Ex_2

HardSurface Modeling

Blender

MA3D

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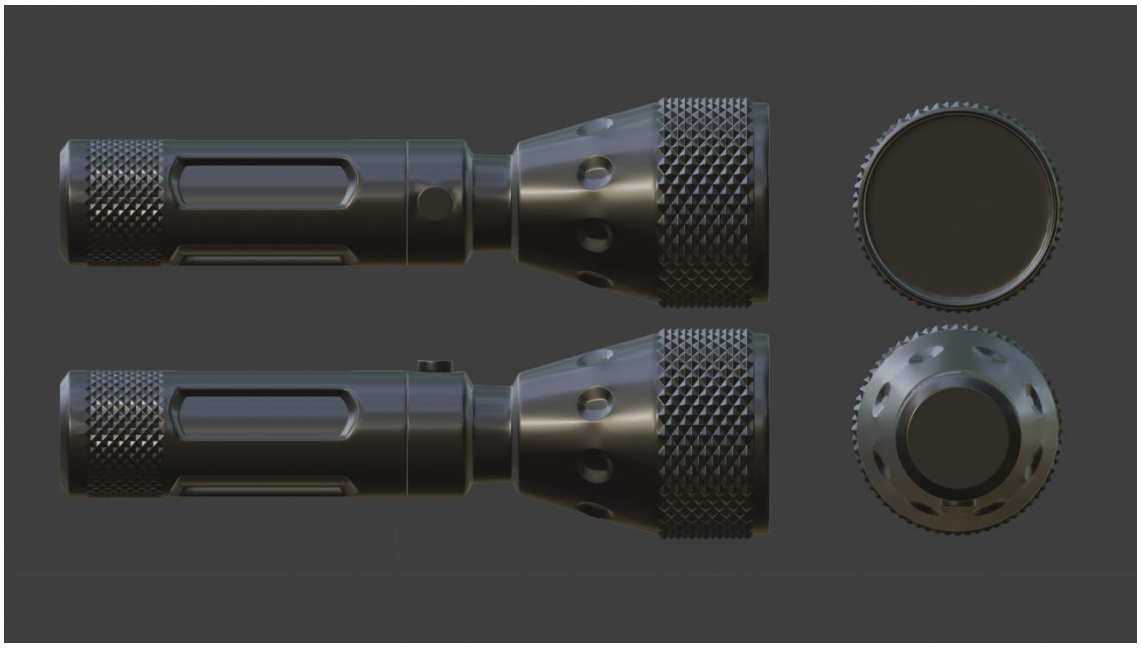
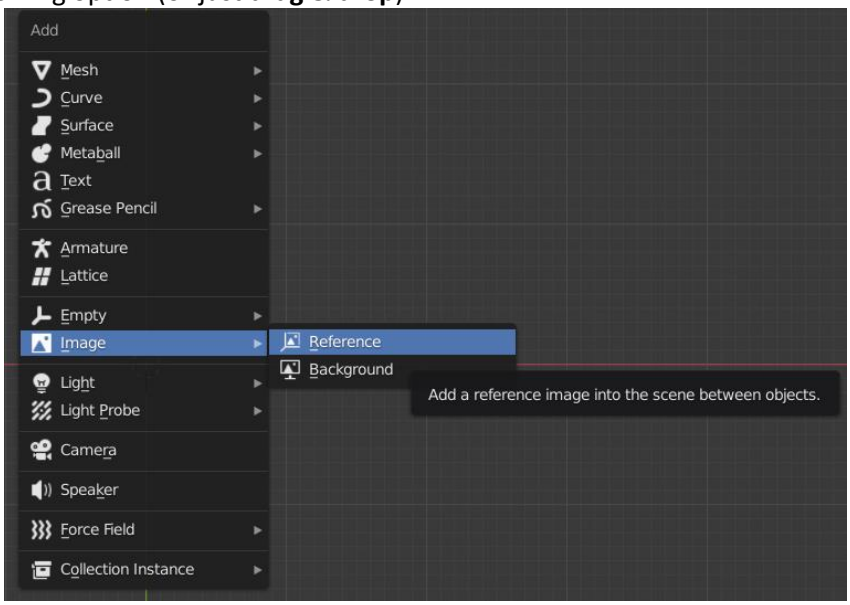
In today's ement we have "... A petit..." Lantern:

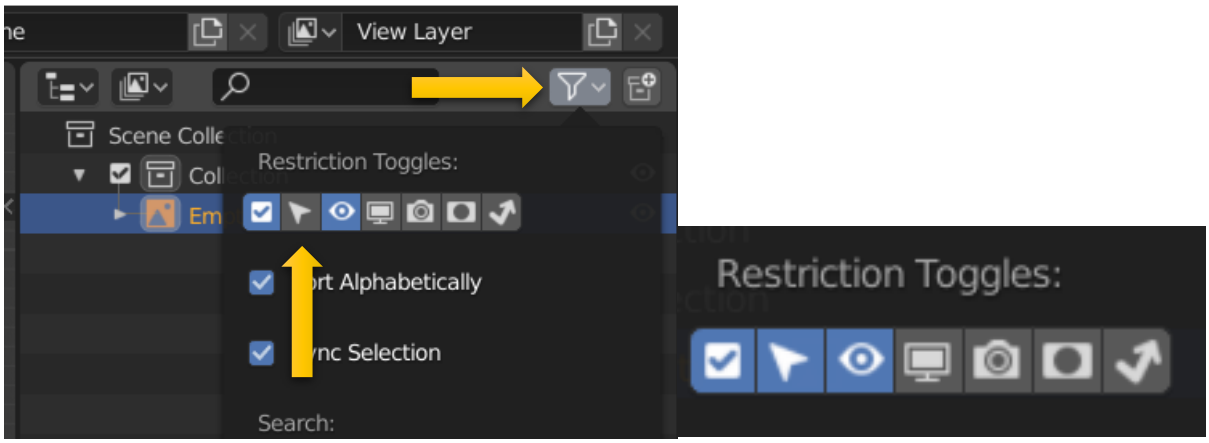


We can use this image as a reference in Blender, for this it uses the shortcut to add objects and selects the following option (or just **drag & drop**):

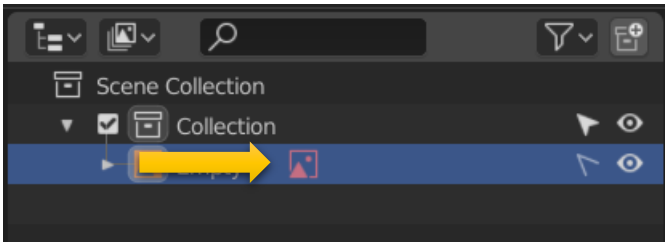


Depending on the position of the view in **the viewport** (**Perspective** / **Orthographic**) the image may be skewed in relation to the **x, y or z planes**. To center the image on the source we can use **Alt-G** (reset Position) and **Alt-R** (reset Rotation).

