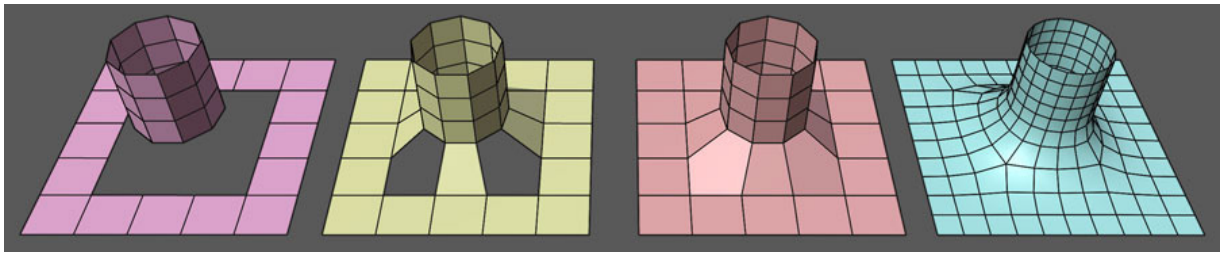
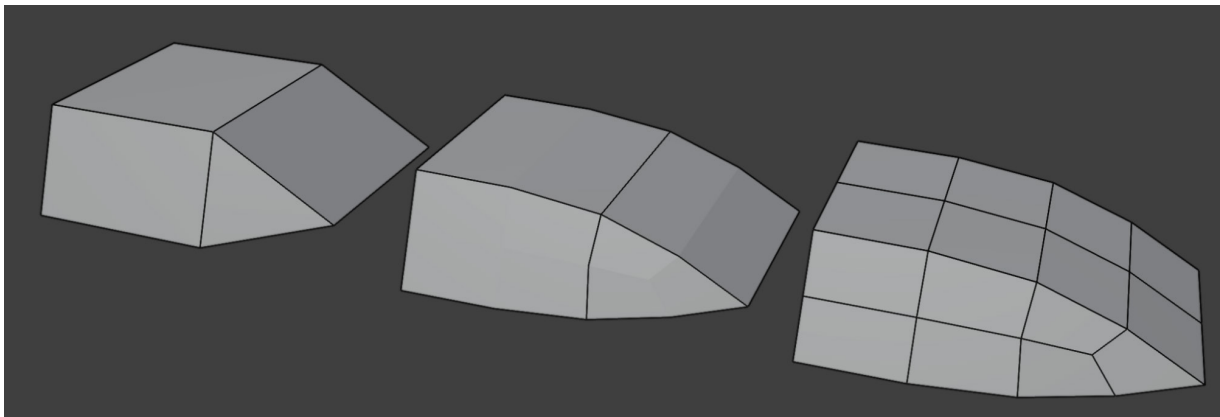


## N-gon and Subdiv modeling tips

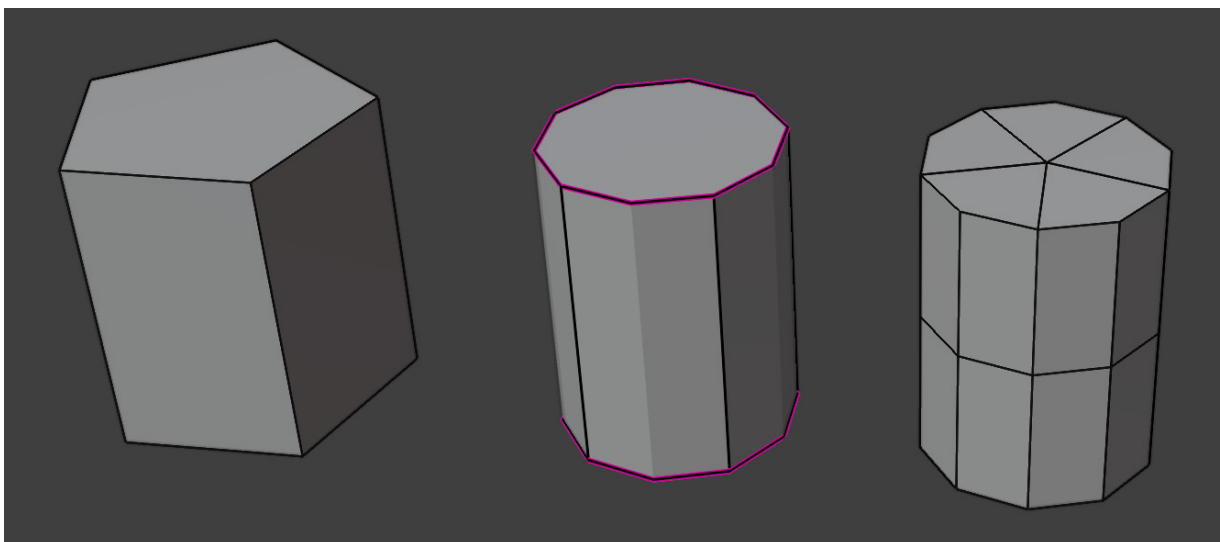


N-gons can be very useful in the early stage of modeling. They can help you solve difficult shapes.

