



3D & MOTION GRAPHICS > MODELING

# Create a Low Poly Camaro in Blender: Part 1

by Karan Shah 28 Jul 2014

Difficulty: Beginner Length: Long Languages: English ▾

Modeling 3D Blender



Final product image

What You'll Be Creating

Learn how to create a great looking, extremely light weight Chevy Camaro model using Blender in this two part series. In the first part, Karan Shah will walk you through the process of creating the low poly model from reference images, before moving onto UVMapping and Texturing in part 2.

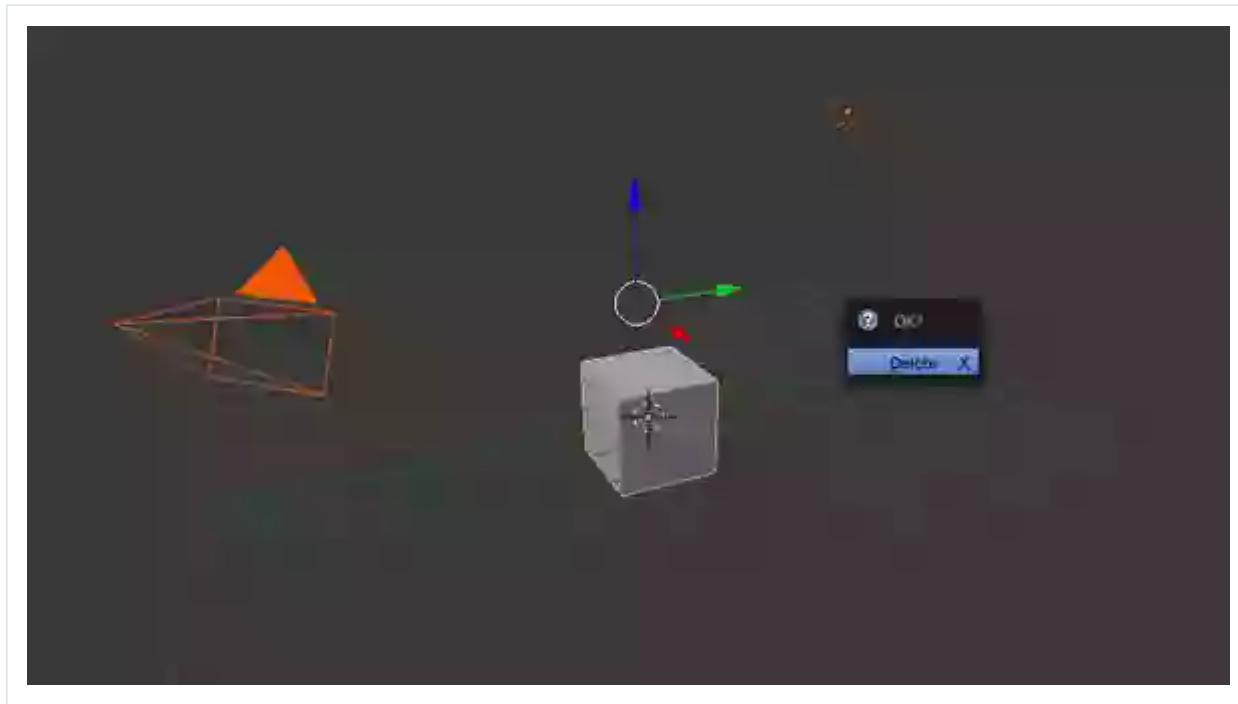
## 1. Setting up the Reference Images

### Step 1

Search for 'Chevrolet Camaro Blueprint' in Google. Choose a set

that has all four views of the car - top, front, side and back. I

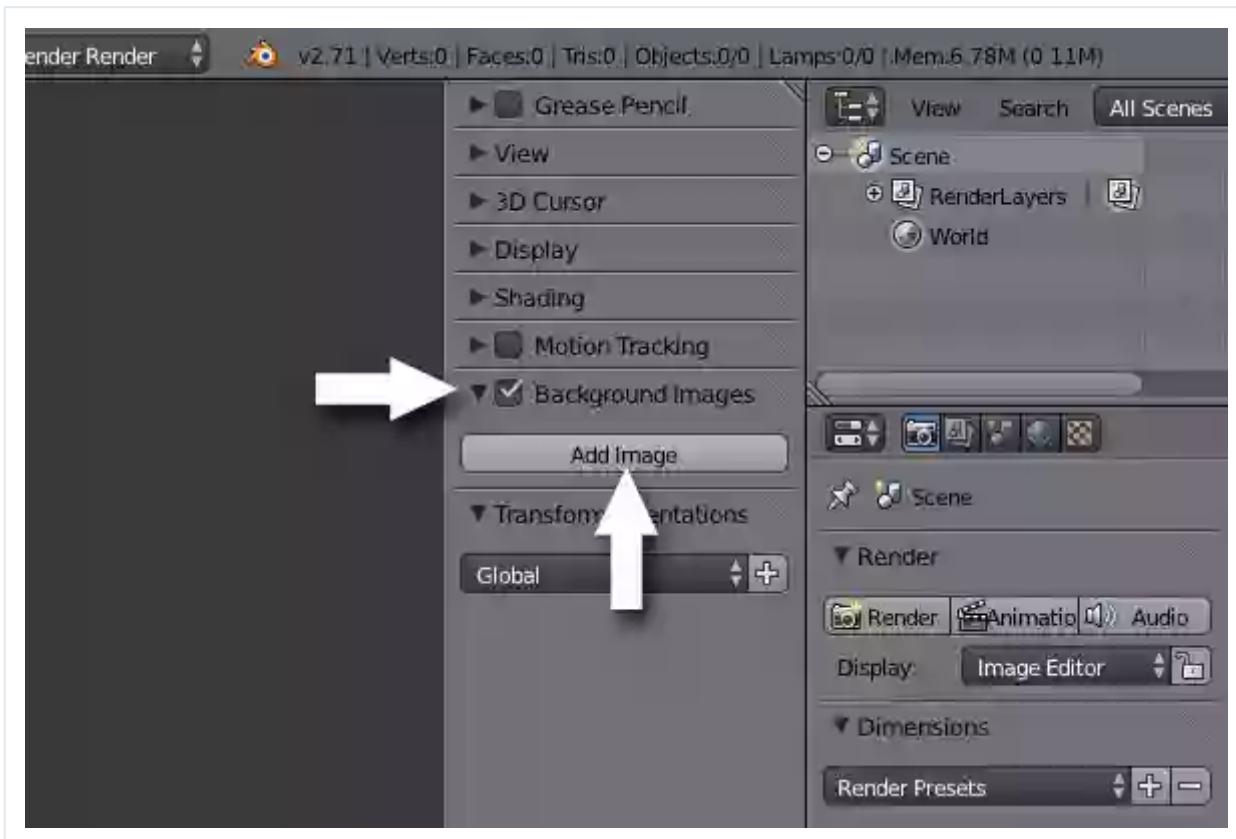
that has all four views of the car- top, front, side and back. I selected this [image](#) from [cartype.com](#). Next, open Blender and in a new file, select all the objects by pressing the **A** key and then press **Delete** on the keyboard to delete them.



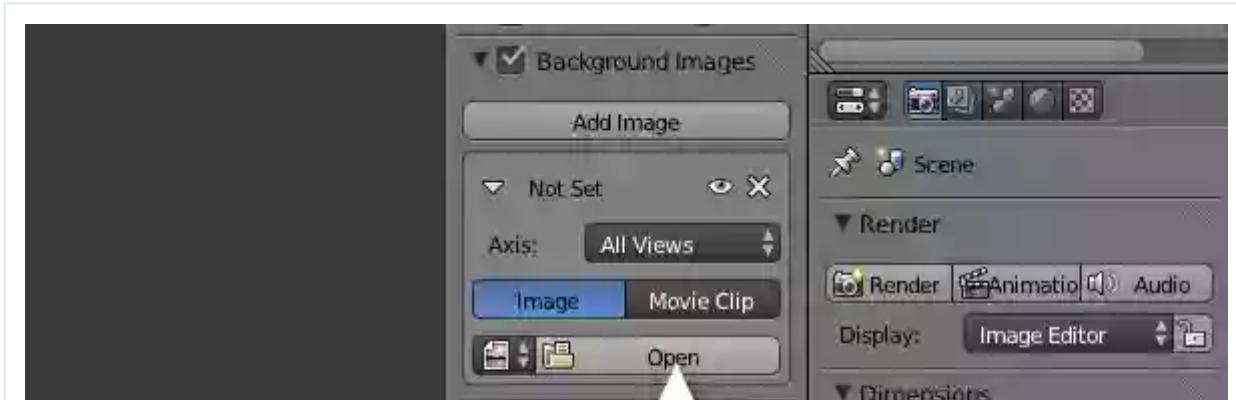
Advertisement

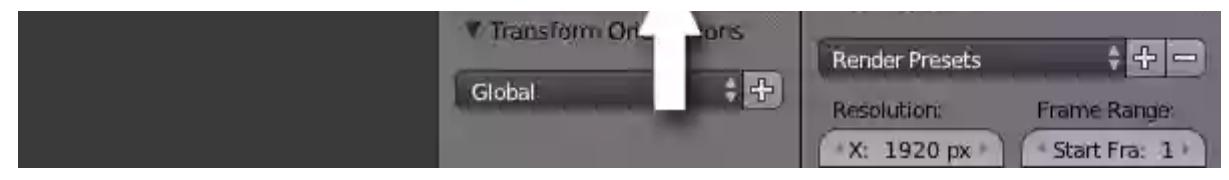
## Step 2

Press **N** to bring out the **Properties** panel. Scroll down to the **Background Image** panel and click on **Add Image**.



Click **Open** to browse and select your image. The Background image is only viewable in ortho mode in the left, right, top, bottom, front and back views.



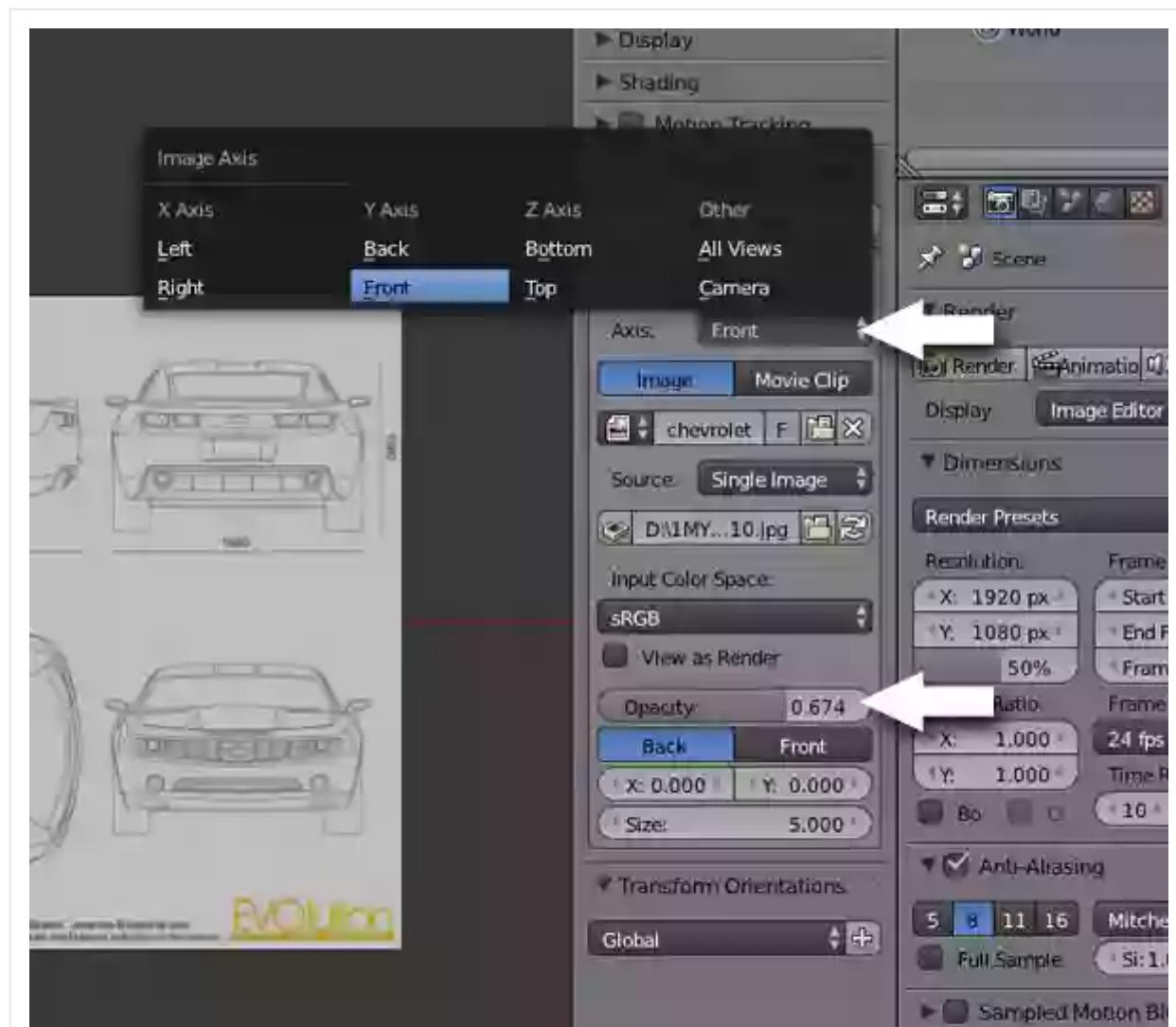


### Step 3

Though the image is set for all views (left, right, top, bottom, front and back), we might have to align and move the model every time

to match the background image for each different view, again and again. So we must have different image settings for each view.

In the **Background Images** panel, choose **Front** in **Axis**. This means that this image will be viewable only in the front view, the shortcut to which is **1** on the Numpad. Adjust the **Opacity** slider to your preference.



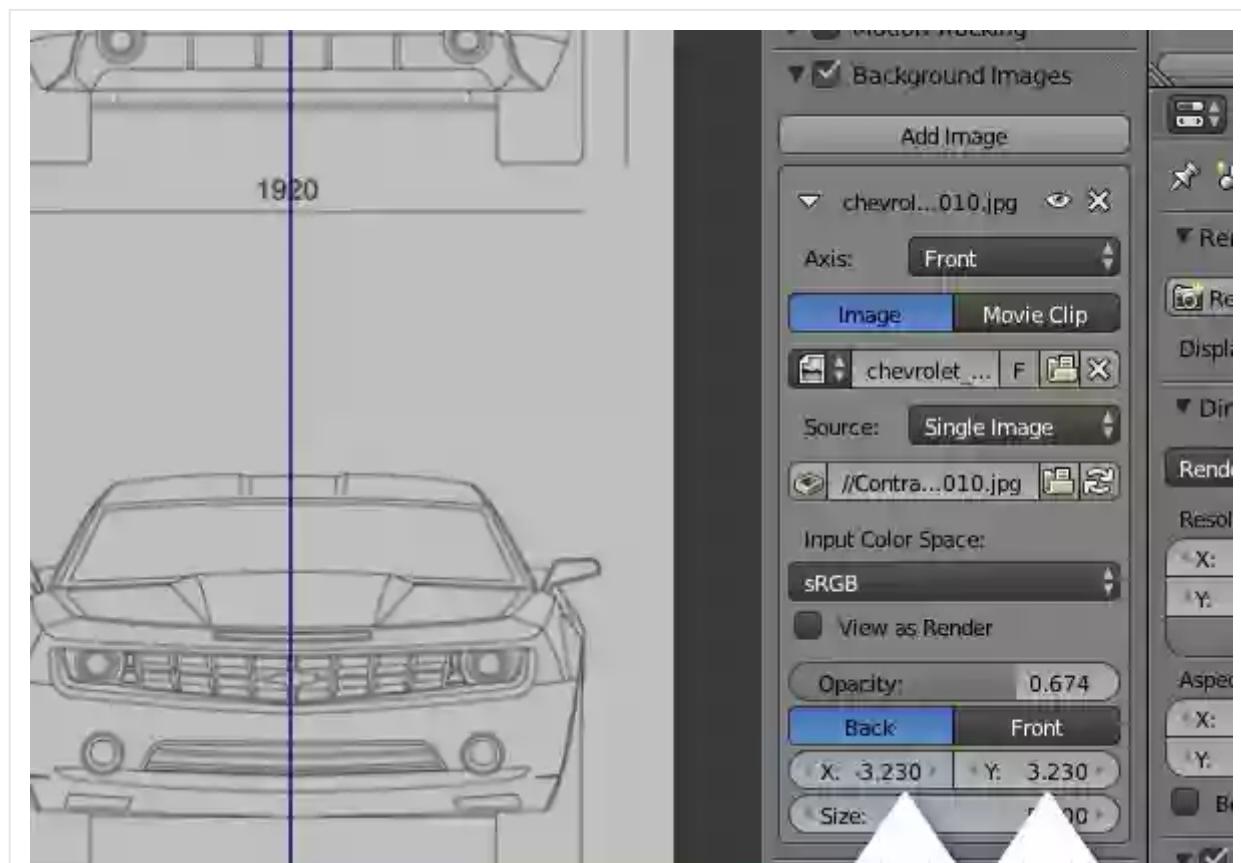
## Step 4

By default the image is displayed at the center of the viewport.

But we need to adjust it in such a way that the front view of the

car is in the center, as we need only the front part of the car for this view.

With the mouse in **3D** view, press **1** on the numpad to get into the **Front** view. Make sure you are in ortho view mode - press **5** (numpad) to toggle between ortho mode and the perspective view. Adjust the **X** and **Y** sliders so that the front view of the car is in the middle of the *blue* line (**X** axis) and the bottom of the wheels are touching the *red* line (**Y** axis). You can press **Shift** while dragging the **X** and **Y** sliders for precision. The front view setup is now done.

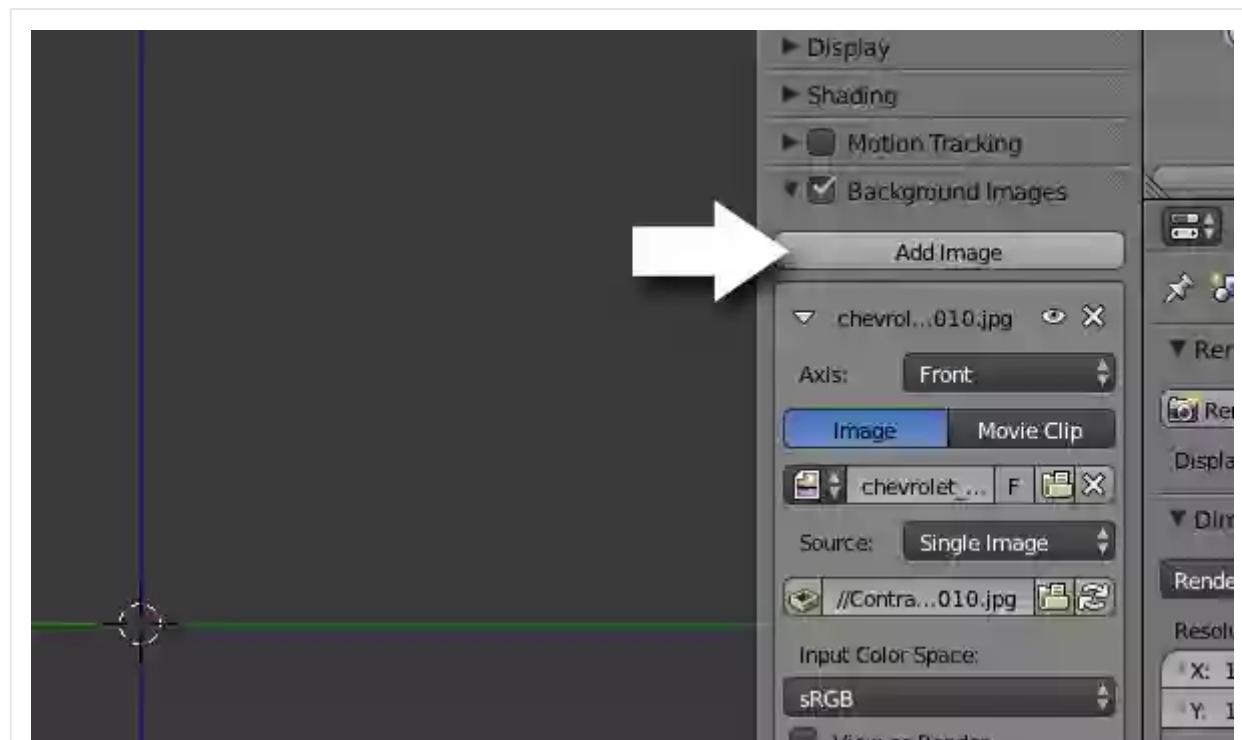




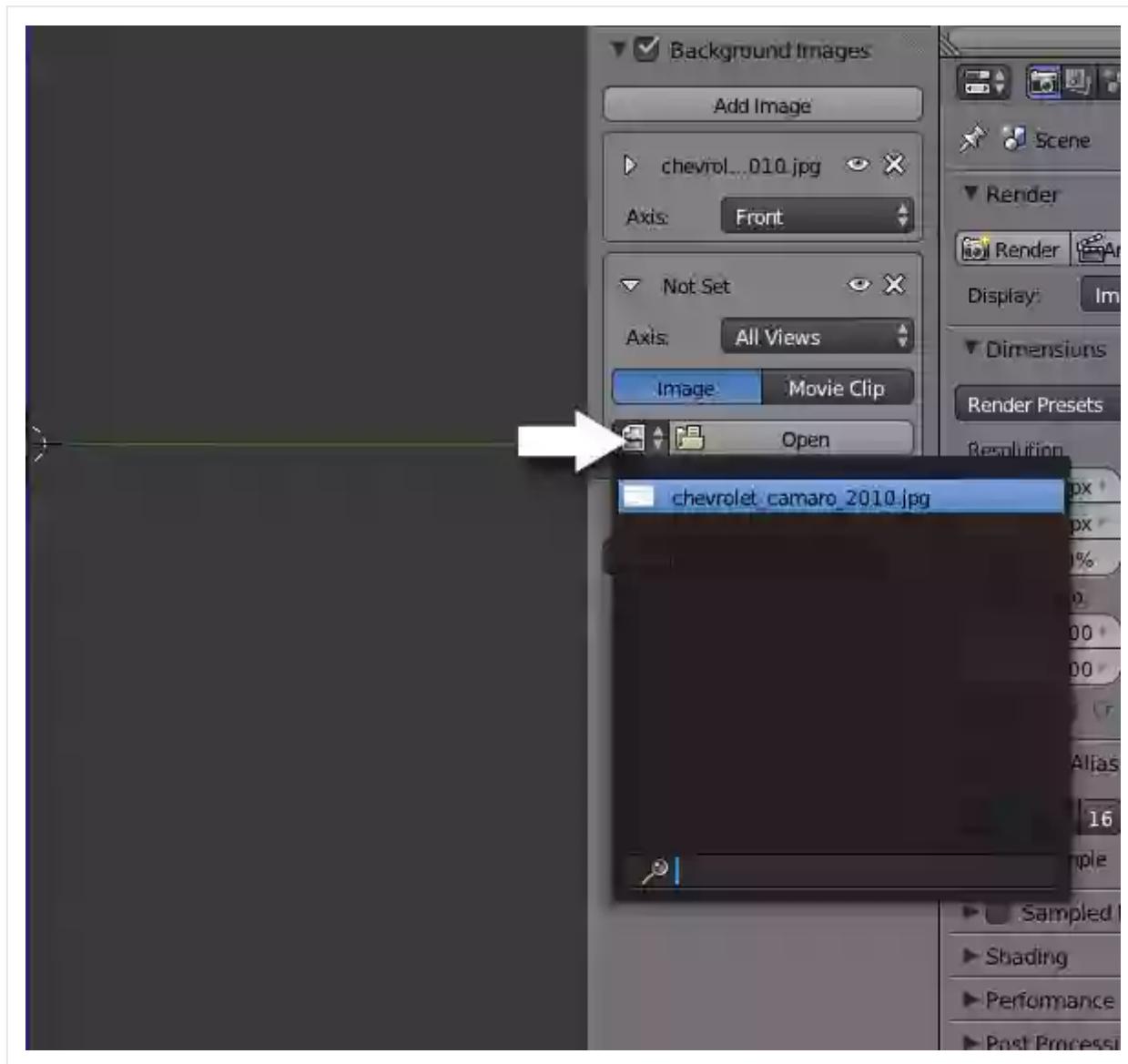
Advertisement

## Step 5

With the mouse in **3D** view, press **3** on the numpad to get into the **Right** view. In the **Background Image** panel, press **Add Image**.

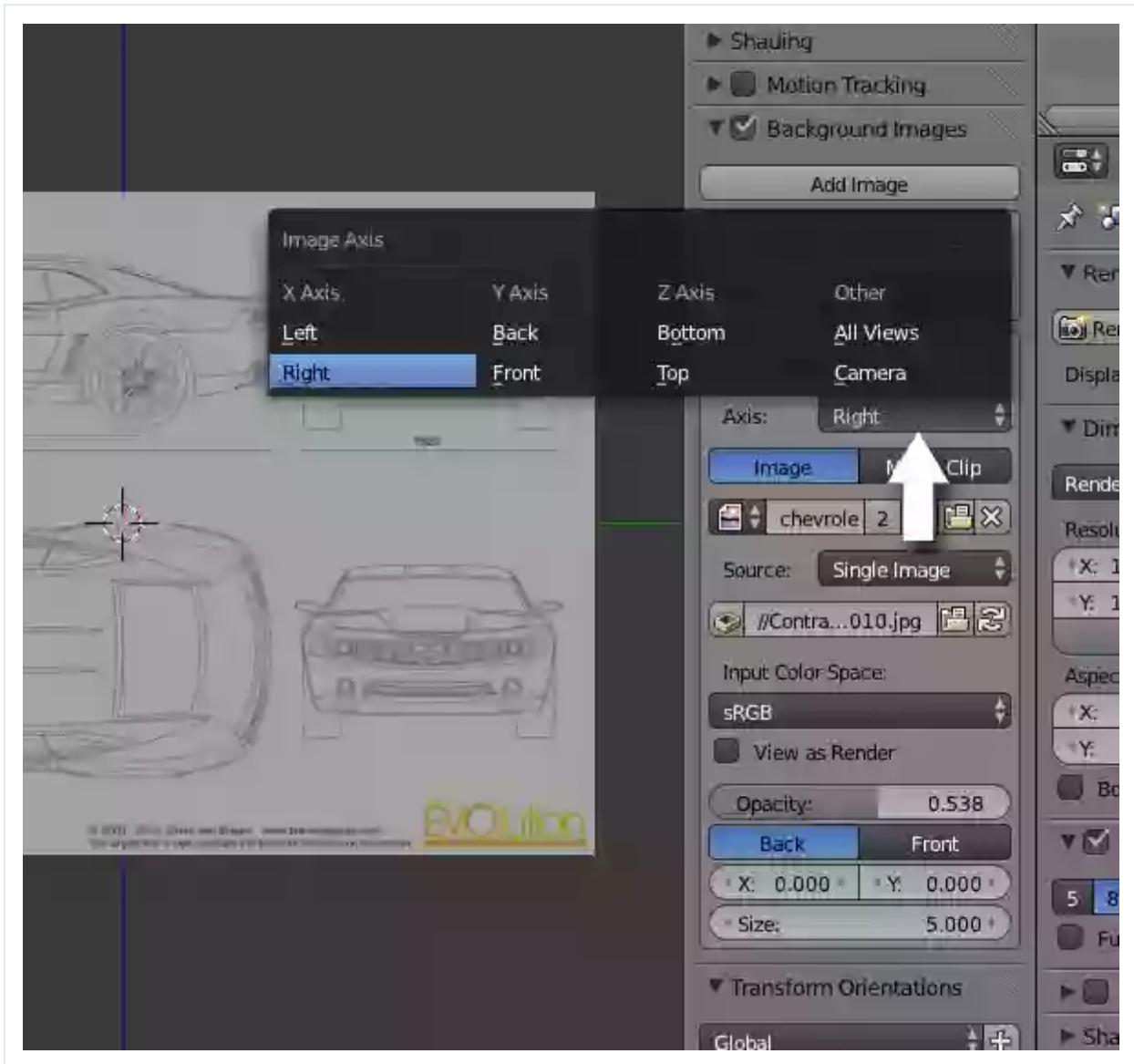


Click on the **Image** button and select the same image.

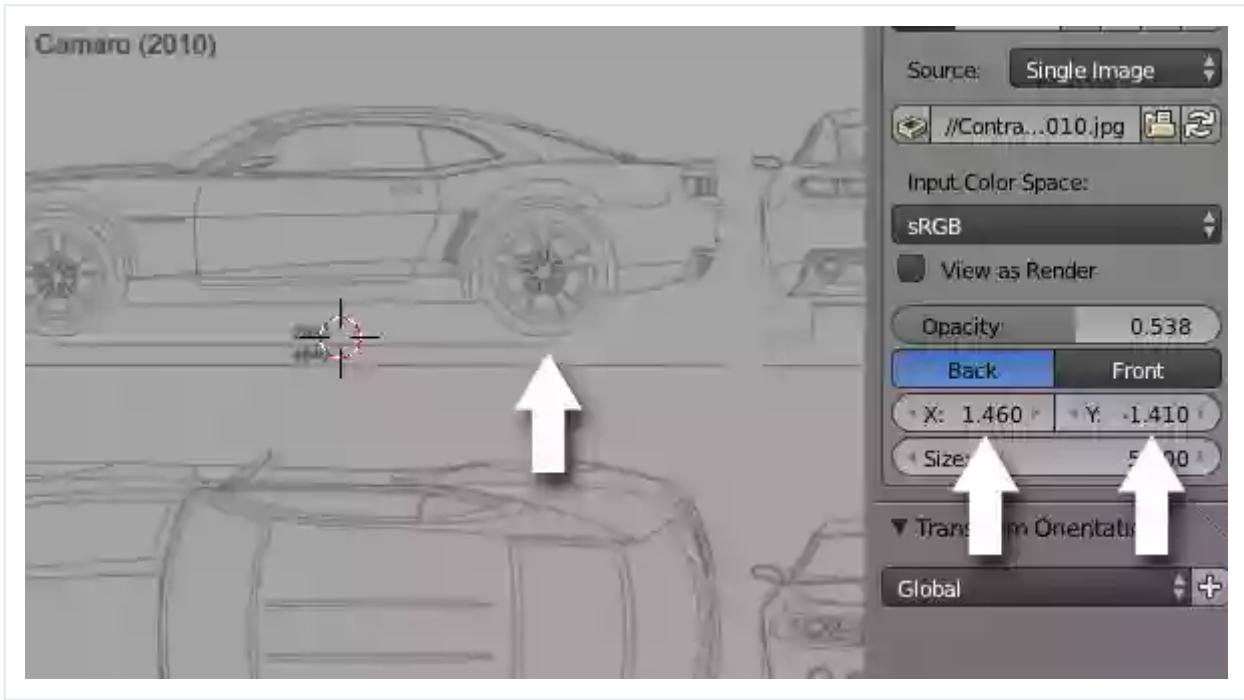


## Step 6

Select **Right** for the **Axis** option, as we will assign the image only for the **Right** view.

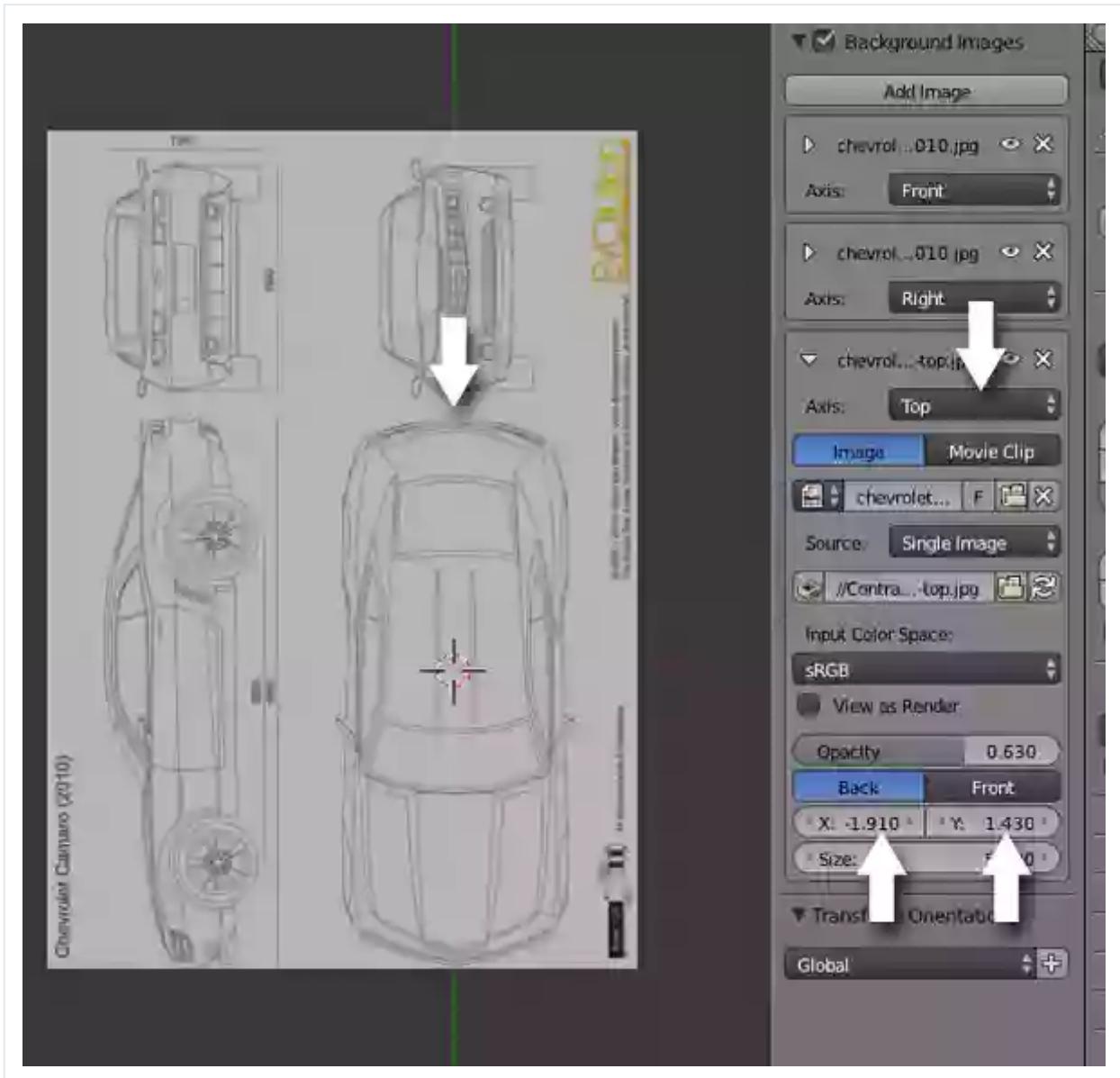


Adjust the placement with the **X** and **Y** sliders in such a way that the bottom of the tires are touching the *red* line (**X** axis) in the sideview.



## Step 7

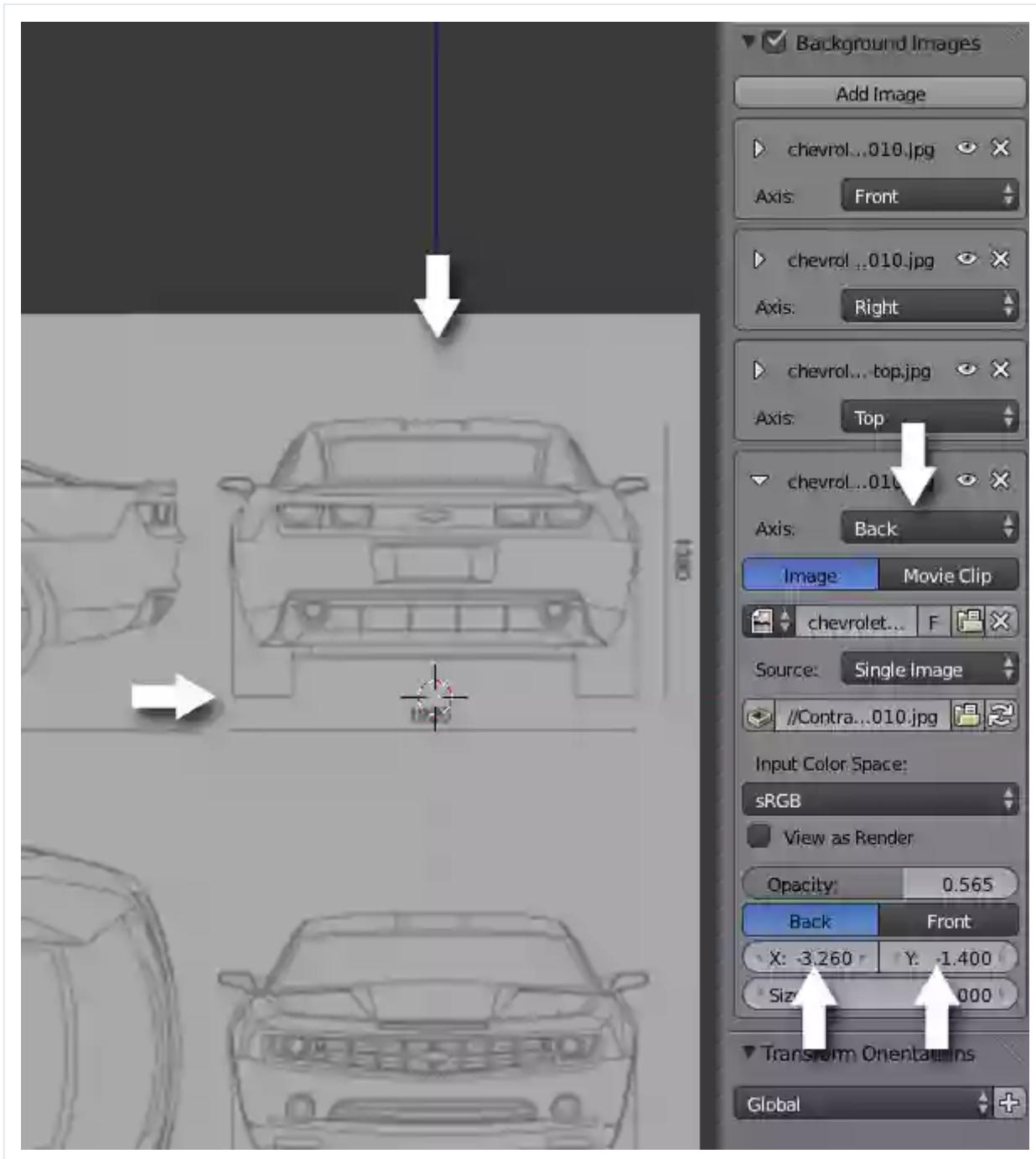
Similarly, add another Background image for the **Top** view. Adjust the **X** and **Y** sliders so that the top view of the car in the image is in the center. In a photo editor, I have rotated my image 90 degrees so that the top view of the car in the image is vertical. This is not compulsory, but it will be easier to align and match the model to the reference image in the top view, otherwise we might need to move and rotate the model again and again to match the reference.



## Step 8

Now add another Background image for the **Back** view. Press **Shift-1** (numpad) to get into the **Back** view. Adjust the **X** and **Y** sliders so that the back view of the car in the image is in the center and the base of the wheels are just on top of the *red* line (X

axis). Now we have set up all the background images for all ortho views. You can check them by pressing the numpad keys - **1** for Front, **3** for Right, **7** for Top and **Shift+1** (Numpad) for Back. Press **Control-S** to save the file.