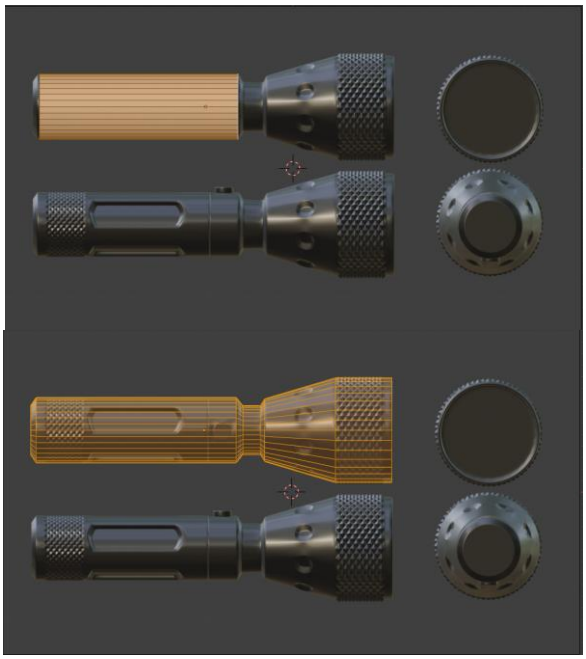
Then we can lock the selection so as not to interfere with the other objects. By default it is not visible.



Now we can lock the selection in the **Outliner**

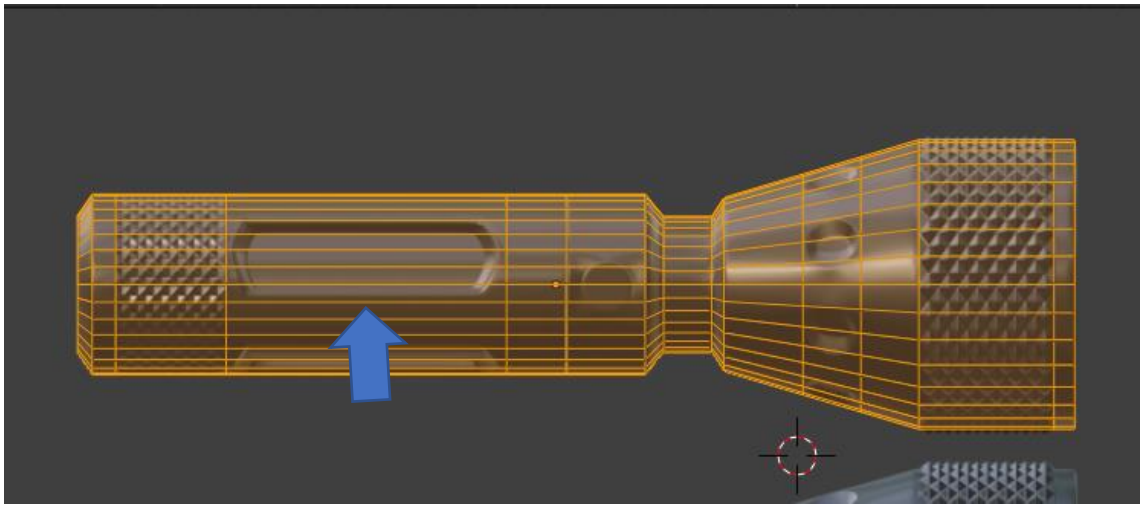


We can now add a cylinder and start copying the most basic shape of the object, using just **Extrude (E) and Scale (S). (Avoids unnecessary cuts)**

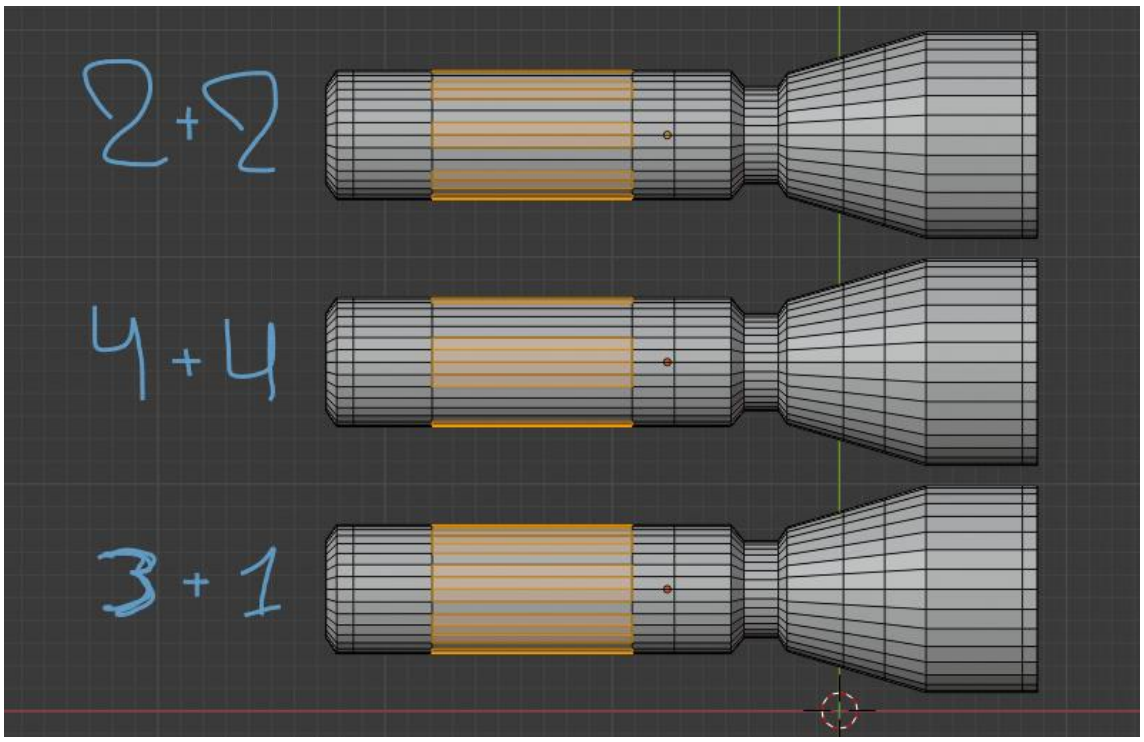


Once you've got the whole silhouette of the object built, we'll save a **duplicate** (and hide it), which will be our **lowpoly** in the future.

