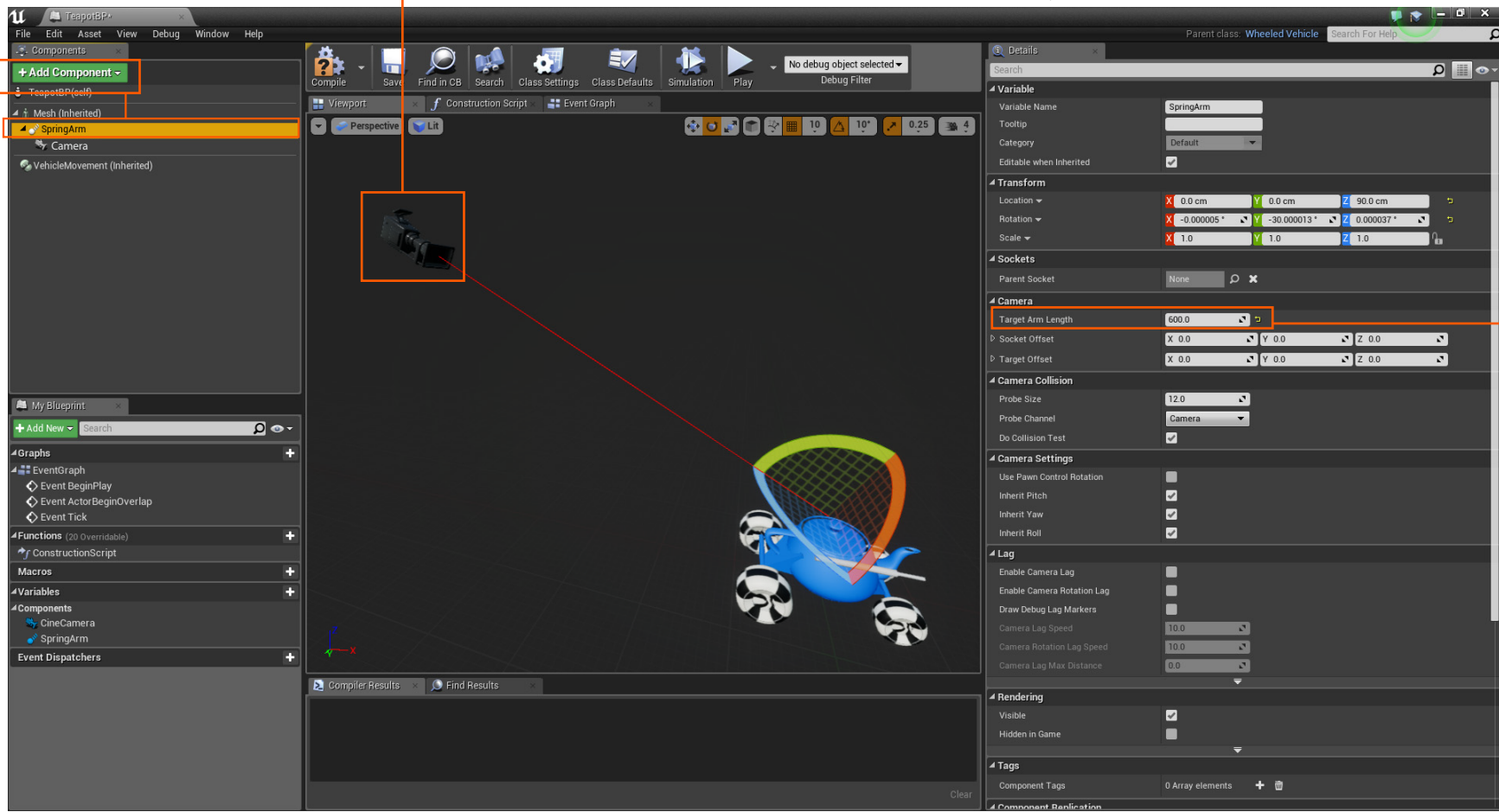
17. Click "Mesh Inherited" and set both the Animation Blueprint you made and the Skeletal Mesh into the Vehicle Blueprint.