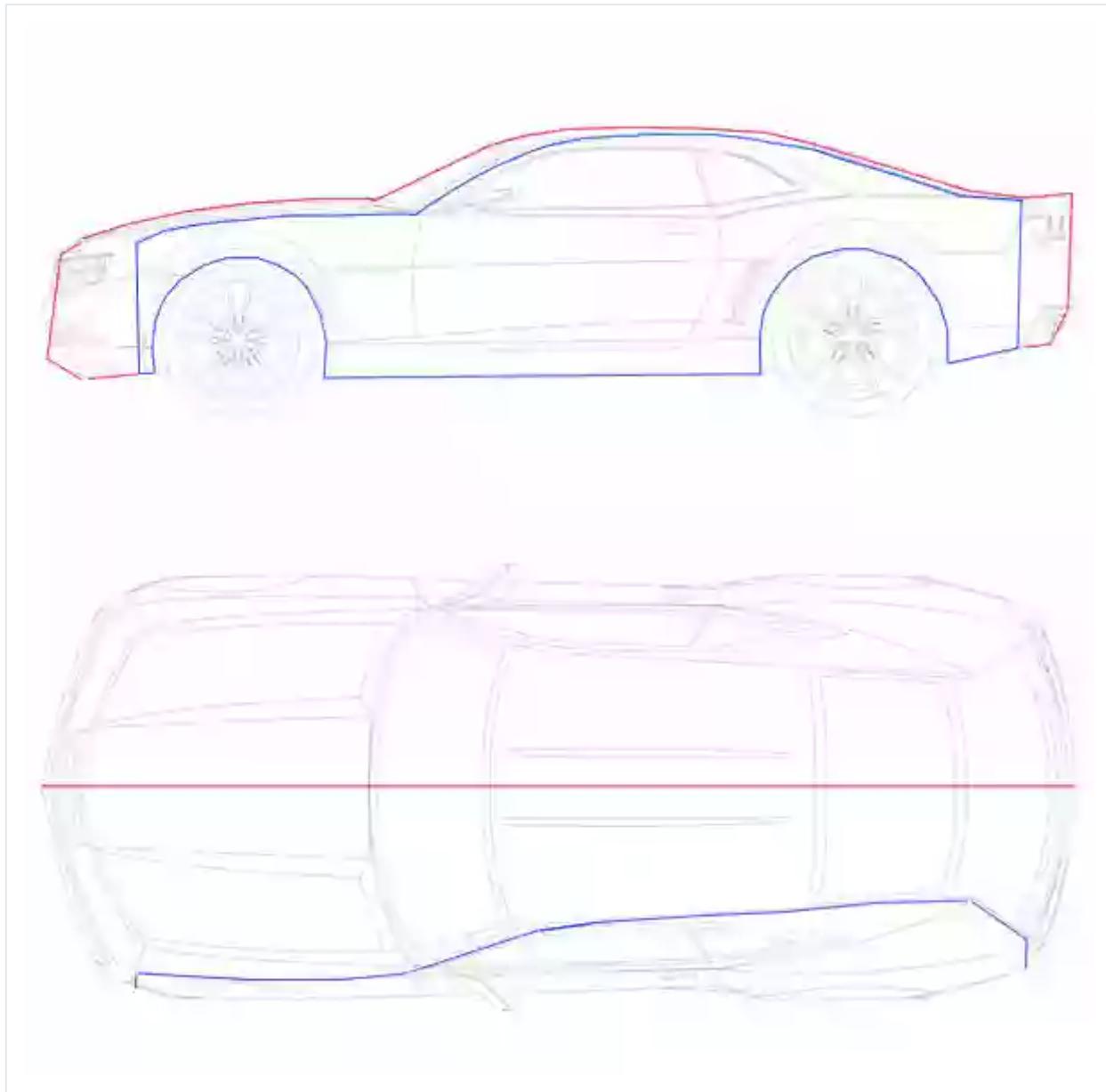


## 2 Modeling the Body

## 2. Modeling the Body

### Step 1

Press **3** on the Numpad to get into the **Right** view. Before we start modeling, we need to know which lines to follow. The lines marked in *blue* are the actual sides of the car, whereas the line in *red* is not. The red line is the center of the car.

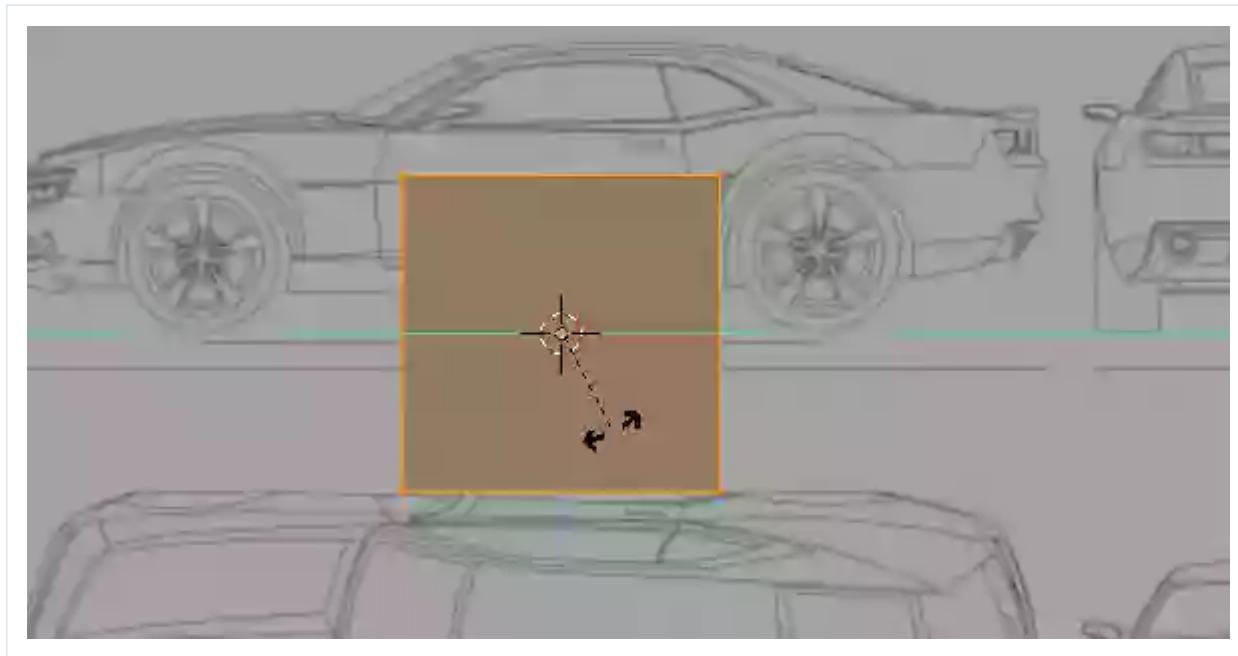


Press **3** on the Numpad to get into the **Right** view. Press **Shift-A** and add a **Plane**.

### Step 2

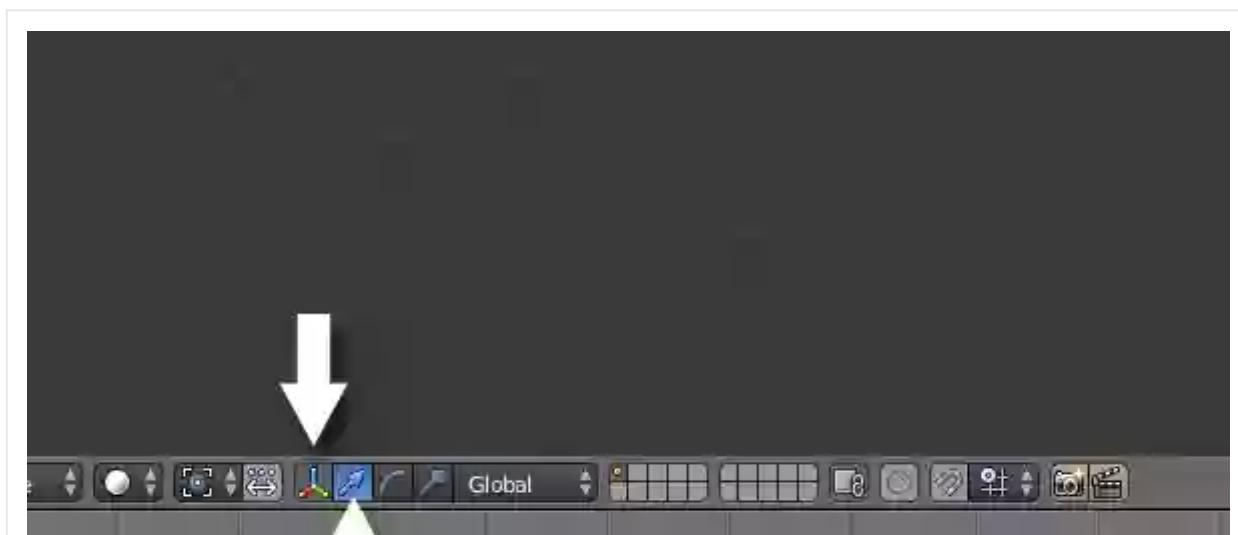
By default the plane is aligned to the grid floor. Press **TAB** to enter

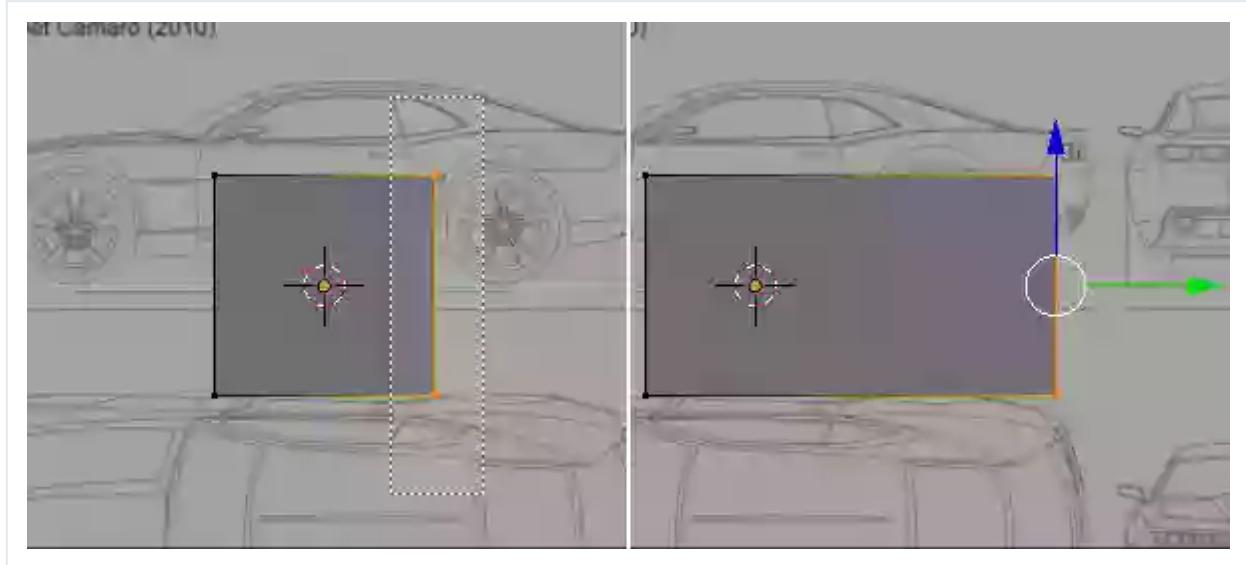
By default the plane is aligned to the grid floor. Press **IAD** to enter into **Edit** mode. We need to rotate it **90** degree, so that it is aligned to the right view. With all the vertices selected, press **R** (to rotate), then **N** (to enter a numeric value) and then type **90** (for 90 degrees). Finally press **Y** (to rotate on the Y axis) and press **Enter** to confirm. You can press **T** and **N** to hide the **Properties** panel and Toolshelf.



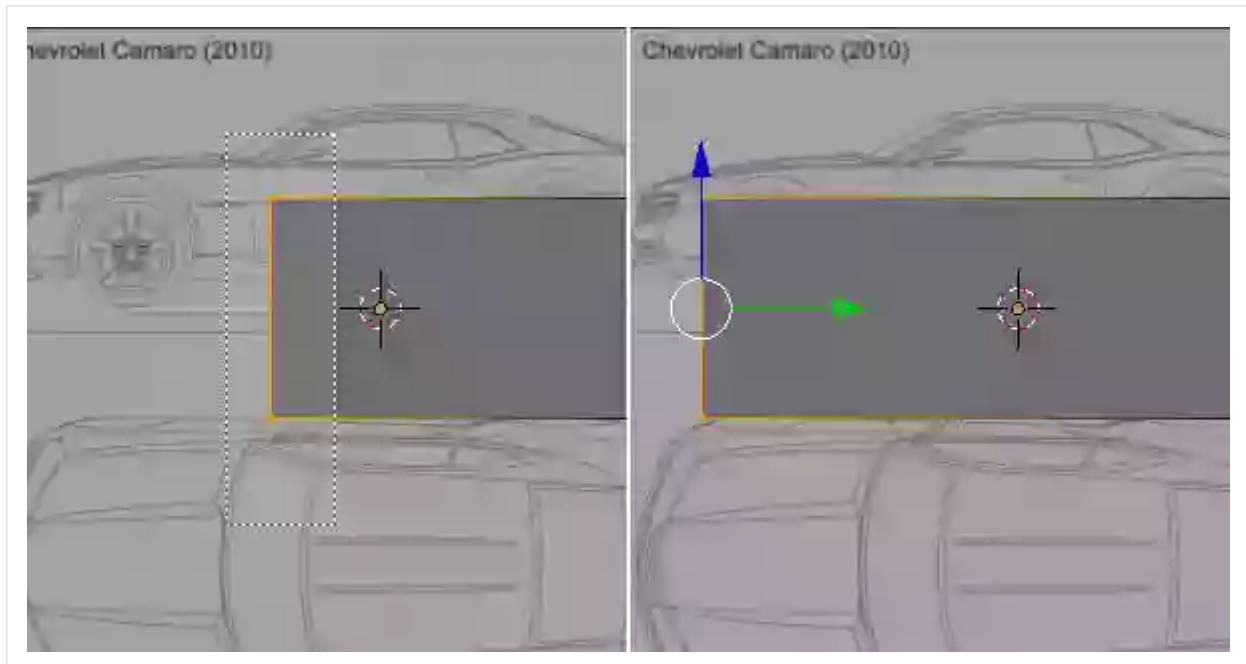
### Step 3

Press **B** to drag select the **two** vertices of the side. Drag them to the side edge of the car, with the arrow widget. You can turn On/Off the widget from the window header.





Similarly, drag the left **two** vertices to the edge of the car. Press **B** to drag select the vertices. Drag them to the side edge of the car with the arrow widget.

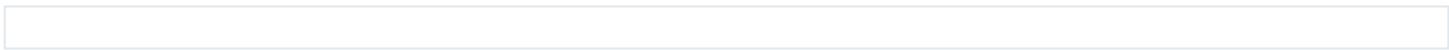


## Step 4

You can toggle between solid shading view and wireframe view with the **Z** key (so that we can see the reference image.) Drag select the bottom **two** vertices with the **B** key and then move them using the arrow widget to align them with the bottom line of the car.

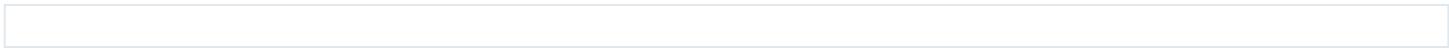


Again, drag the top **two** vertices to align them with the bottom border of the windows, as shown in the image.



## Step 5

Move your mouse over the mesh and press **Control-R** to create an edge loop and **Left Click** to confirm. Move your mouse and place it on the edge of the wheel cut. **Left Click** again to confirm the position.



## Step 6

Create another edge loop (**Control-R**) and place it on the other edge of the wheel cut.



## Step 7

Similarly place edge loops on the borders of the front wheel cut, as shown in the image.



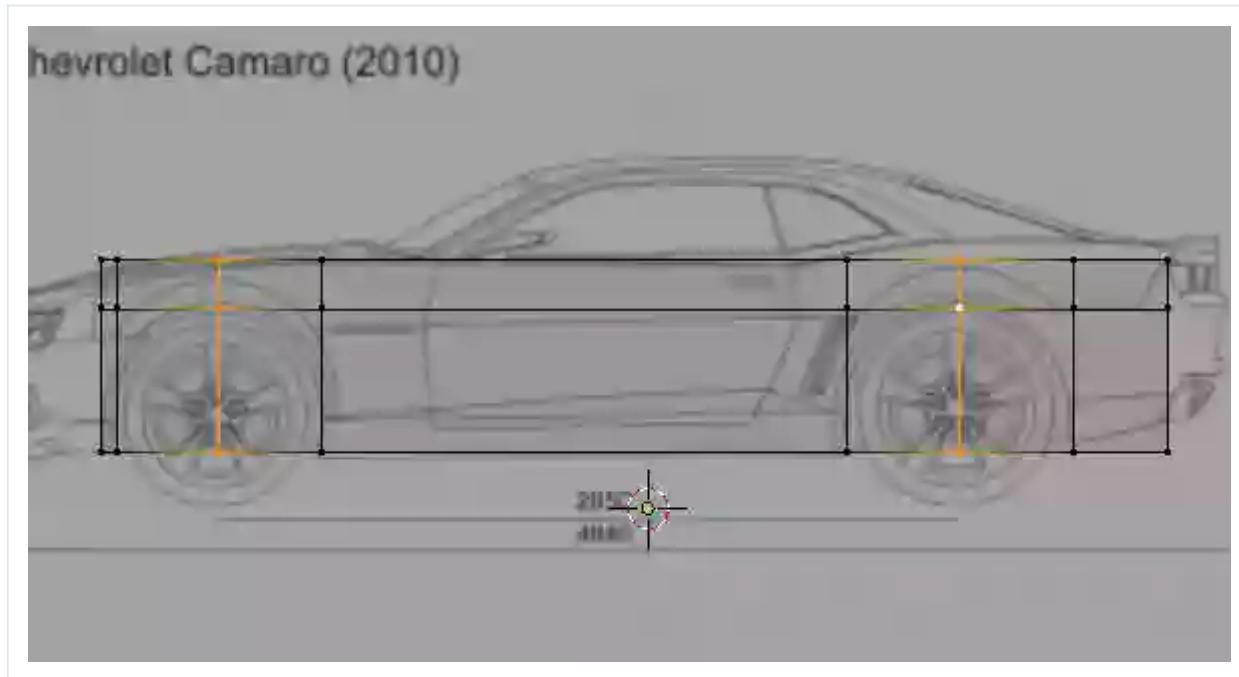
## Step 8

Add another edge loop, this time horizontal across the body, just above the tip of the wheel cut. Place your mouse over the mesh and press **Control-R**. Move the mouse near the sides to bring up the horizontal loop cut option, **Left Click** to confirm. Move the mouse up to place the loop on the top edge of the wheel cut, and **Left Click** again to confirm the position.



## Step 9

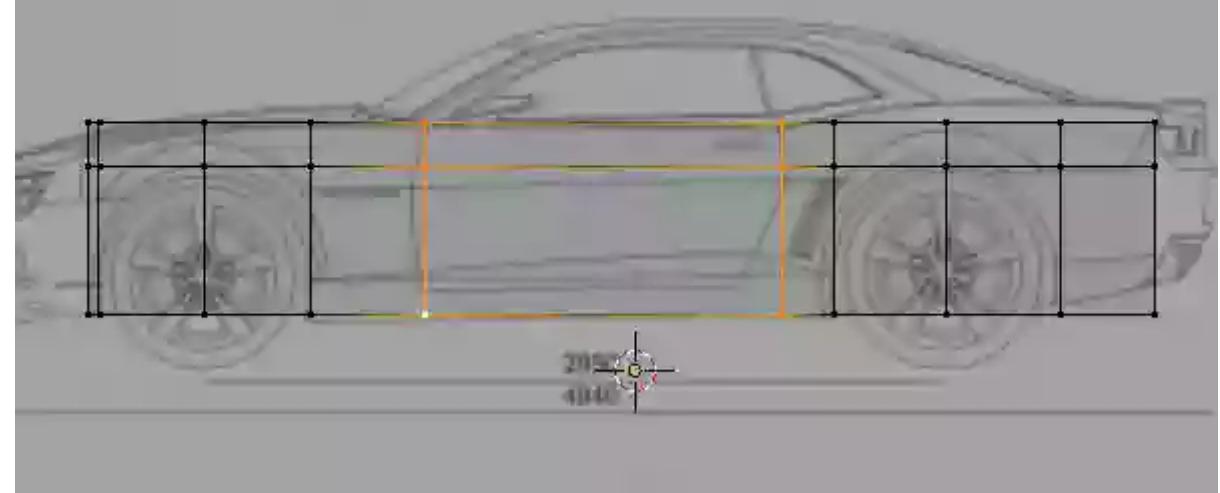
Add new edge loops exactly in the middle of both wheels, one by one.



## Step 10

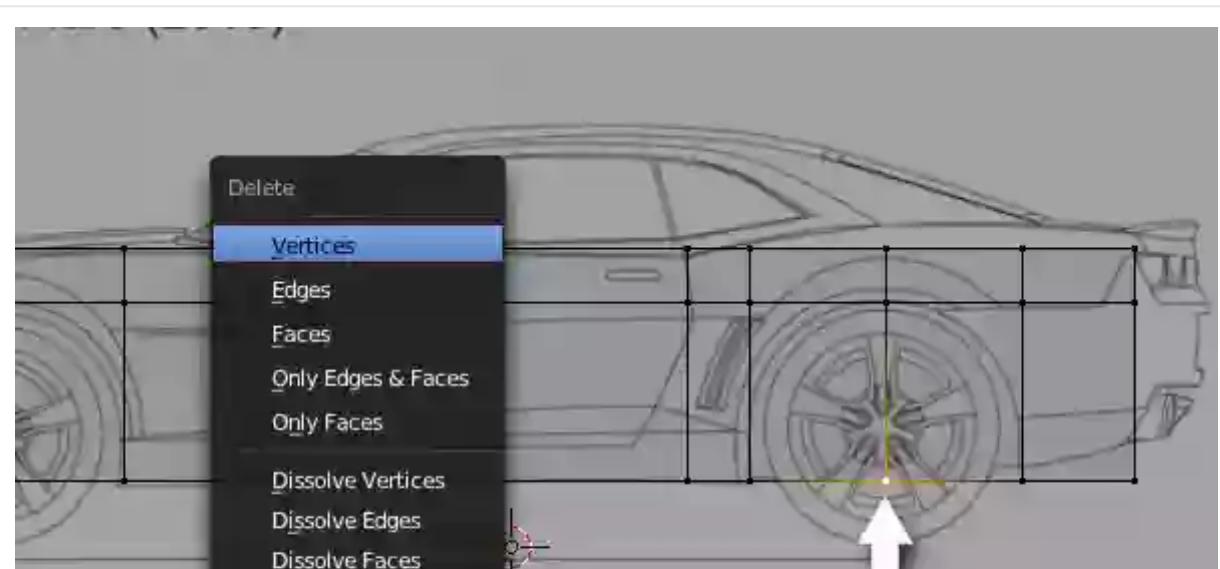
Add **2** more edge loops each for the borders of the door. Create and place them one by one.

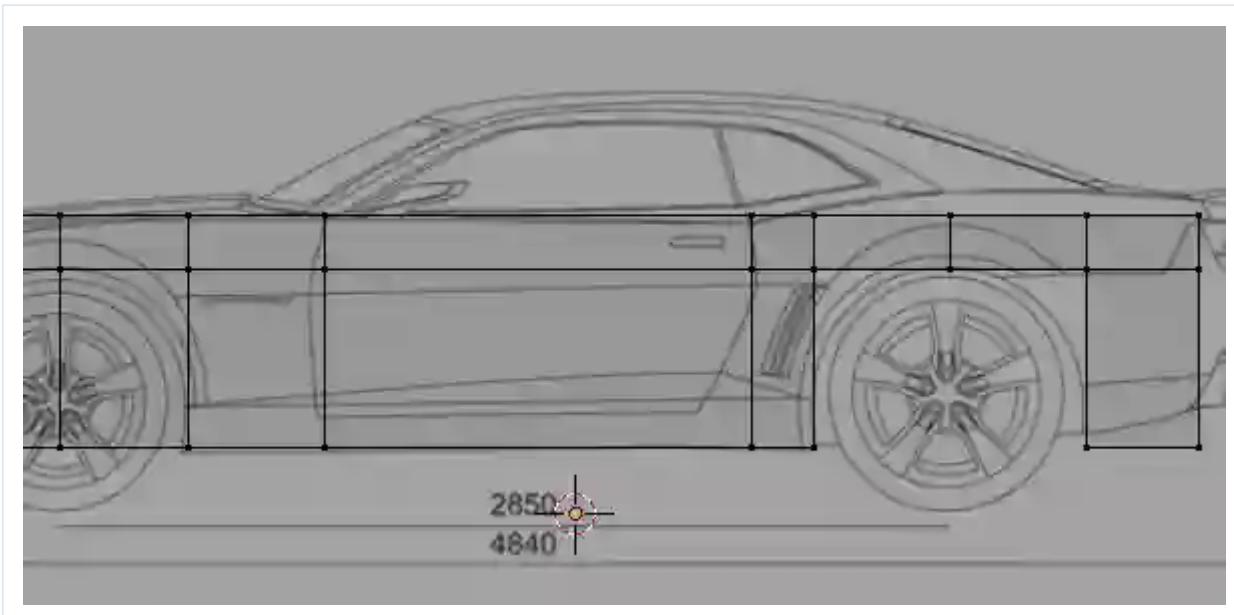
## Chevrolet Camaro (2010)



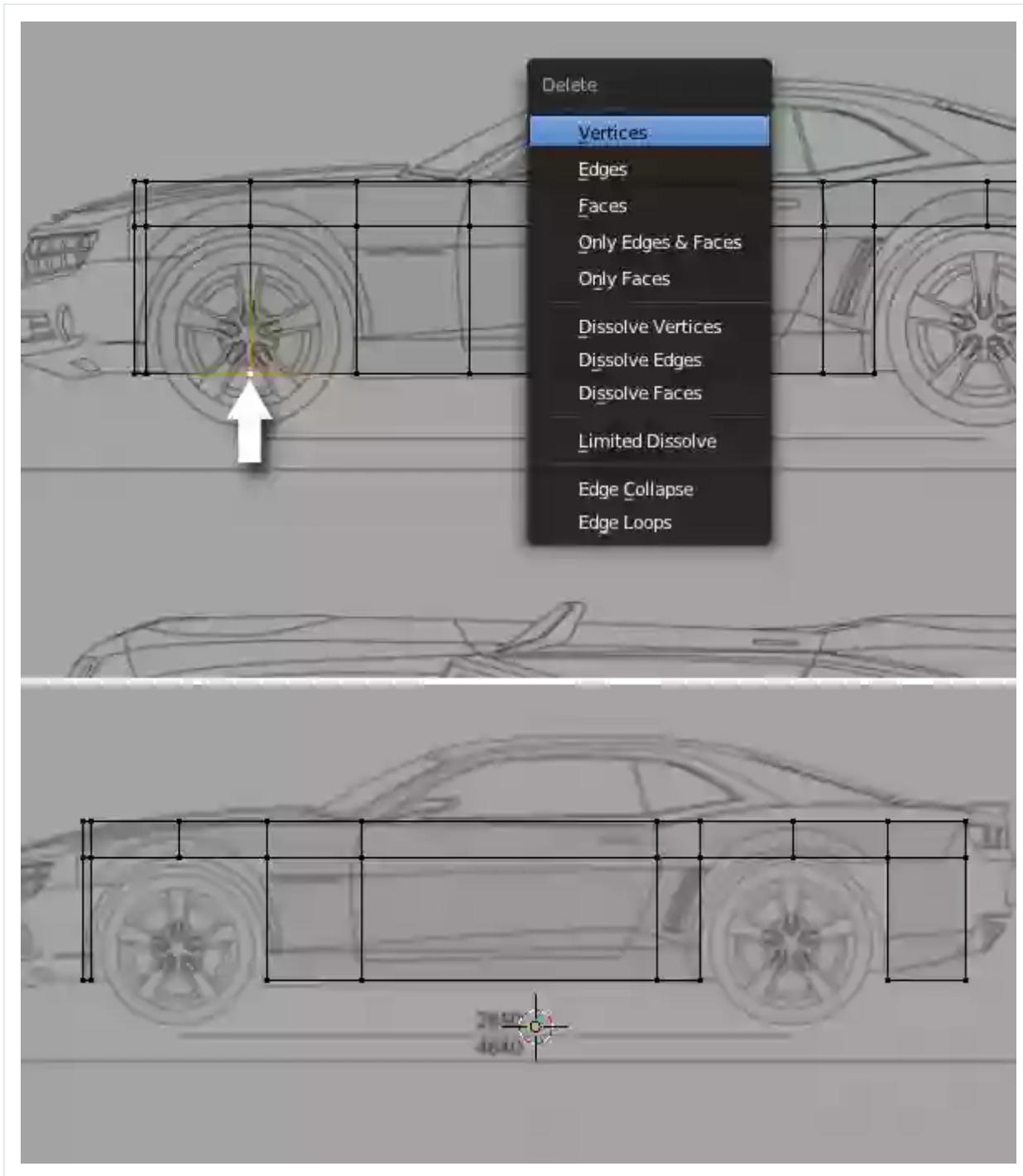
### Step 11

Right Click on the vertex in the center of the wheel, as shown in the image. Press **Del** to delete it.



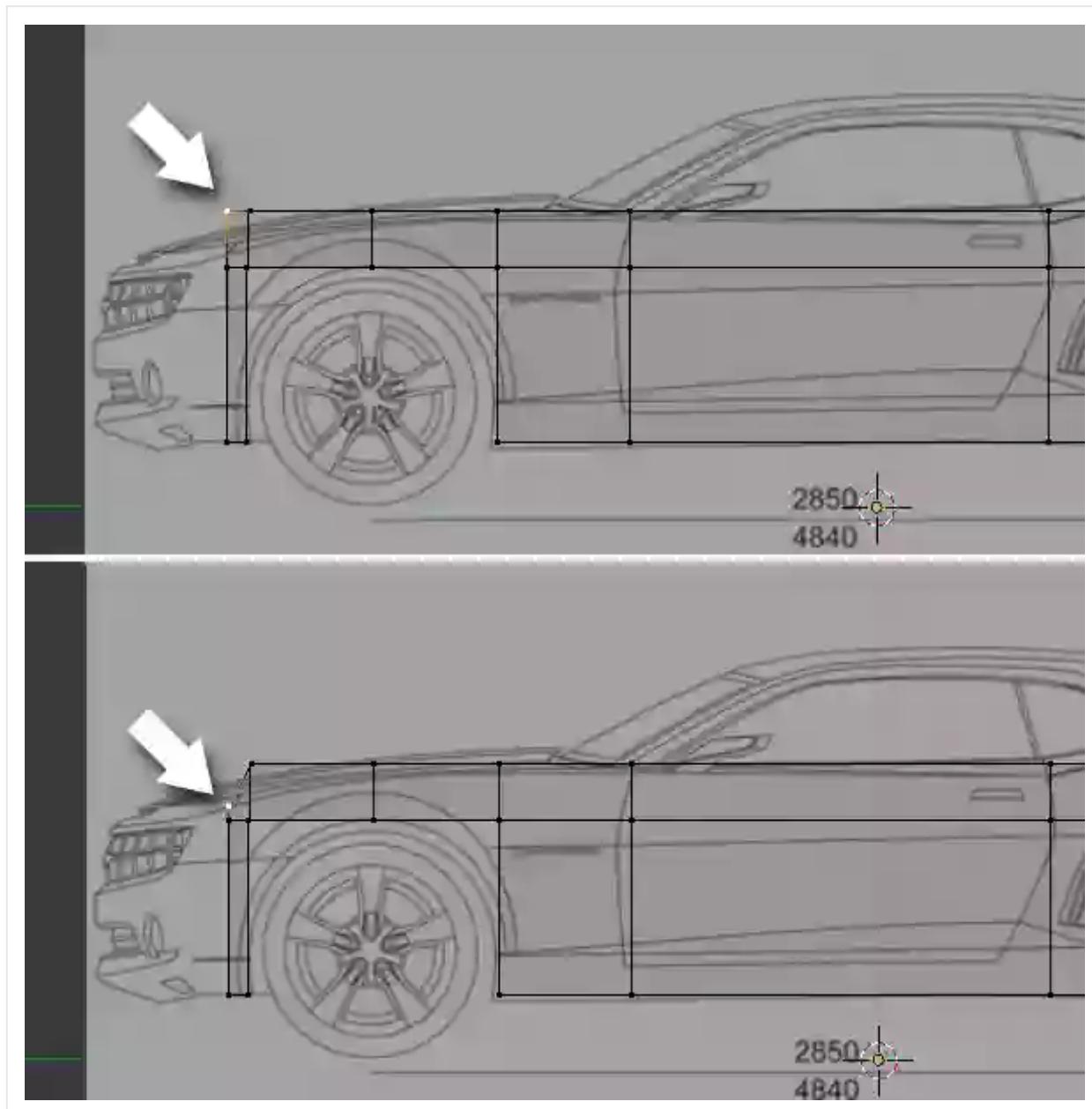


Similarly select the middle vertex of the wheel by **Right Clicking** and then delete it by press the **Del** key.

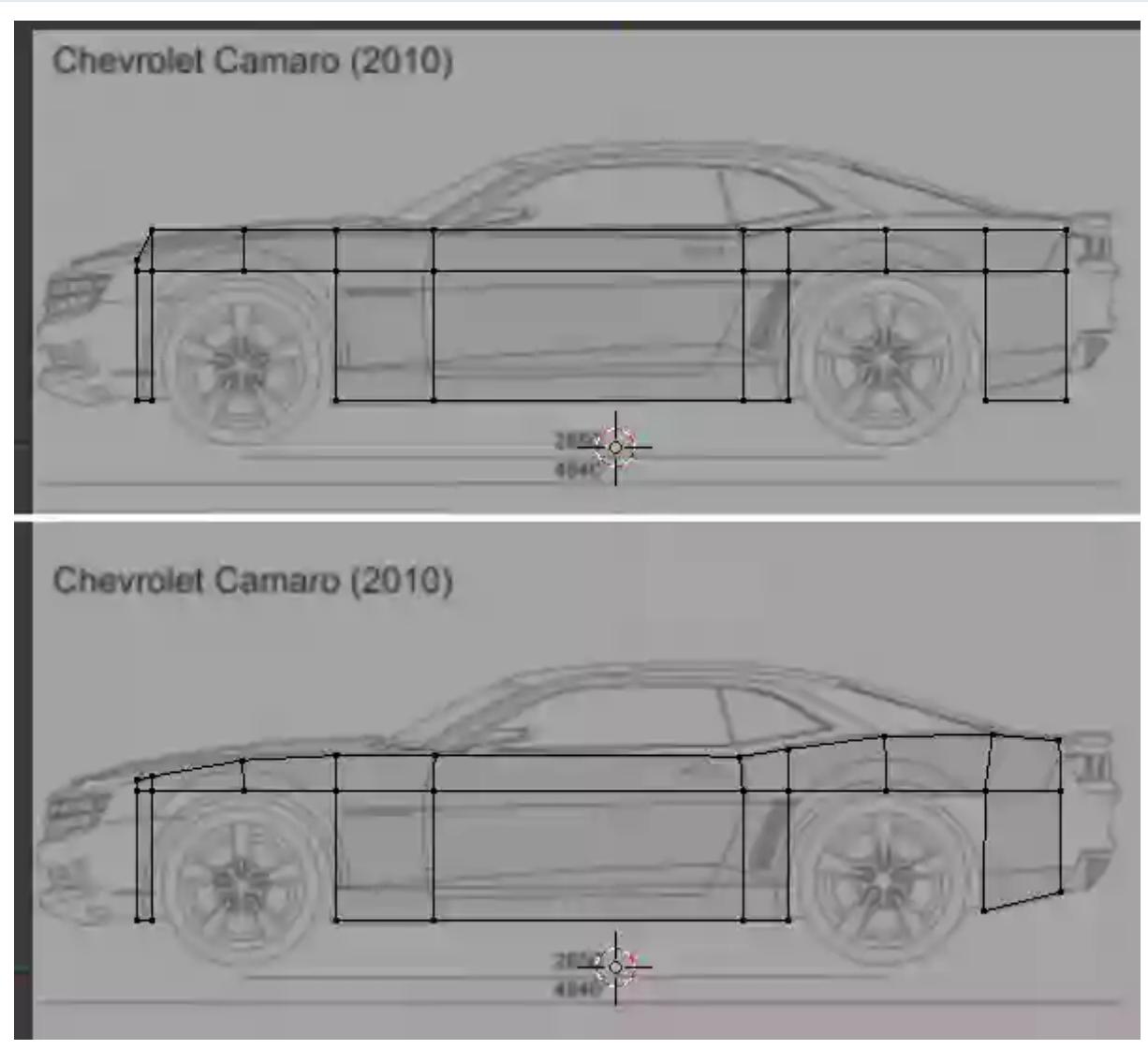


**Step 12**

**Right Click** on the top corner vertex to select it. Press **G** on the keyboard and move the point downwards to match the reference line. **Left Click** to confirm the position.

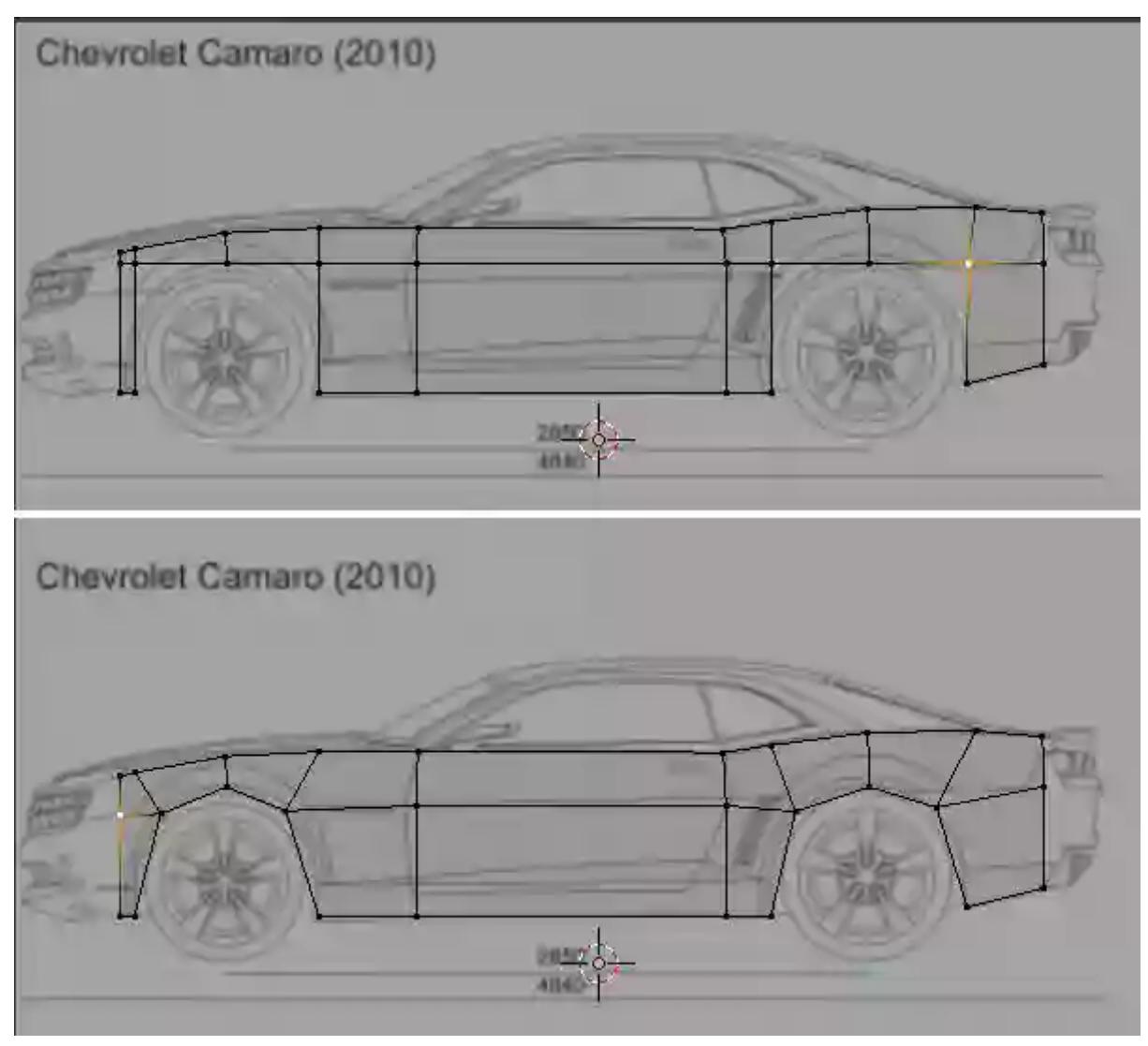


Move and match all the points one by one, with the side line of the car in the reference image.