Now let's create the separations for the Highpoly details.
Using only the cut loop (**Ctrl-R**).

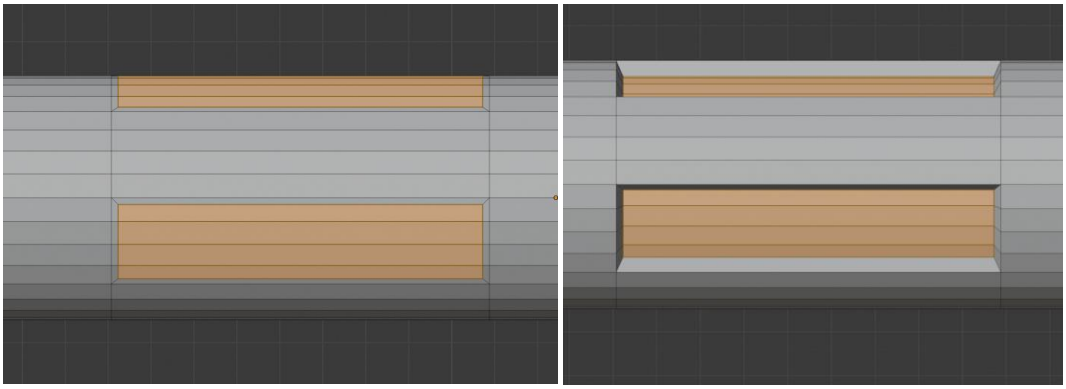


For the details we will use two techniques:
Starting with the one marked in the image, the default cylinder has 32 side faces, we can divide it into groups of 4 and leave 4 interval as in the example above, or we can choose other variations such as 3 + 1 or 2 + 2, etc.

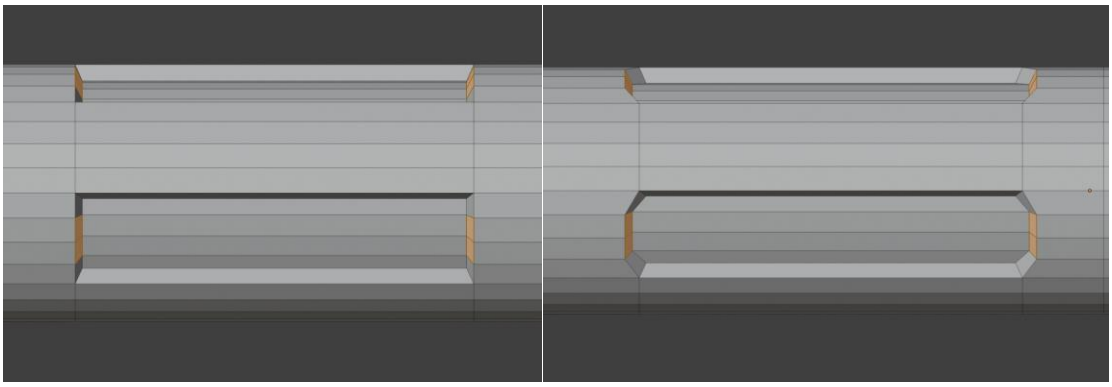


All choices are valid as long as radial symmetry is maintained.

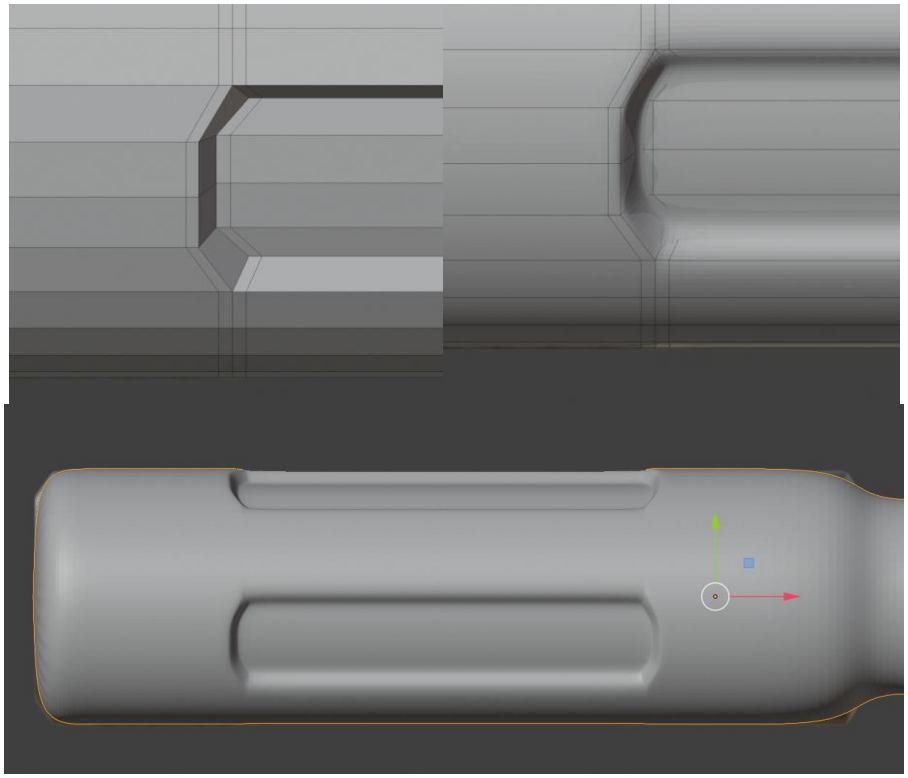
Once selected, we can make an **Inset**, followed by a **normal scale along** (**Alt-S**)