Connect a Camera Component to the vehicle using a "Spring Arm Component"

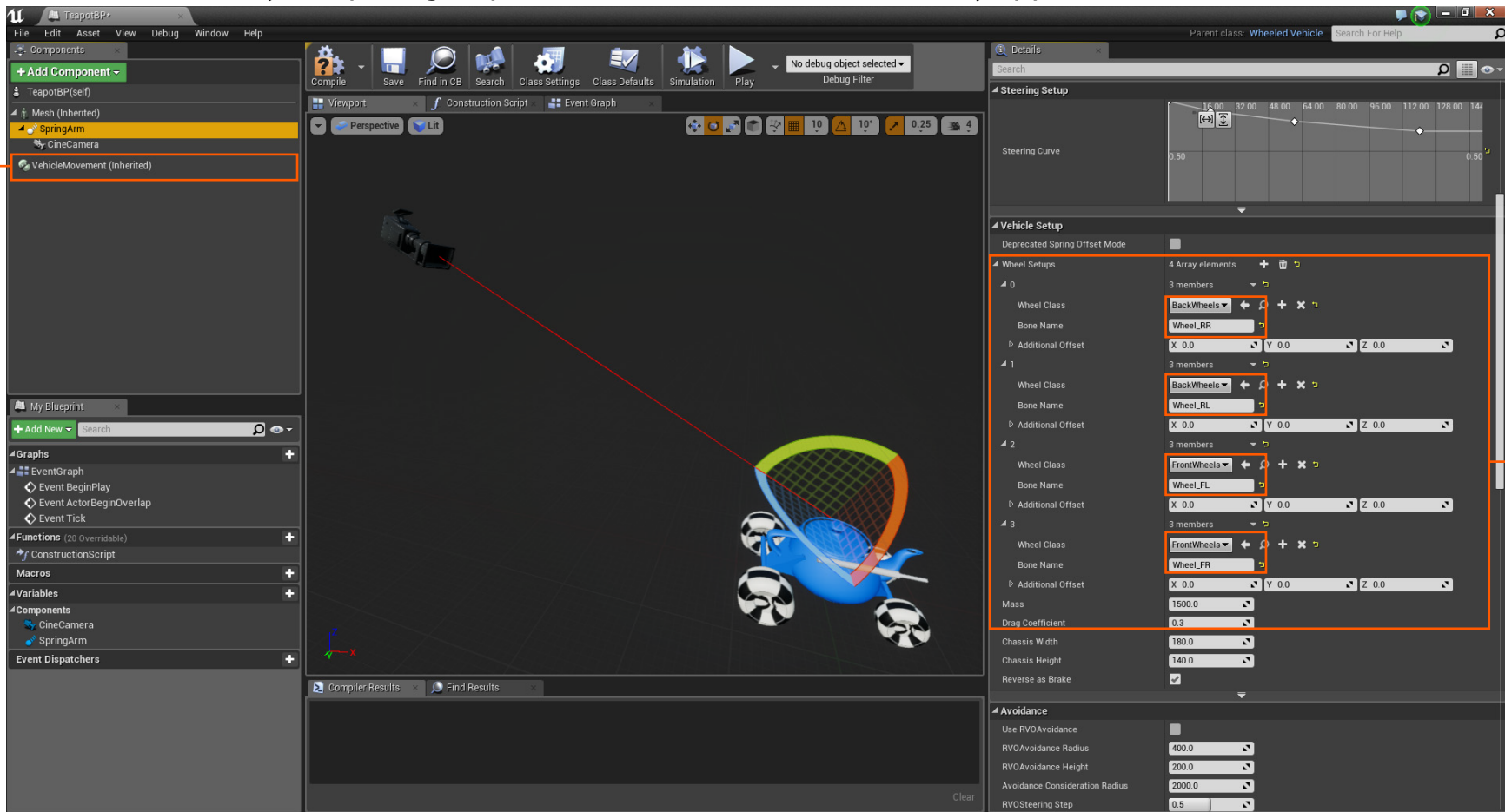
18. Create a Spring Arm, move to top of vehicle, angle upwards and set to 600