### Step 13

Again, move the vertices of the wheel cut to give a nice round shape. *Don't move them down too much, as we will add more vertices.*

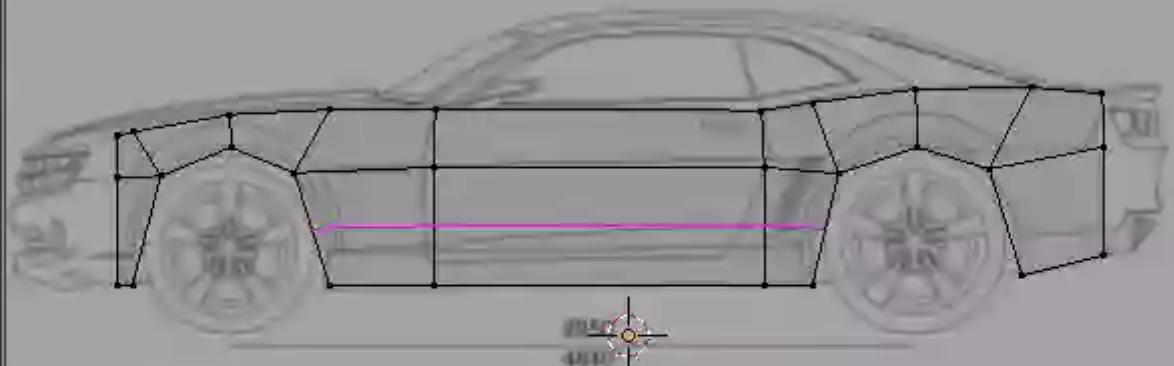


## Step 14

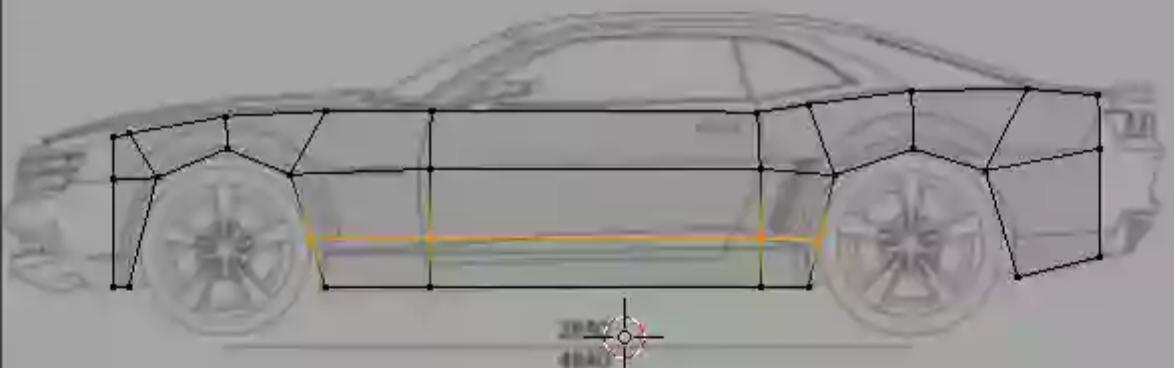
Add a new edge loop as shown in the image below. Move your mouse over the mesh and press **Control-R** to add an edge loop.

**Left Click** to confirm and then place it around the bottom. **Left Click** again to confirm. Move and tweak the outer vertices to give it a nice round shape.

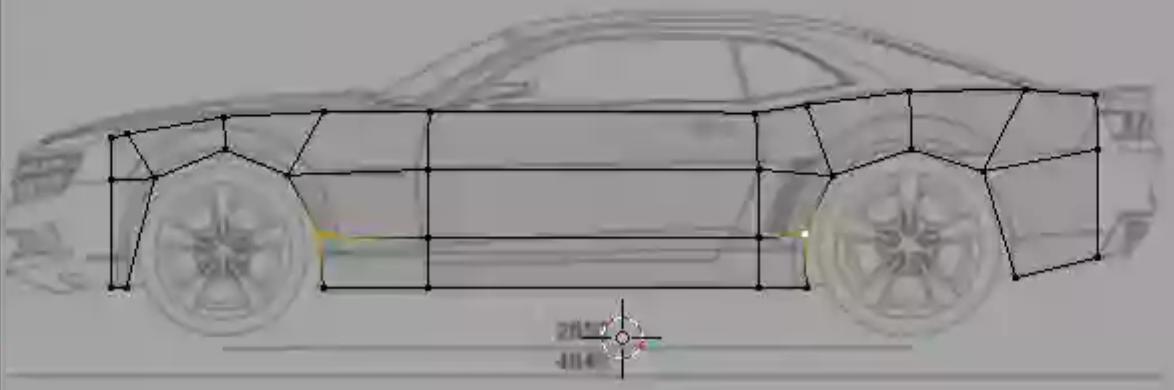
Chevrolet Camaro (2010)



Chevrolet Camaro (2010)

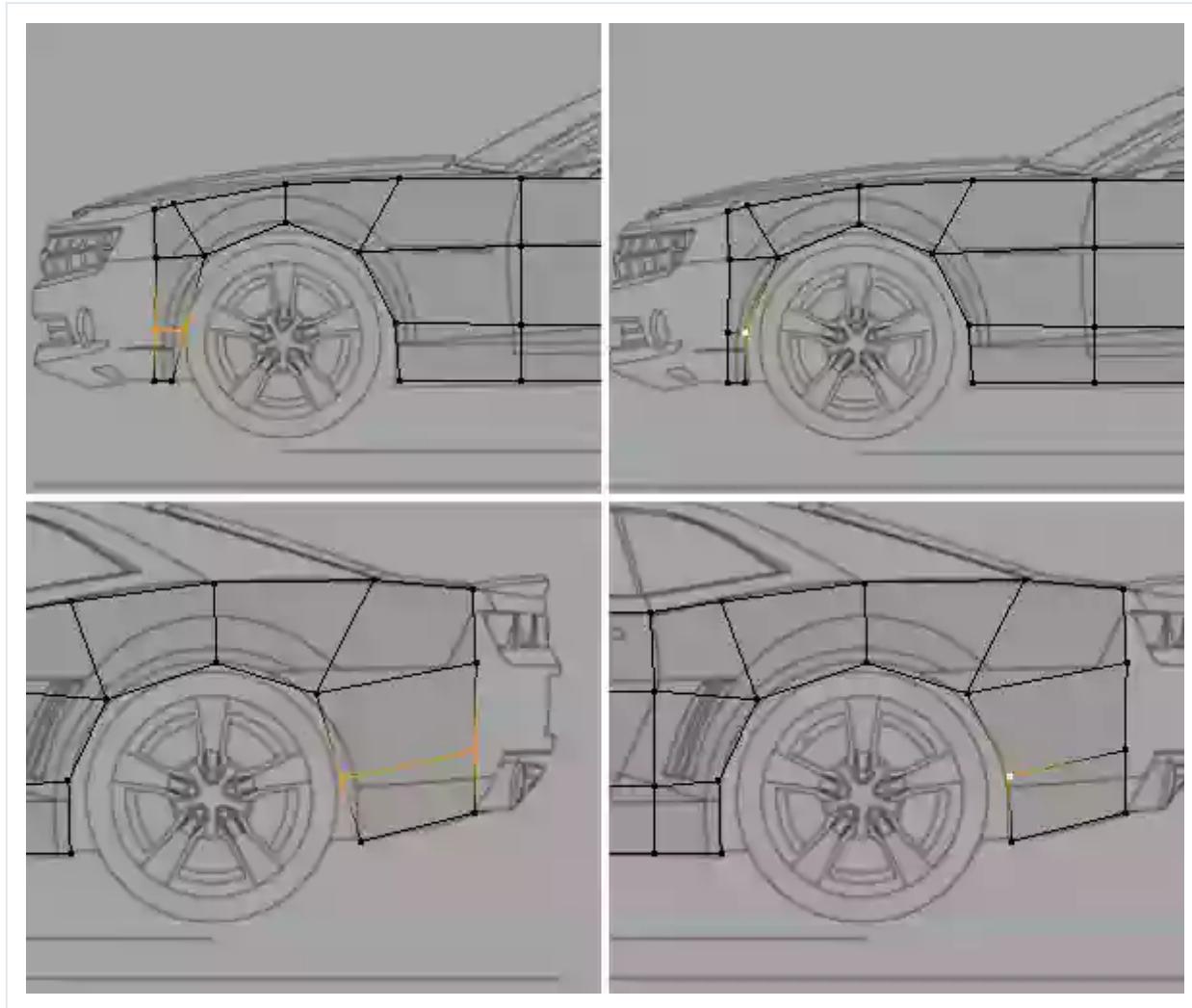


Chevrolet Camaro (2010)



## Step 15

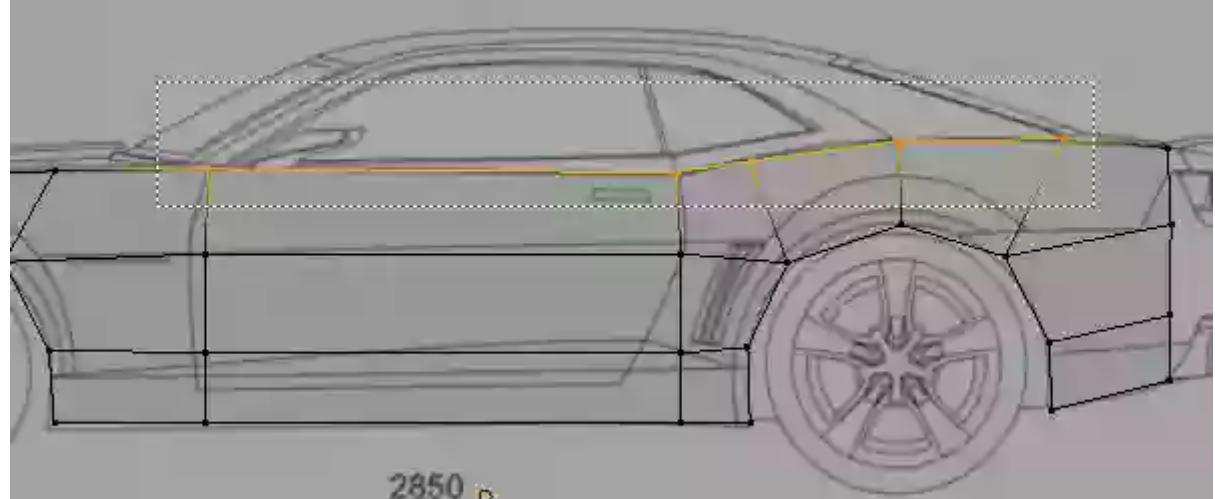
Similarly add another edge loop to the front and back parts, and then move the vertices to give it a round shape. Remember to **Right Click** to select a vertex, and use **G** to move.



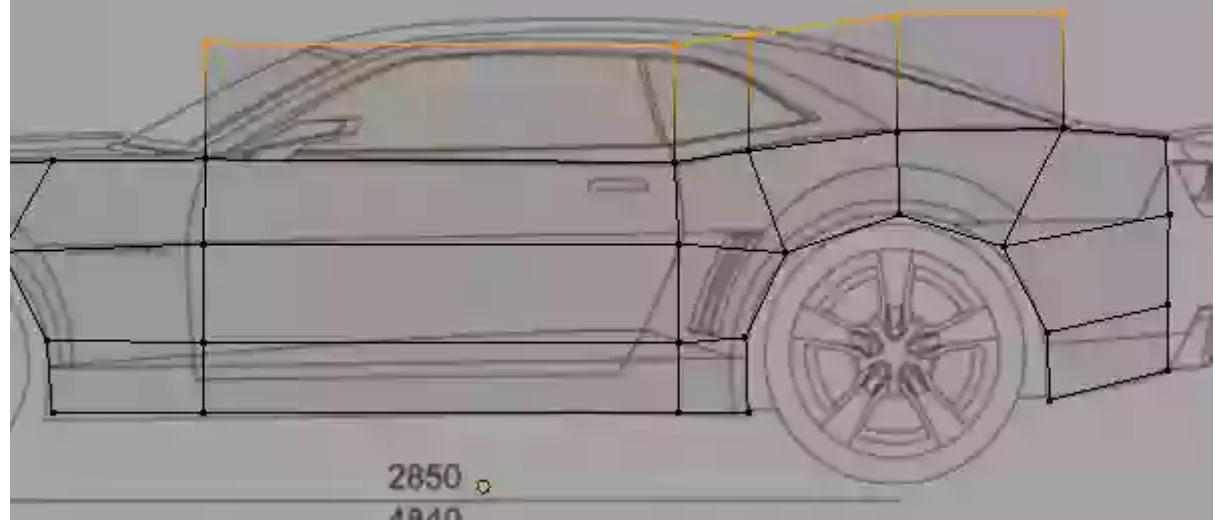
## Step 16

Press **A** to deselect any vertices, and then press **B** to drag select the top vertices as shown in the image. Press **E** to extrude them. Move your mouse upward and then **Left Click** to confirm.

TO (2010)



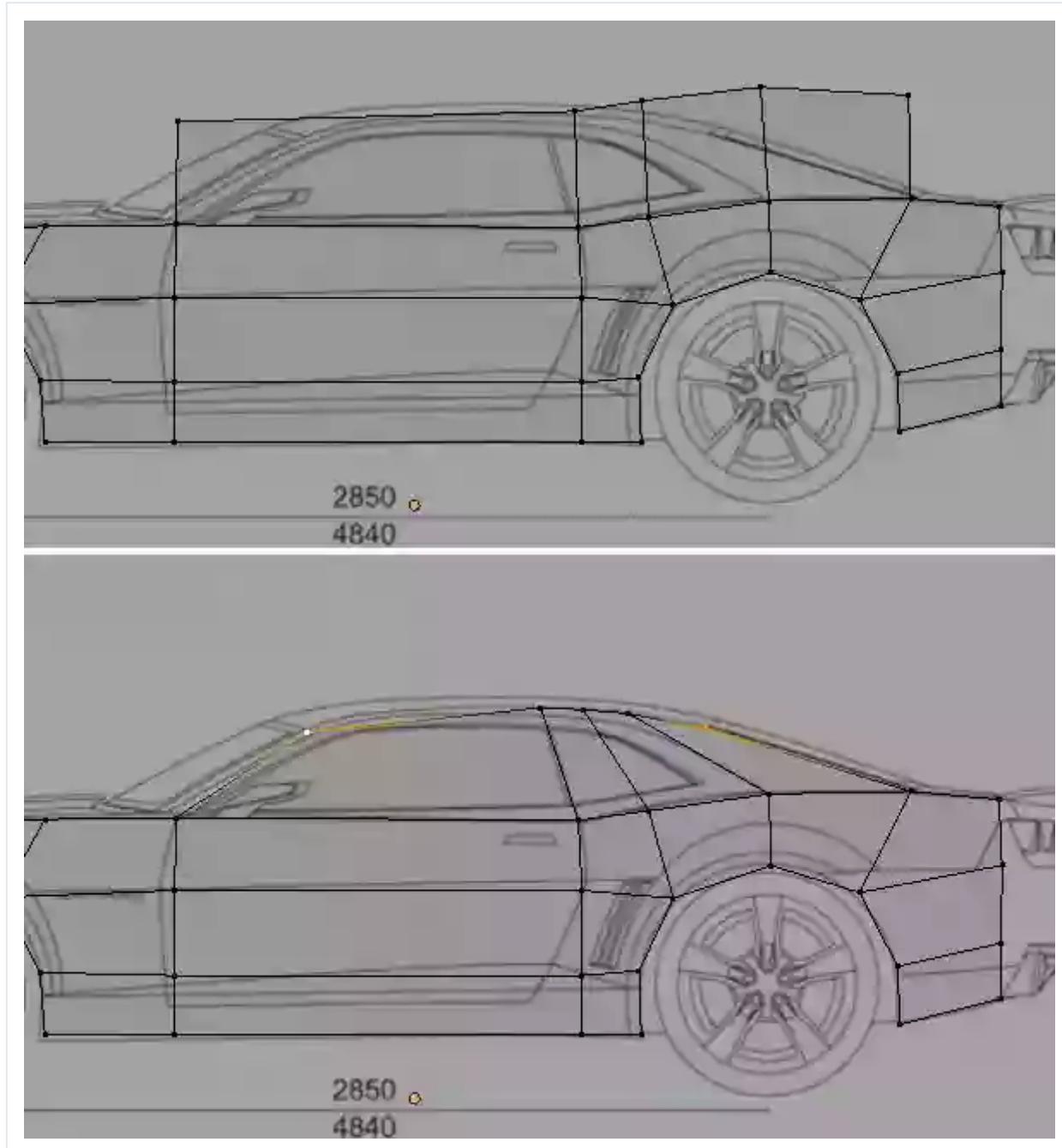
TO (2010)



## Step 17

Right Click to select a point. Press **G** and move it to match and

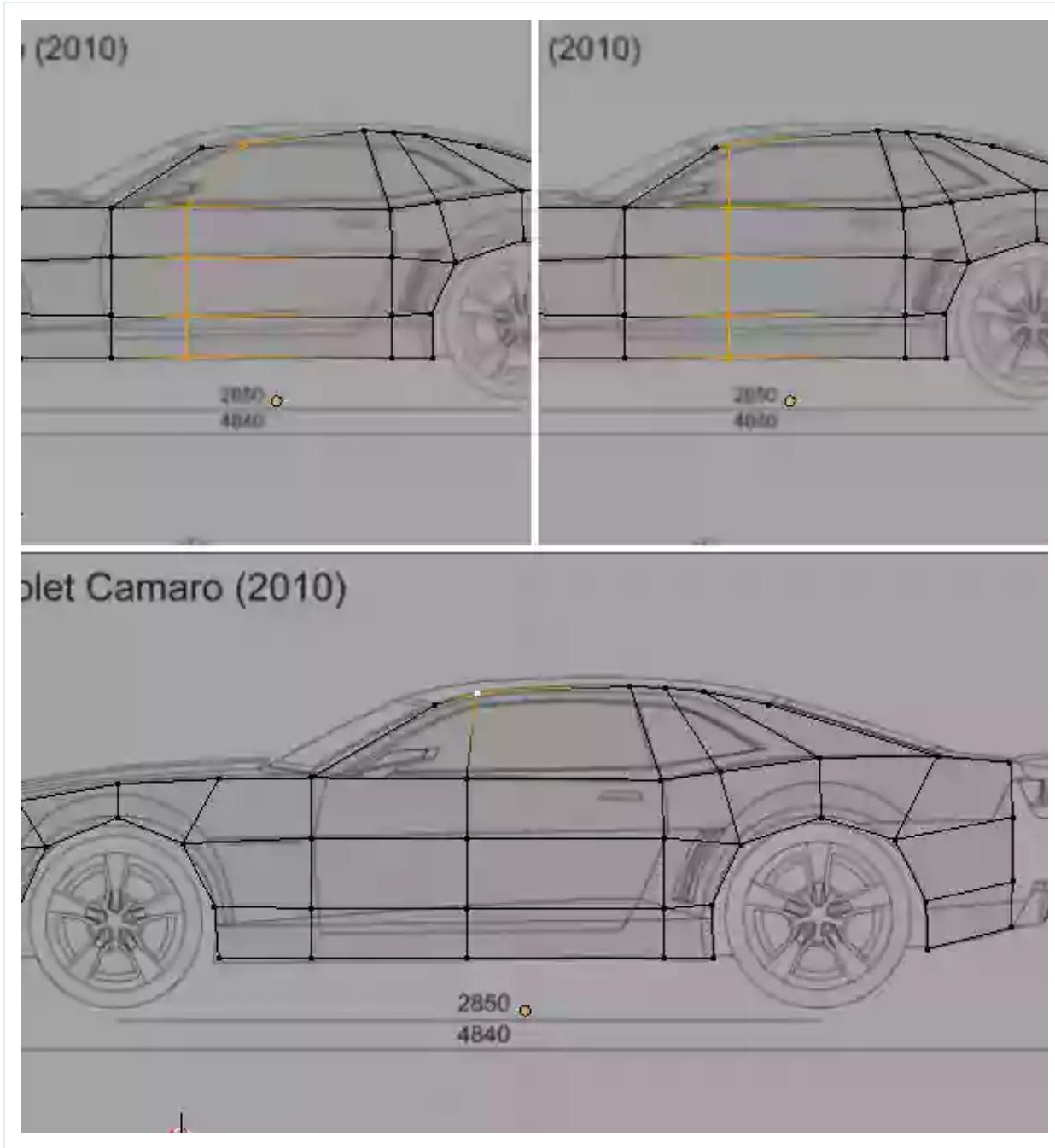
align it with the reference. Do the same for each point one by one, as shown in the image.



## Step 18

You can add another edge loop and move the top vertices to

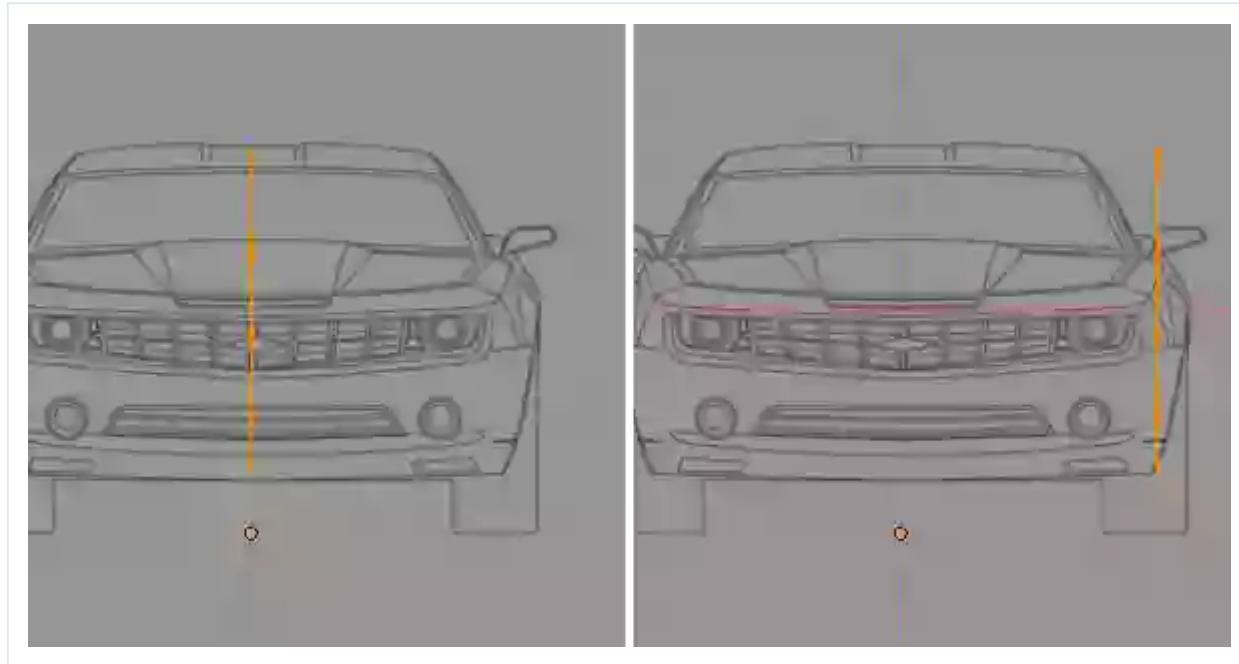
make the curve smooth. Press **Control-R** to create an edge loop and **Left Click** to confirm. **Right Click** to select the point and use **G** to move. Match the reference image and then press **Control-S** to save the file.



## Step 19

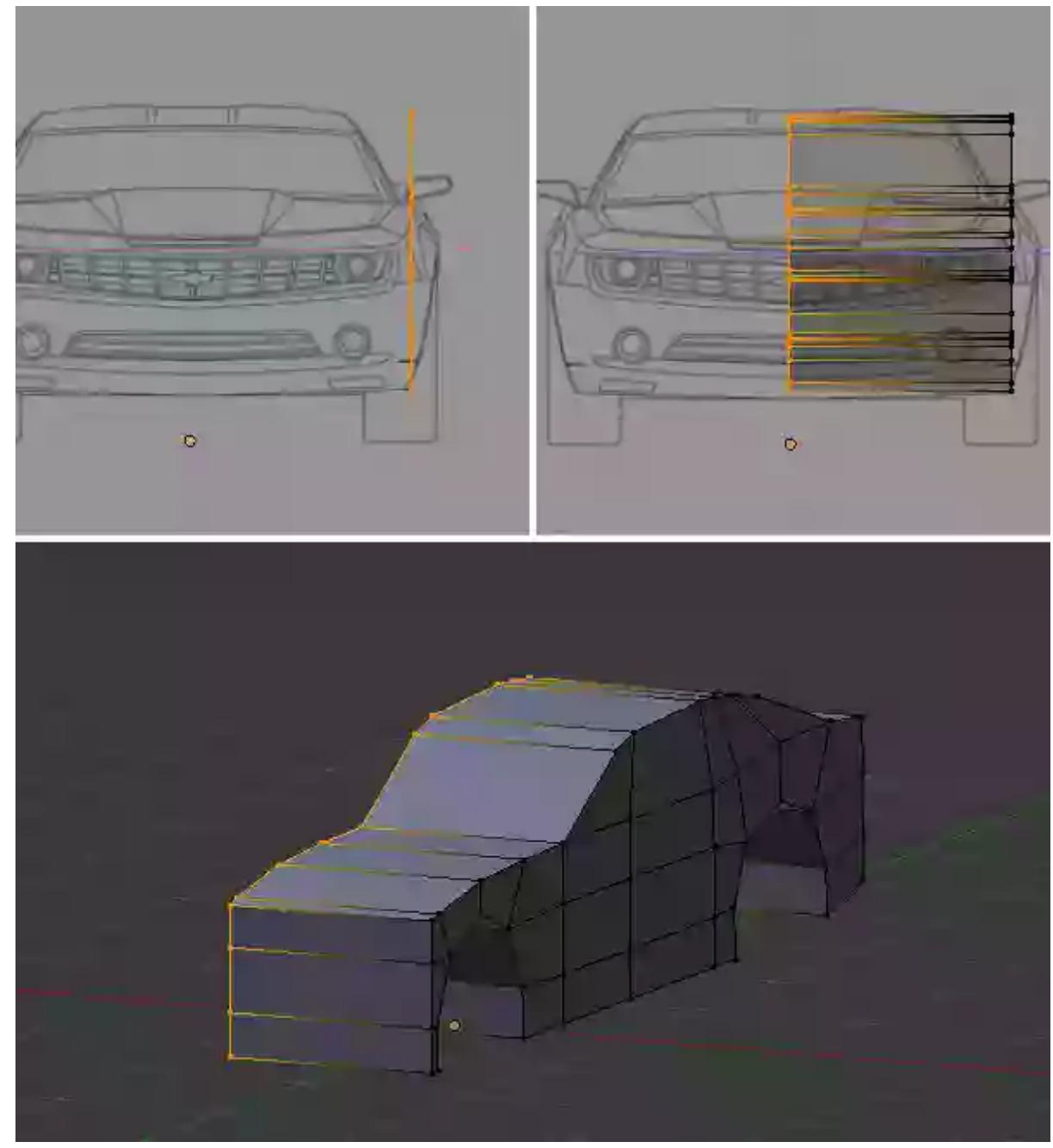
With the mouse in **3D** view, press **1** on the numpad to get into the

**Front view.** Press **A** to select all the vertices of the mesh. Press **G** and then **X** to move it along the **X** axis towards the side of the car. You can also use the arrow widget to move.



## Step 20

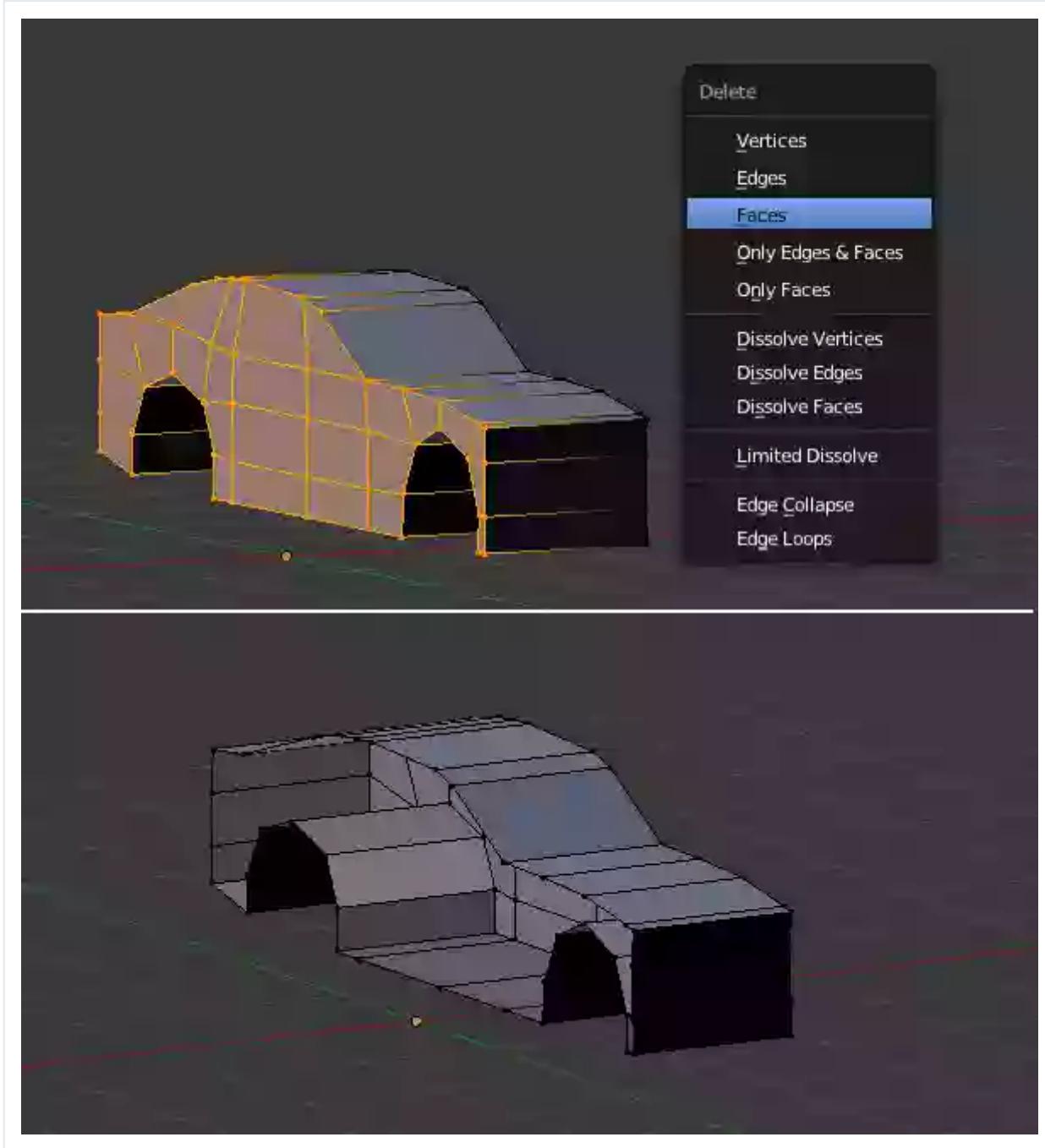
With all the vertices selected, press **E** to extrude the mesh. Move the mouse towards the center of the car and **Left Click** to confirm.



## Step 21

With the new faces selected, press **Del** to bring out the delete

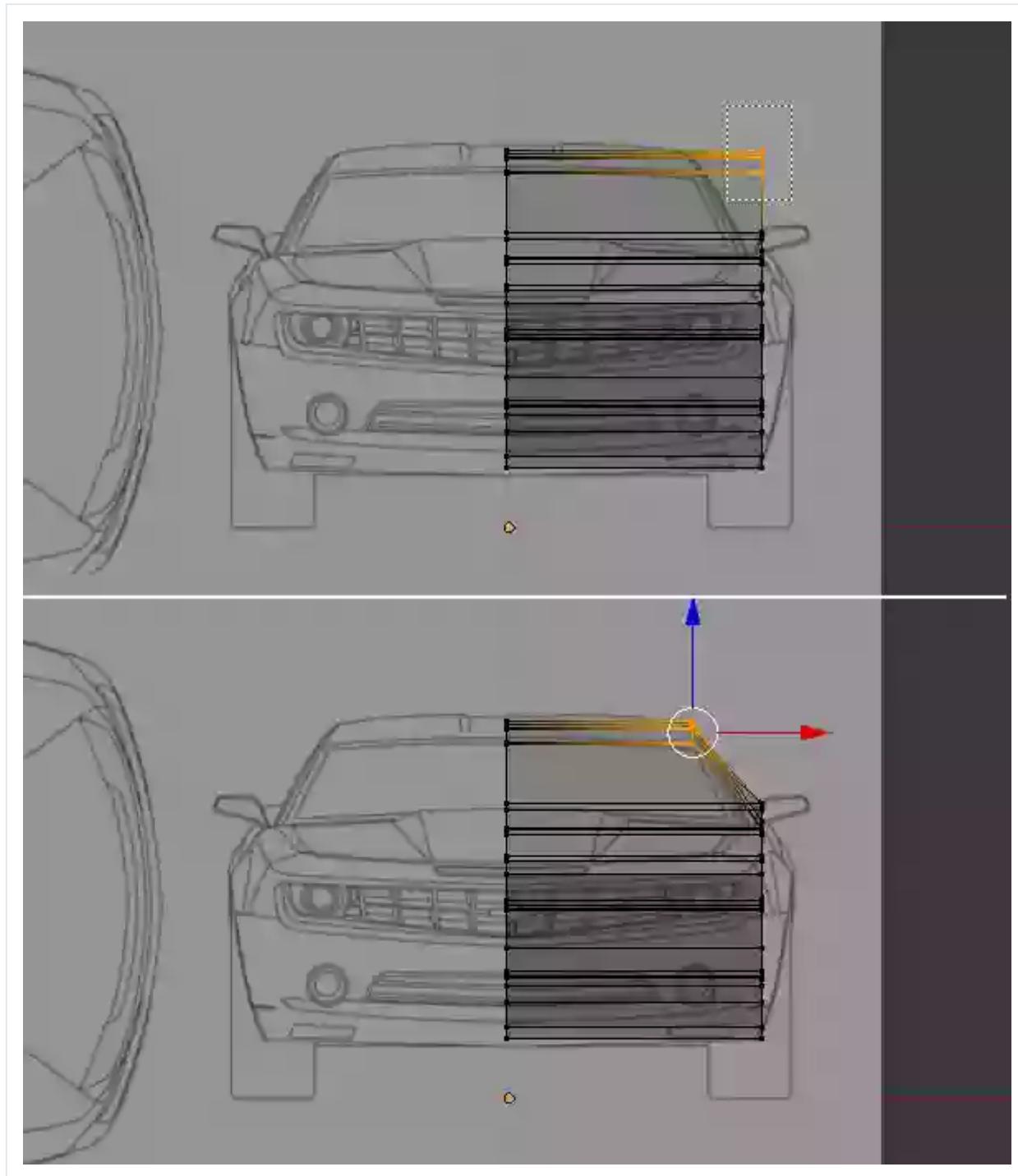
options and select **Faces**. We will be generating the other side with a modifier, so we don't need the middle faces. *Important:* Select all the vertices with **A** and then press **Control-N** to recalculate the normals of the faces.



## Step 22

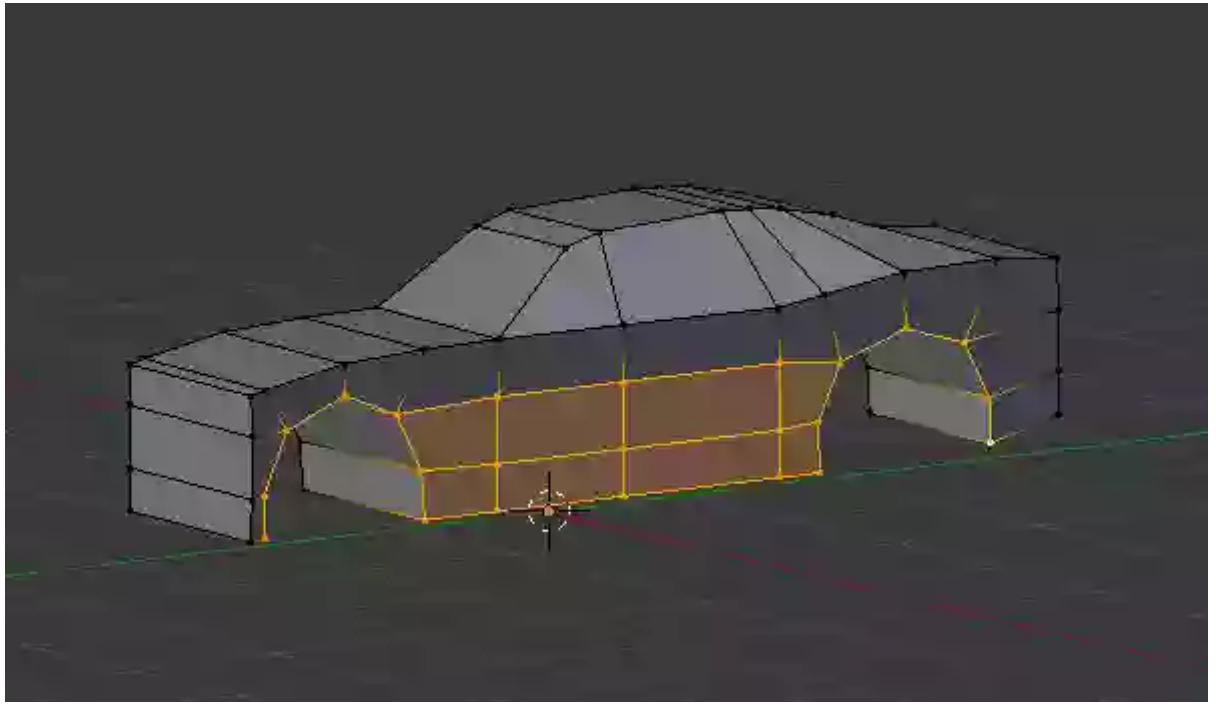
Press **B** and drag select the top corner vertices. Make sure you

are in wireframe mode (**Z** key) so that you don't miss any vertices while selecting.