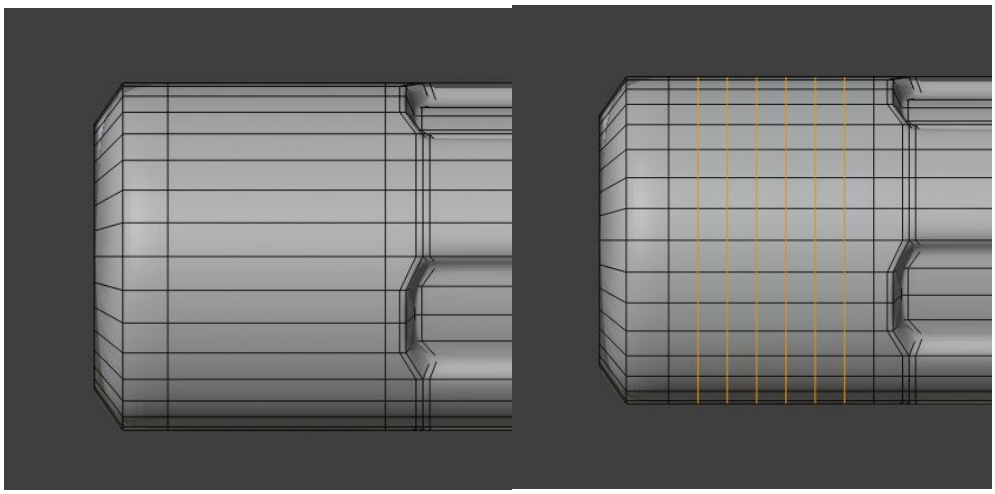
And to give it the round effect, we can select the **two middle faces** of the ends and increase their scale on their axis.



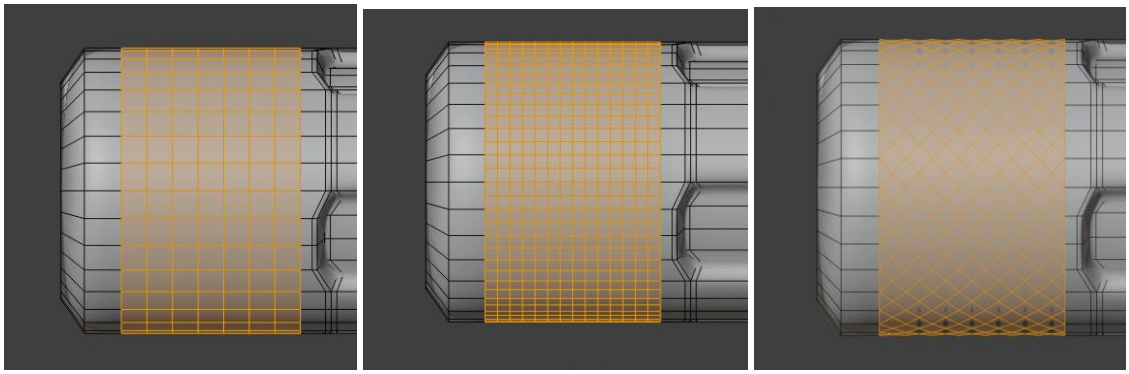
The only thing missing is the geometry loops (**loop cuts**) for the effect to be visible with a **subdivision modifier.**



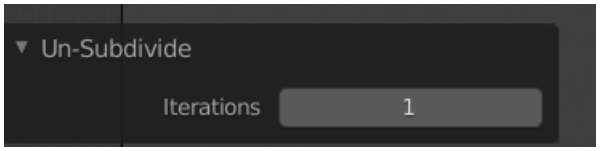
So let's move on to the next detail.



Add **loops** until the faces are square, or as close as possible.

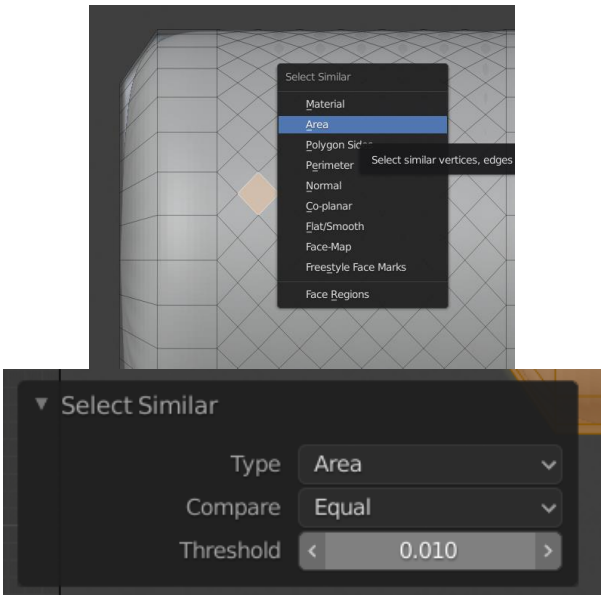


Select **ALL** (front and back) and subdivide with the **RMB** menu and then use **Un-subdivide** (you have to change the value to 1 to get the desired effect) in the same menu or look for the option with **space**

