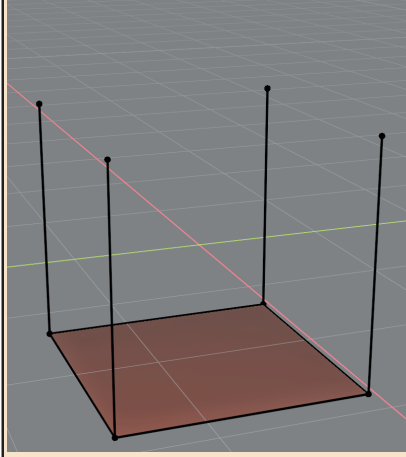


Fill Operations

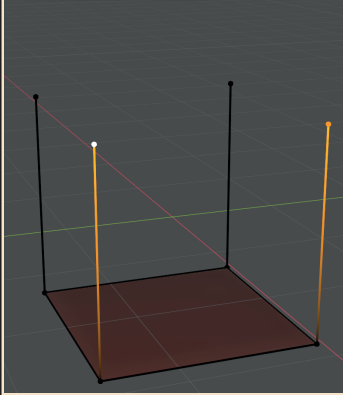
Basic fill operations allow us to create a new edge between two vertices or create a face inside a loop of edges.

To demonstrate we'll start by deleting the edges around the top face of a Cube. This leaves us with the mesh shown below.

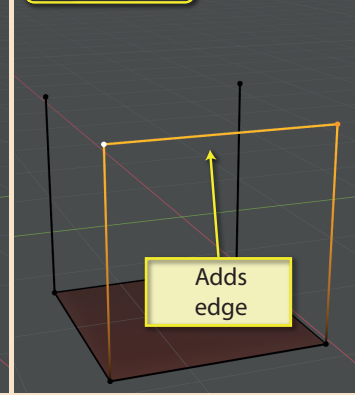


If we select any two vertices, and press the **F** key, Blender will create an edge between those two points.

Initial Selection

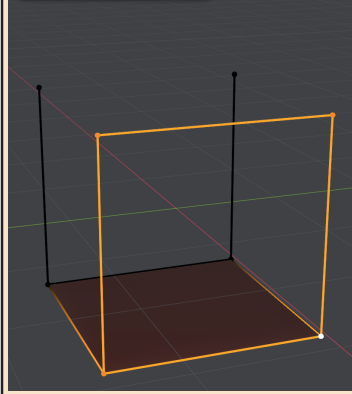


F Fill

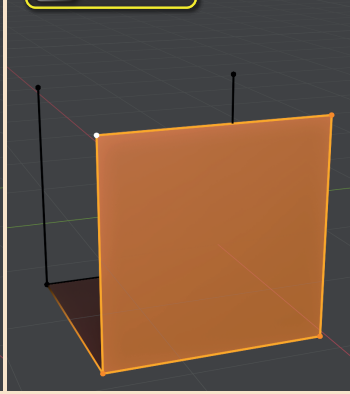


And if we select all the vertices or edges around an enclosed area, pressing **F** will fill the area by creating a new face.