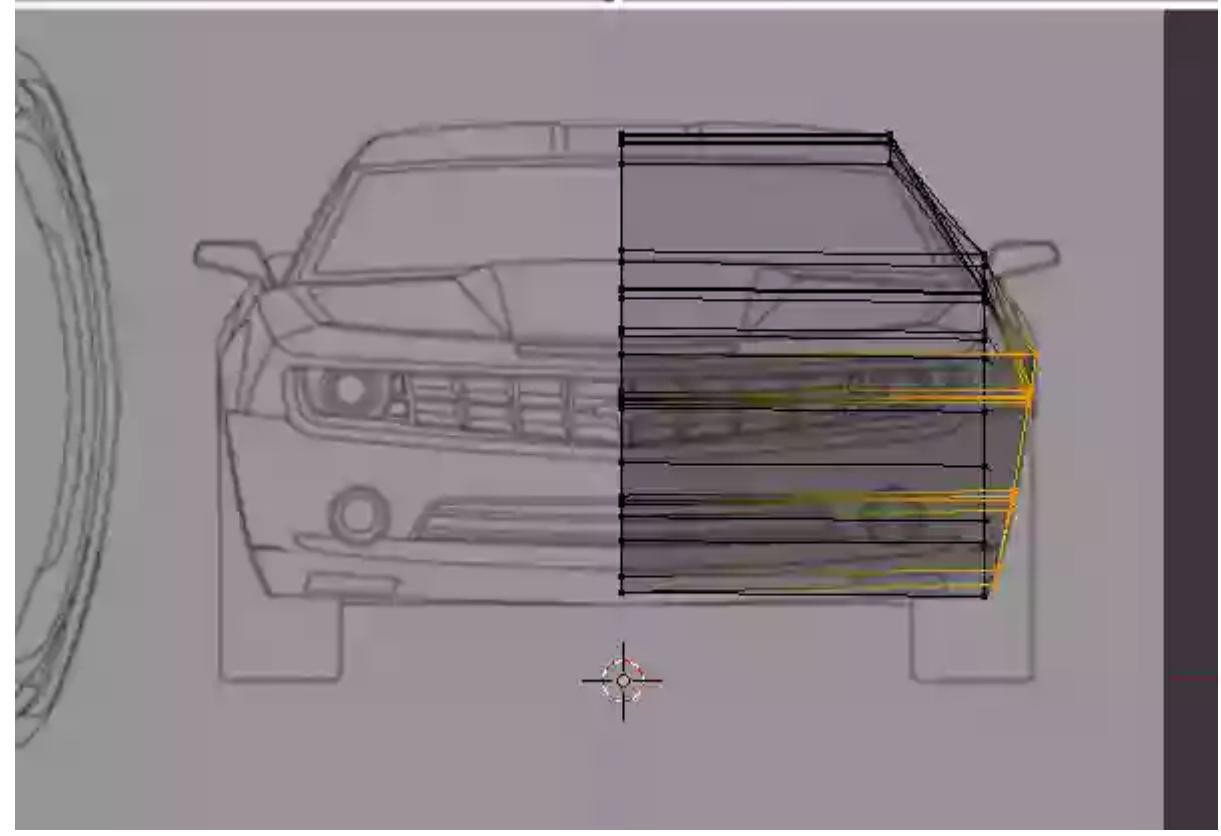
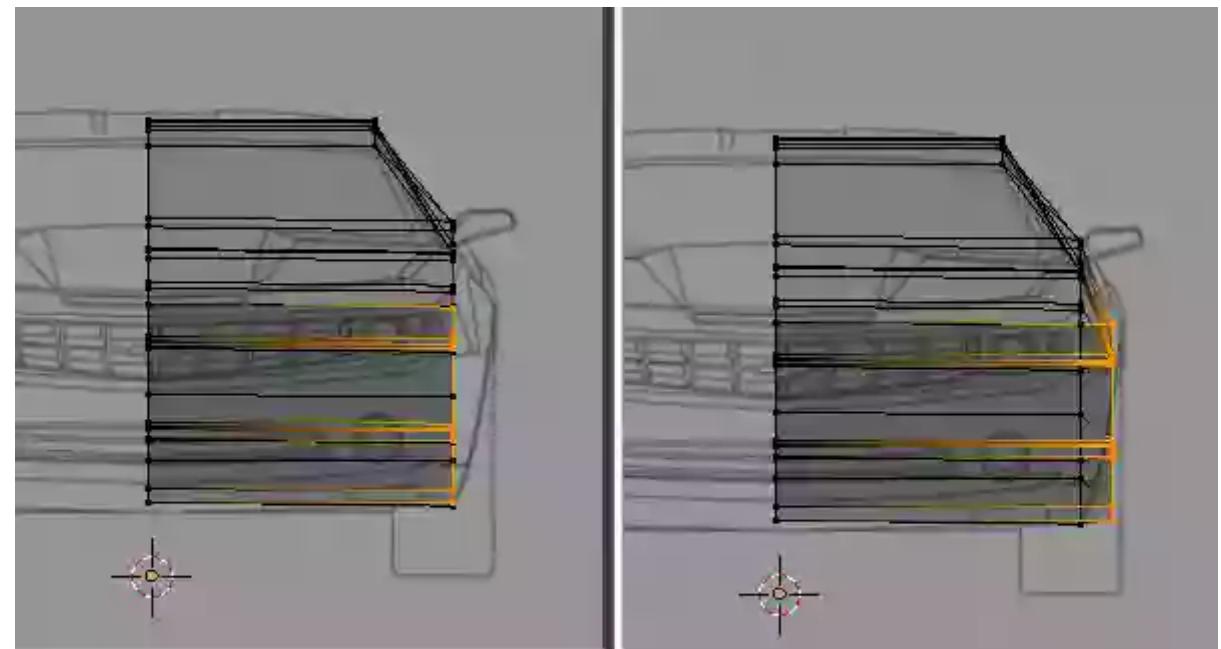
**Step 23**

Press **A** again to deselect any vertices. Now select the vertices covering only the wheel wells, and the body in between, just like in the image. Hold **Shift** and **Right Click** on the vertices for a multiple selection. Make sure you don't select any other vertices. If by chance you select any, then **Shift-Right click** again on that point to deselect it. Press **Z** to toggle between solid shade view and wireframe view.



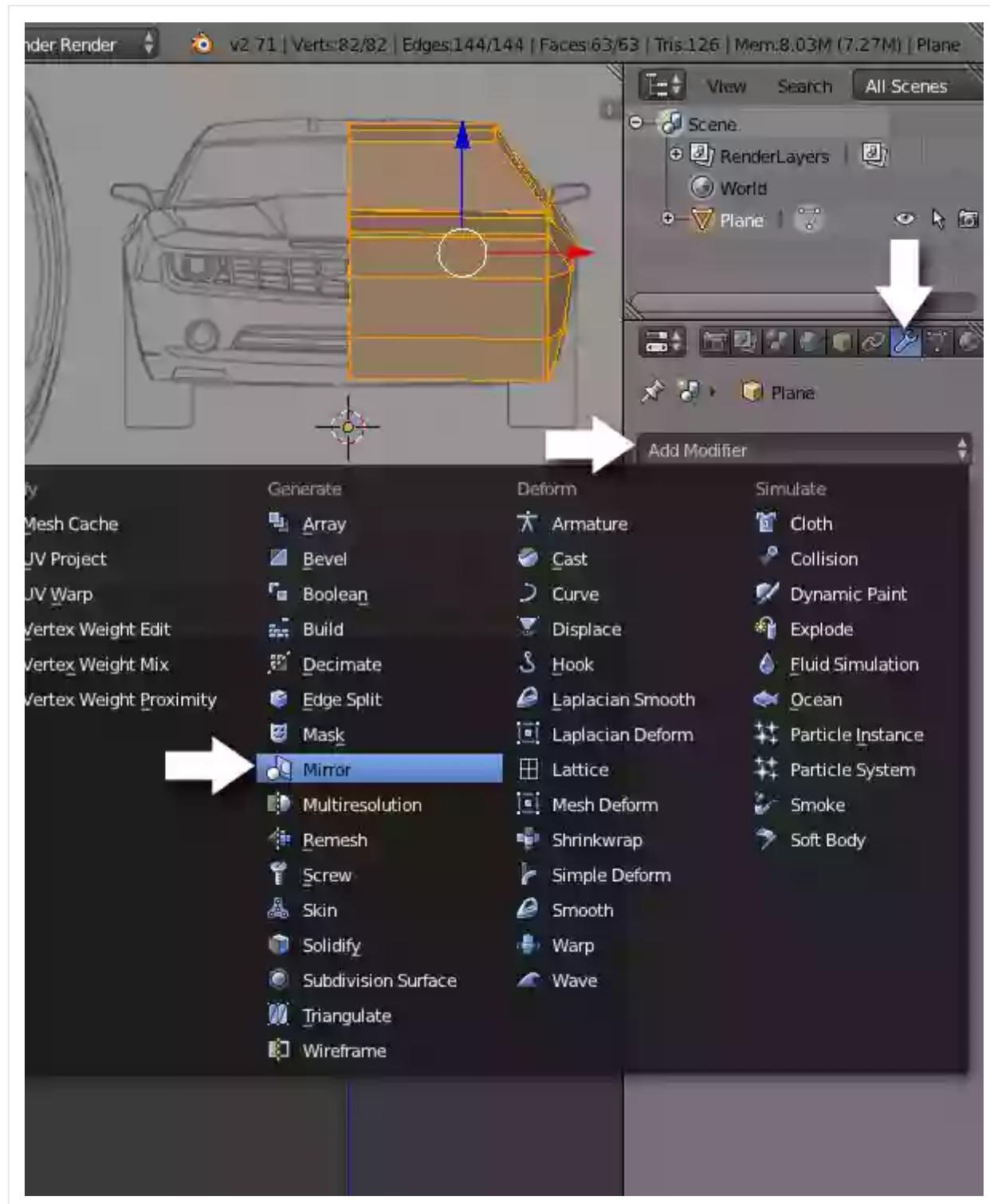
## Step 24

Press **1** on numpad to get into the **Front** view. Press **G** to move the selected vertices towards the side and **Left Click** to confirm. With the vertices selected, press **R** to **Rotate** them to match the side of the car. You can also tweak the individual vertices if needed.



## Step 25

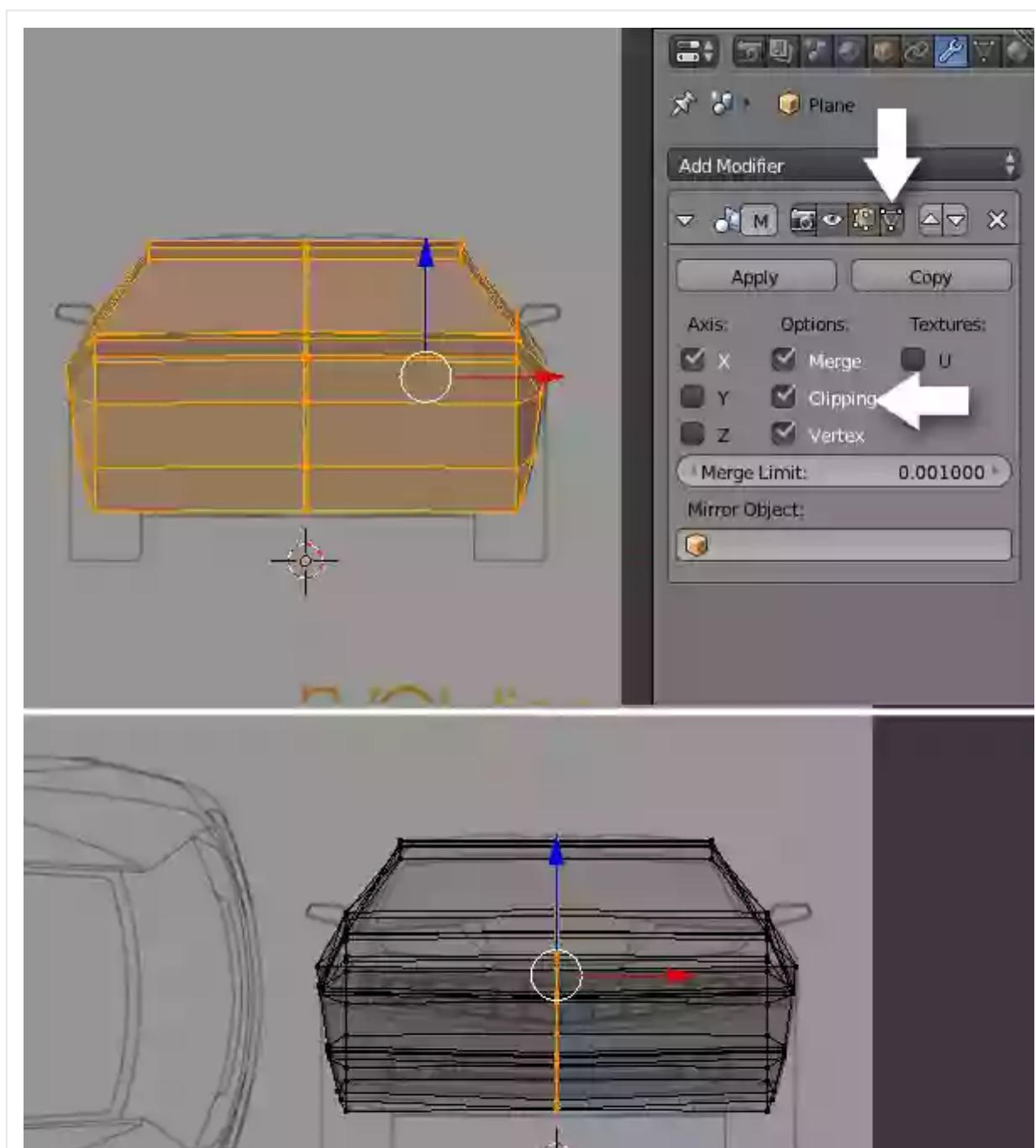
In the **Properties** panel, click on the **Modifiers** button. Press **Add Modifier** and select **Mirror**.

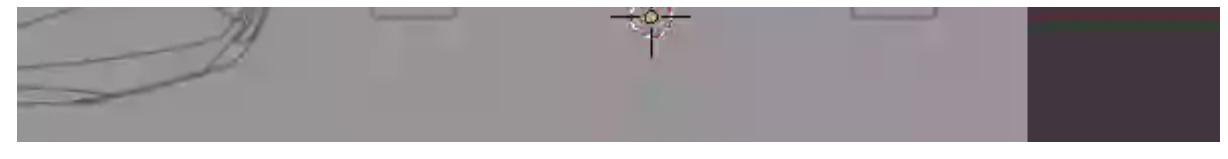


## Step 26

We see that the other half is generated by the mirror modifier. In the **Modifiers** panel press the **Editing** button and turn **Clipping** on. Clipping will prevent the center vertices from moving away from the mirror/center. If there is a gap in the center line of vertices,

then drag select them with the **B** key and then move them closer with the **G** key, or with the arrow widget.

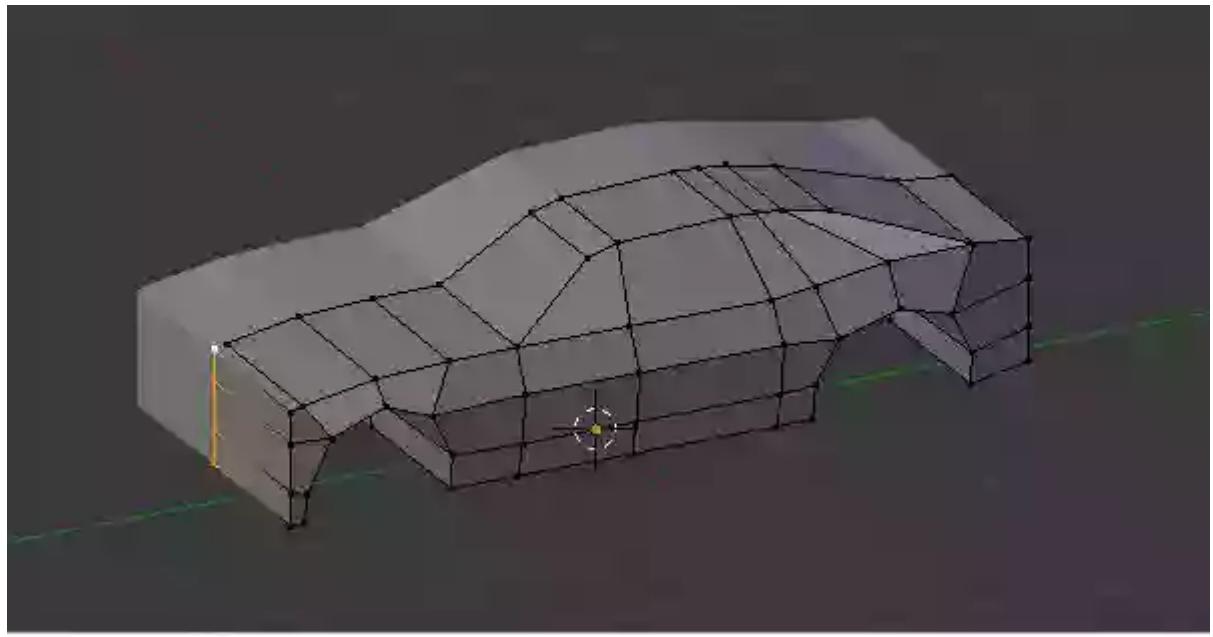




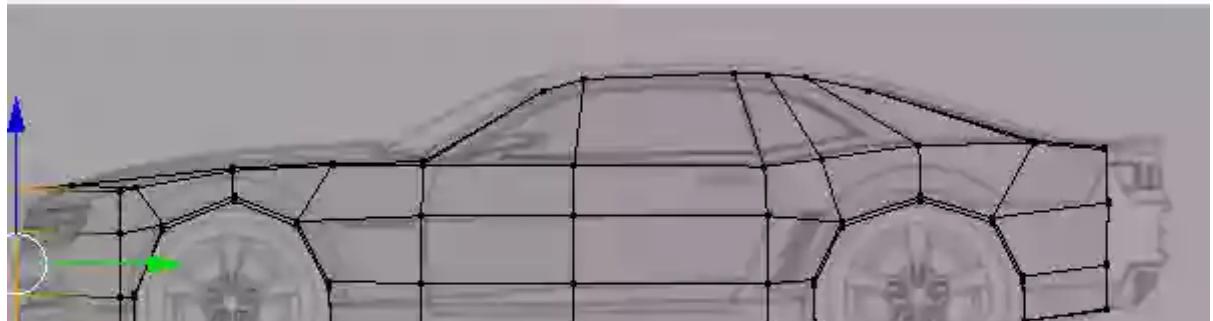
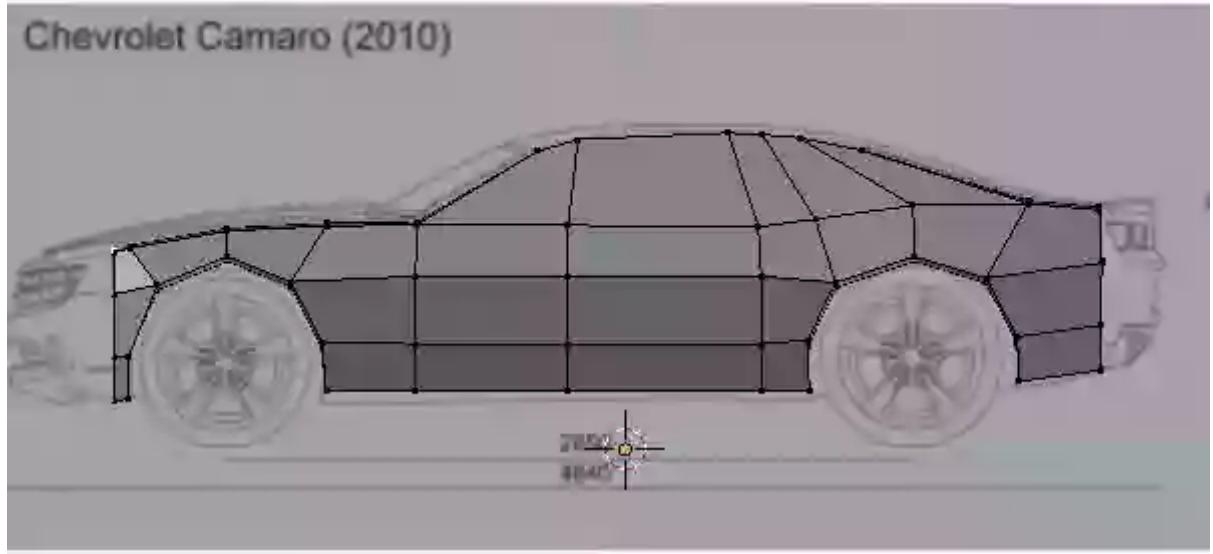
## Step 27

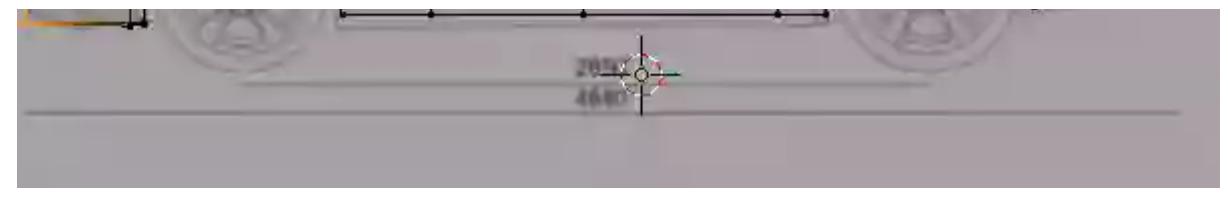
Select the **four** front vertices as shown in the image. Hold **Shift** and then **Right Click** on the vertices to select more than one

vertex. You can rotate the 3D view by pressing the middle mouse button and moving the mouse. Press **1** on the numpad to get into the side view. Move those selected vertices to match the reference image, using the Arrow widget to move.



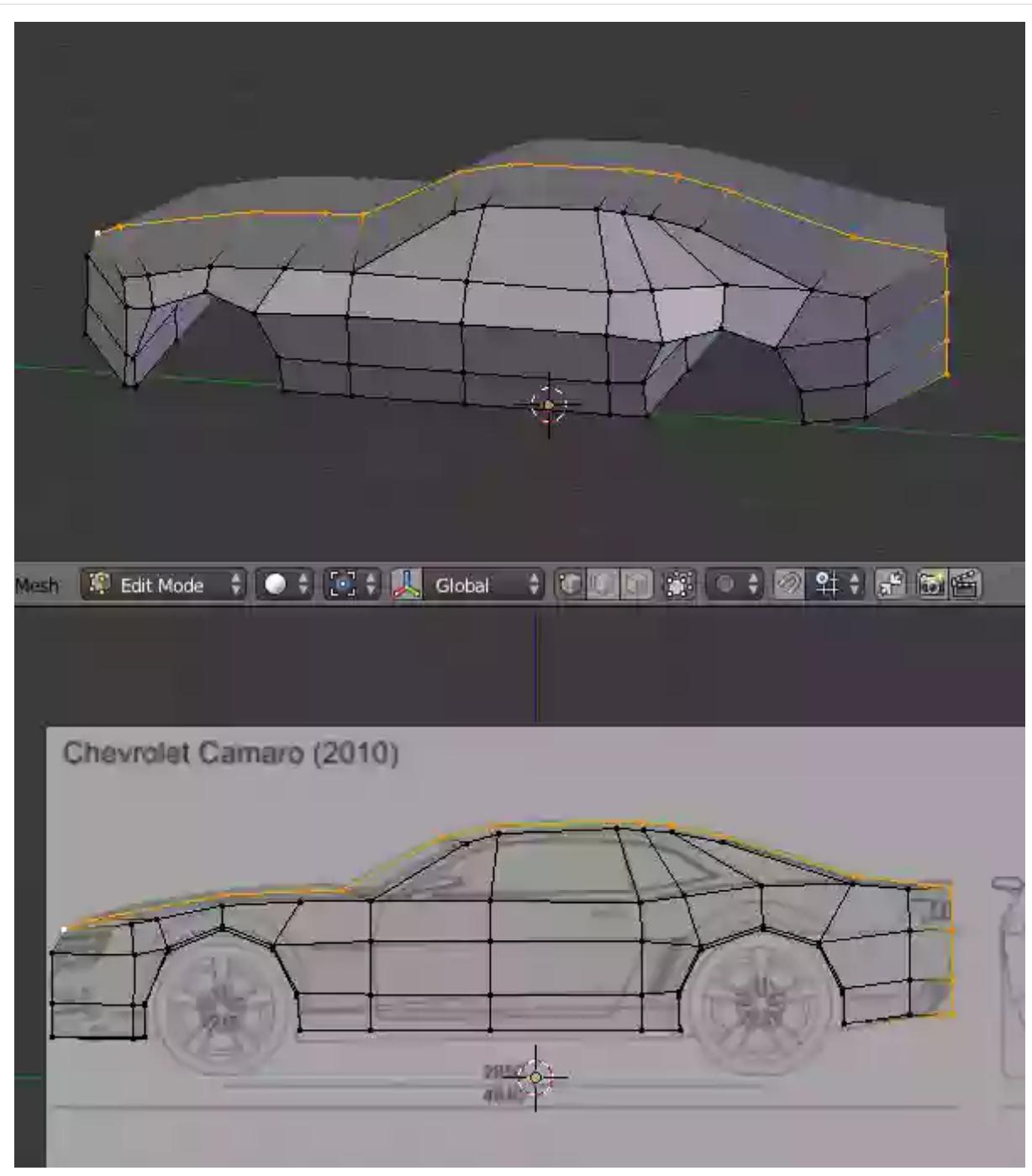
Chevrolet Camaro (2010)



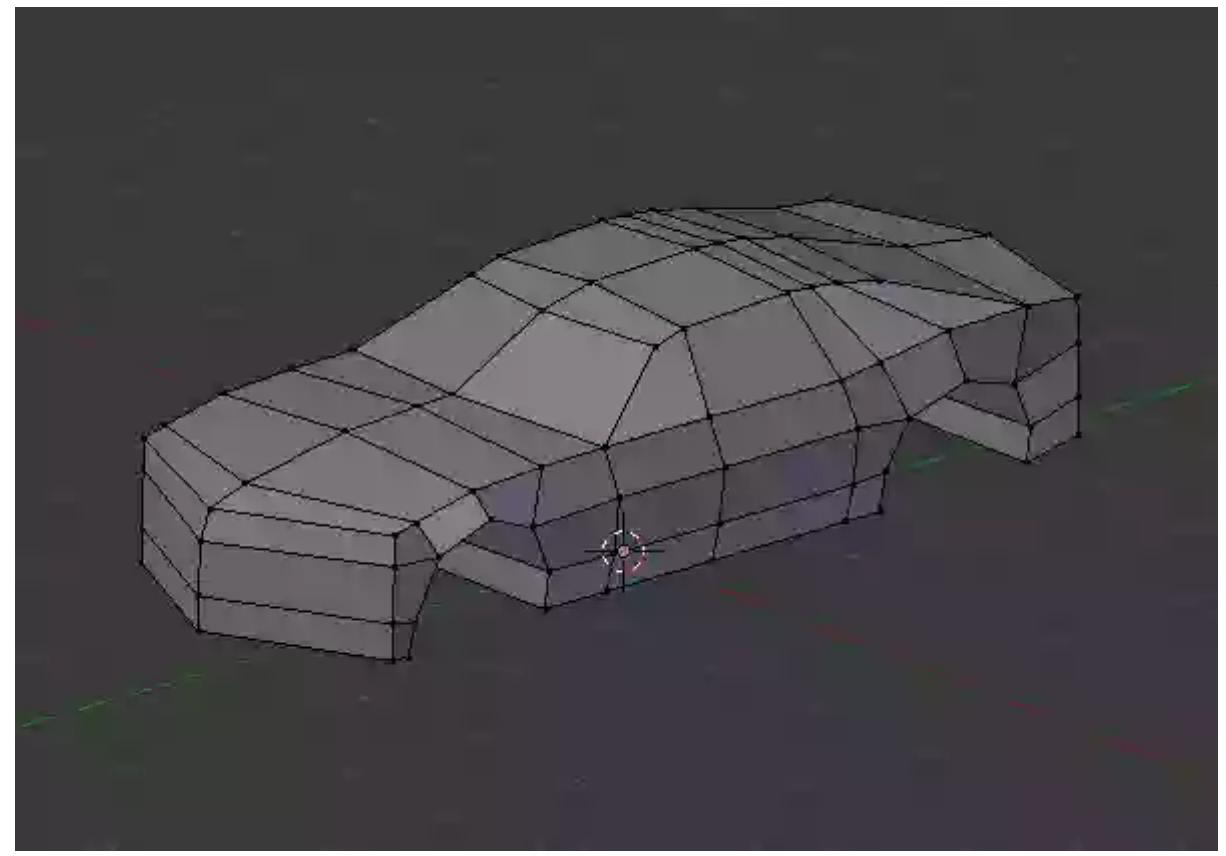


## Step 28

Similarly, move the center vertices, one by one, to match the reference image.

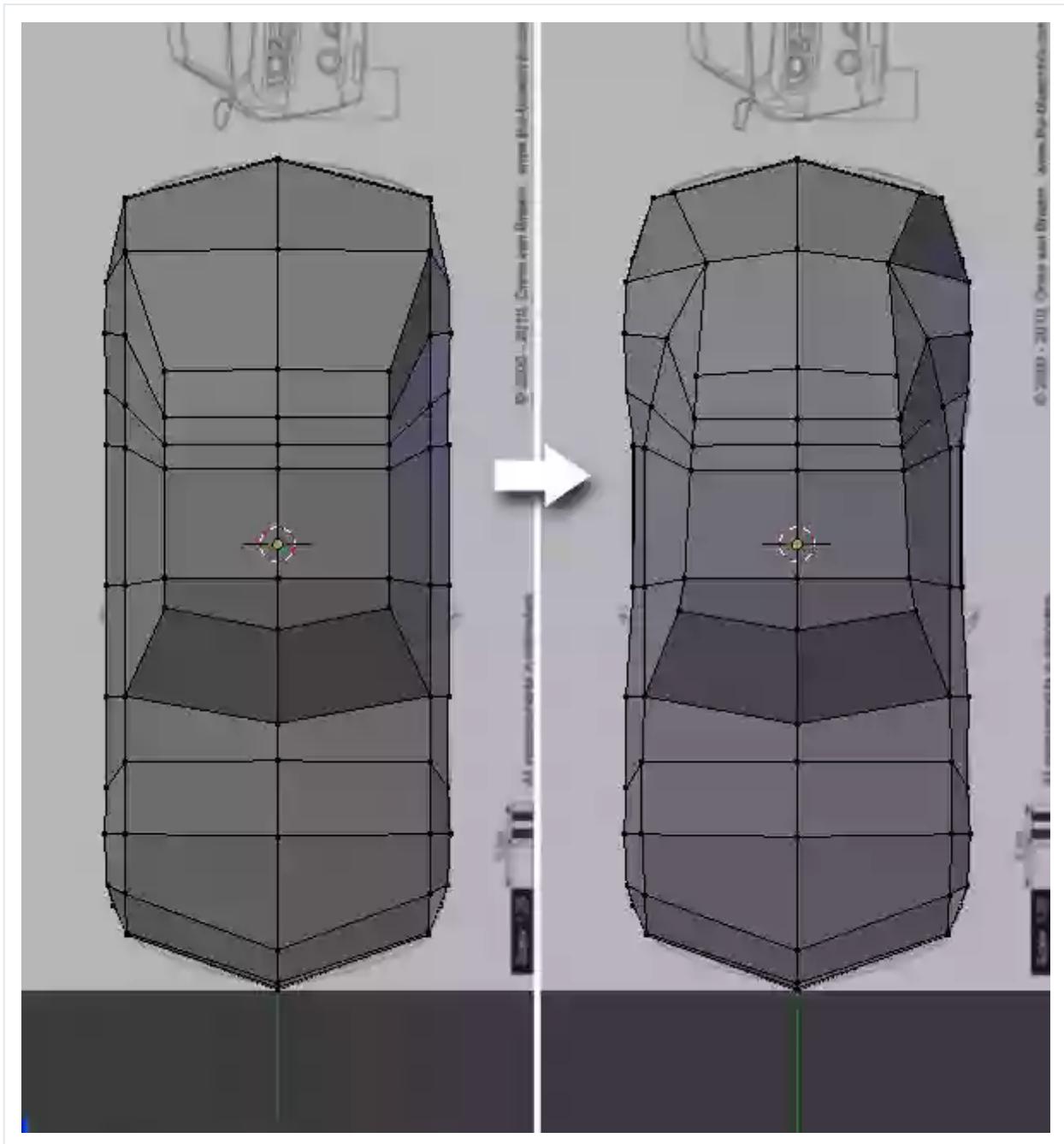


We see that the car is now taking shape.



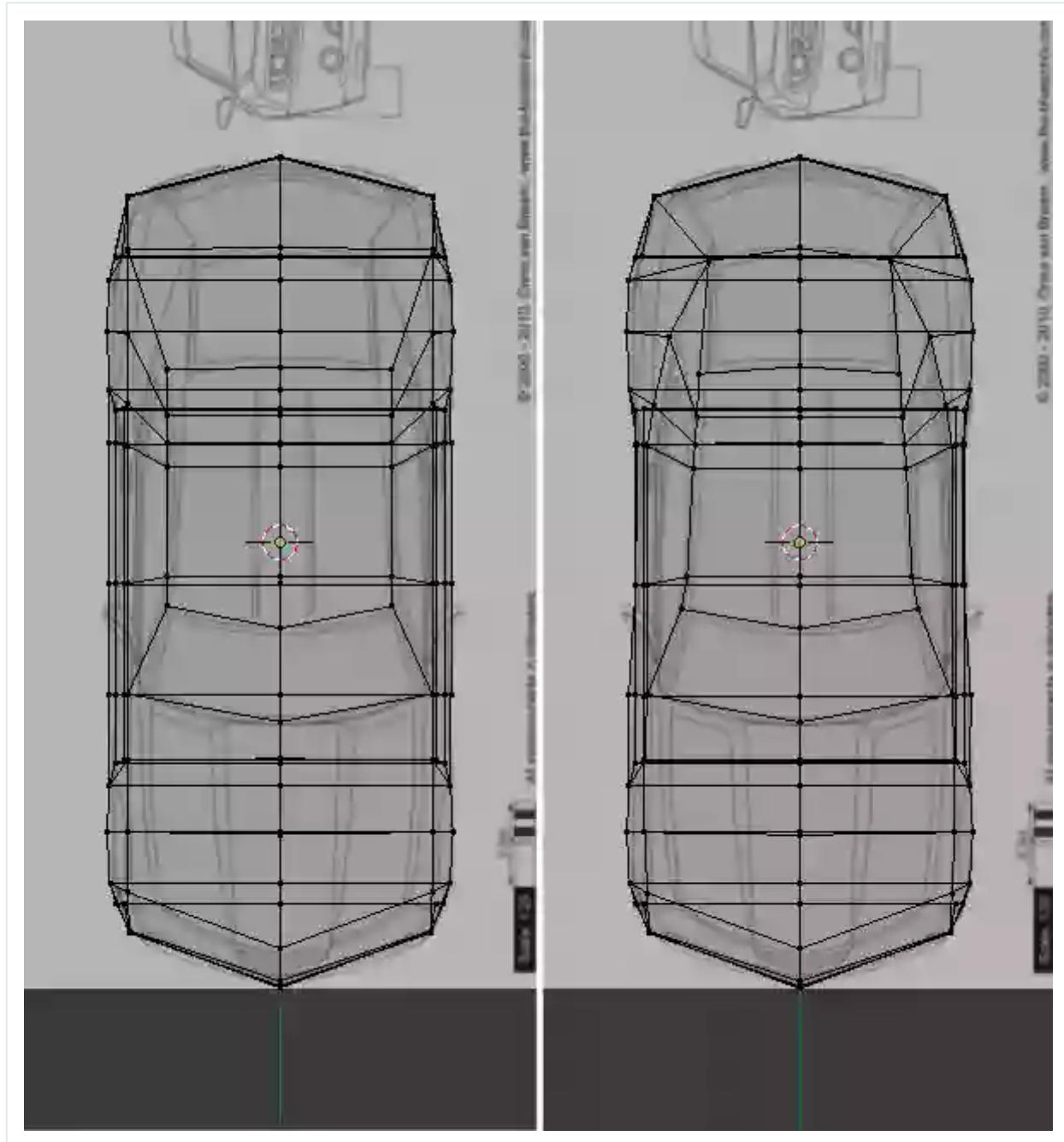
## Step 29

Press 7 on the numpad to get into the **Top** view. Again, select and move the vertices one by one to match the reference image.



Press **Z** to toggle between solid shade view and wireframe mode to see the reference image. Match the vertices to the line of the

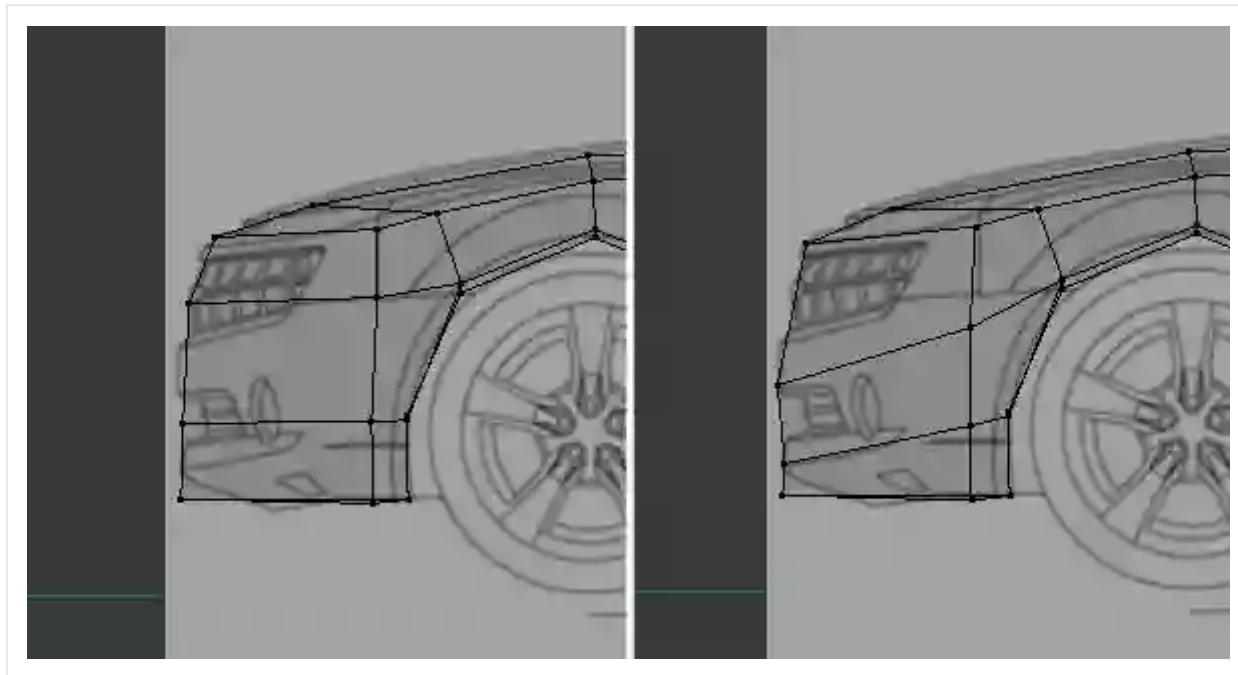
side window and rear windshield.