19. Create "Camera". The camera should automatically stick to the end of the Spring arm.



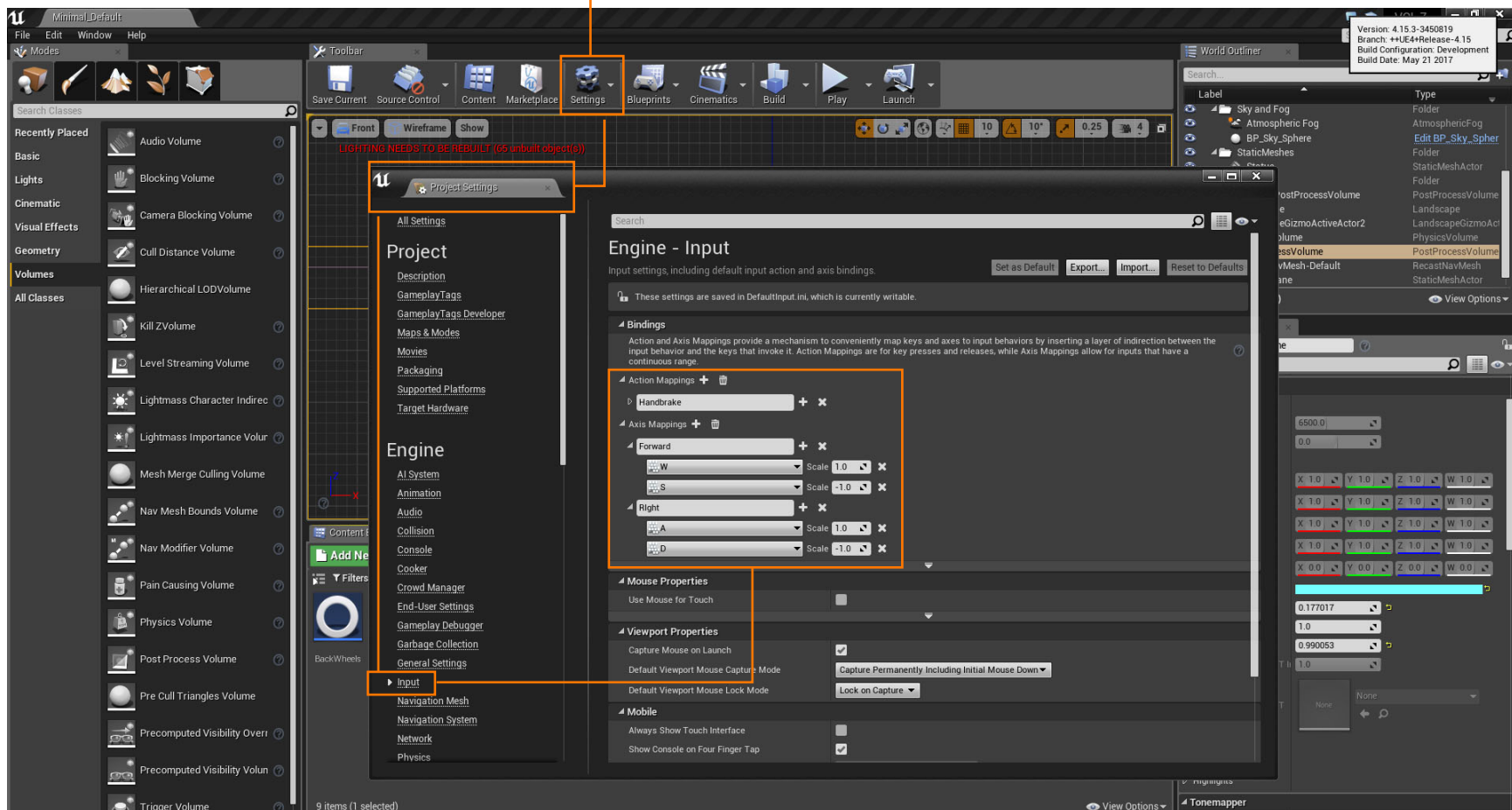
Now you will need the names of the wheels that you labeled in 3D Max

20. Click on the vehicle body. Select "Vehicle Movement" and fill in the settings. Be sure to check your spelling. Cap's matter. List them in the order they appear in Vehicle Skeleton.