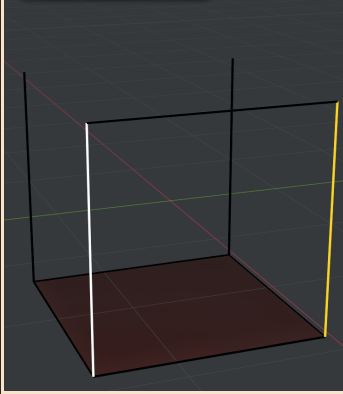
Initial Selection



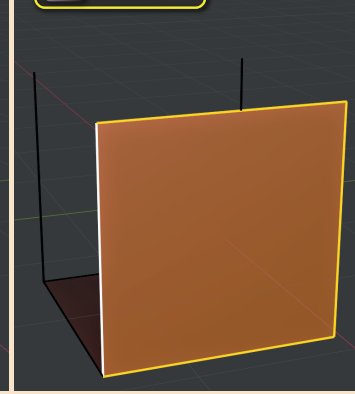
F Fill



Initial Selection



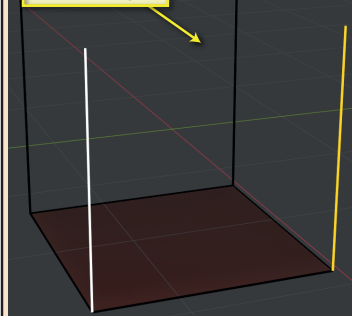
F Fill



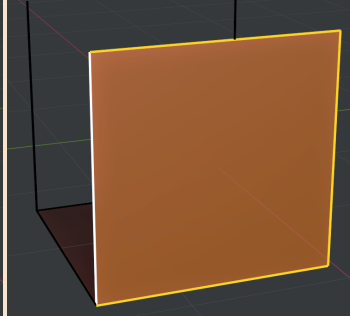
But Blender can go even further and not only create the face, but also add any missing edges.

Initial Selection

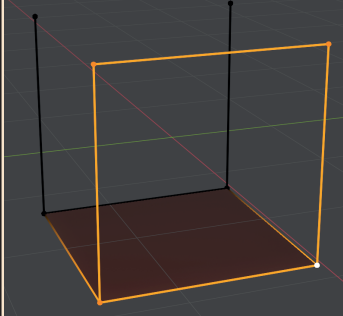
Top edge missing



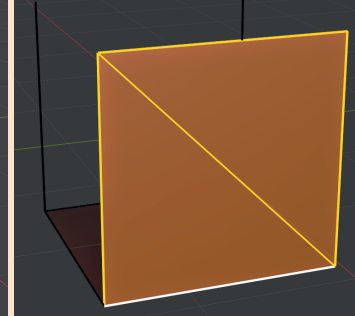
F Fill



Initial Selection



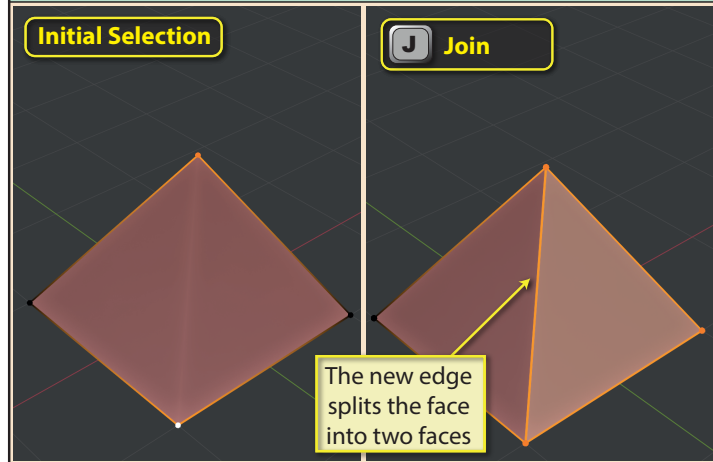
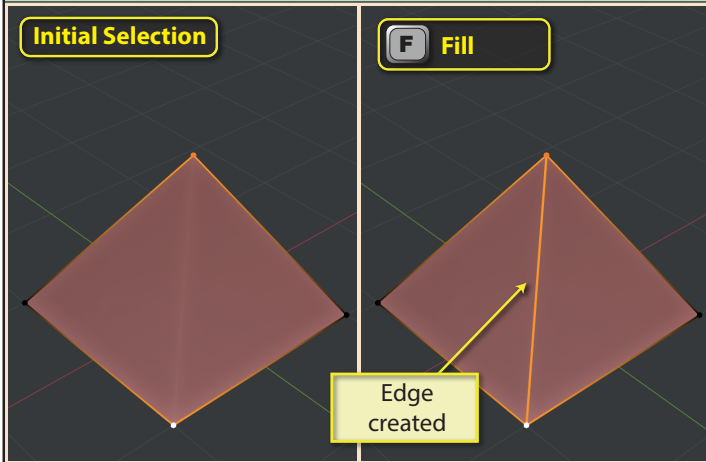
Alt + **F** Fill (tris only)