### 3. Modeling the Front

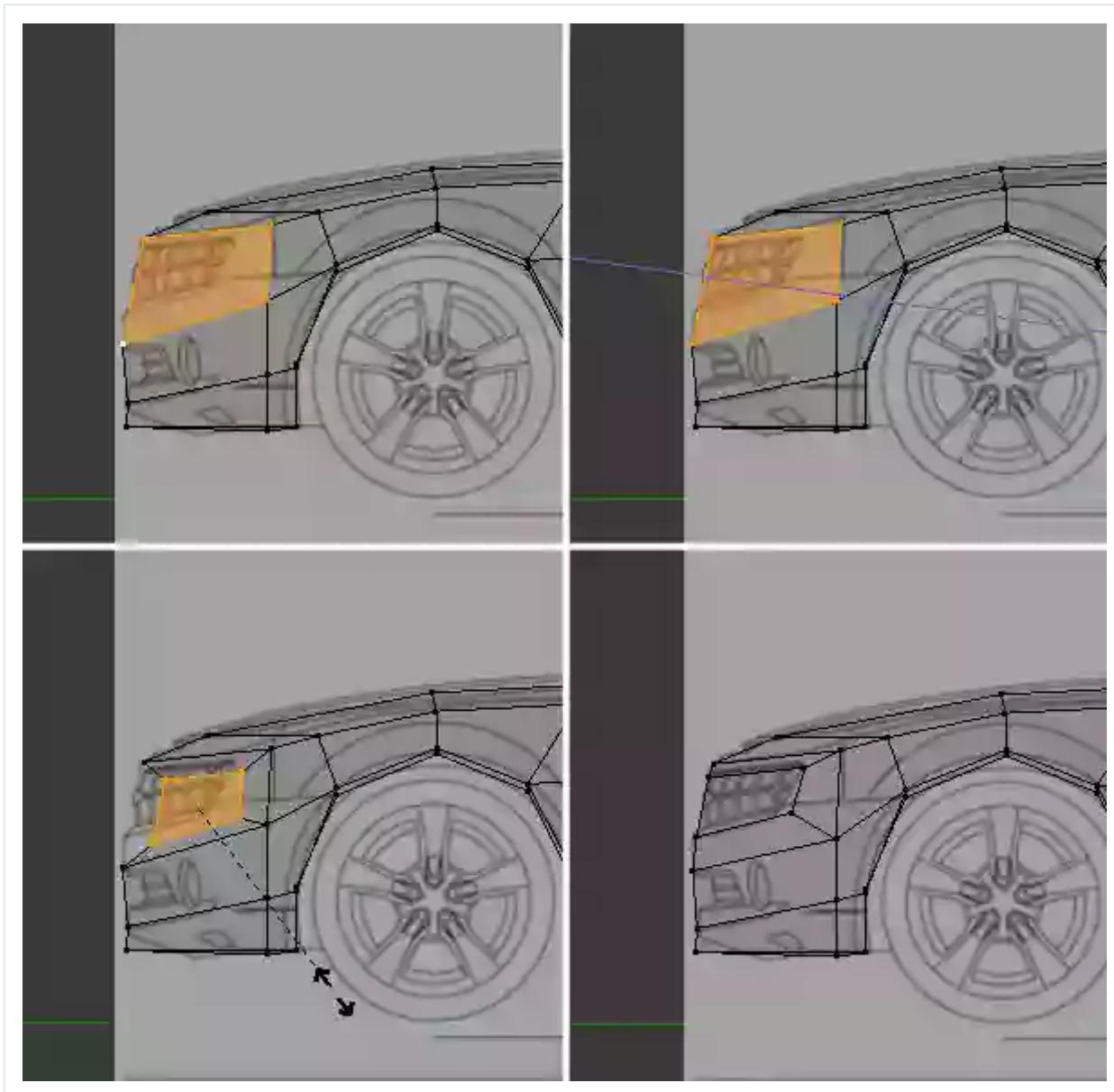
## Step 1

Press **3** on the numpad to get into a side view. Press **Z** to toggle on wireframe mode (if you are in solid shade mode.) Move the vertices to match with the reference as shown in the image. **Right Click** on a vertex to select it and press **G** on the keyboard to move. You may also use the arrow widget to move the points.



## Step 2

1. Select the front face by selecting the four vertices.
2. Press **E** to **Extrude** and the **Esc** key, so that the newly extruded face remains in the same position.
3. With the new face selected, press **S** and **Scale** it down.
4. Move the vertices to match the front part of the car. **Right Click** to select and **G** to move.

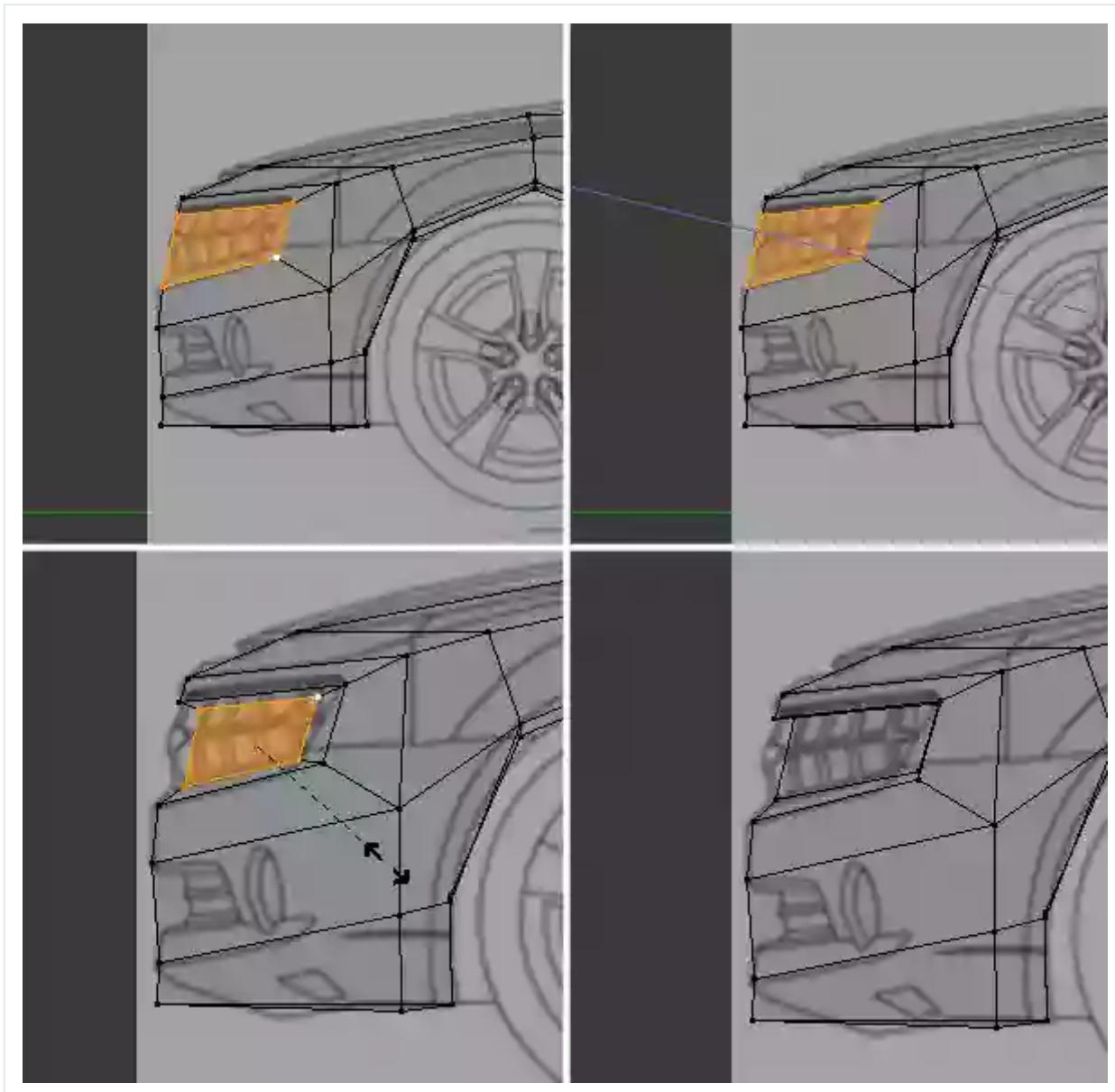


### Step 3

1. Select the newly created face by selecting its four vertices. Press and hold **Shift** to select multiples.
2. Press **E** to **Extrude** it once again. Press the **Esc** key or **Right Click** to confirm the position of the new extruded face

to commit the position of the new extruded face.

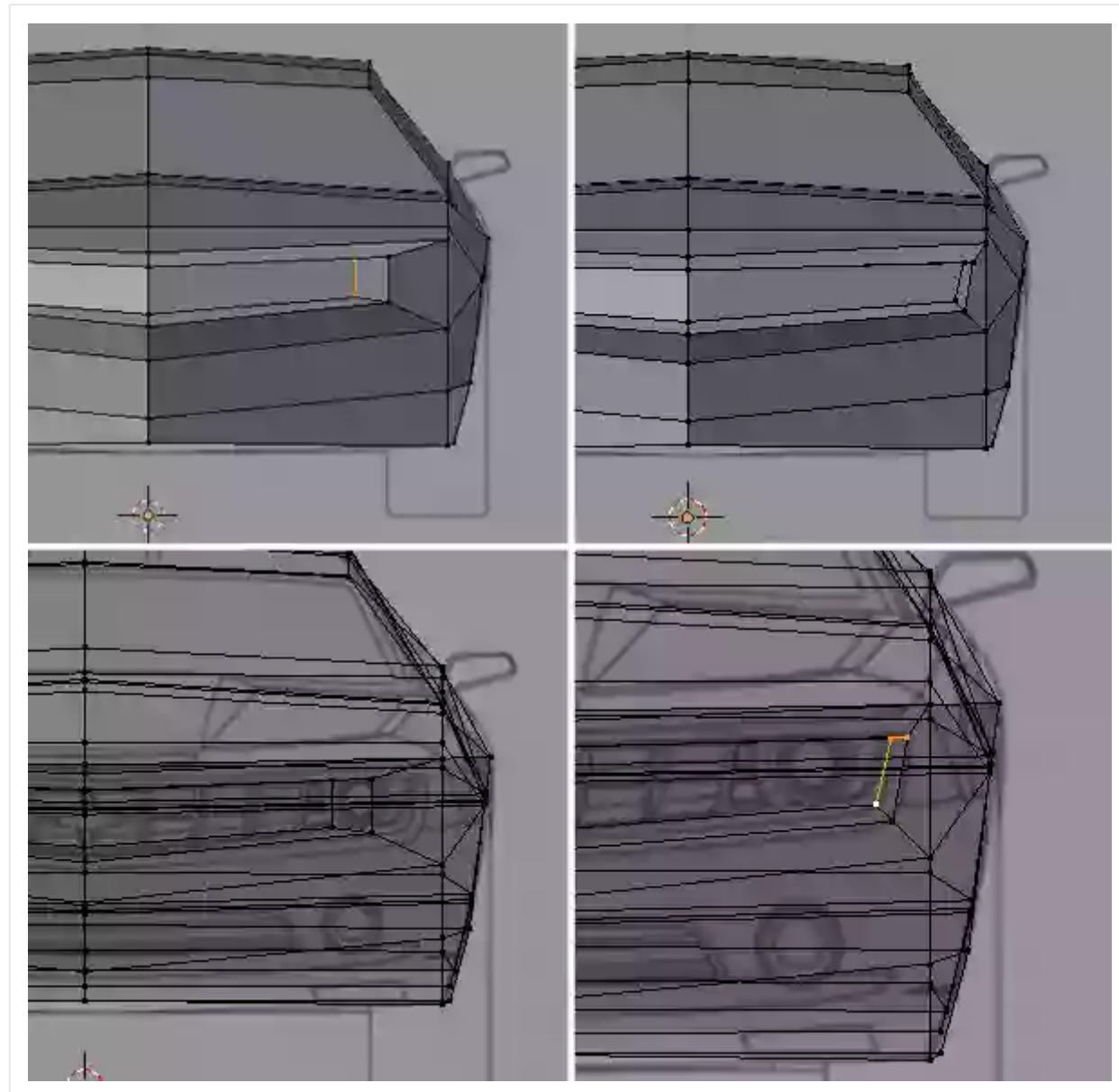
3. Press **S** to **Scale** and move the mouse closer to scale them down.
4. Move the vertices one by one to match the reference. **Right Click** to select a vertex and then press **G** to move.



## Step 4

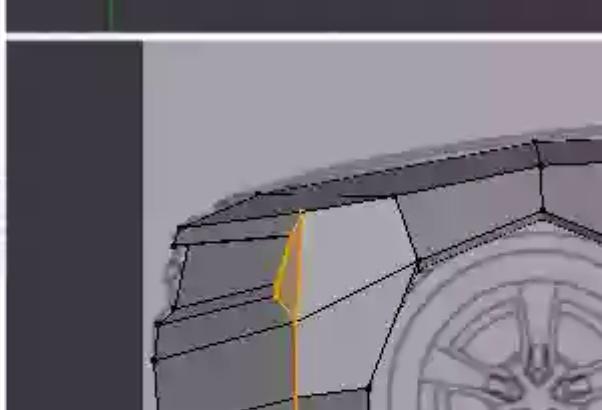
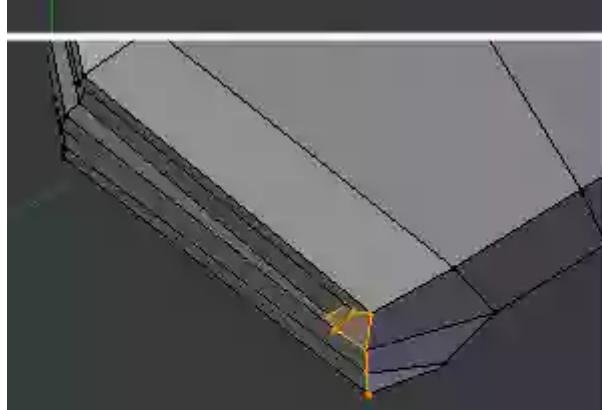
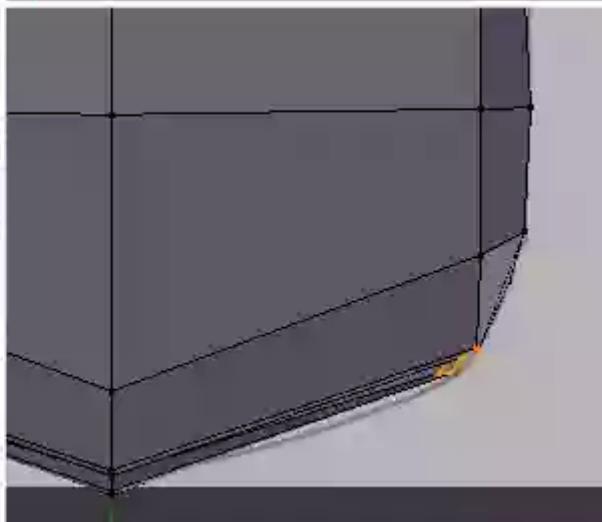
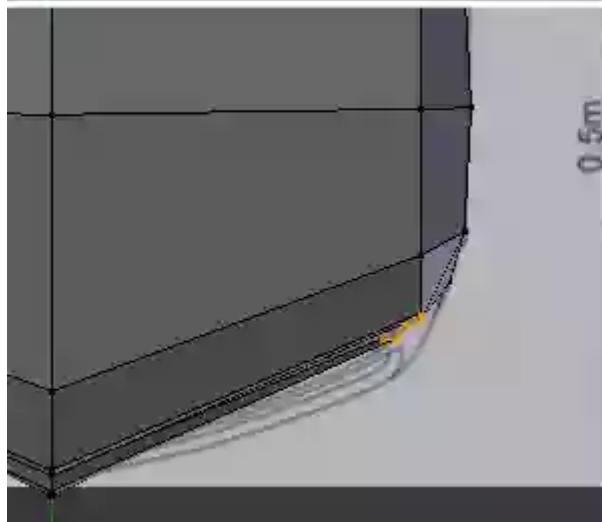
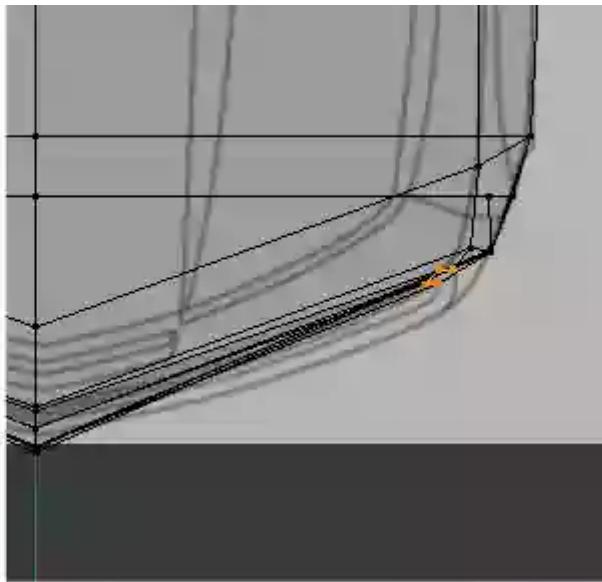
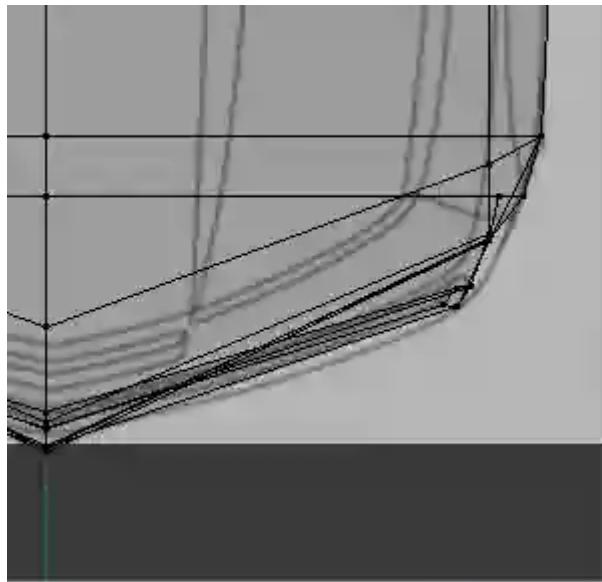
Now tweak the newly formed vertices and face in the **Front** view as well. Press **1** (numpad) to get into the **Front** view. Press **Z** to toggle between solid shade view and wireframe view to see the reference image behind

REFERENCE IMAGE BEHIND.



## Step 5

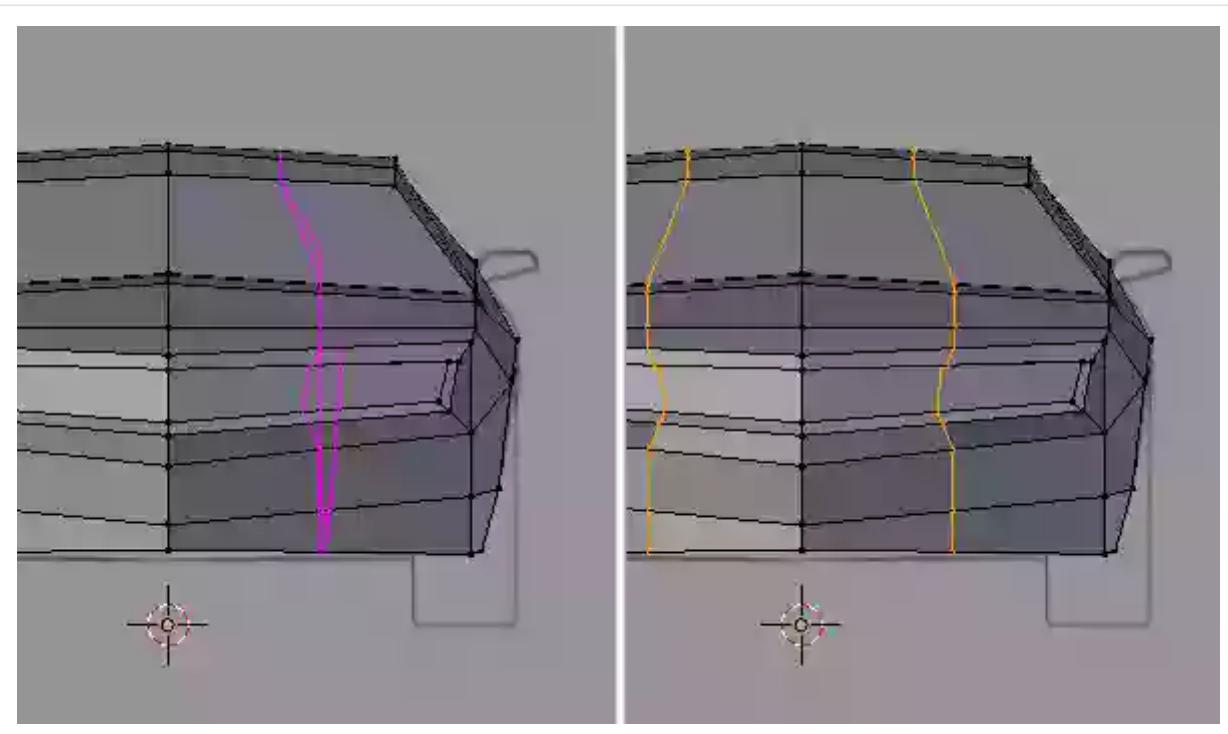
Also be sure to check the top view as well. Press **7** (numpad) to get into the **Top** view.





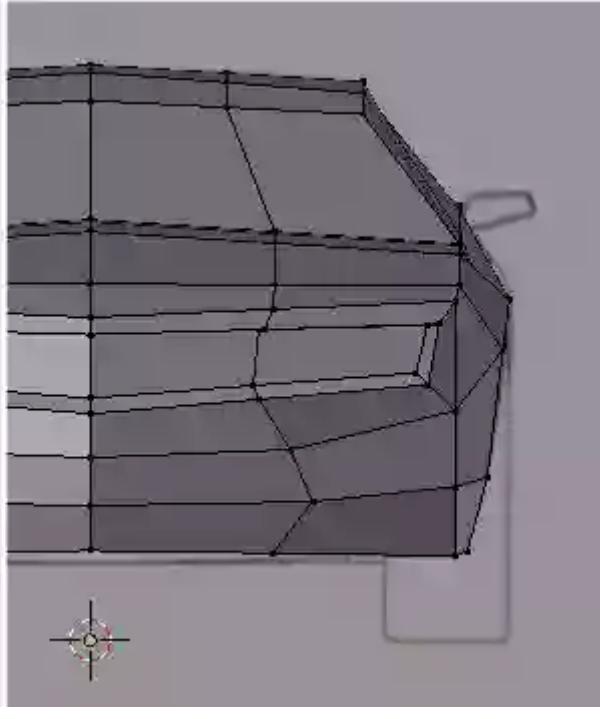
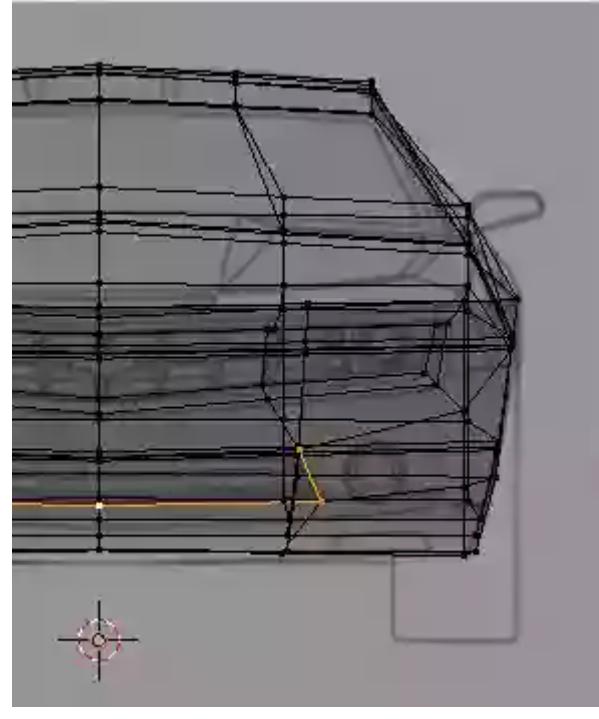
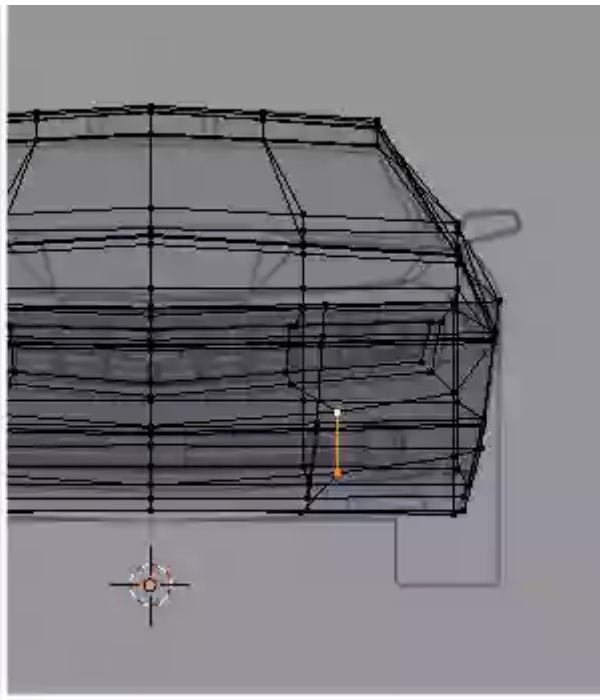
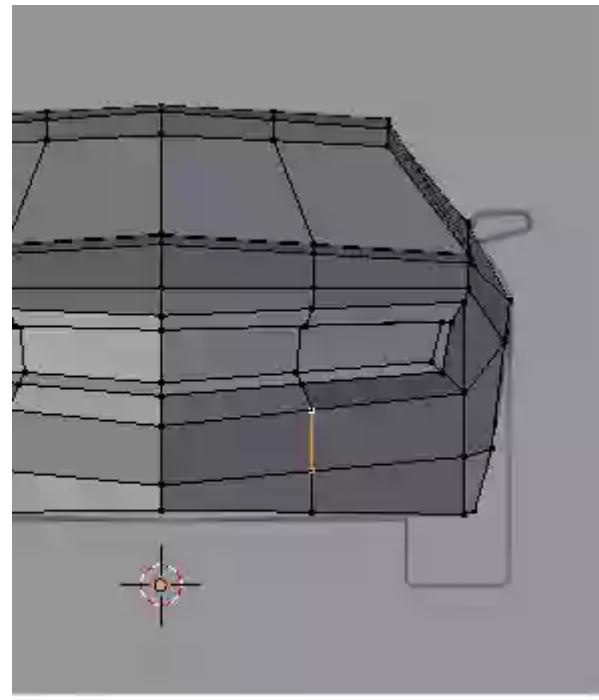
## Step 6

With the mouse over the model, press **Control-R** to add an edge loop across the center as shown in the image. **Left Click** to confirm the position.



## Step 7

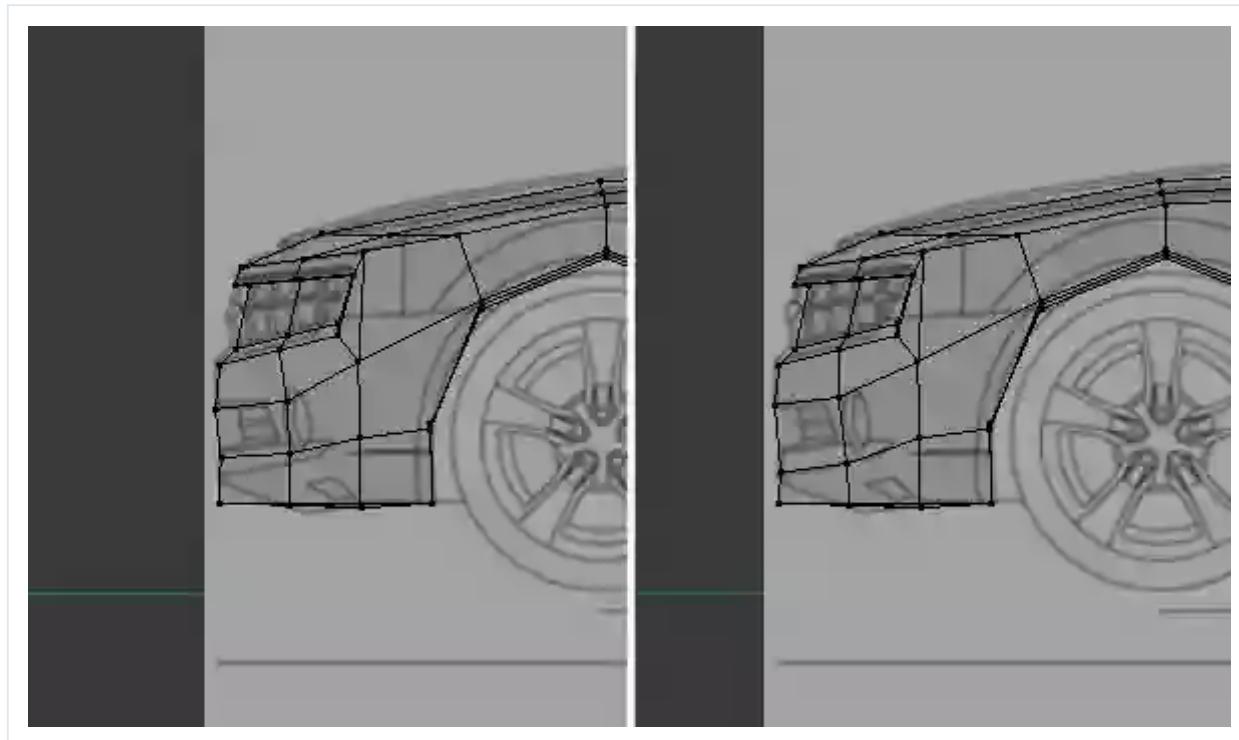
Now select the bottom vertices (one by one) and match them with the reference image. **Right Click** to select, and then press **G** on the keyboard to move. Press **Z** key to toggle wireframe mode.



Check and match the shape from the side view as well - Dress 2

Check and match the shape from the side view as well. Press **S**

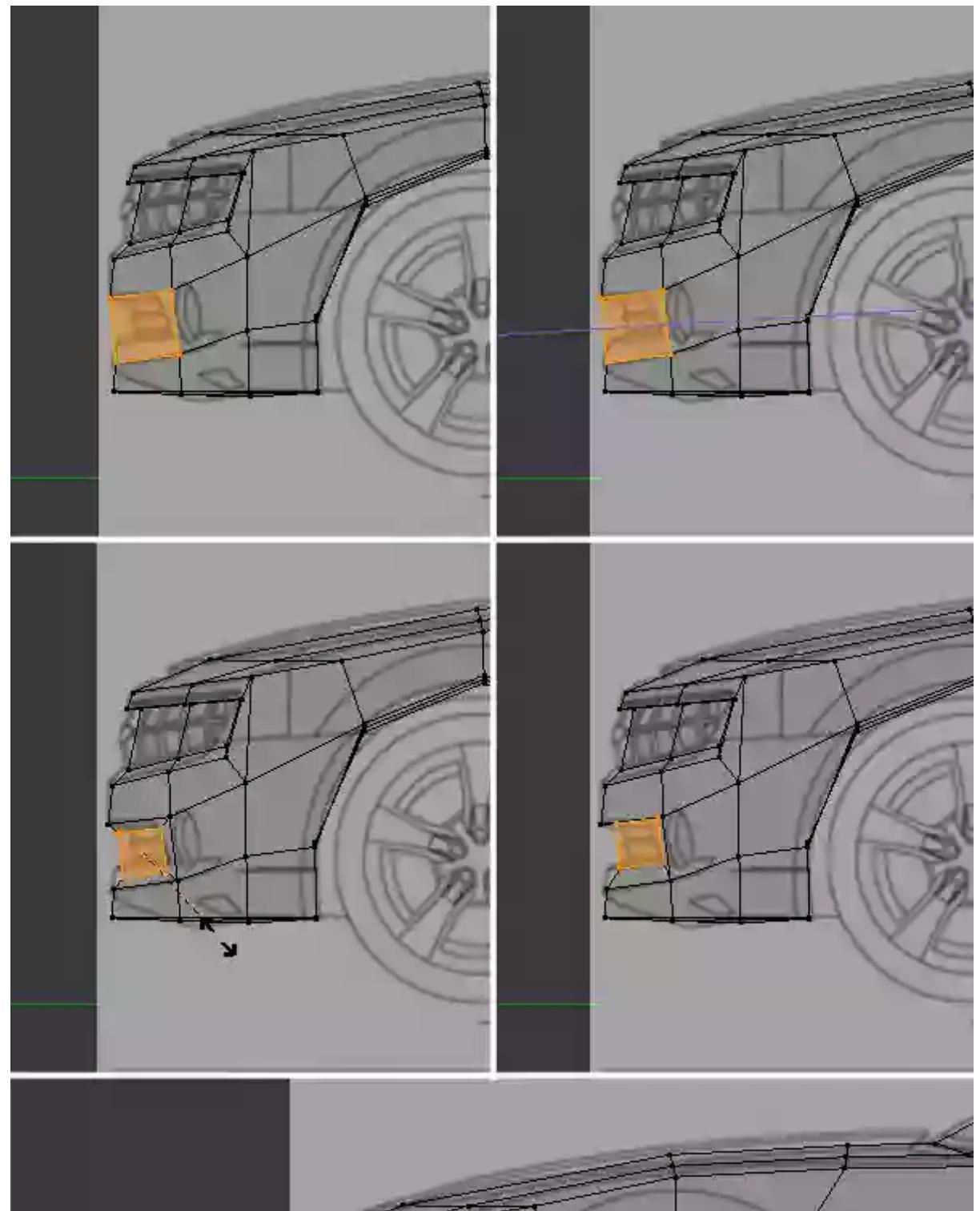
(Numpad) to get into the side view.

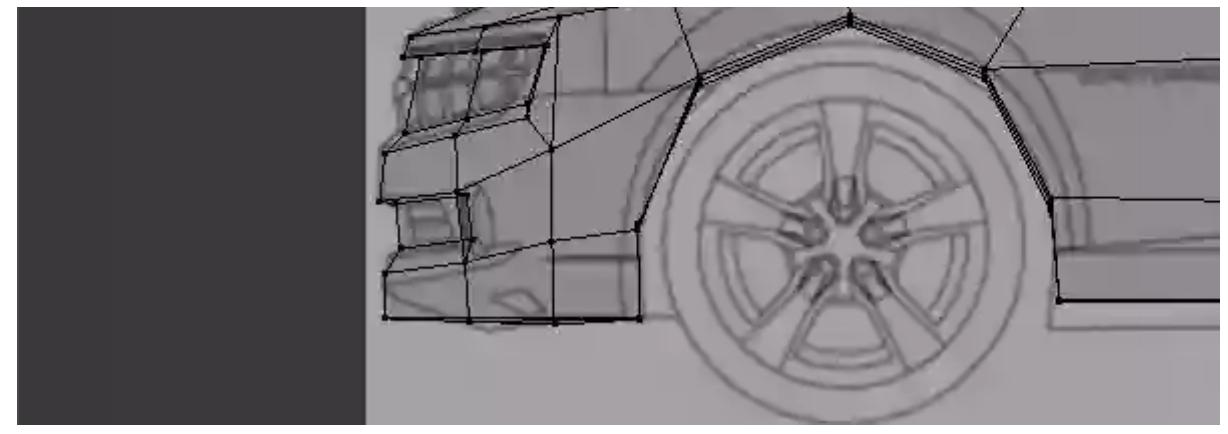


## Step 8

In the side view:

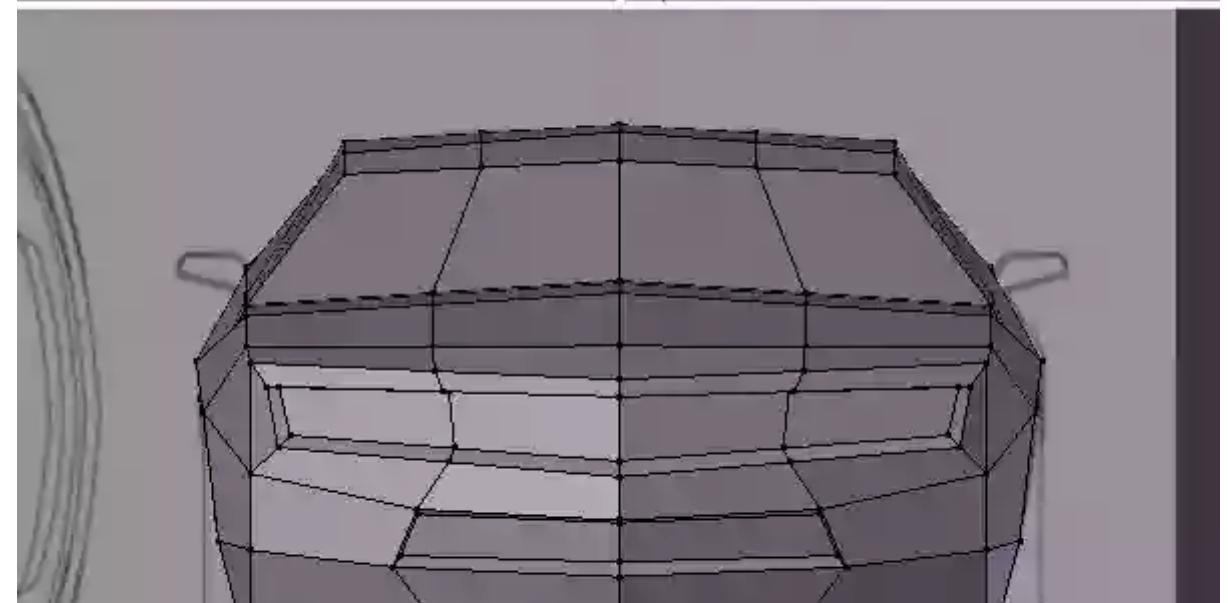
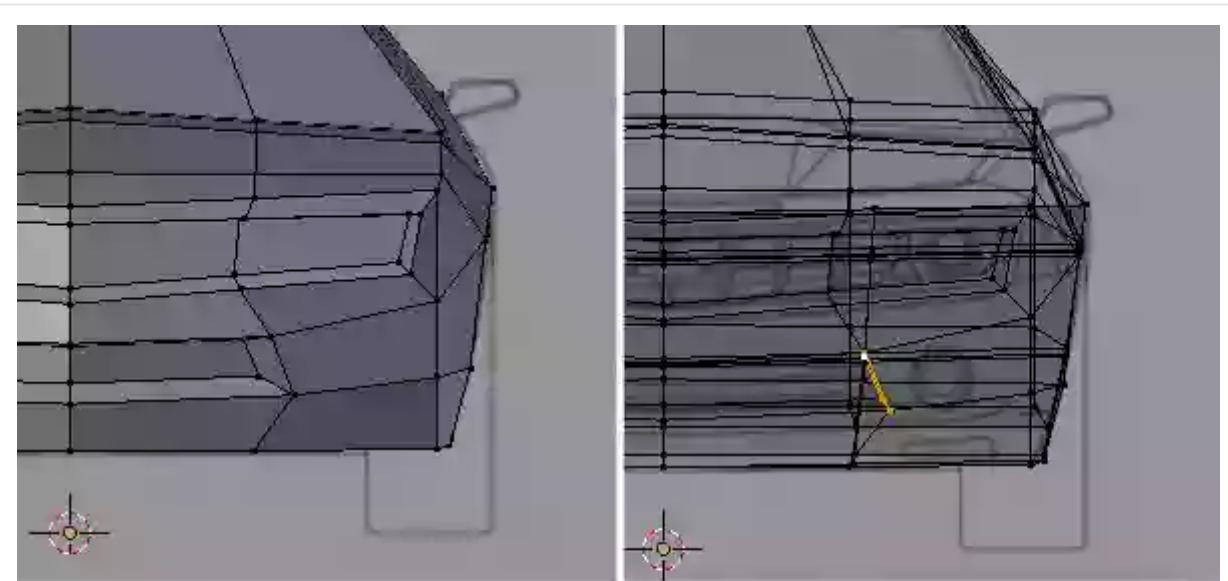
1. Select the **four** vertices as shown in the image. Hold down **Shift** and click to select more than one vertex.
2. Press **E** to **Extrude** and without moving the mouse, **Left Click** to confirm.
3. With the new face selected, press **S** and **Scale** it down a bit and again, **Left Click** to confirm.
4. Position the vertices to match the reference image. **Right Click** to select and **G** to move any vertex.