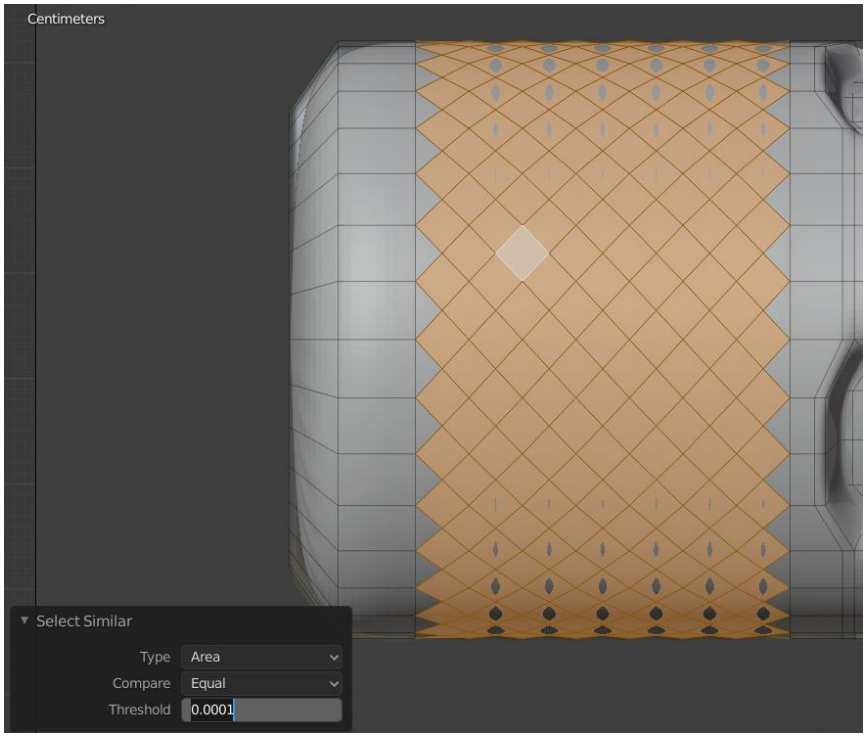


(in case space shortcut is **play** or **tools** change it in **preferences -> Keymap -> Spacebar action -> Search**).

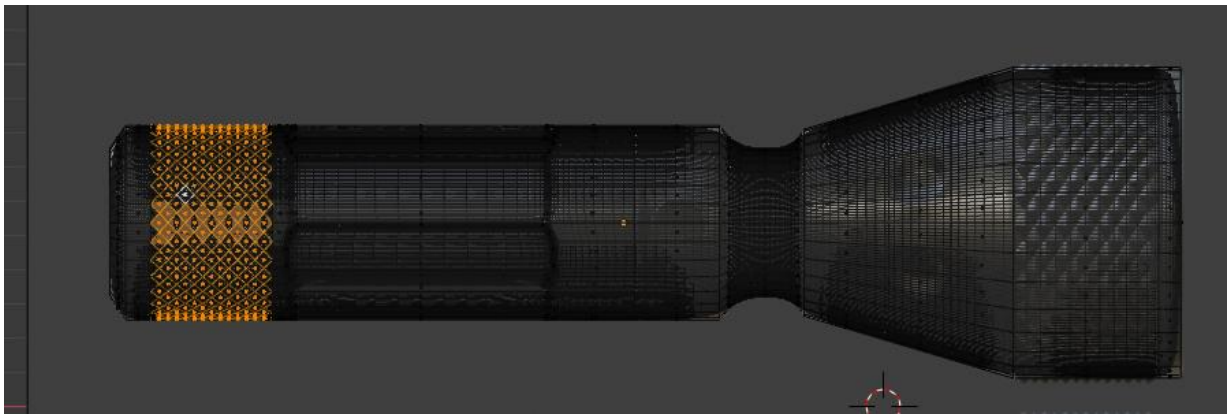
Now we're going to pull out the triangles that we don't want on the sides. Select one of the faces and use the **Select Similar option (Shift-G)**



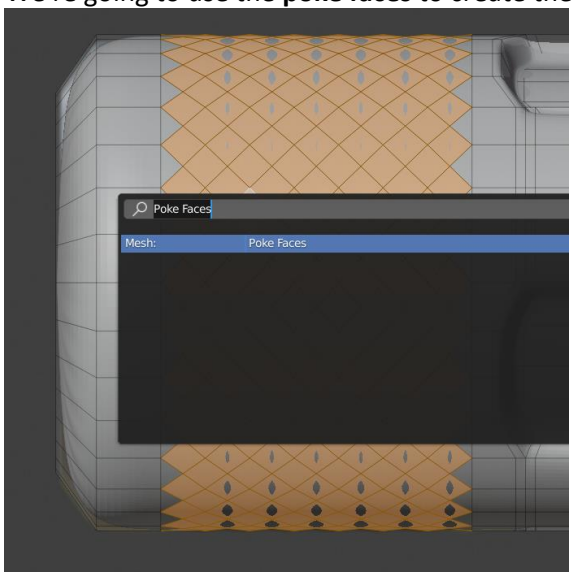
By default its 0.010 which is too much for what we want, change the value **and if necessary the selection** so that all the diamonds are selected.

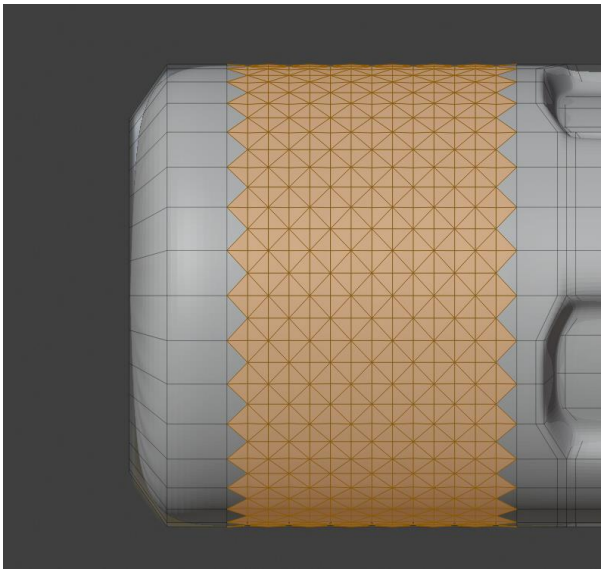


In my case, 0.0001 worked. Still, always check with the **Wireframe** (**Z**) visualization to make sure nothing else is selected.

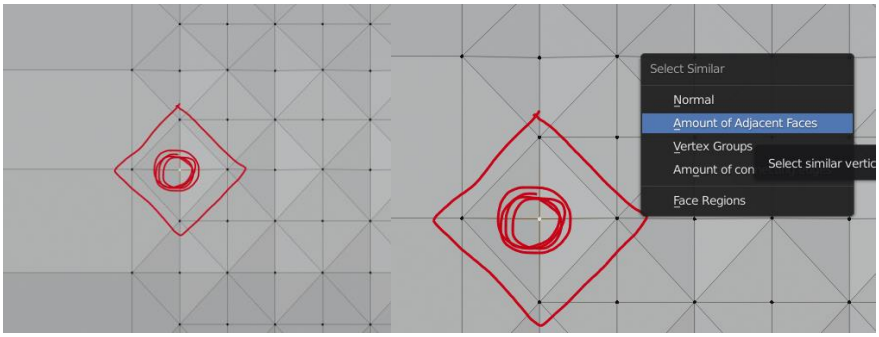


We're going to use the **poke faces** to create the subdivision on each face.