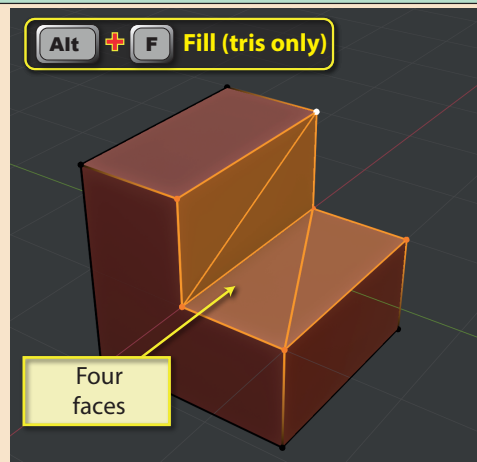
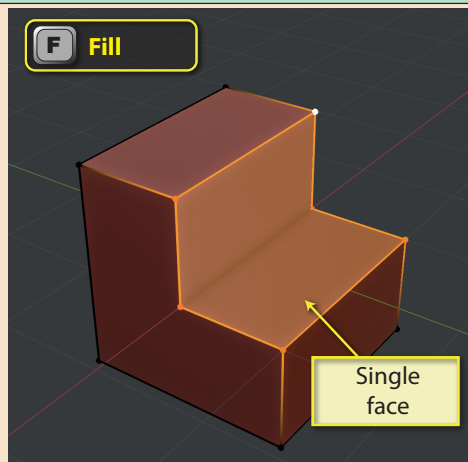
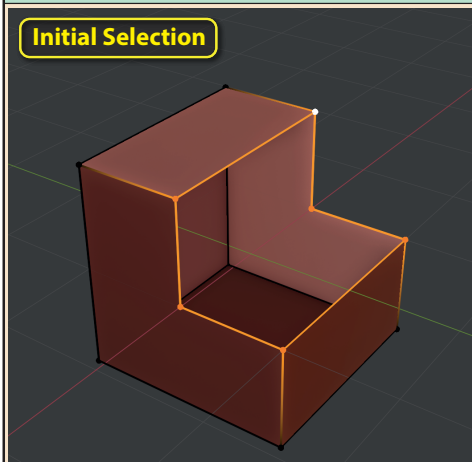
While pressing **F** creates tris, quads or n-gons depending on the number of edges, by pressing **Alt+F**, only tris are created when filling the defined space. However, when using this option, all the edges of the area to be filled must be selected.

There's a situation in which using **F** to create an edge does not achieve the result we are probably after. Although we might be tempted to create an edge in order to split a face into two separate faces (as shown below)...

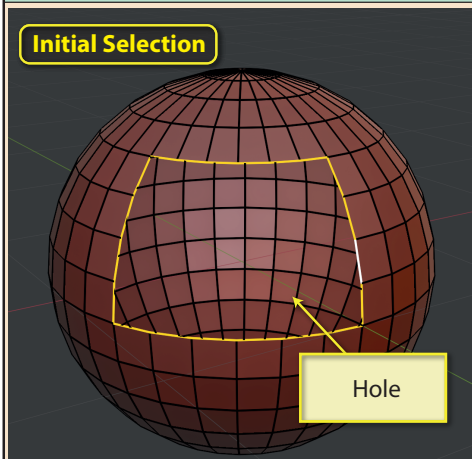
...but the new edge does not split the face. In fact, the new edge serves no purpose at all. In order to create an edge which splits the face we must use the **J** key to join the two vertices.



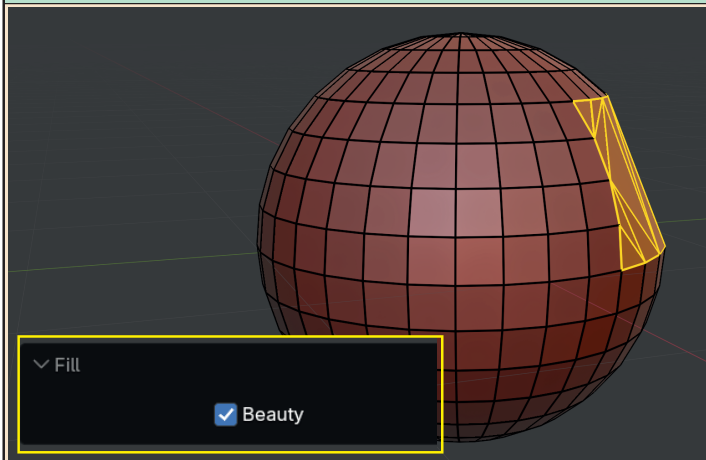
Both **F** and **Alt+F** can fill an area that isn't flat. However, whereas **F** will fill that area with a single face, which is not ideal, **Alt+F**, since it make use of tris, creates a more appropriate set of faces.