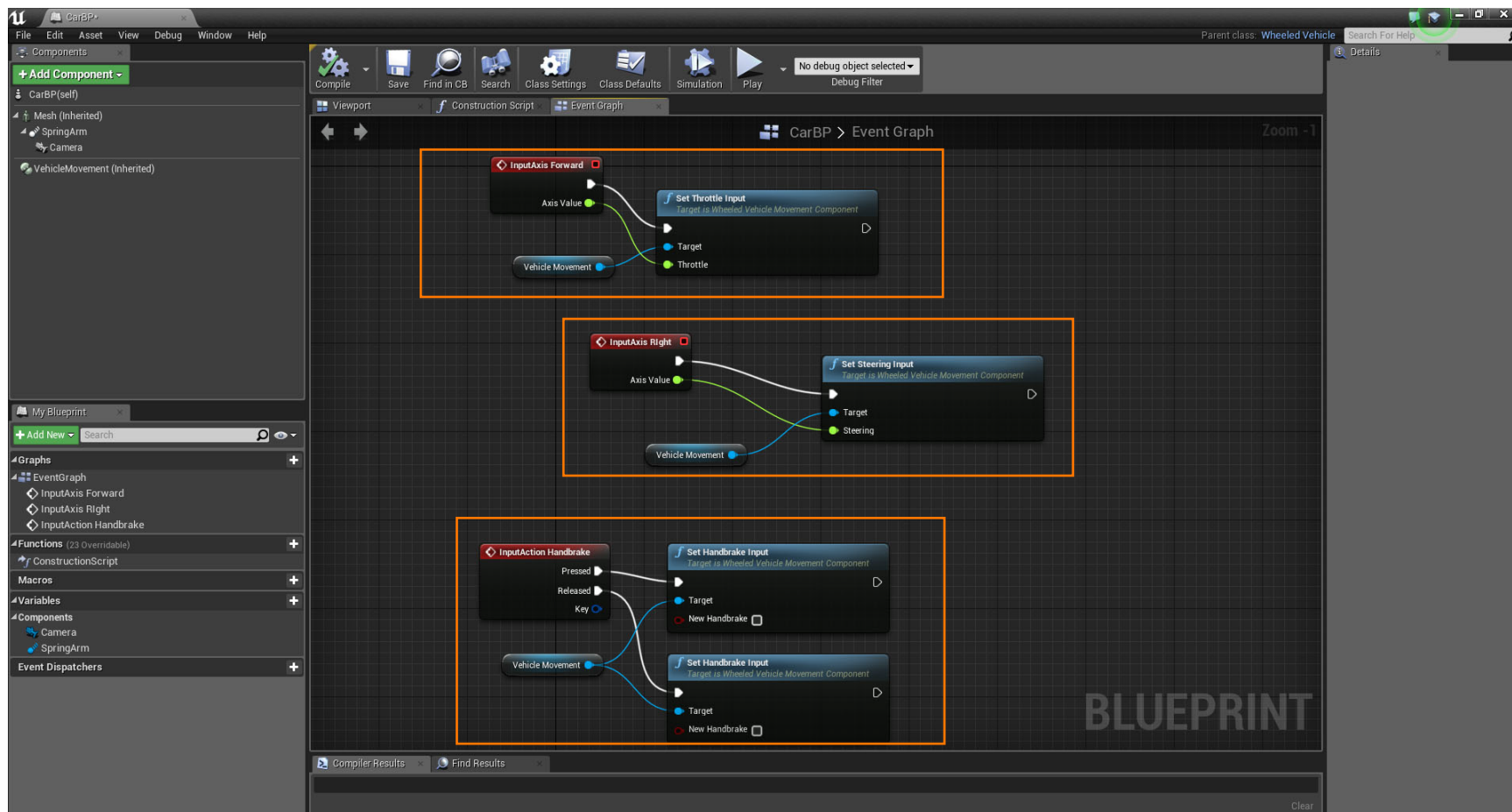
The Vehicle Blueprint is almost complete. First set up directions for steering and brake the vehicle