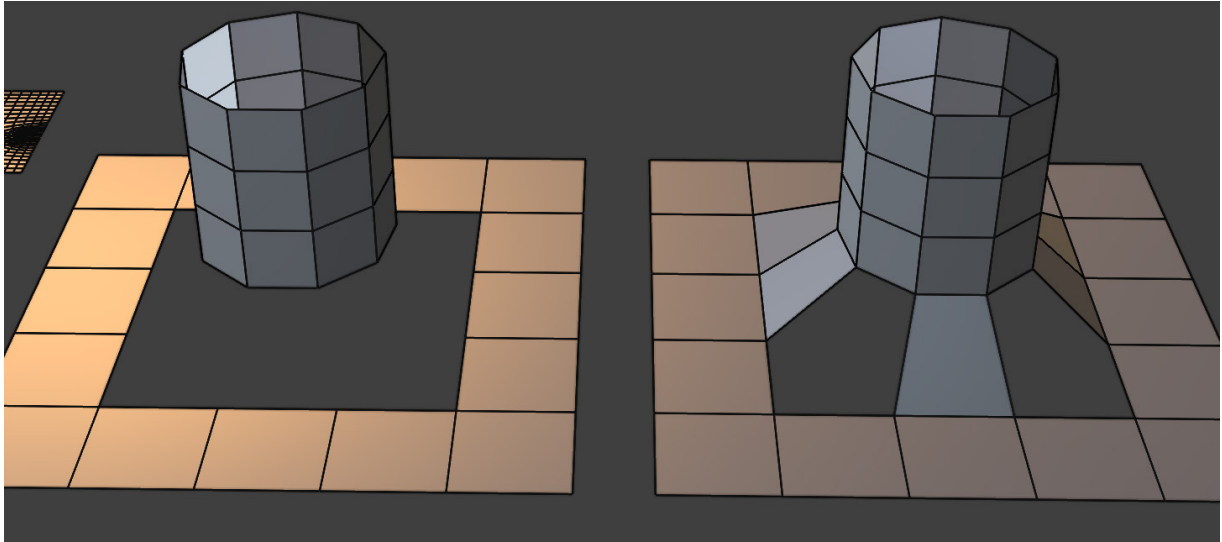
In fact, if you model shapes at a very basic level, you can use triangles and N-gons, and by adding one level of subdivision they all become quads when the Subdiv modifier is applied. This of course should only be done when the geometry is still very simple, otherwise the geometry will become dense fast. **Example below:** a simple cockpit canopy shape blockout becomes a quad mesh after applying subdivisions.



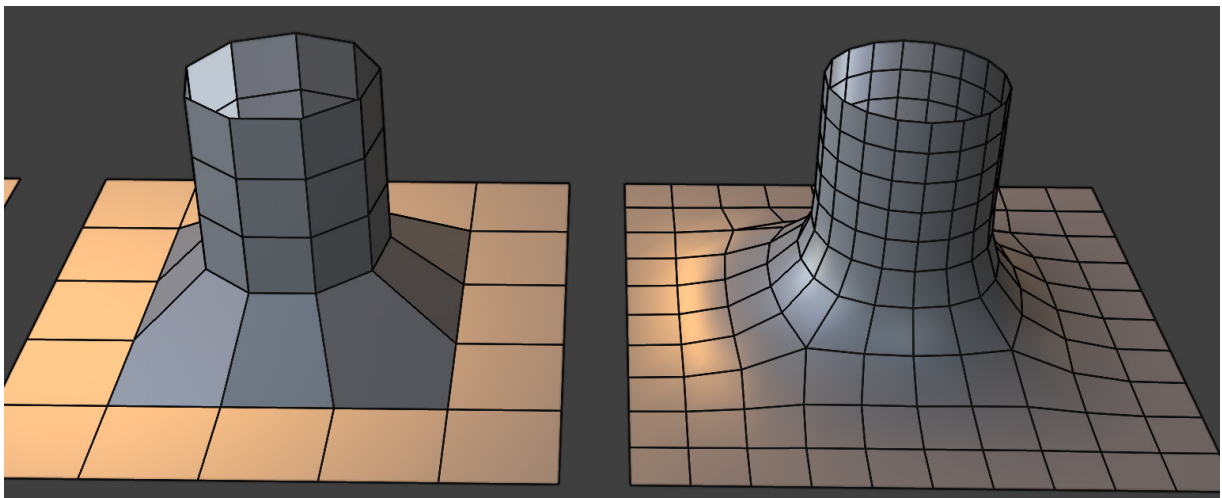
As long as Creasing is used (selecting edges and adding creasing to them with Shift+E and 1 on the Numpad) the shape is retained while using subdivision, and it's retained still after that subdivision modifier is applied. **Example below:** The purple Edges are Creased, and after the Subdiv modifier is applied the N-gon cap of the Cylinder becomes 5 quad Faces.