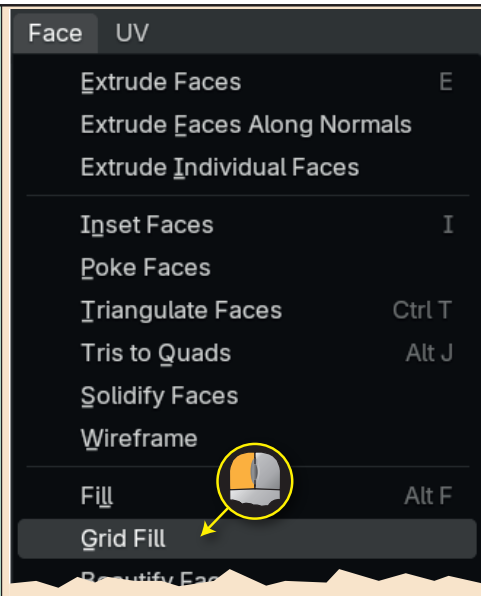
Where both **F** and **Alt+F** are less useful is where we need to fill an area over a curved mesh. Neither option gives a useable result since there is no attempt to follow the existing curve.



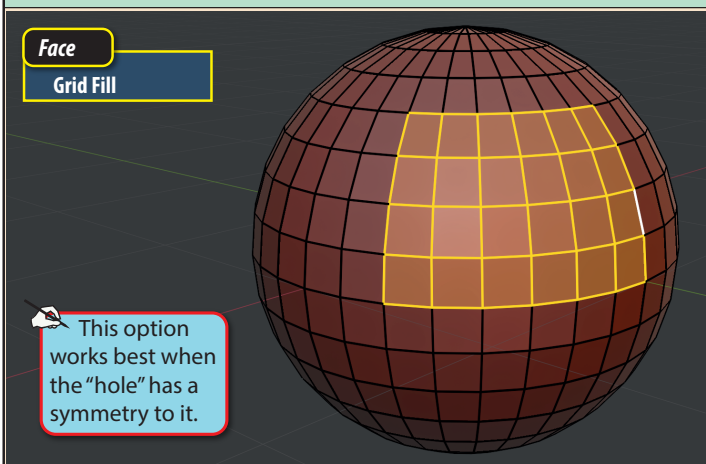
Alt+F has a *Last Op* panel with a single entry labelled “Beauty”. When activated, this adjusts the creation of the tris created, but does little to adjust to the curved surface.



However, if we look in the **Face** menu heading at the top of the **3D Viewport**, we can see a **Grid Fill** option...



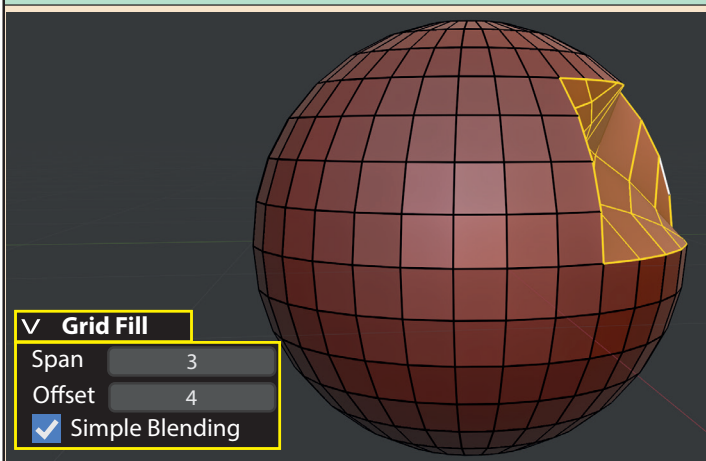
...and using this option when the edges around the hole are selected, creates a grid of faces which almost perfectly follows the curve of the sphere.



This command has a *Last Op* panel. **Span** sets the number of columns of faces. **Offset** sets the starting vertex for the fill.



In effect, we just need to adjust **Span** and **Offset** to we get the best effect. The result can look rather strange if we use inappropriate values!



Simple Blending, when checked, uses a simpler algorithm when calculating the vertices of the grid fill. In most cases, we won't want to use this option.