21. Open Project Settings and enter the info for driving the vehicle using keyboard strokes.



Next you'll enter the input information into the Vehicle Blueprint Event Graph

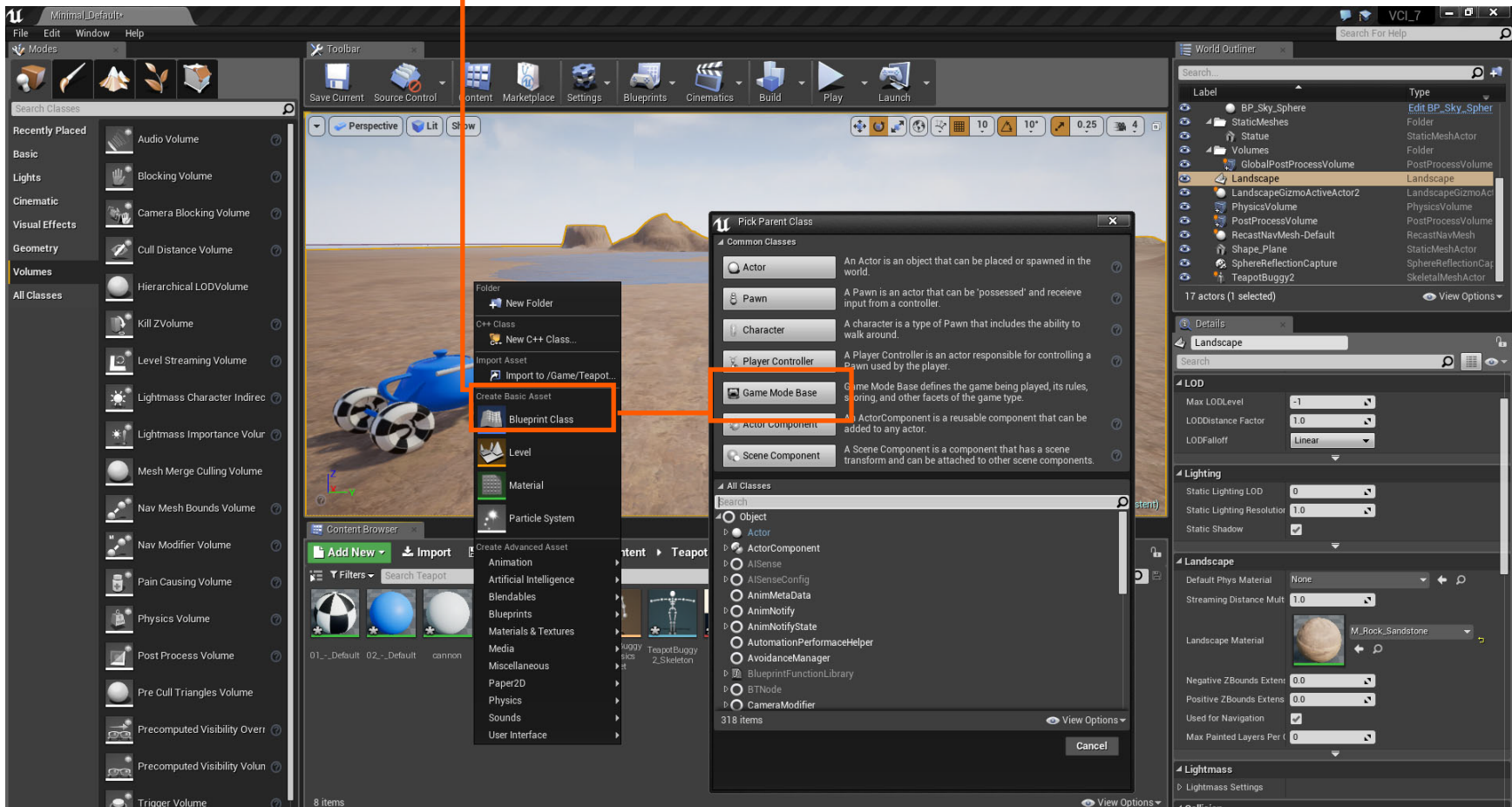
22. Create and link the nodes.