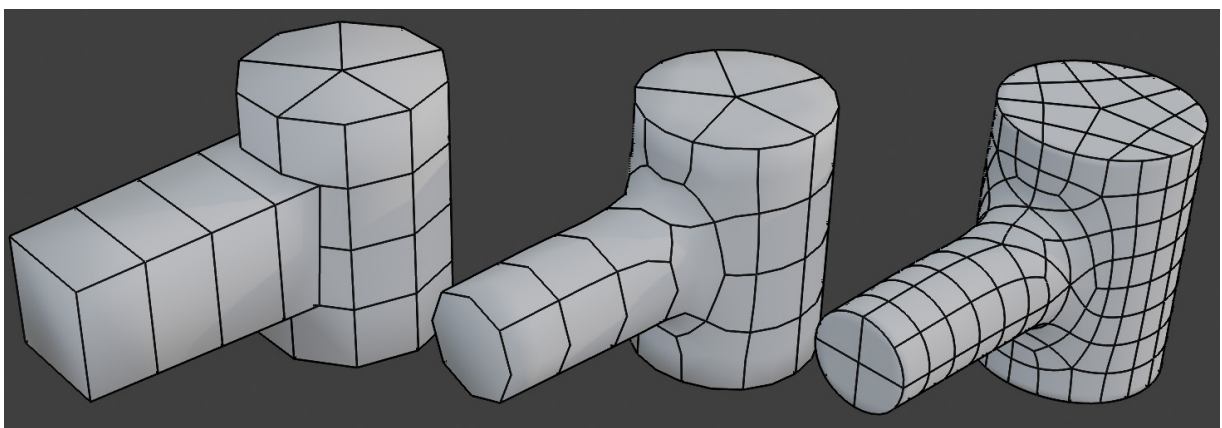
When trying to connect two different shapes, N-gons can be useful as well: just connect what you can, and fill the rest with N-gons.