## Step 9

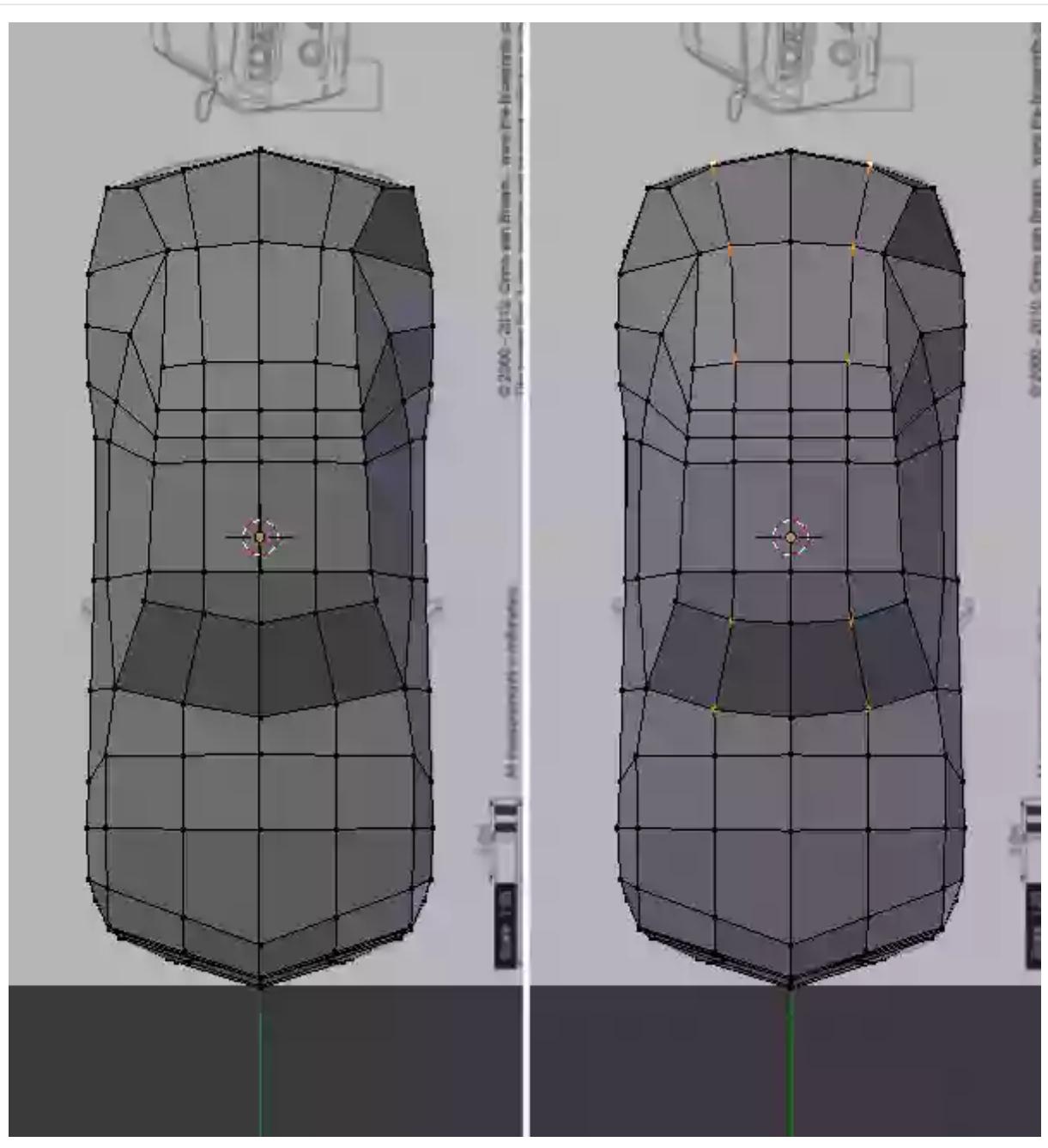
Press 1 (numpad) to get into the **Front** view and match the bottom part with the reference image. The front part of the car is now done.



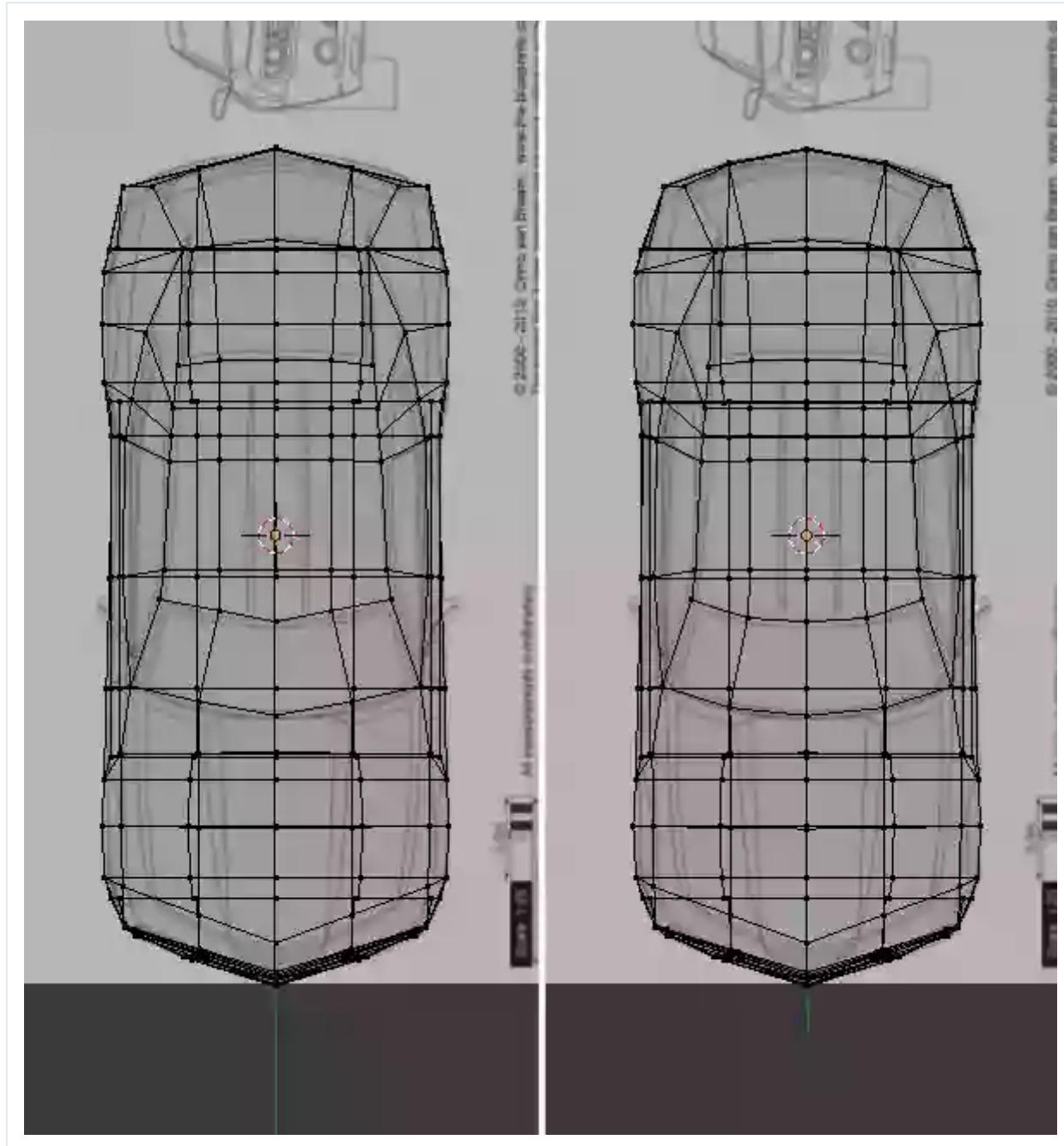


## Step 10

As we added another loop in *Step 6*, we have an opportunity to smooth the curves out a bit. Tweak the vertices to match the reference and to give it a nice round shape and curve.



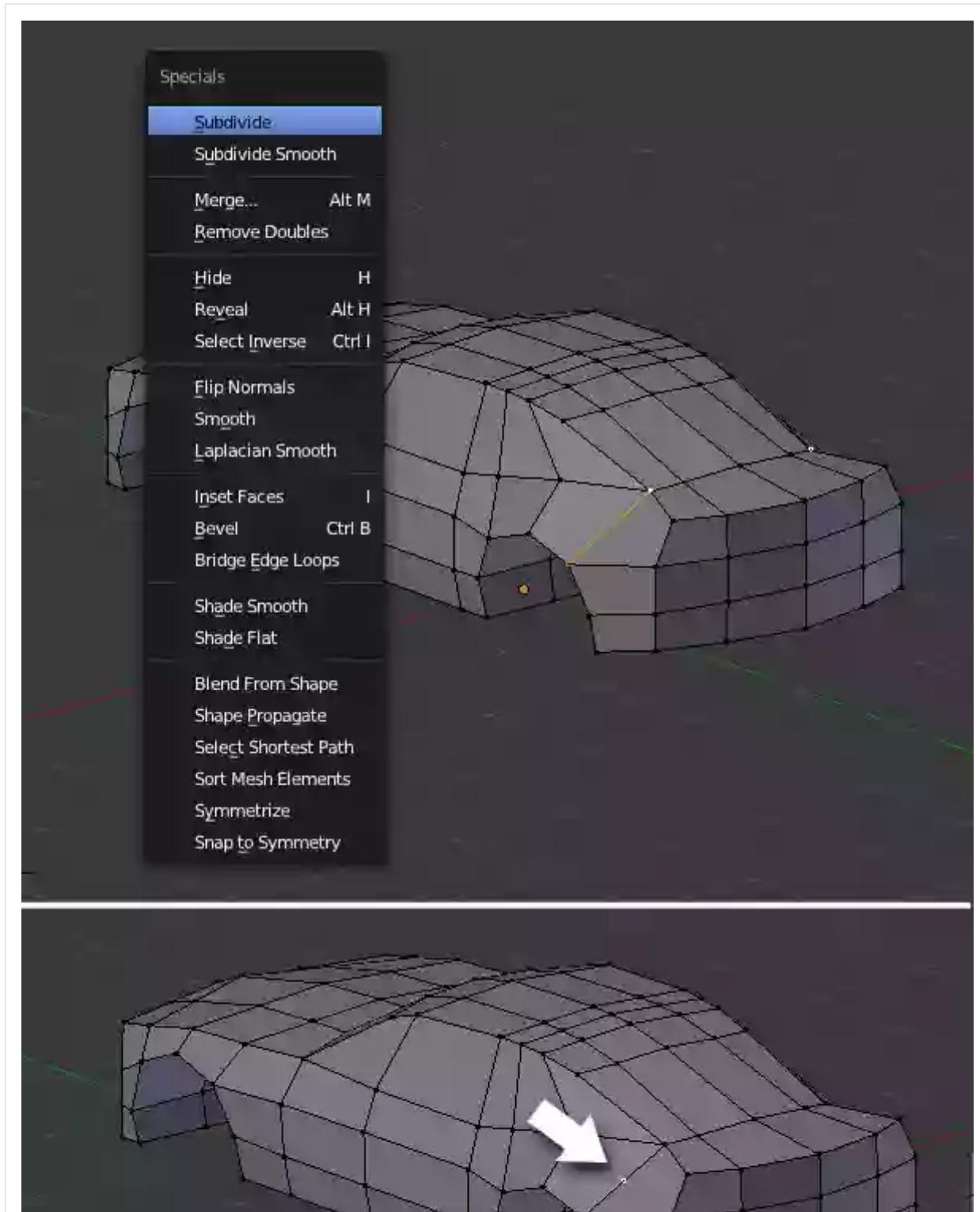
Check with the reference image also. Press Z to toggle between wireframe mode and solid mode.



## 4. Tweaking the Back

## Step 1

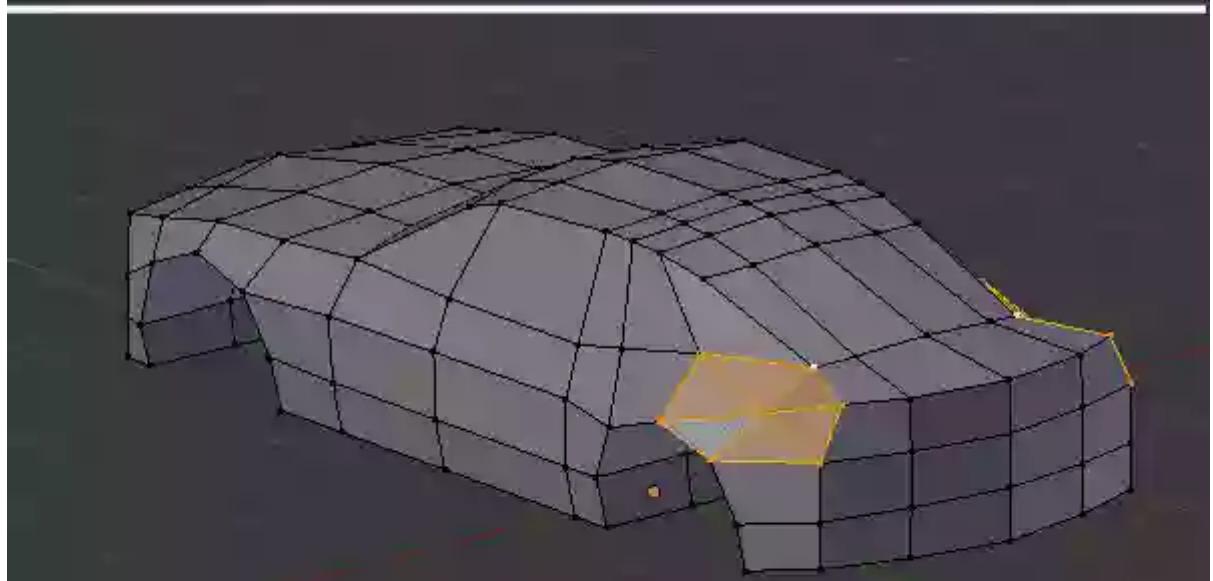
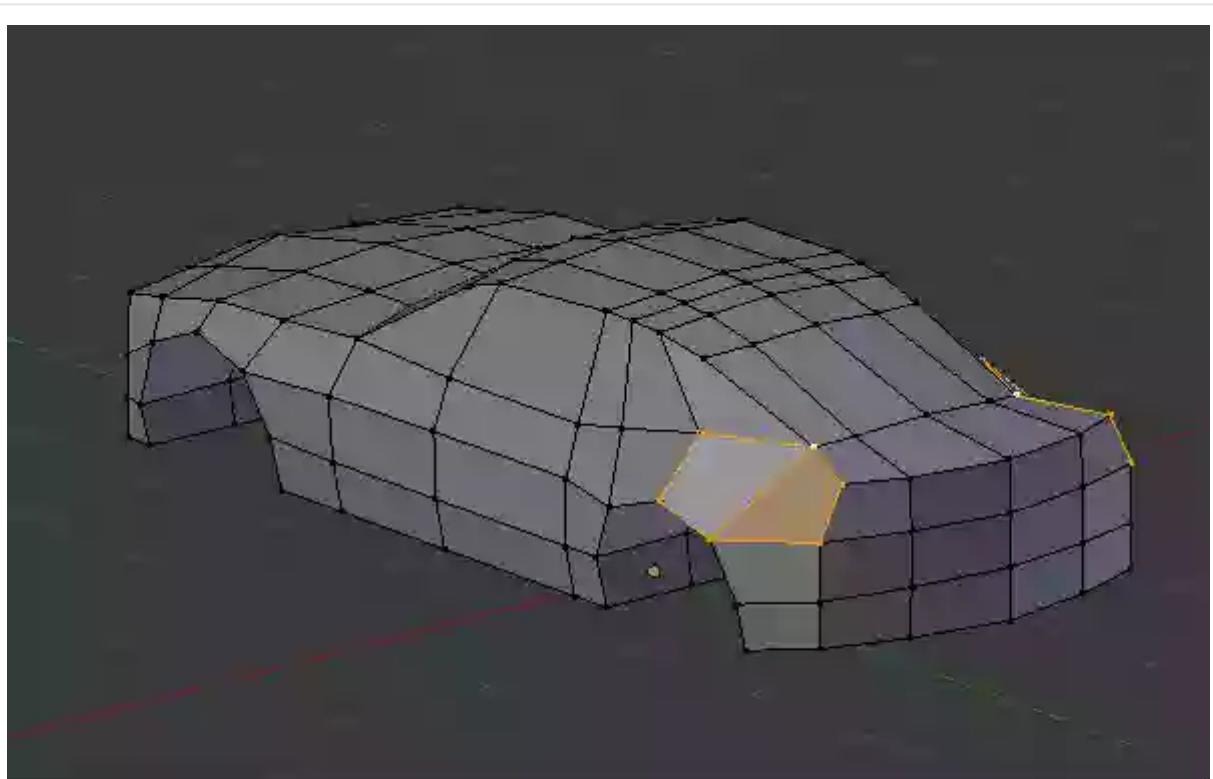
Lets smooth out the awkward dent at the back. Select the **two** vertices shown in the image. Hold **Shift** and then **Right Click** to select multiple vertices. Press **W** to bring up our specials menu and then select **Subdivide**.

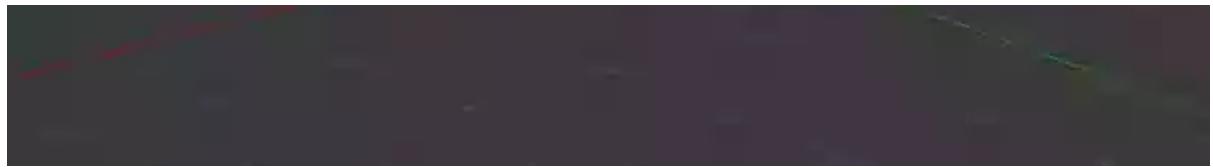




## Step 2

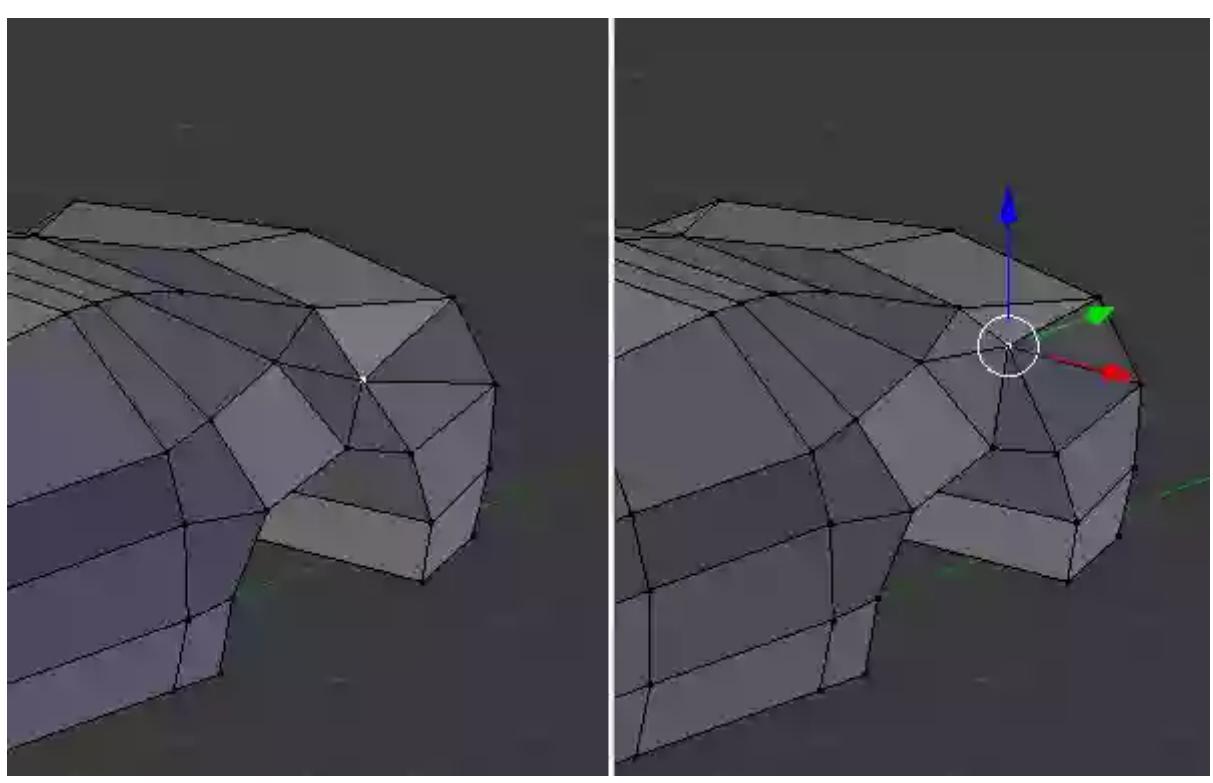
Now select the two adjoining faces by select all **7** vertices, as shown in the image. Press **Control-T** to triangulate these faces.



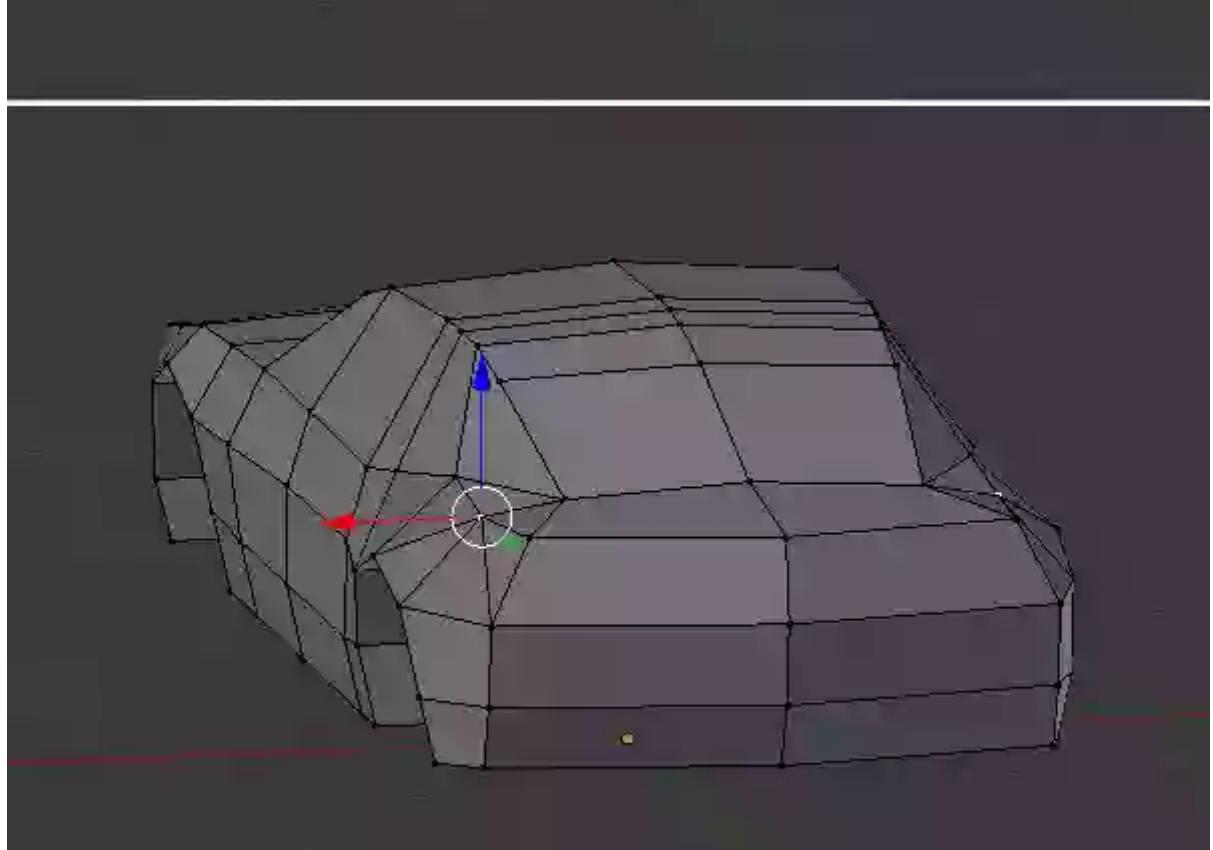
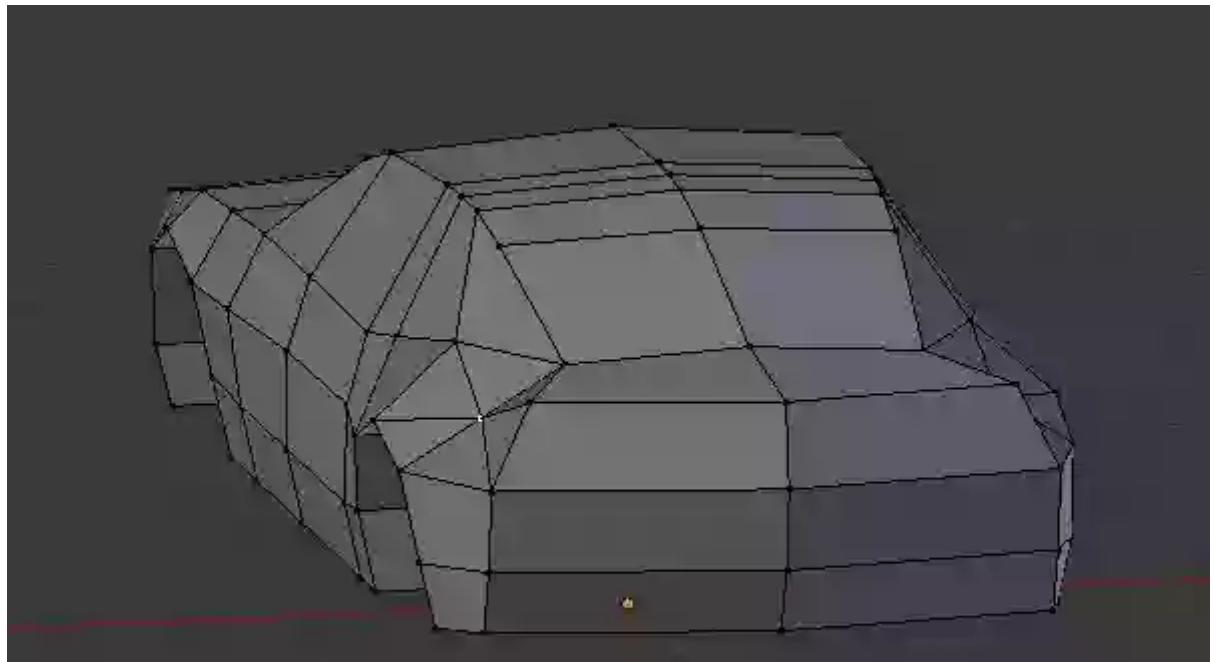


### Step 3

**Right Click** on the center point to select it, and press **G** to move it upwards. You can also use the arrow widget.

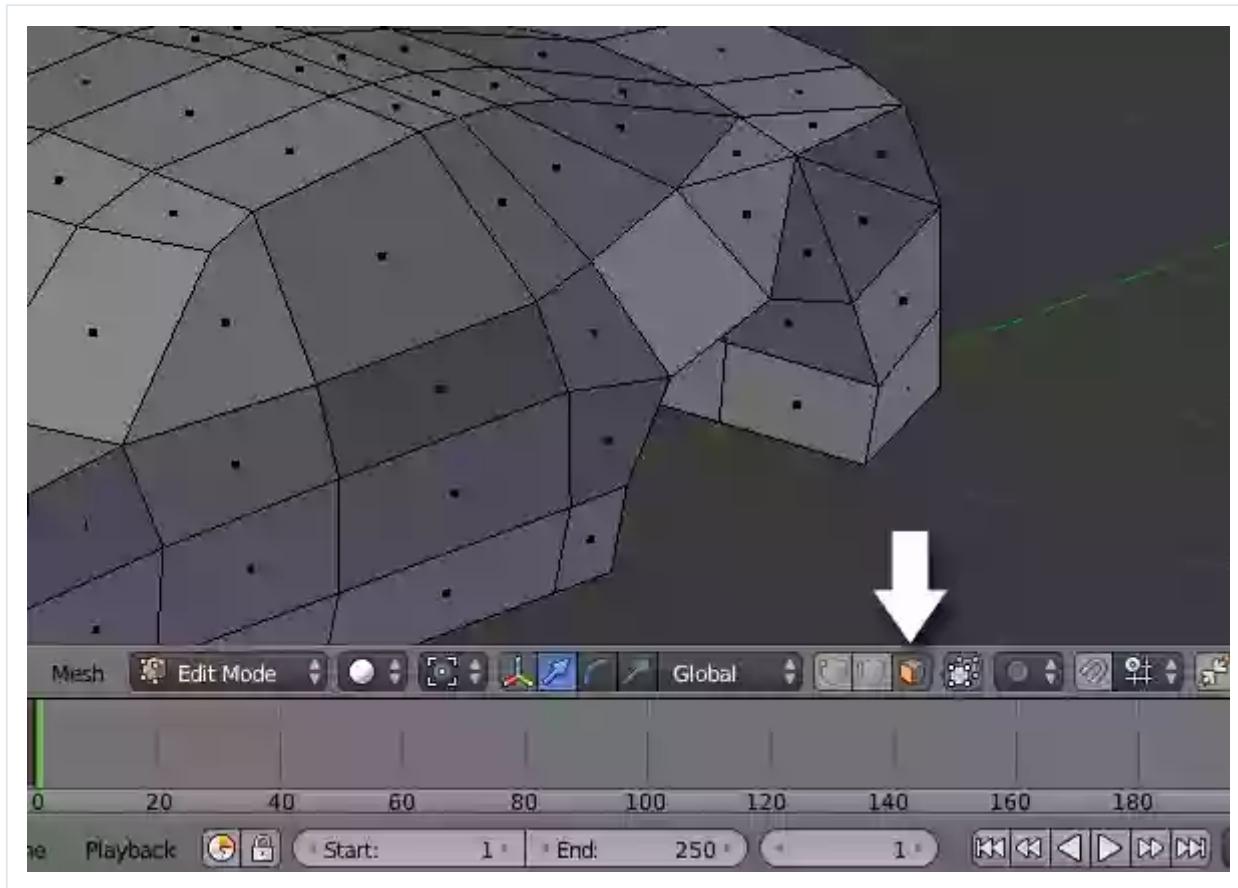


Make sure the contour is smooth and be sure to check it from all angles.



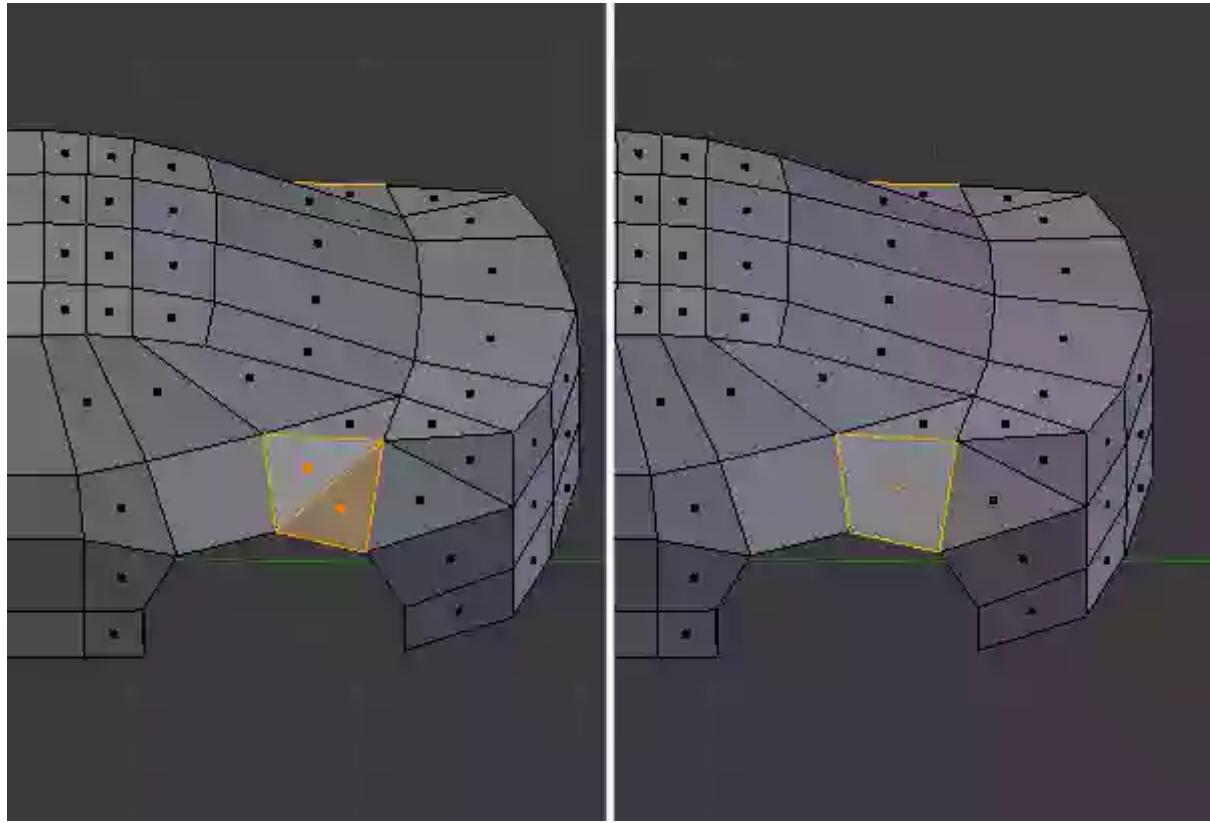
## Step 4

Now click on **Face** select mode, so that we can directly select any face with a **Right Click**, instead of selecting the vertices to select one face.

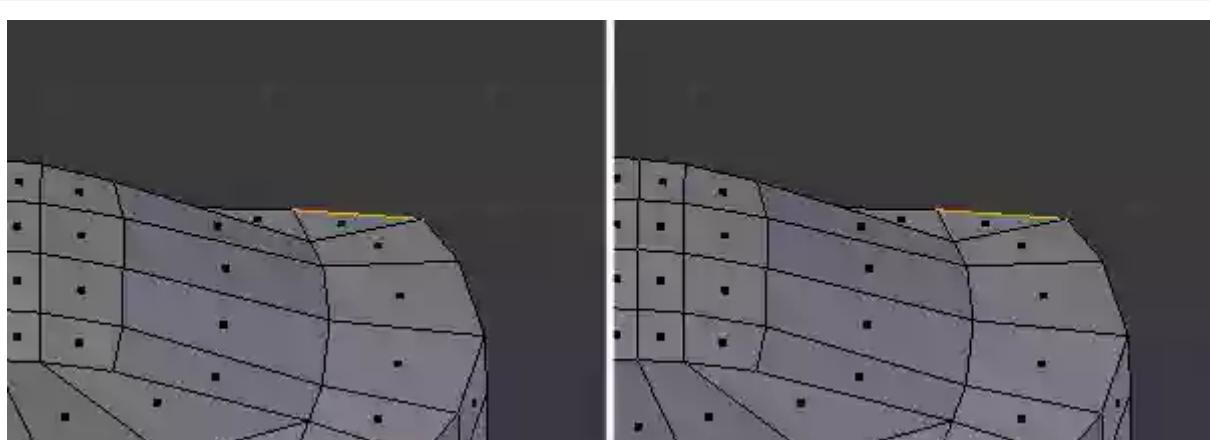


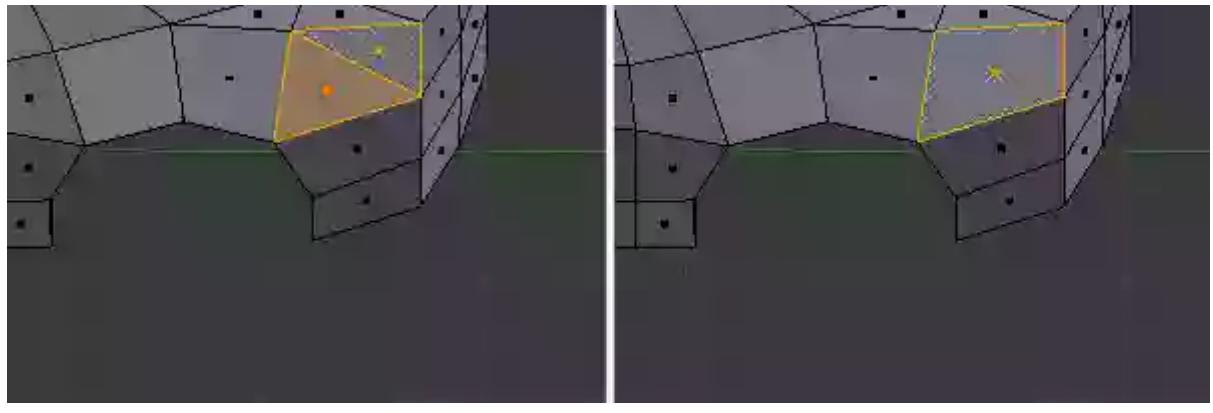
## Step 5

Select the **two** triangles/faces as shown the image, and press **F** to make them one face with four vertices, i.e. a quad.