SAVE AND COMPILE

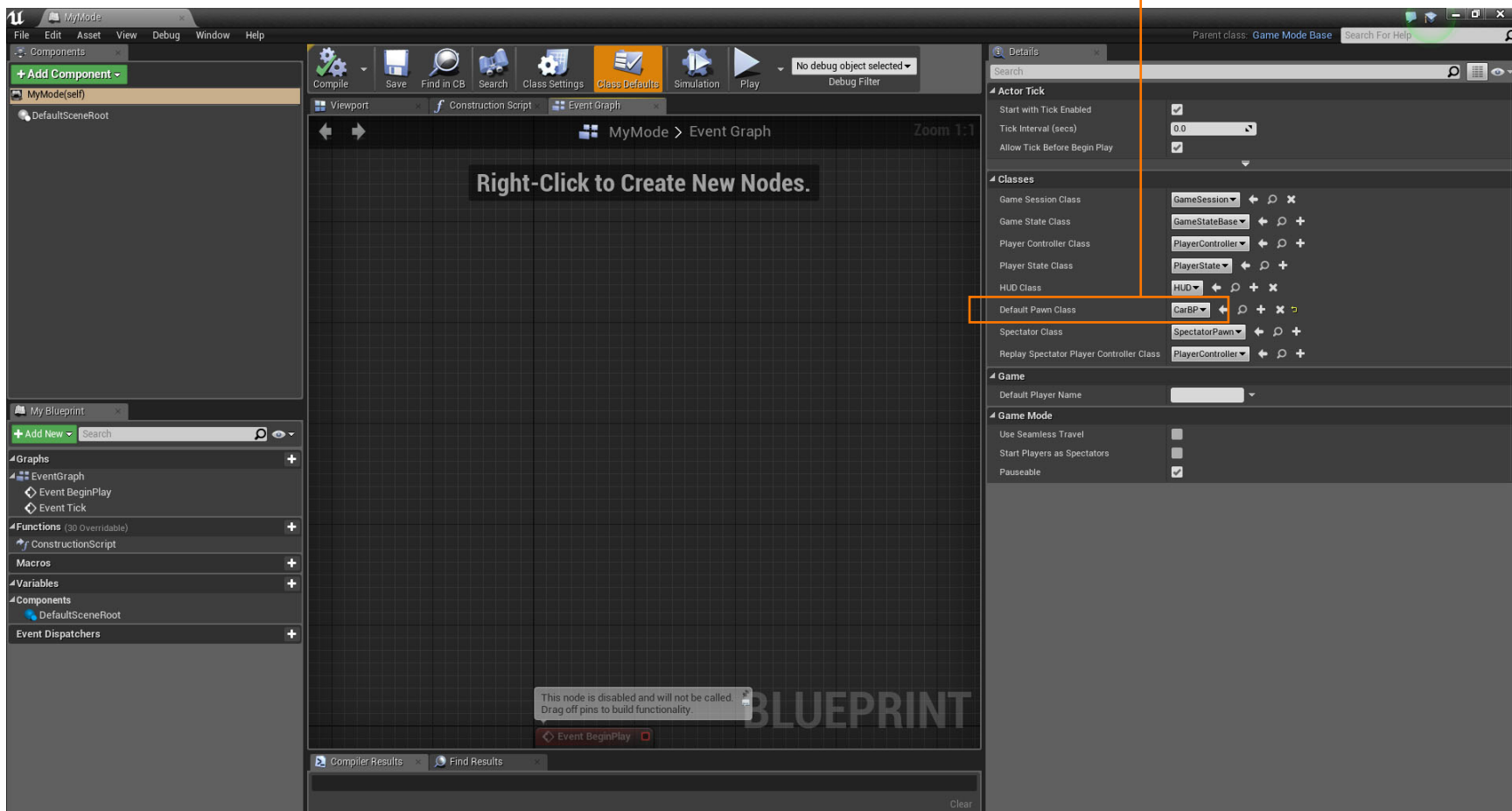
Now you will set up the game mode telling the game to control the vehicle