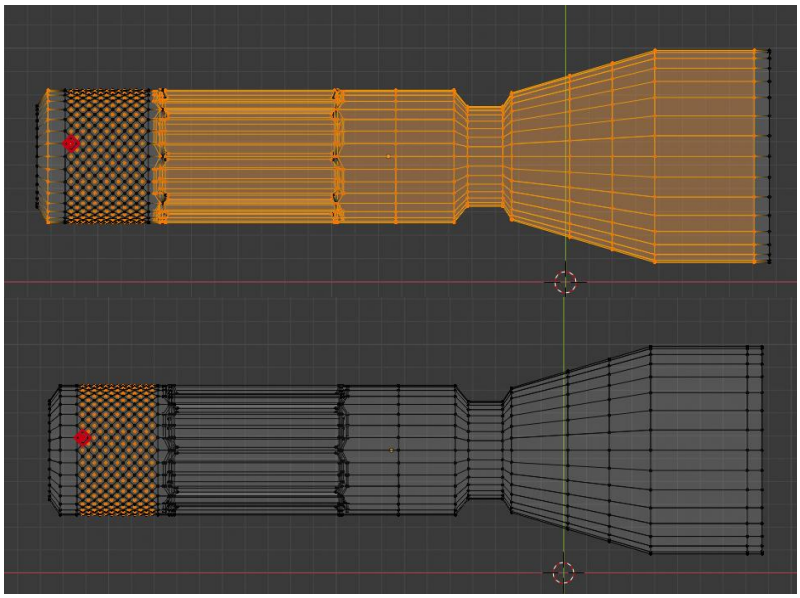




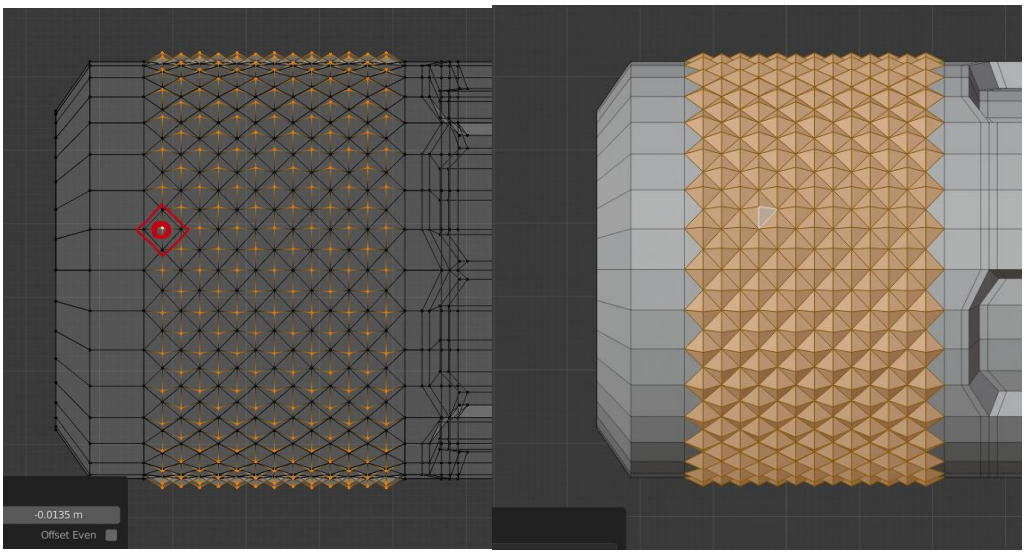
We could use the inset to its maximum value and then remove the underset vertices, but as you can see it was a lot more work.



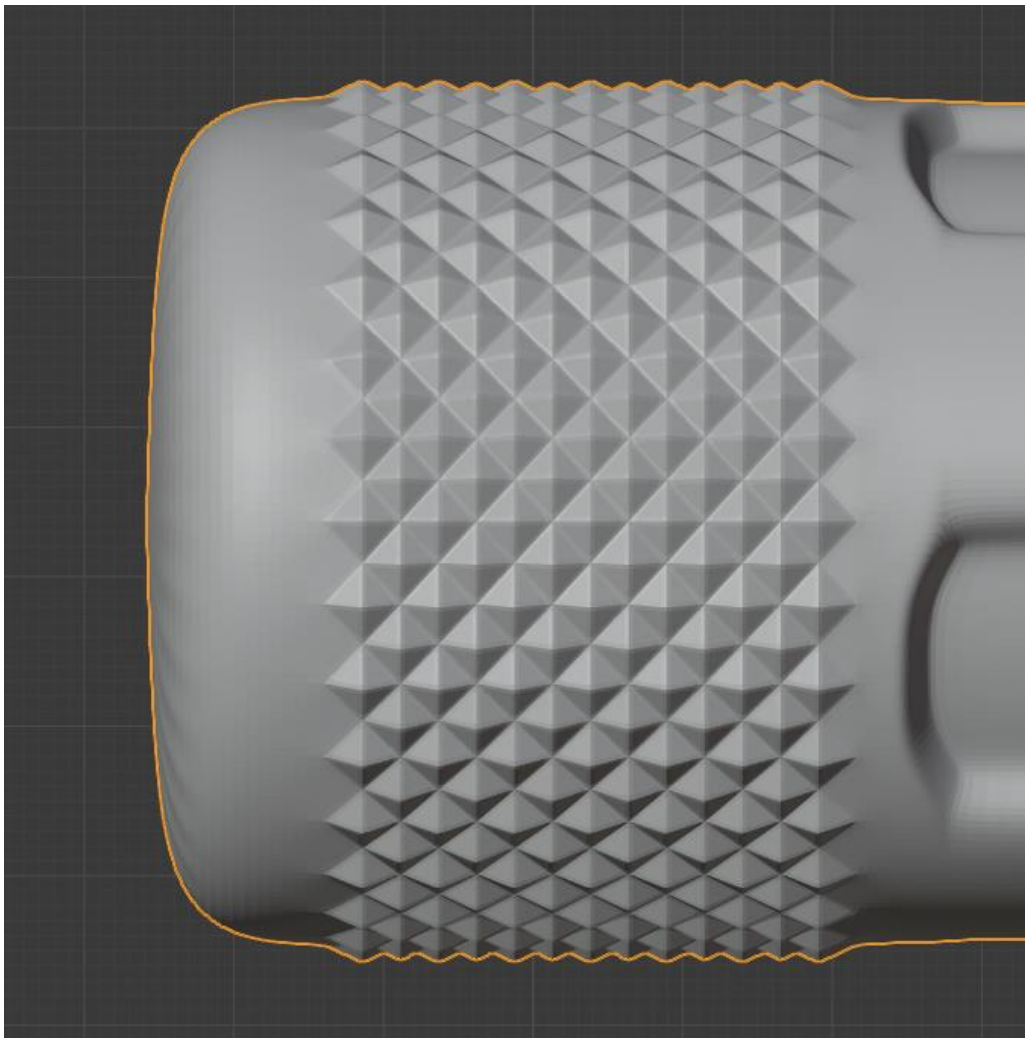
Selects a point inside and uses the same similarity selection method to select the remaining points. In this case, you will need to deselect the remaining ones. (Use Circle**(C)**/Box**(B)** deselect)