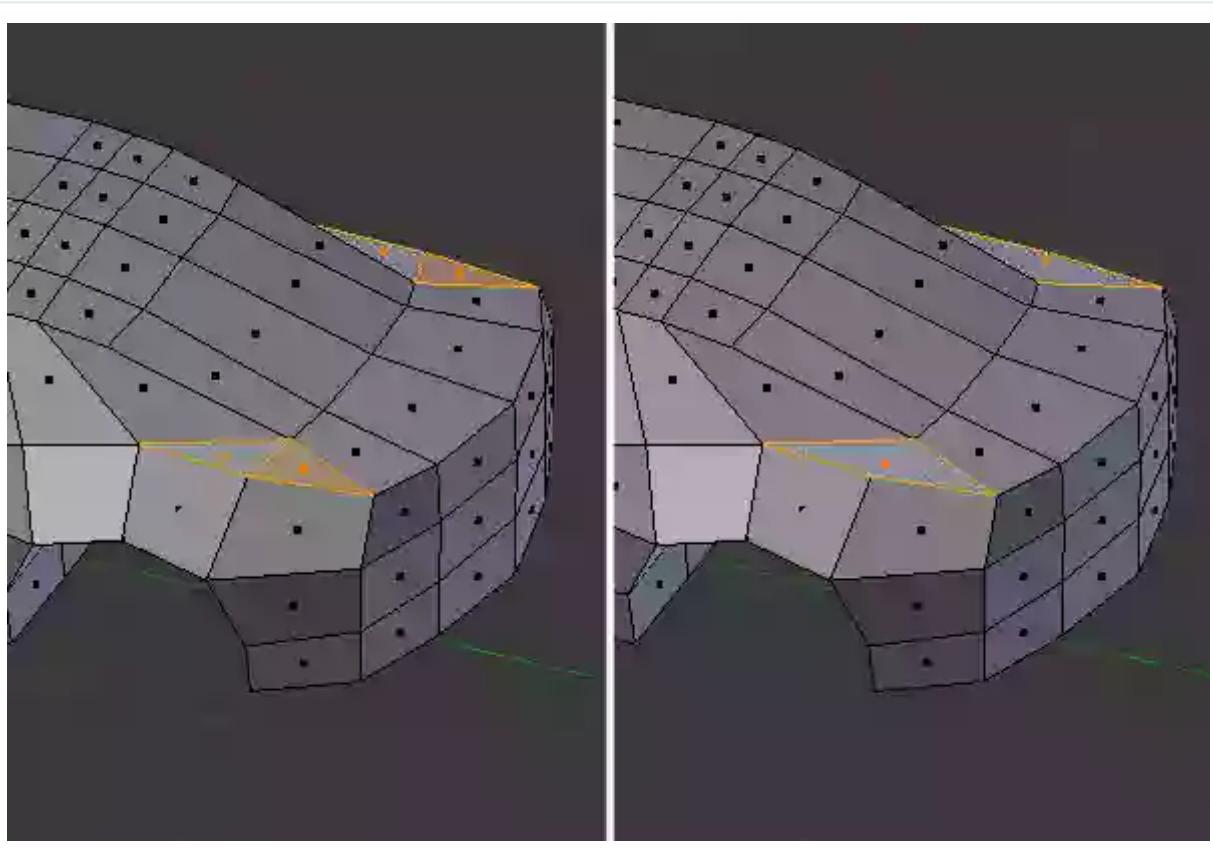


Select these **two** faces/triangles and press F to make them one face, or a quad.

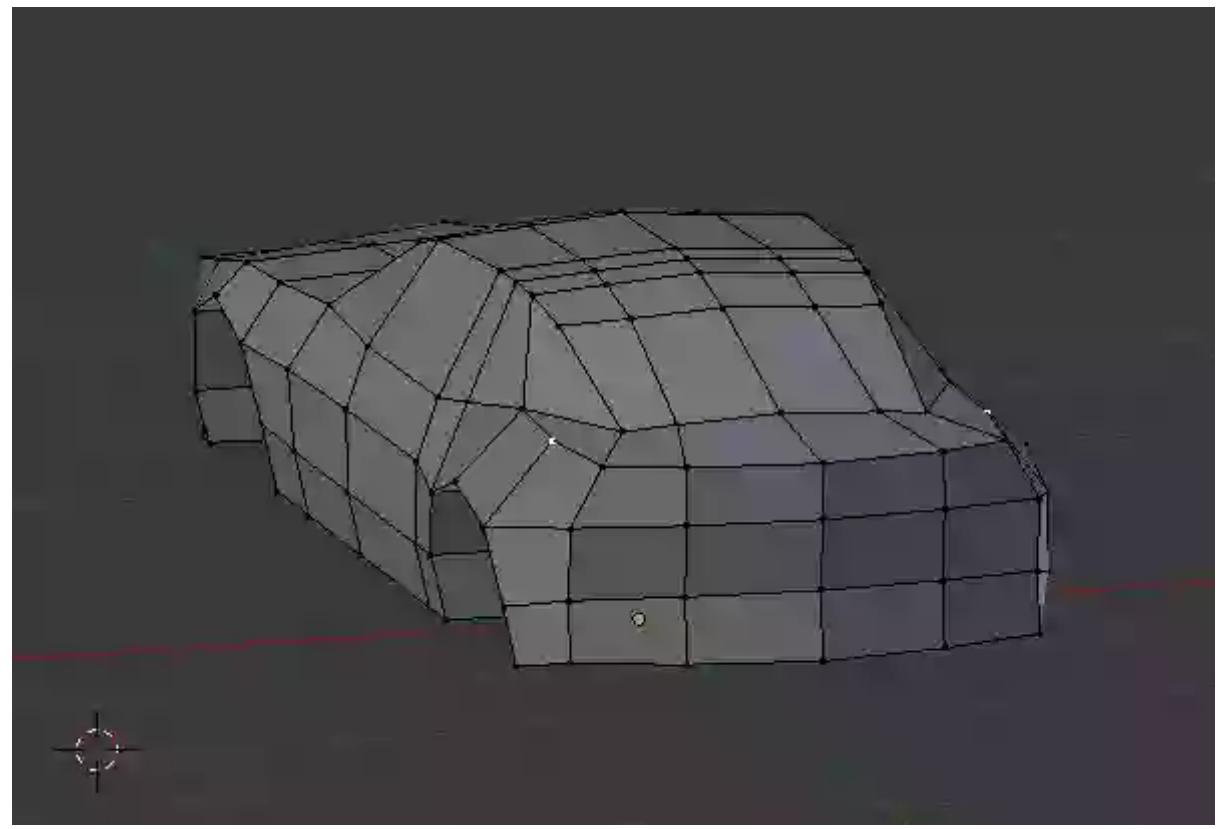




Again, select these **two** upper triangles and press **F** to make them one face.

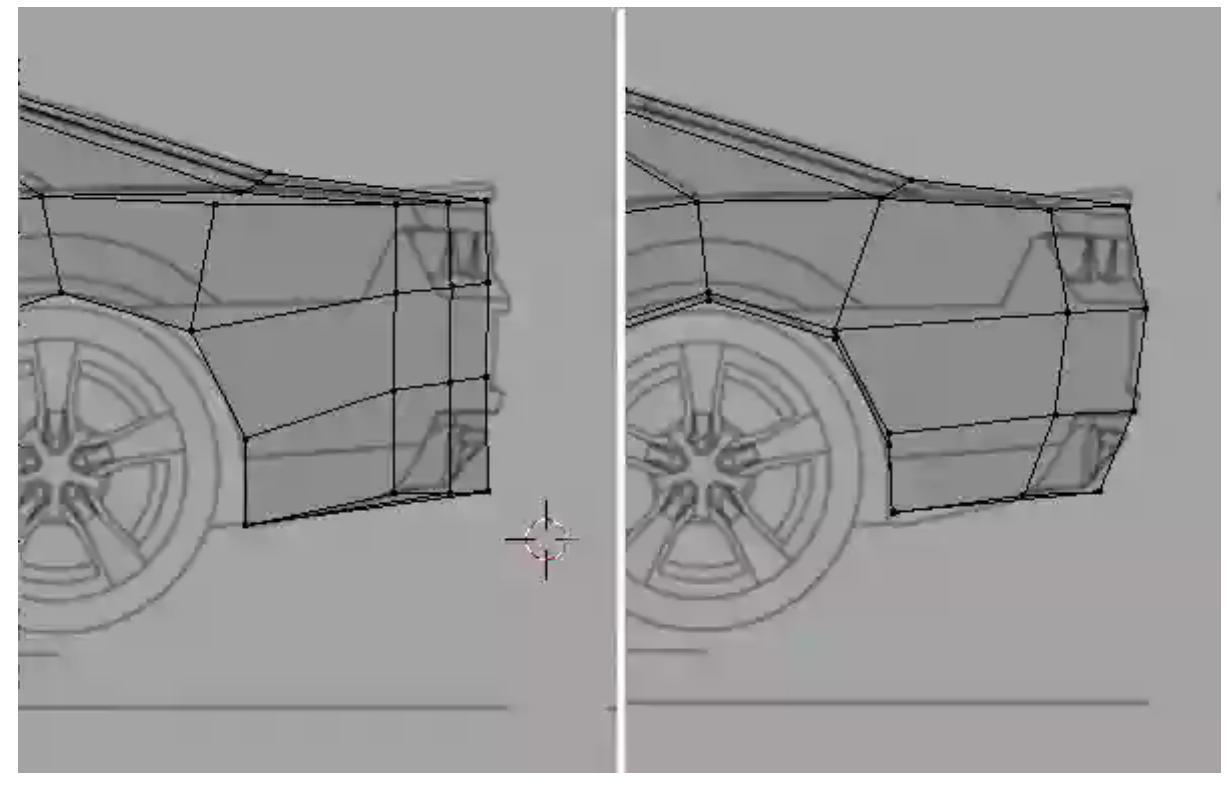


Press **Control-Tab** and select **Vertex** select mode. Tweak the points to give it a nice contour.



## Step 6

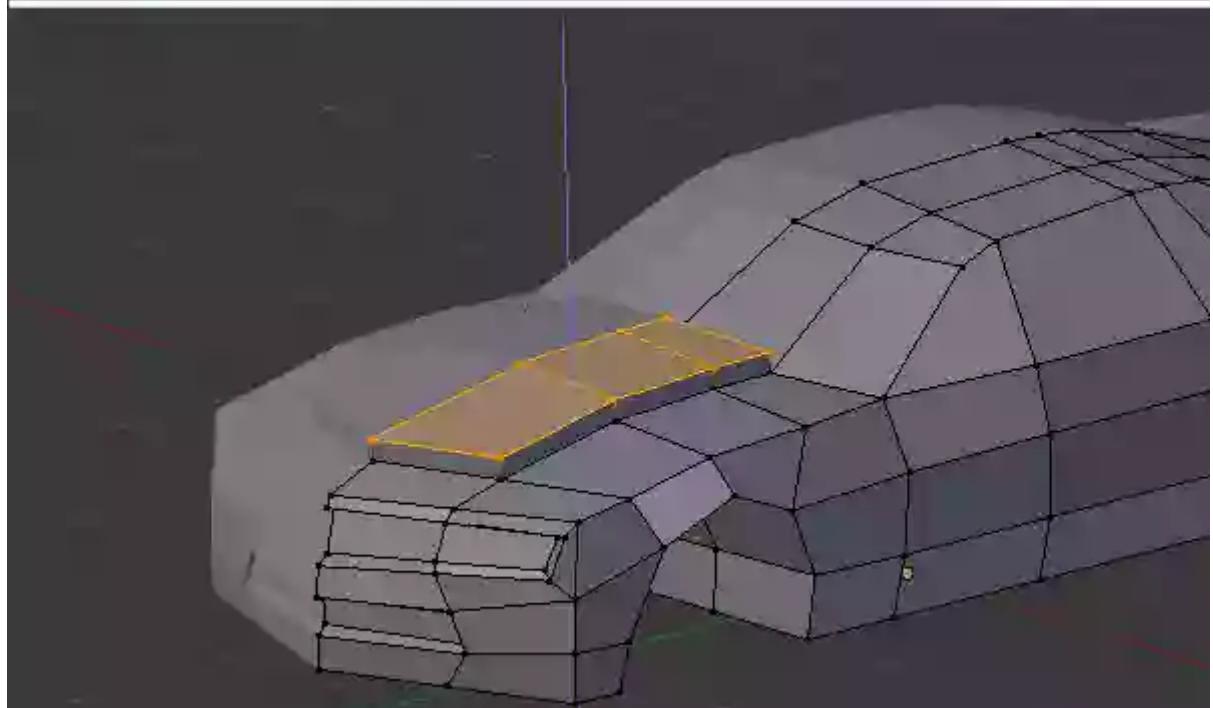
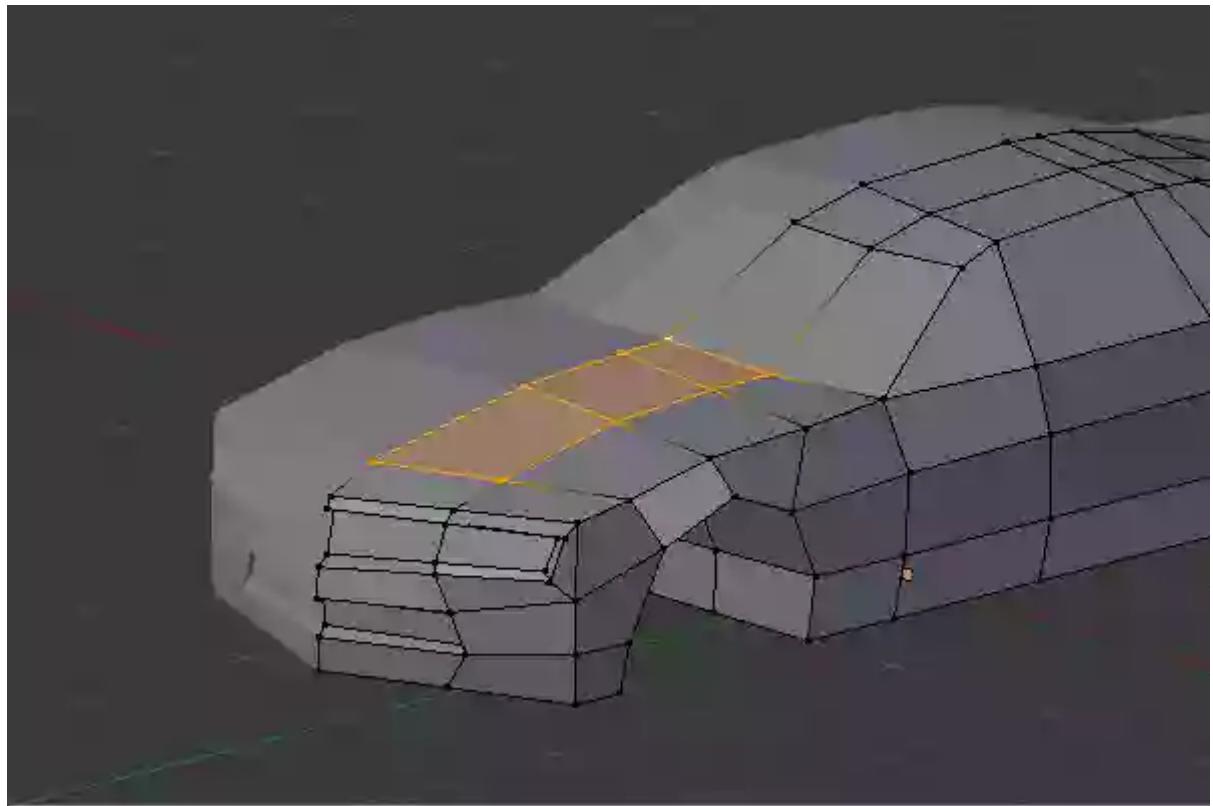
Press **3** on the numpad to get into the side view. Tweak the vertices to match the reference as shown in this image. **Right Click** to select any vertex and use **G** to move.

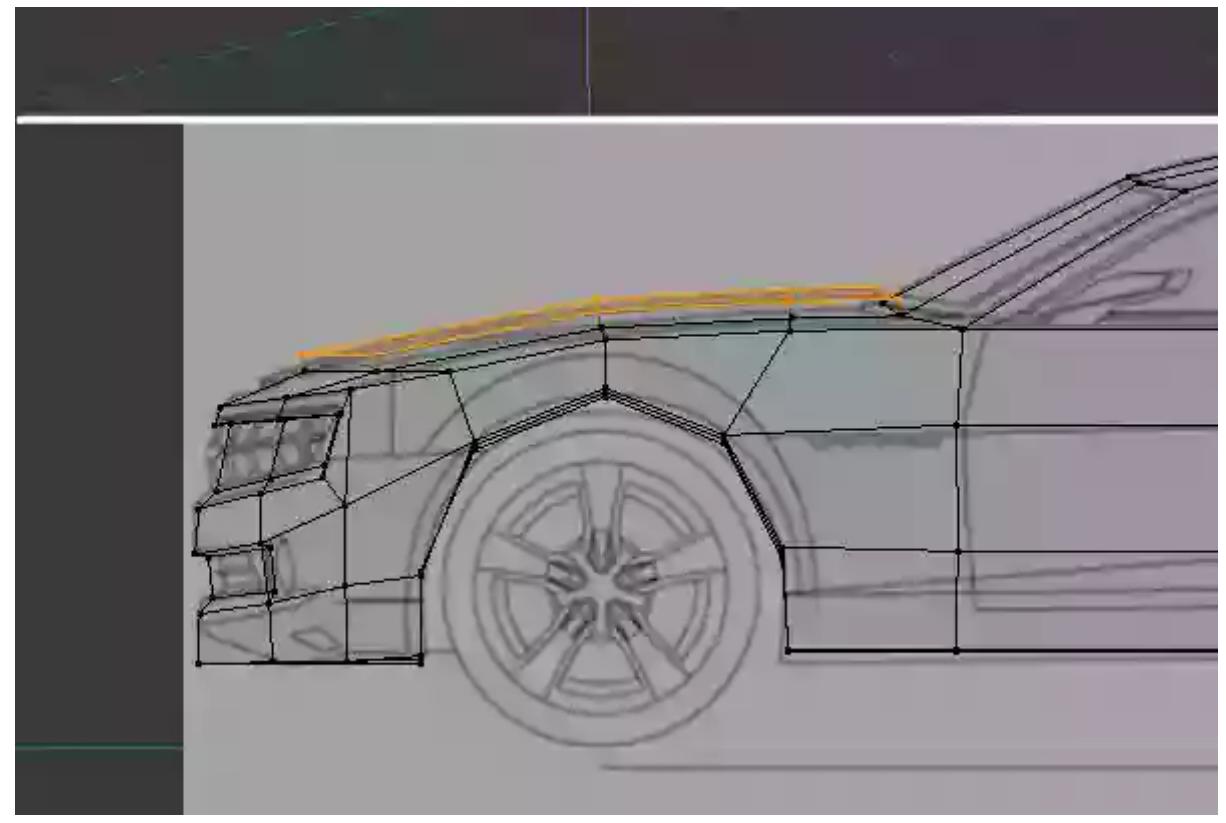


## 5. Modeling the Hood

### Step 1

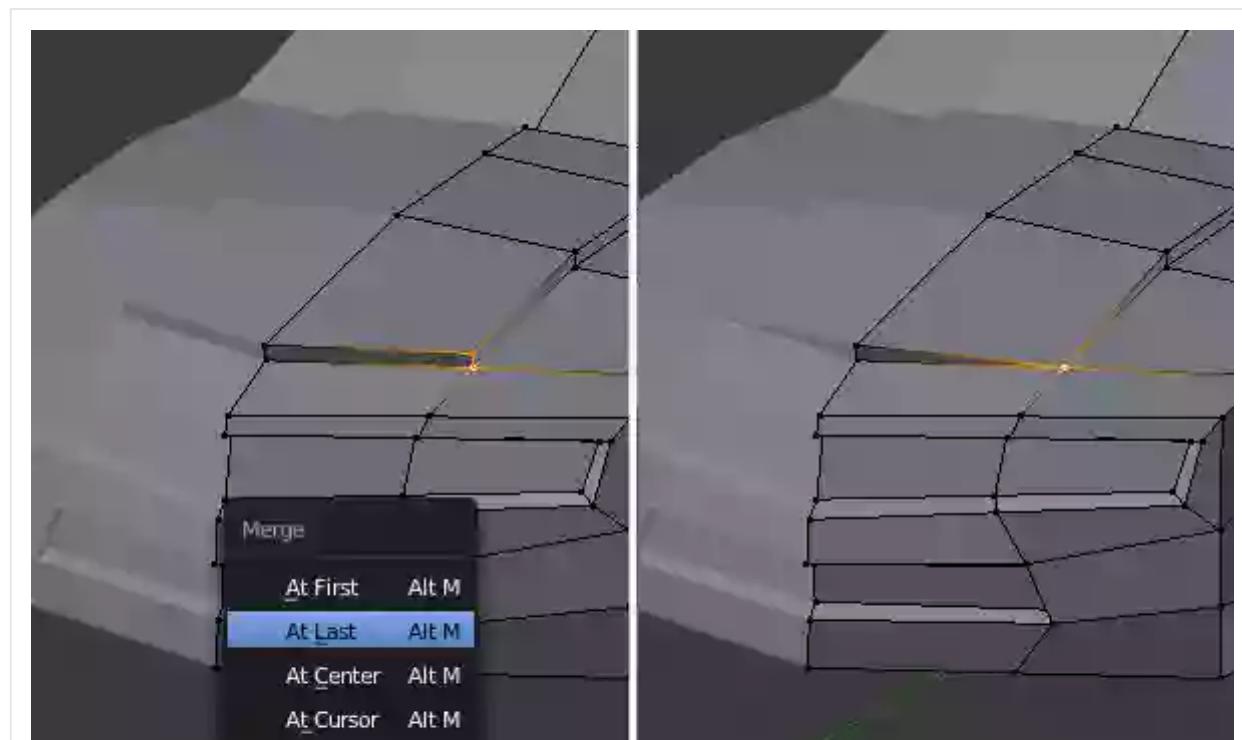
Select the front **three** faces of the bonnet/hood. Press **E** to **Extrude** and move your mouse a little bit to give it some height, and then **Left Click** to confirm.

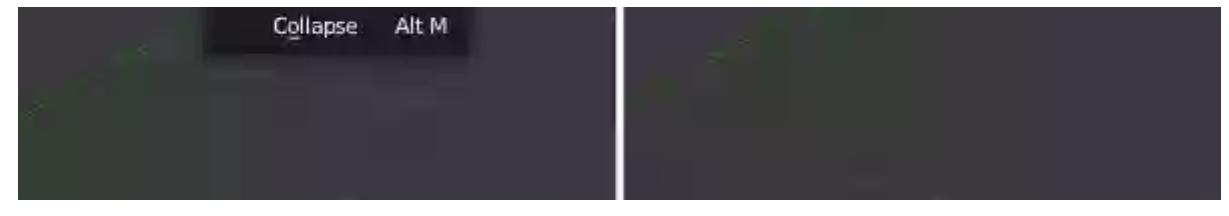




## Step 2

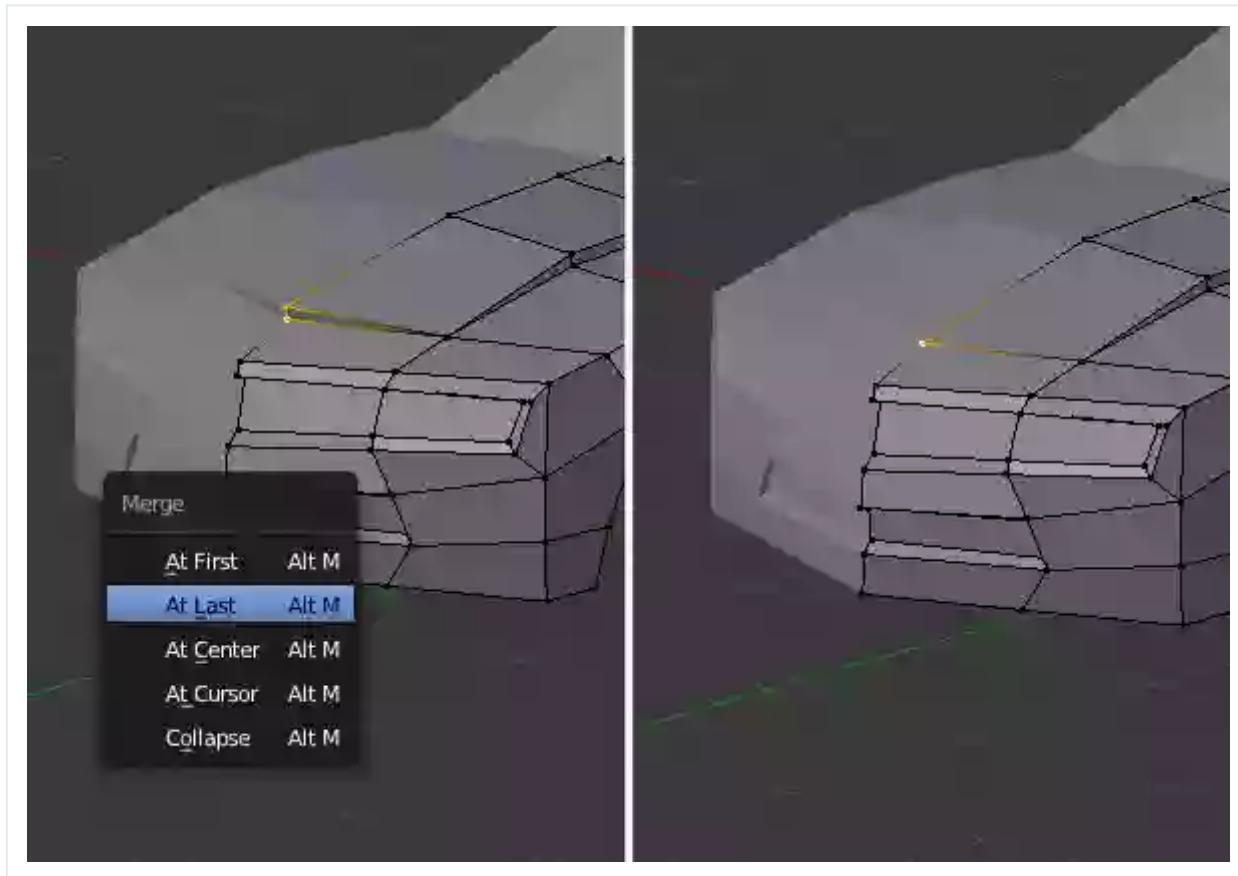
**Right Click** on the top vertex and then hold **Shift** and **Right Click** on the bottom vertex to select both in that order. Press **Alt-M** to bring out the **Merge** menu and then select **At Last**, so that the selected vertices will be merged onto the last selected vertex.





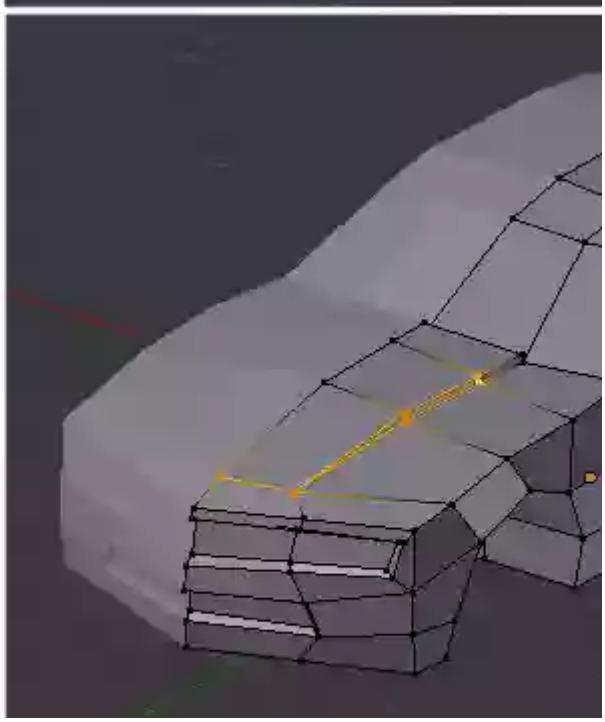
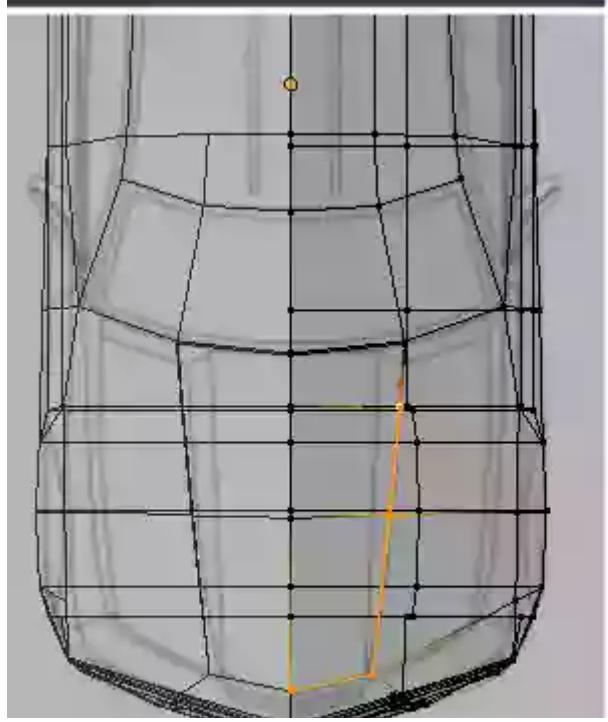
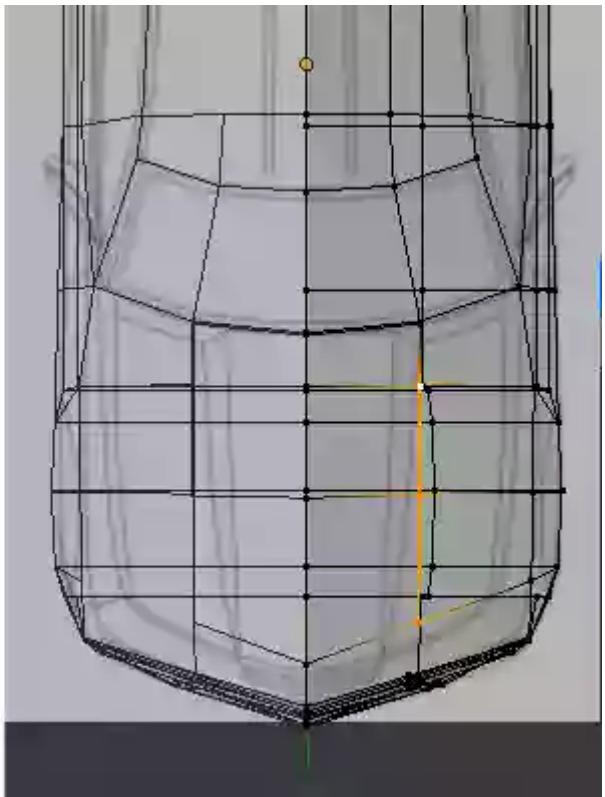
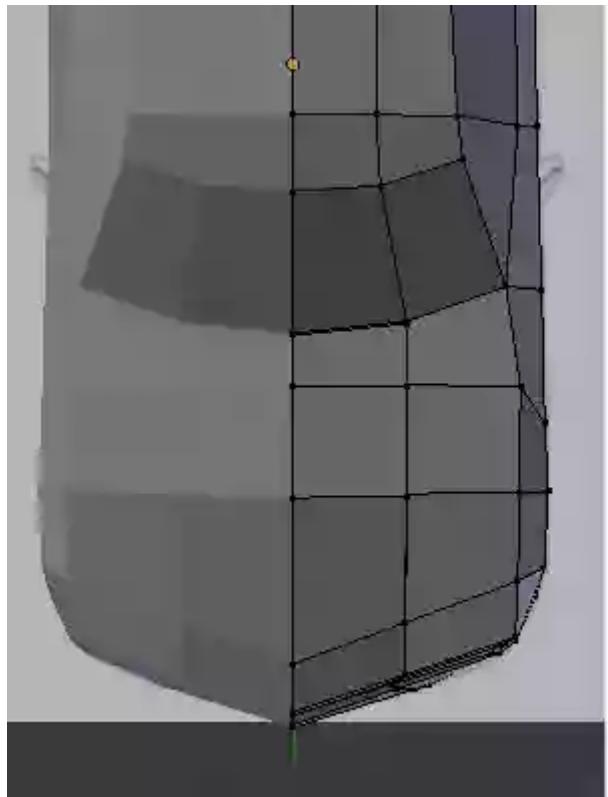
## Step 3

Do the same with the center vertices. Select the top one first and then the bottom one. Press **Alt-M** to bring up the **Merge** menu and again, select merge **At Last**.



## Step 4

Press **7** on the numpad to get into the Top view. Select the extruded part of the bonnet and move the vertices to match the reference.

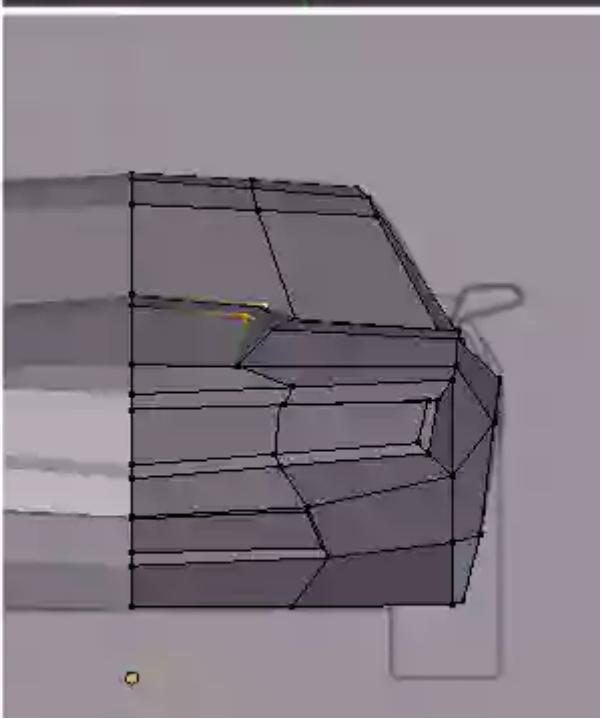
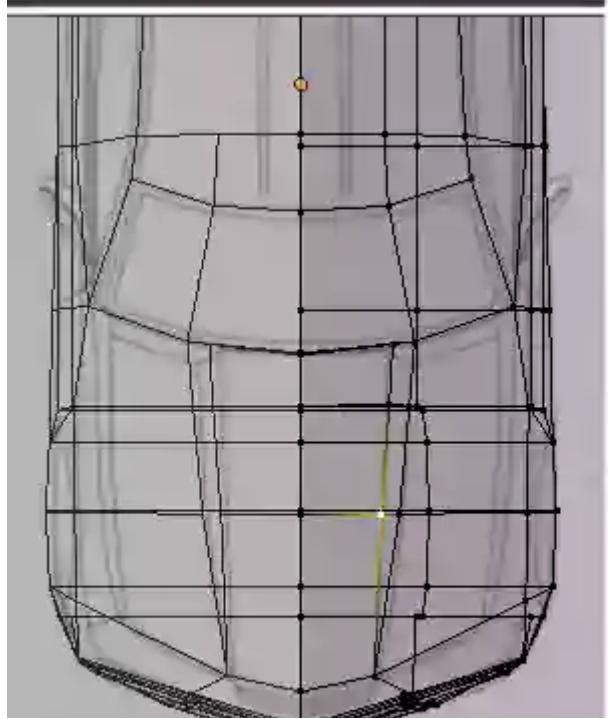
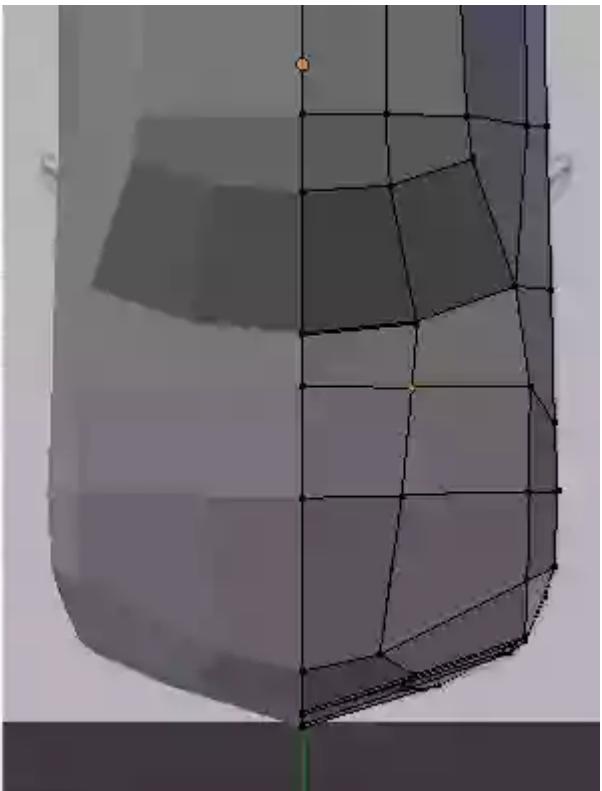
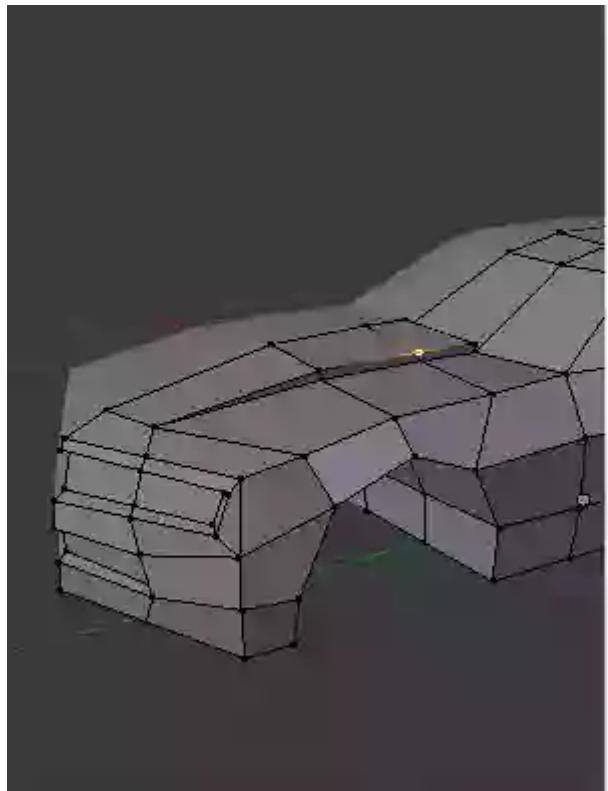


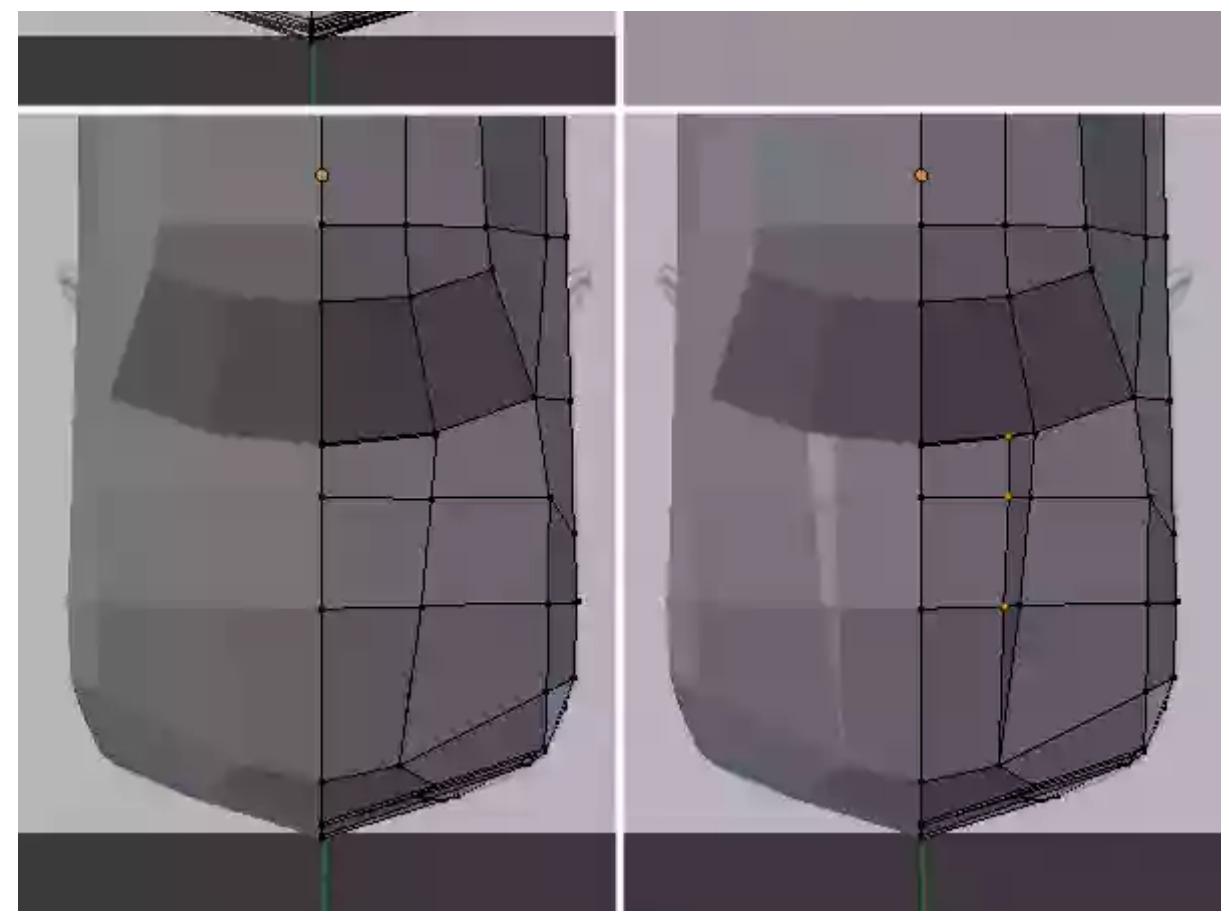


## Step 5

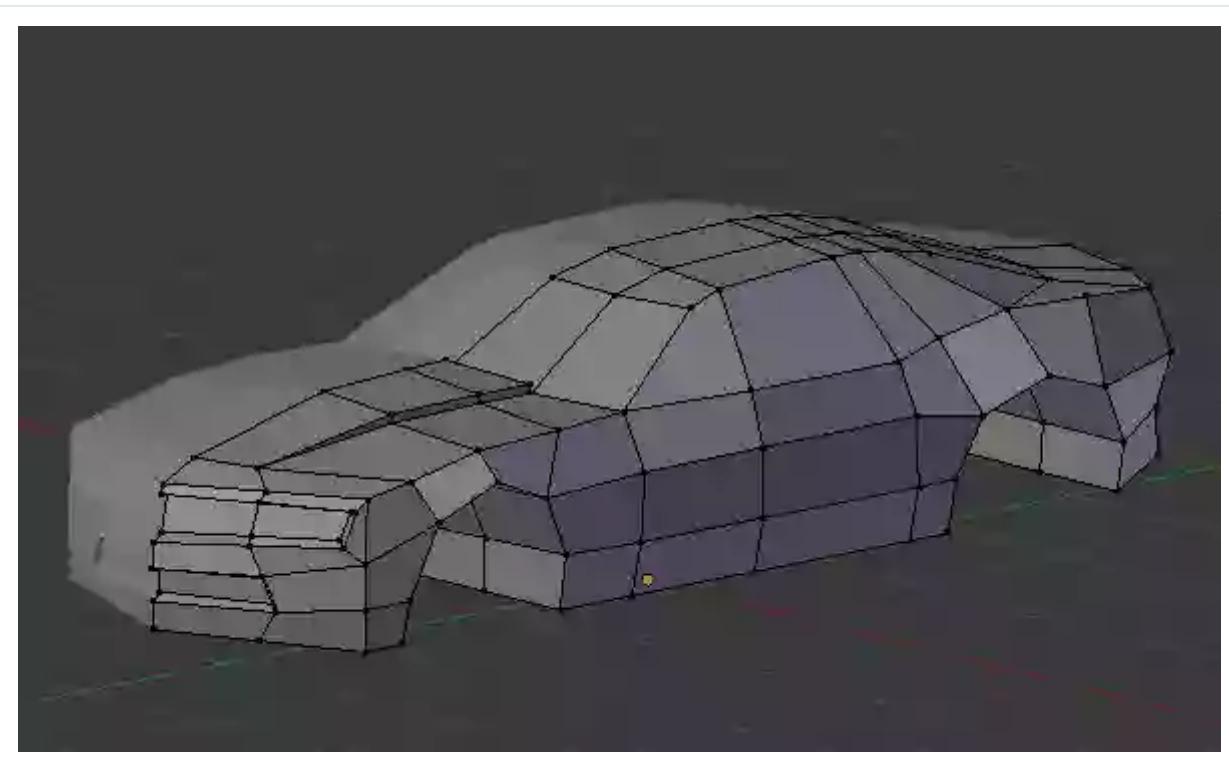
Now select only the top part of the extruded bonnet. Press **G** to move it towards the left, matching the reference. Move the

vertices one by one and remember, **Right Click** to select and **G** to move.