23. Right click in Content - Blueprint Class - Game Mode Base and create a new Game Mode.



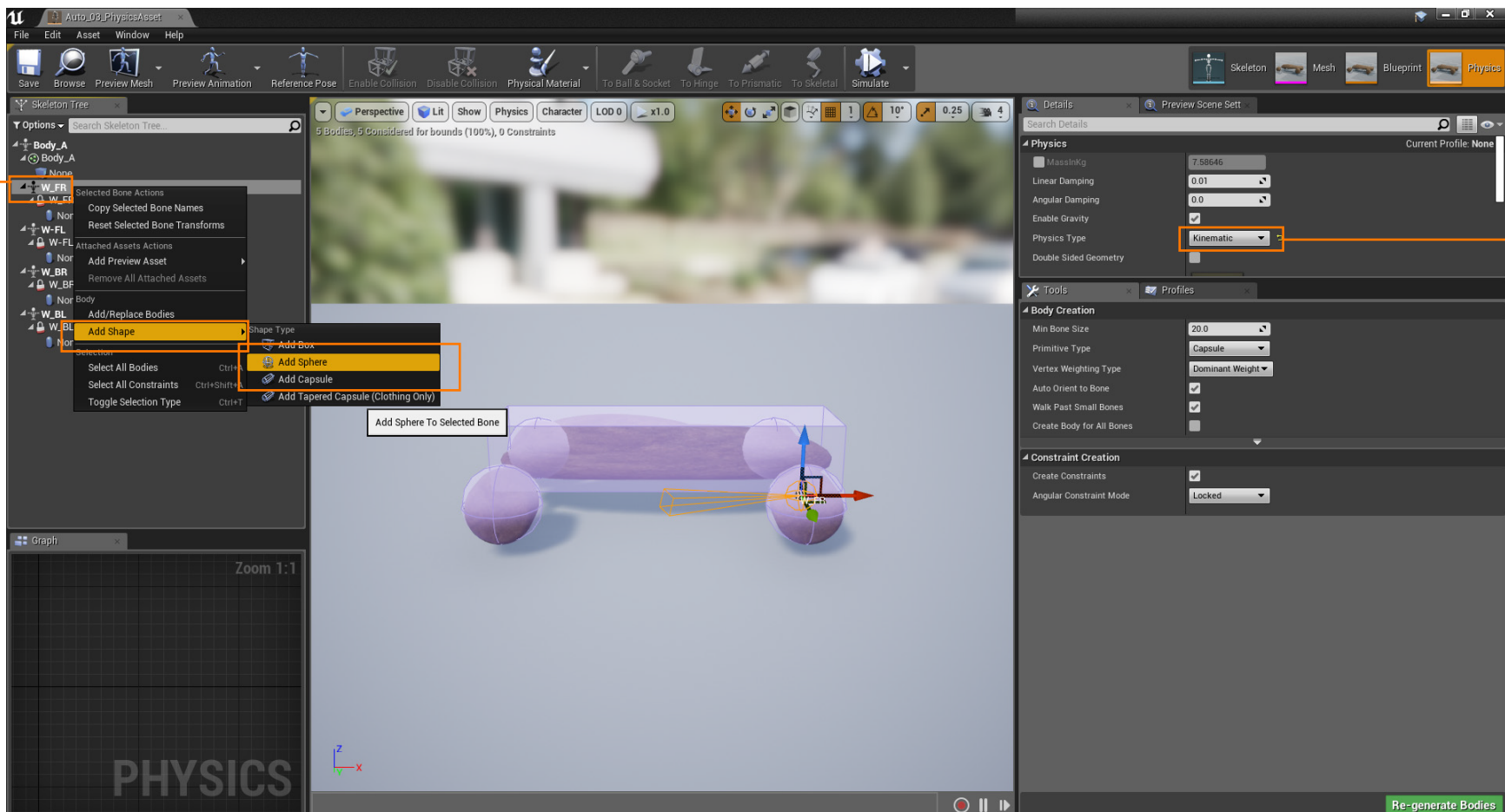
24. Name the new Game Mode Blue Print and open it.