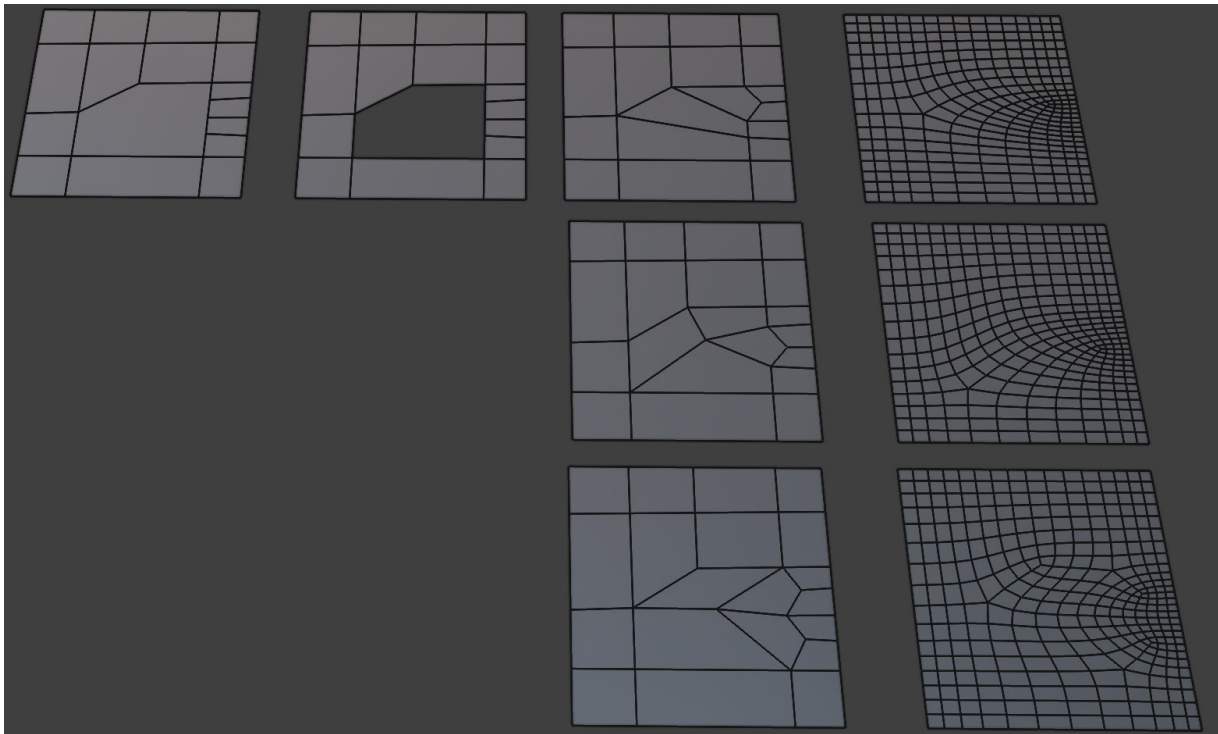
As you can see in the image below, some of the Faces connecting the Plane with the Cylinder are 5-sided Faces, or N-gons. After applying 1 level of subdivision, you get nice quad topology. This smooth transition between the two shapes would have been hard to model manually.



The same thing applies when you have N-gons after joining objects with booleans. 1 level of subdivision often takes care of it.

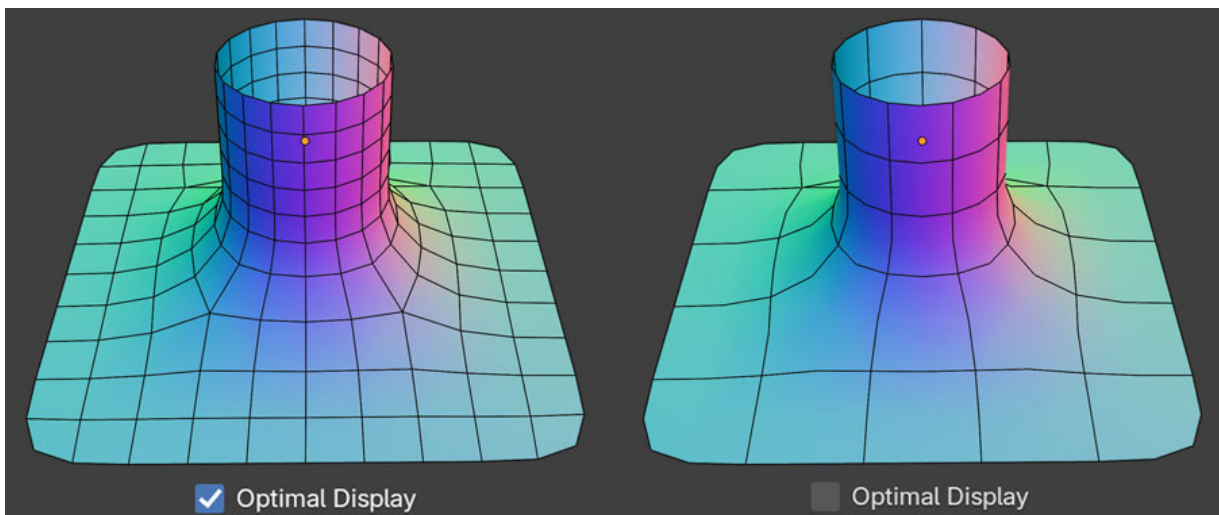


You can also use Grid Fill (**Ctrl+F > G** or Face > Grid Fill) to fill an empty boundary of a mesh. In the example below, the empty space where 2 Edges transition to 5 Edges is filled with Grid Fill in 3 different ways (by playing with the Span and Offset values of Grid Fill) to deliver different results after subdividing.



In some cases, using Grid Fill is better to fill a hole than using an N-gon.

To visualize the resulting geometry before applying the Subdiv modifier, **turn off Optimal Display** on the Subdivision modifier.



So in short, even in a Quads-only workflow, you don't need to fear N-gons. As long as you use them in the early stages of modeling, they can in fact be quite helpful.