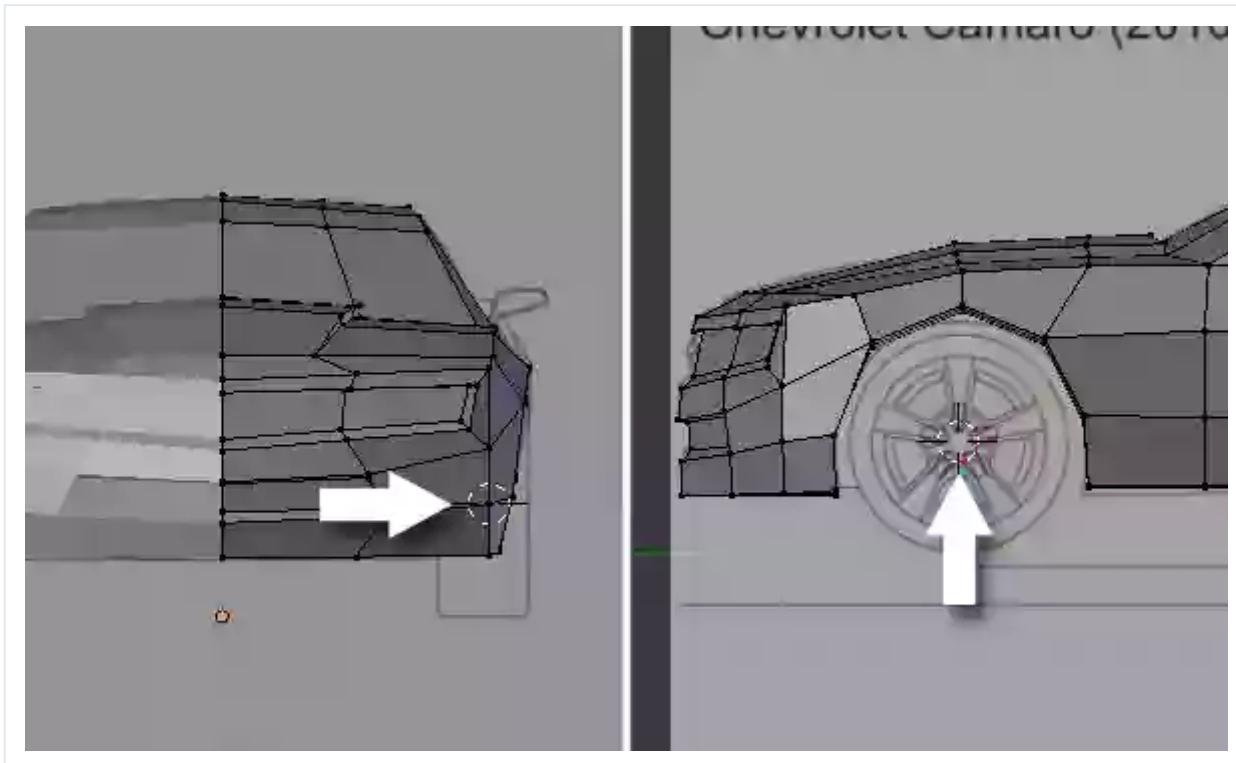
We now have the body ready.



# 6. Modeling the Wheels

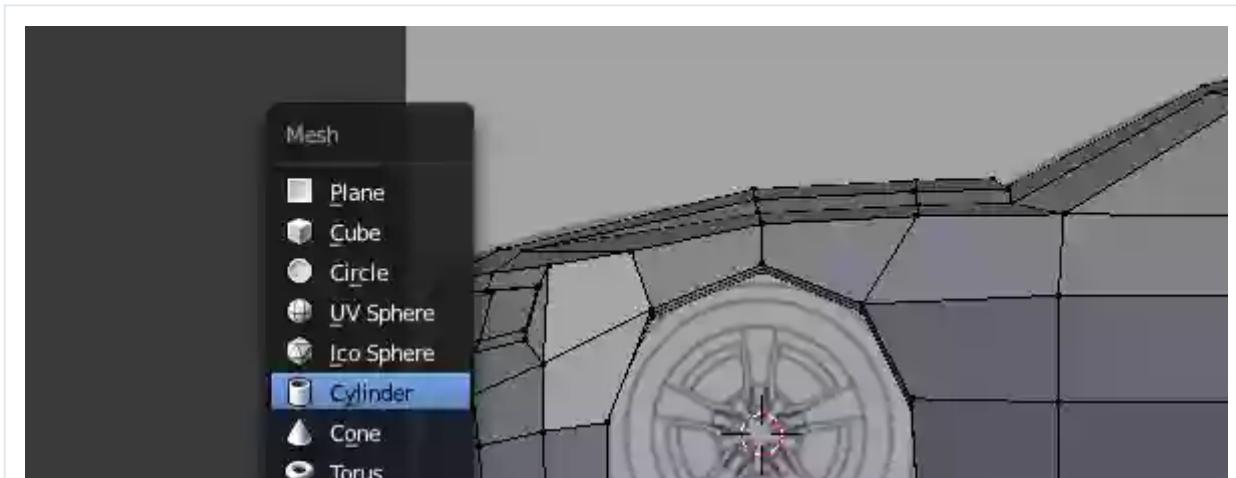
## Step 1

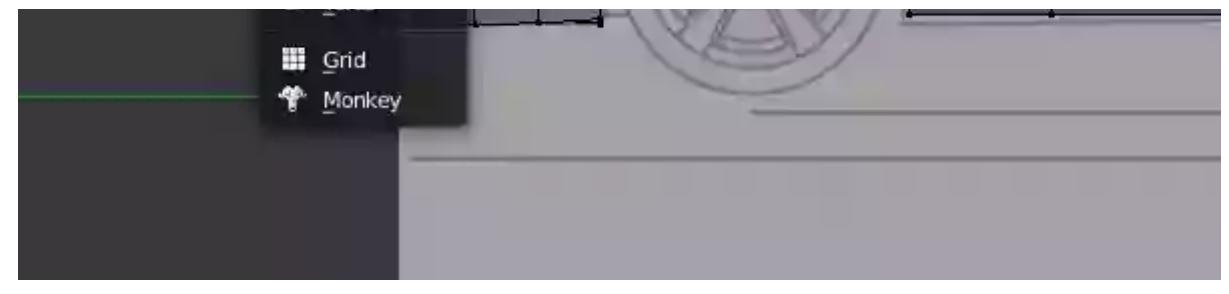
Press 1 (numpad) to get into the **Front** view. **Left Click** near the center of the wheel to position the 3D cursor there. Press 3 (numpad) and in the side view, **Left Click** again on the center of the wheel to position the 3D cursor at the center.



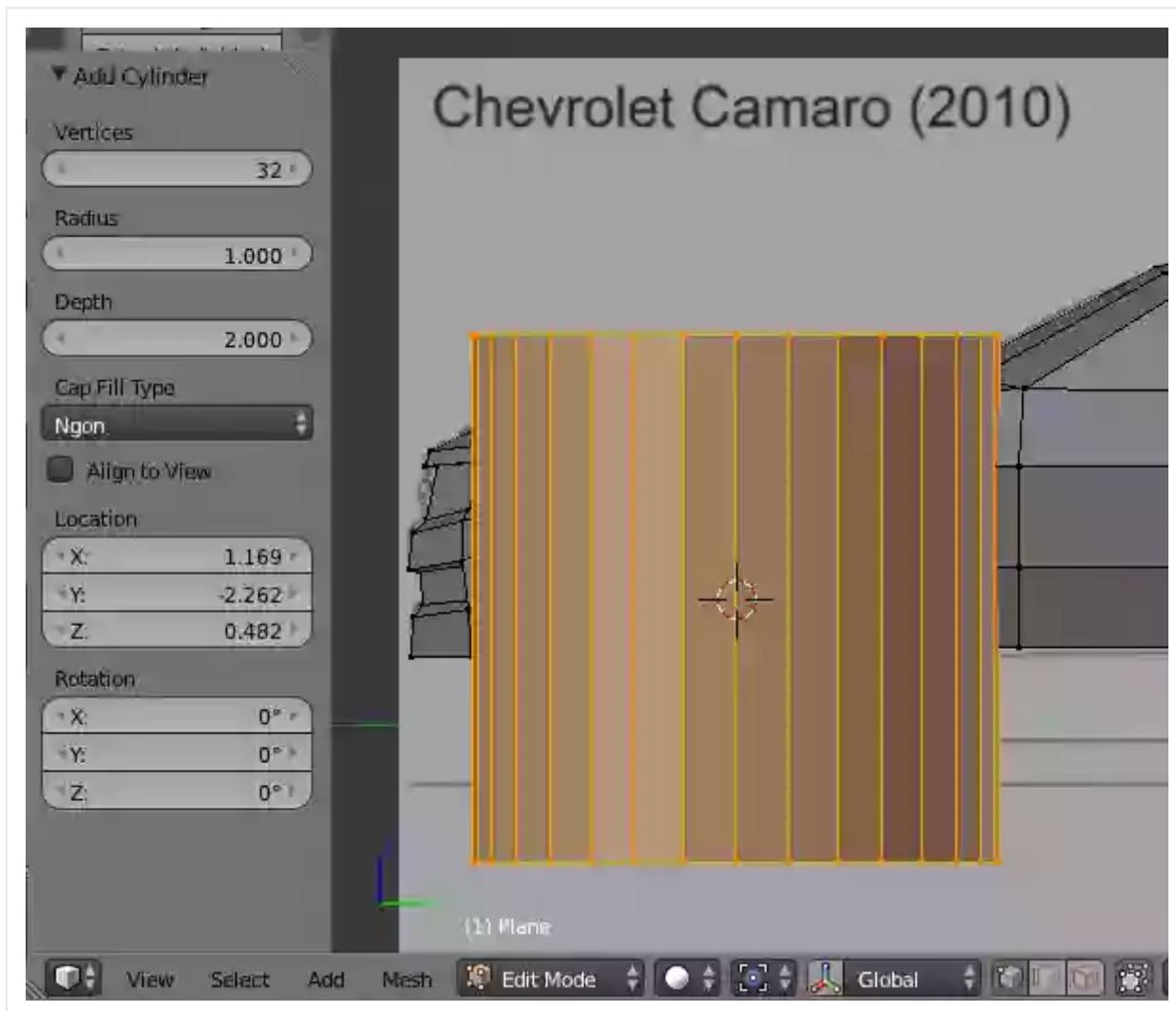
## Step 2

Press T so that you have the **Tool Shelf** panel open, press Shift-A and add a **Cylinder**.



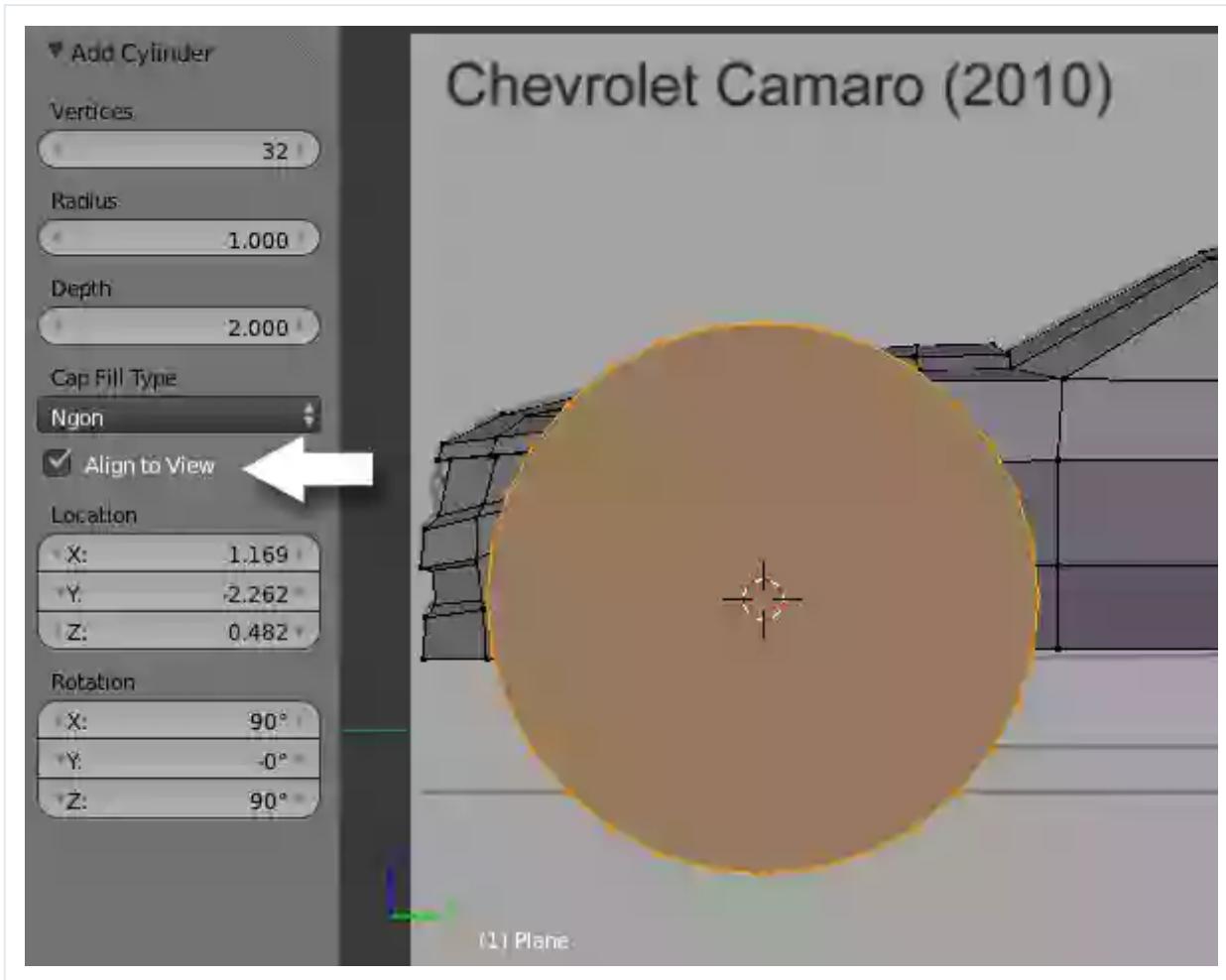


In the **Tool Shelf** panel (at the bottom), we see many options to tweak the recent command.



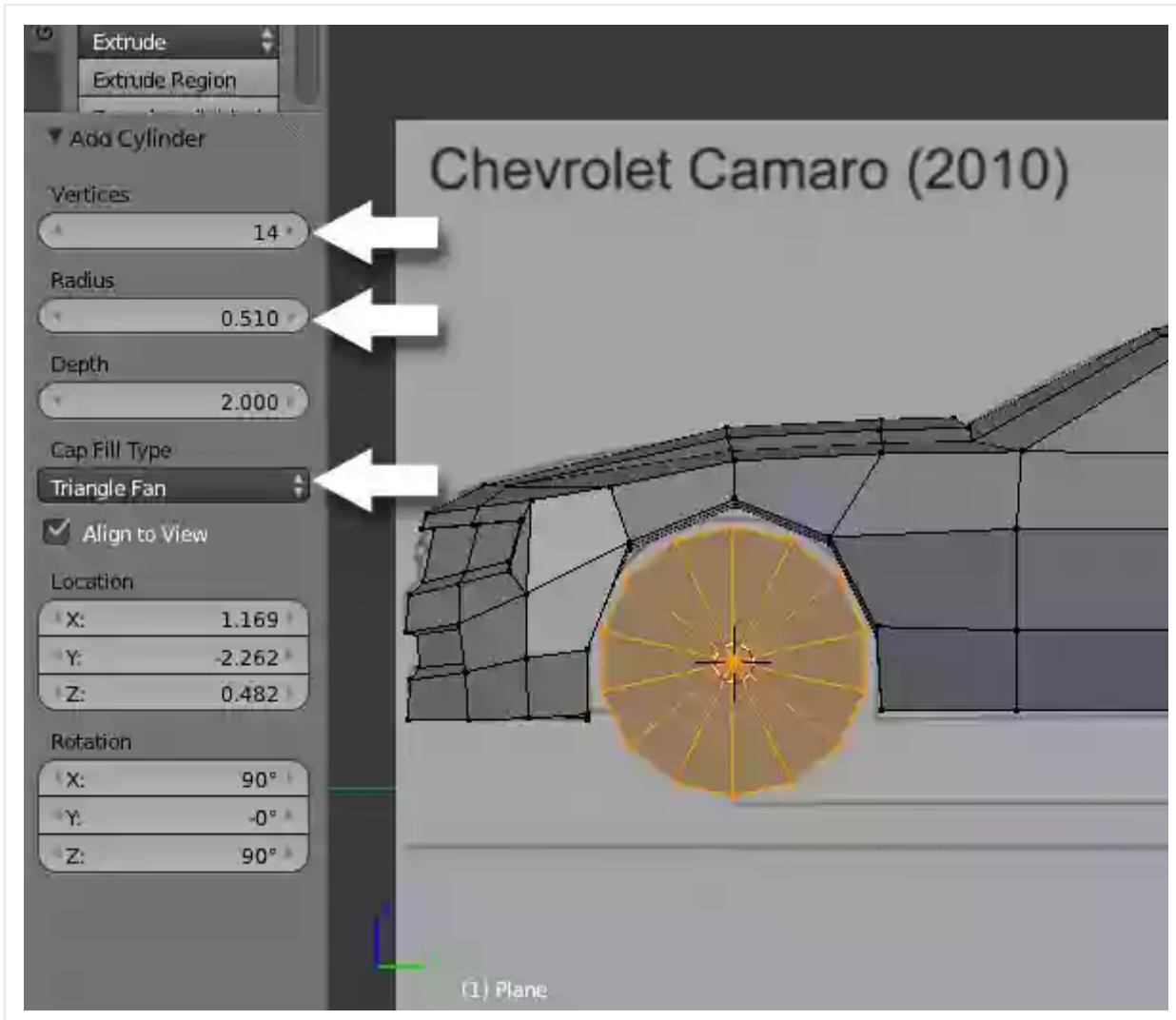
### Step 3

Check the **Align to View** box, so that the wheel is facing us (side view).



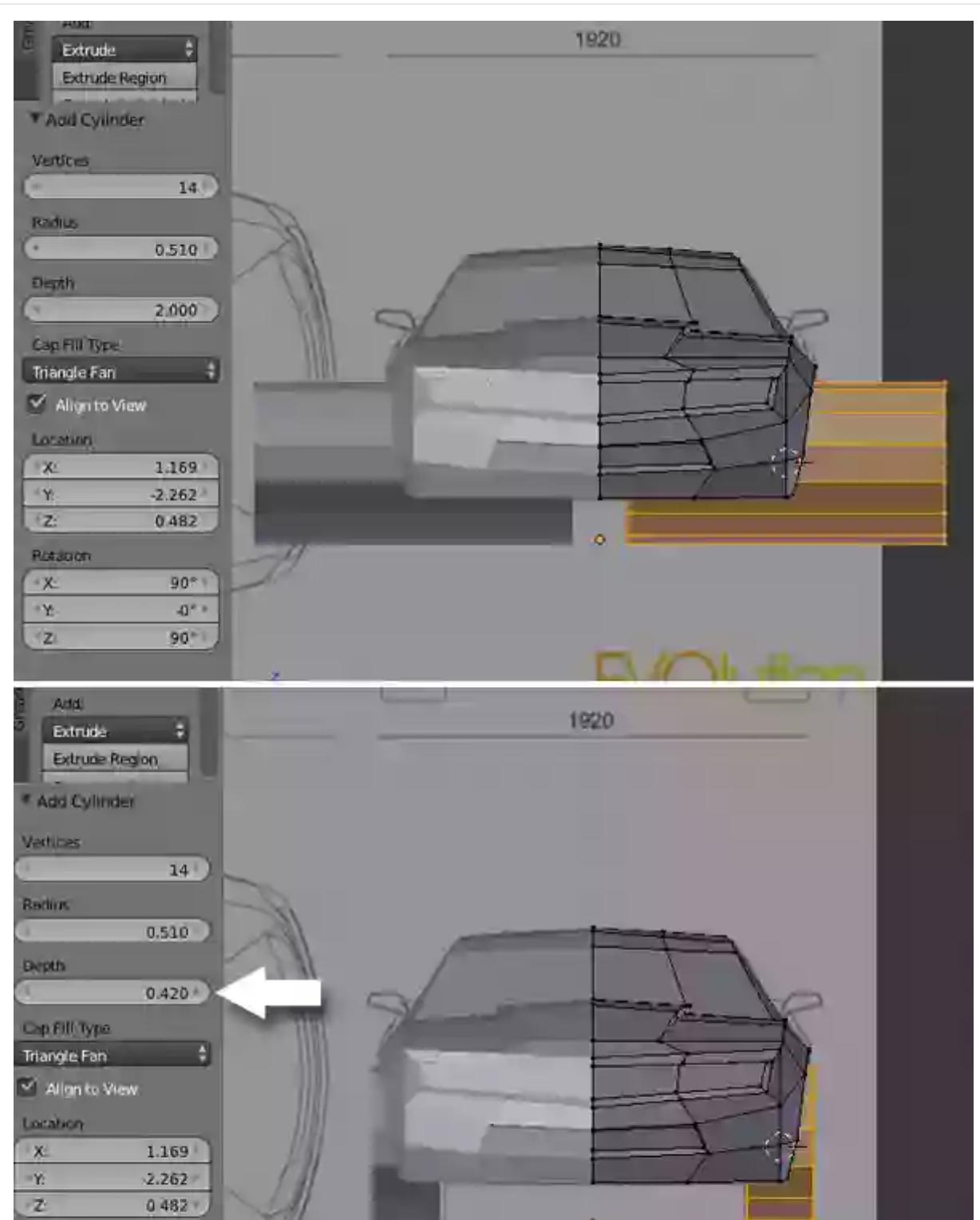
## Step 4

1. Reduce the **Vertices** count to **14**.
2. Adjust the **Radius** slider until the Cylinder matches the size of the wheel on the reference. (you can also adjust it later.)
3. In the **Cap Fill Type** option, select **Triangle Fan**.



## Step 5

Press **1** to get into the **Front** view. Reduce the **Depth** amount so that the thickness of the cylinder matches the wheel.



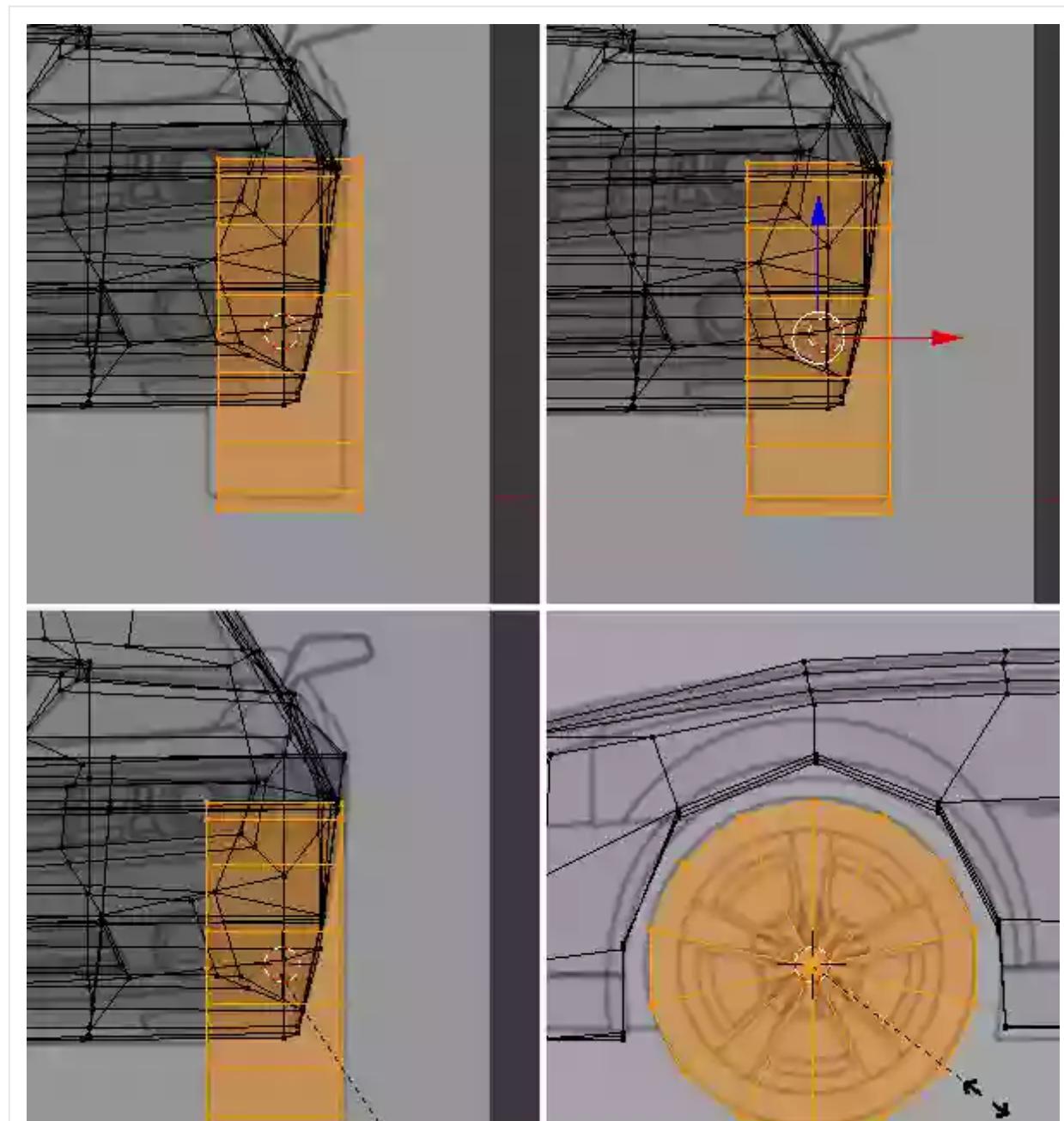


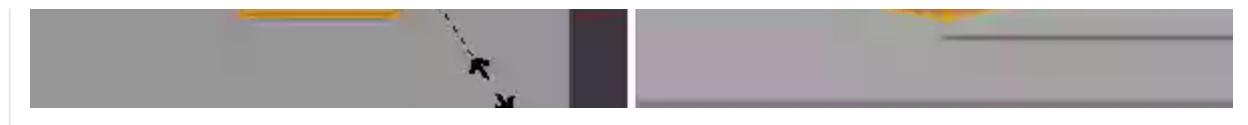
## Step 6

With the **Cylinder** selected, press **G** to move and place it precisely.

Use the scroll wheel to zoom in and out, and press **S** to **Scale** it.

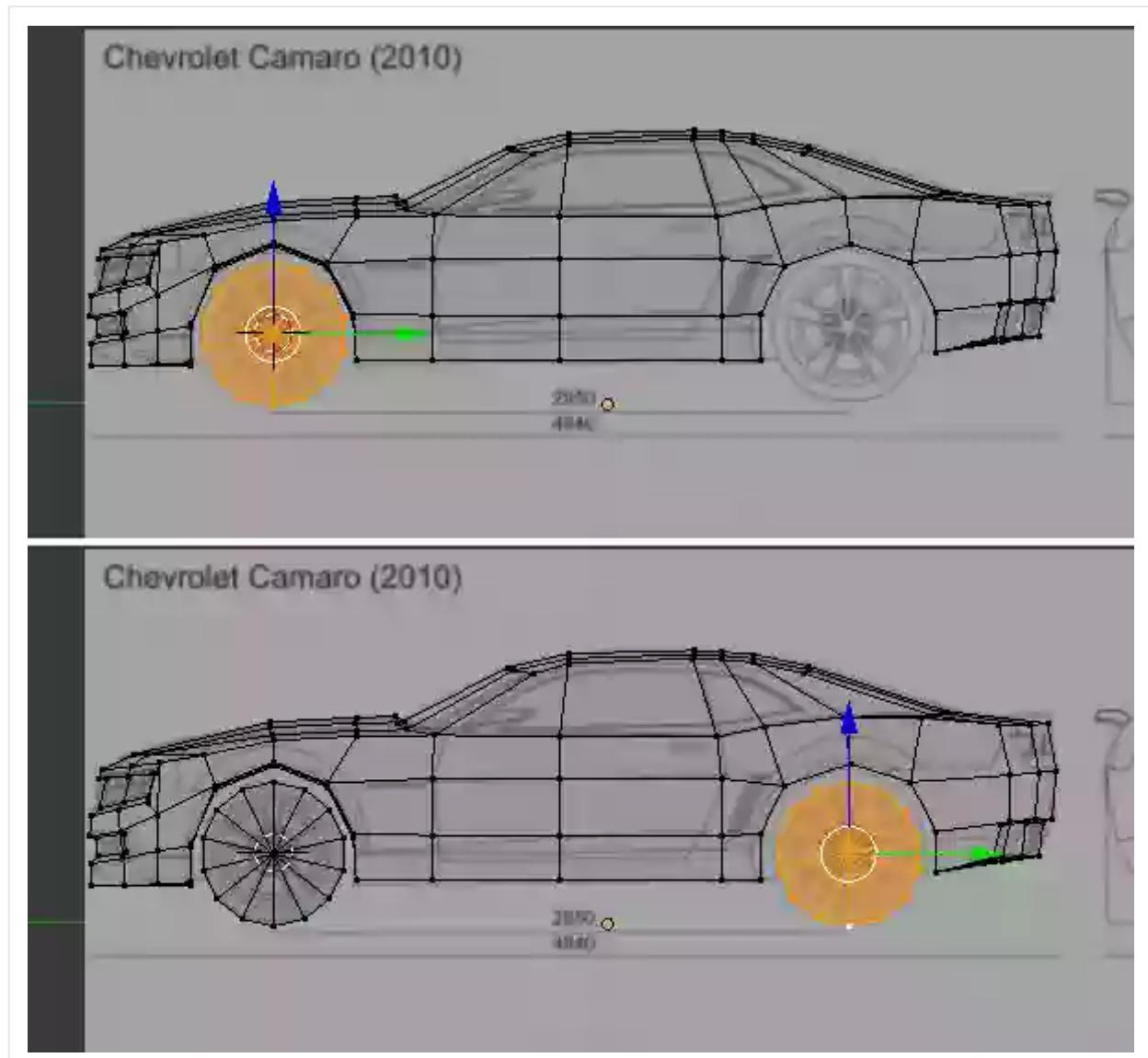
Check from the side view as well.





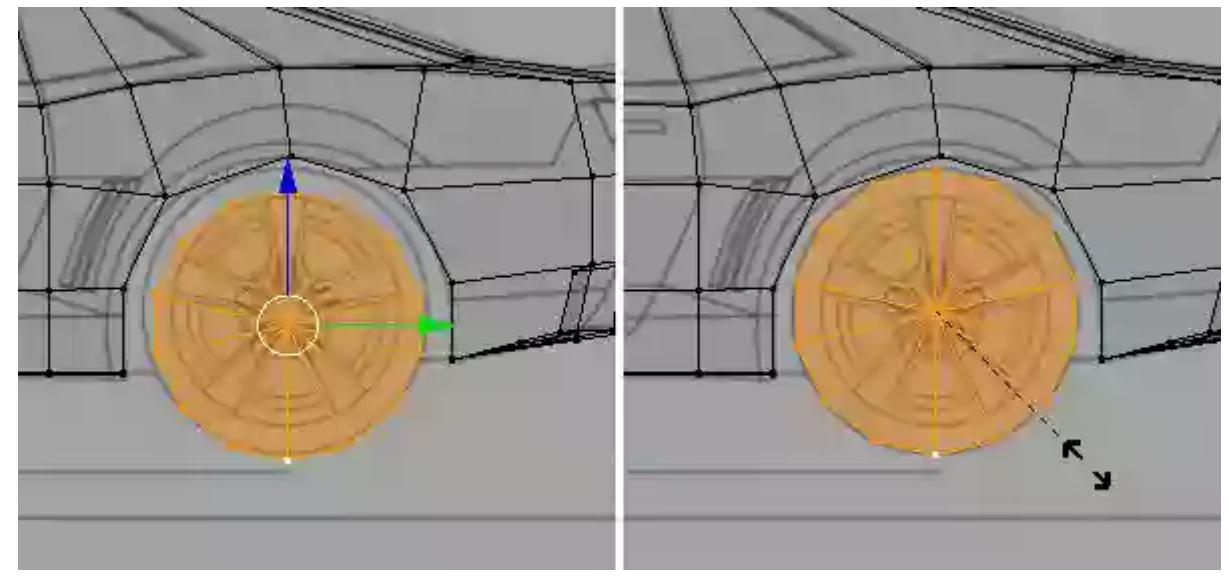
## Step 7

With the **Cylinder** still selected, press **Shift-D** to make a duplicate. **Left click** to confirm the position. And press **G** to move the new cylinder to its place. You may also use the arrow widget.



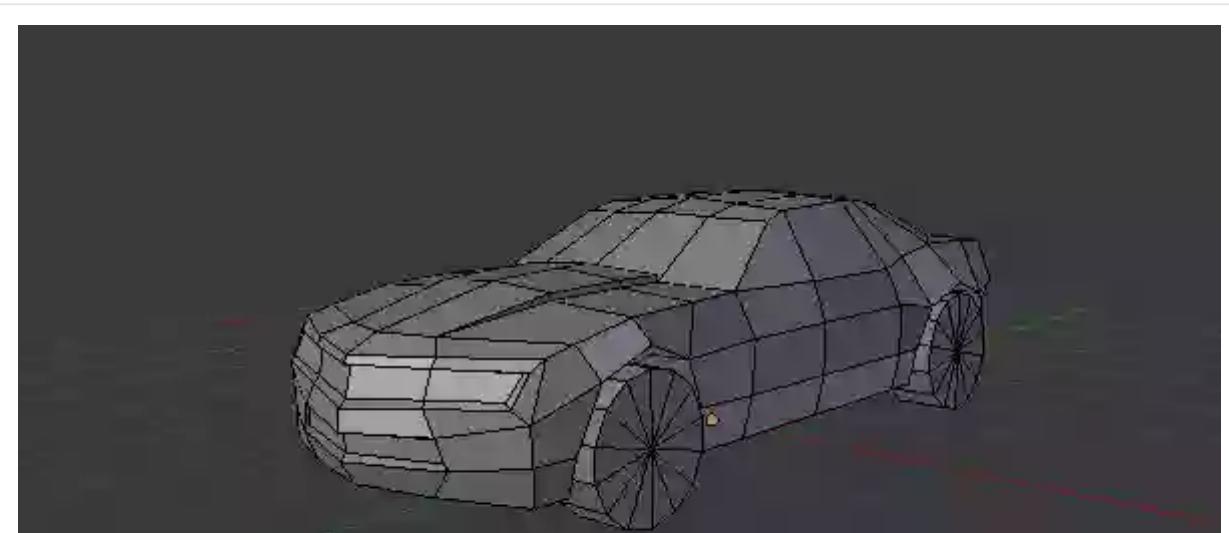
## Step 8

Adjust, place and scale it to match the reference image. Press **G** to **Move**, **S** to **Scale** and **Control-S** to save the file.



## Conclusion

The car model is now ready for texture painting, which we will do in second part.





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Karan Shah

Karan Shah is a 3D Artist and Animator from India. He is a BFA Graduate with specialization in sculpture. An inclination towards the digital medium made him a self taught computer artist. He is currently freelancing..

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