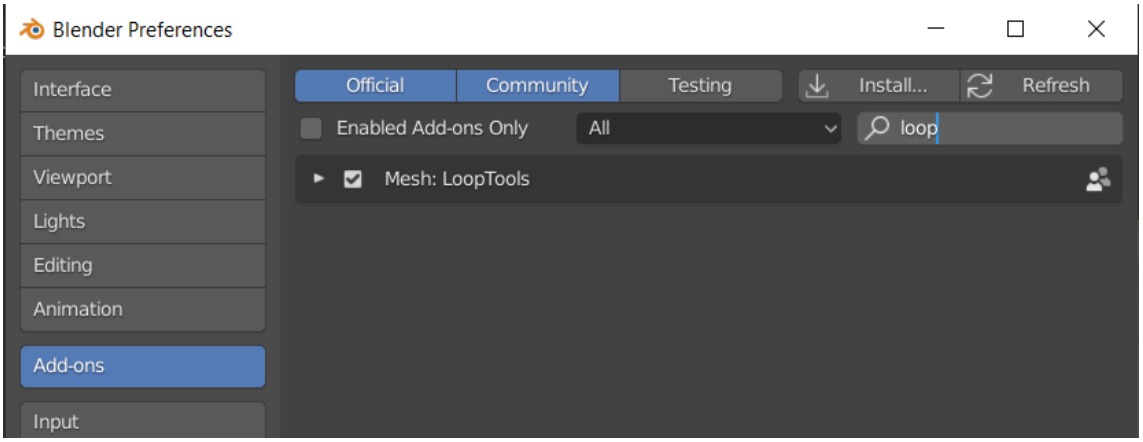
With all the points selected, we can use the Scale along normals to move away or closer to the center, depending on the effect you want to have. Both are valid, as long as they don't get too exaggerated.



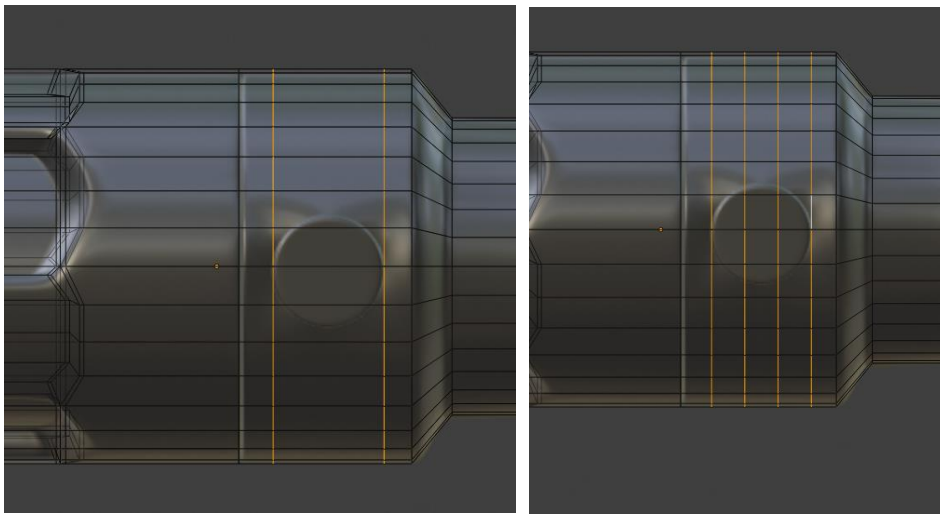
Select the faces with the method we've been using and with **Shift-E (mean crease)** you can "**crease**" the edges **(only visible with the subdivision modifier).**



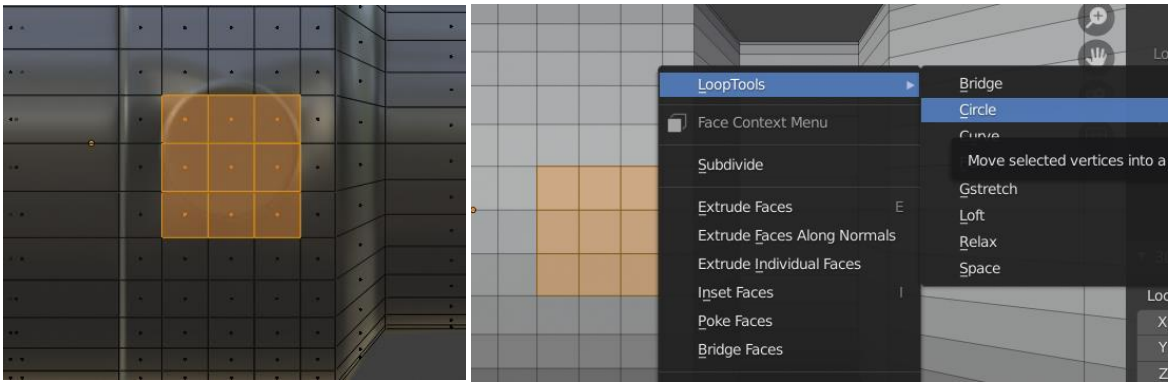
The Effect on the opposite side is the same. You can follow the same steps.
To finish, let's do the flashlight button.
We'll need an addon that comes standard with blender, but doesn't come enabled by default.
Its called **Loop Tools**:

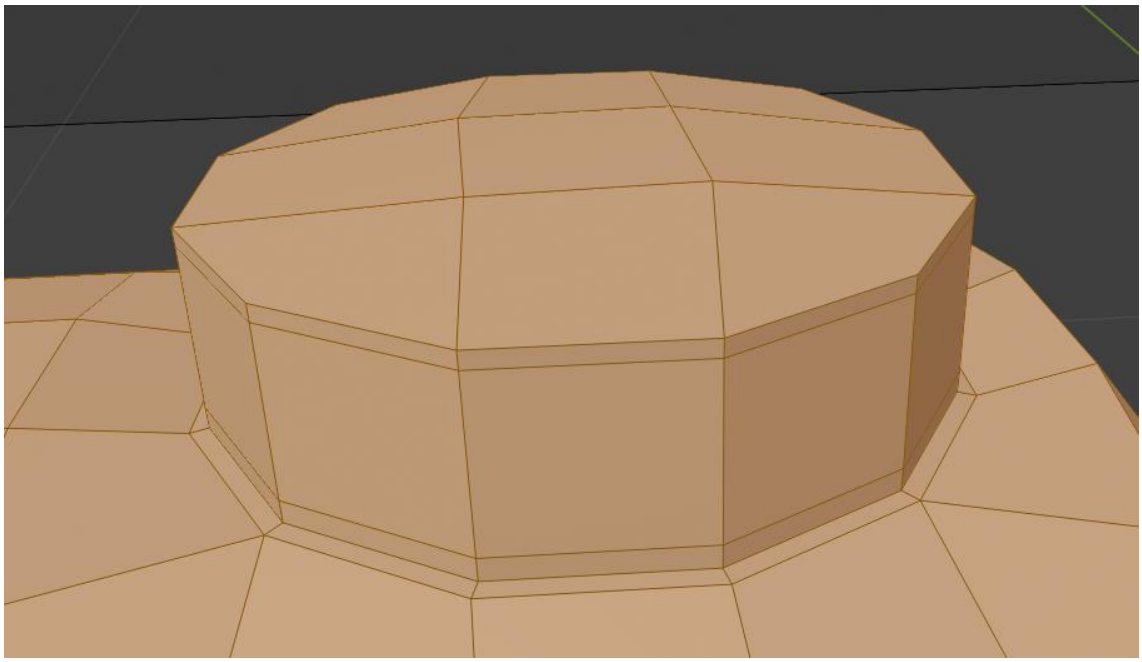


Narrow out the area and add more in the center until you have more or less square faces.



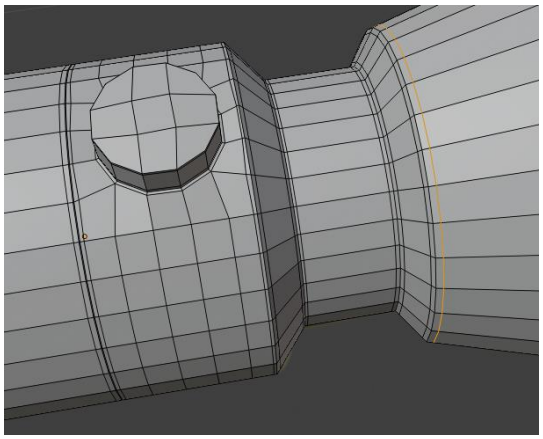
Now select only the ones that wrap around the button and use the Circle option **in Loop Tools**

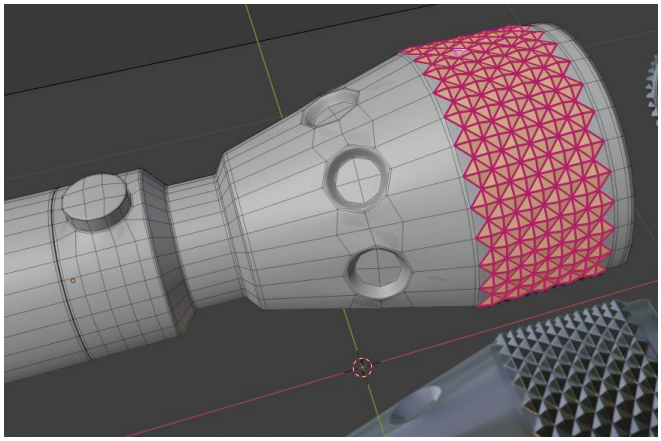


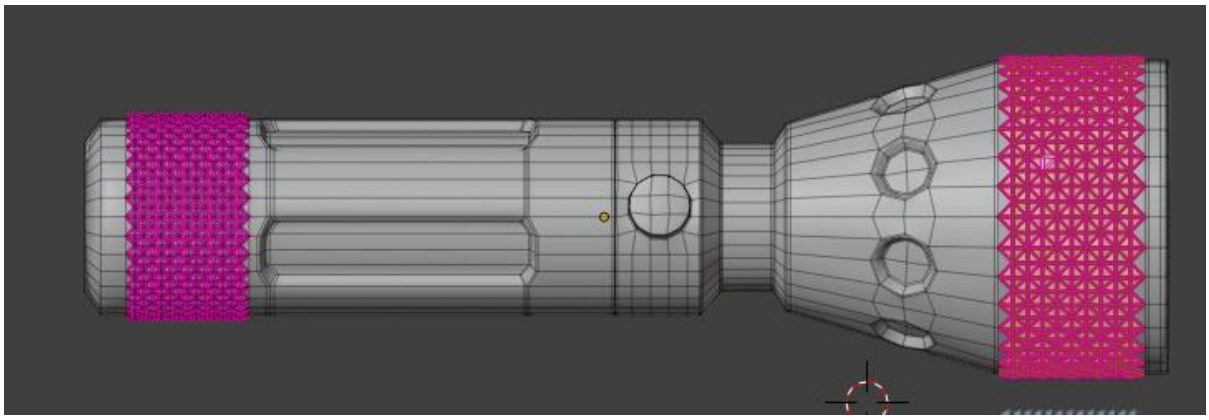


With the basic options **inset** and **extrude** builds the rest of the button

All other effects are copies of the previous techniques, you should now be able to construct the entire object.







Good job! =)