25. Place your Vehicle Blueprint in the slot. Compile & Save.

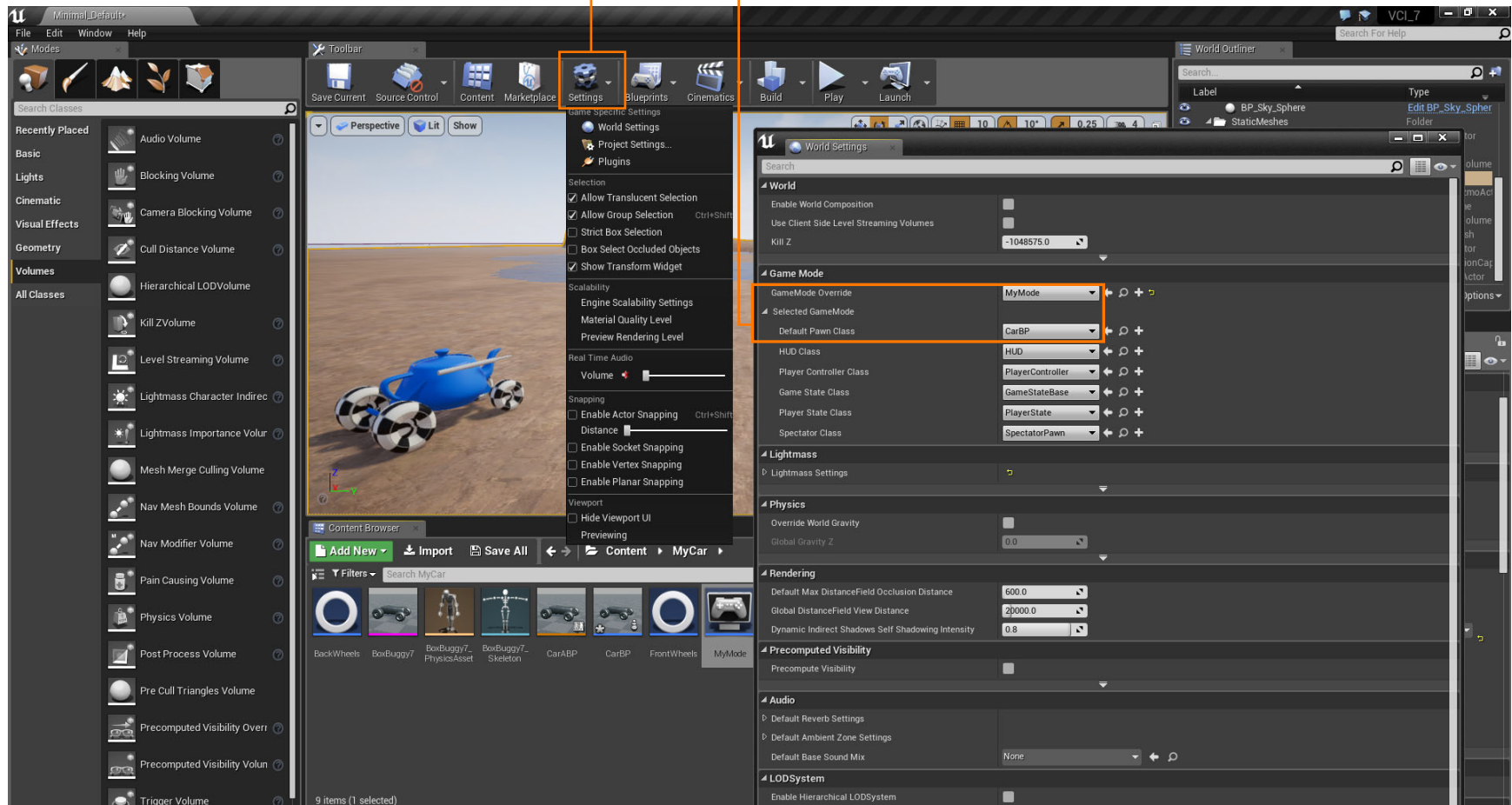


25. Open the vehicles "Physics Asset" and select all the wheels, delete the existing collision and reset with spheres

26. Set all wheels to "kinematic".



27. Last, open World Settings and set Game Mode to your Vehicle Blueprint.



If it doesn't work, check this list of possible problems:

1. Vehicle won't move forward but wheel spin. Collision box on your vehicle extends below the base of wheels and into the ground causing the wheels to spin but the car not to move.
2. Vehicle drops under landscape. The Spring Arm connecting the camera to the vehicle is below the level of the vehicle causing the vehicle to drop under the landscape.
3. Vehicle does not respond - Vehicle is not facing in the "X" (red arrow in the perspective viewport) direction when built in 3D Max.
4. Wheels won't turn - Naming of the wheels and body set in 3D Max are misspelled in the Unreal BP wheel set up.
5. Vehicle turns left when it should turn right - Recheck your Project Settings-Input Axis.
6. Vehicle does not touch ground or is embedded in ground - Check the Physics Asset. Make sure wheels are set to "Kinematic". Check in Wheel Blueprints if correct sizes for tire are entered. You may have recheck in 3D Max and measure the wheels.

Reset Body to Box

7. Vehicle skids around - Lower the "Steering Angle" in the Front Wheel Blue Print to 20
8. Vehicle flies about - Set your landscape to "0" in the Z (up) direction.