Knife Topology Tool

Reference	

Mode:
>   Edit Mode

Tool:
>   Toolbar ‣ Knife

Menu:
>   Mesh ‣ Knife Topology Tool

Shortcut:
>   K

The Knife tool lets you interactively "cut through" faces, subdividing them and creating a chain of new edges along the way.

Usage

First, select the tool in the Toolbar or press `K` . The cursor will change into a scalpel to indicate it's active.

Click `LMB` at the place where you want to start cutting. This can be anywhere: on an existing vertex, edge or face, or even outside of the mesh.

Move your mouse to the next location. You'll see a purple line indicating the new edges that will be created, and green squares indicating the new vertices Click `LMB` to confirm: the green squares will turn red, and you can define the next line in the cutting path.
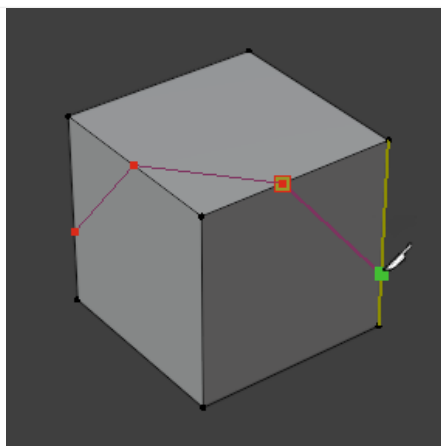
Once you're done, press `Spacebar` or `Return` to apply the cuts. Alternatively, press `Esc` to cancel.
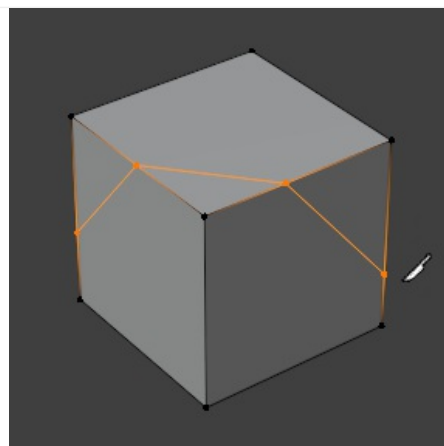
Hint
By using Multi-Object Editing, you can cut multiple objects at the same time.
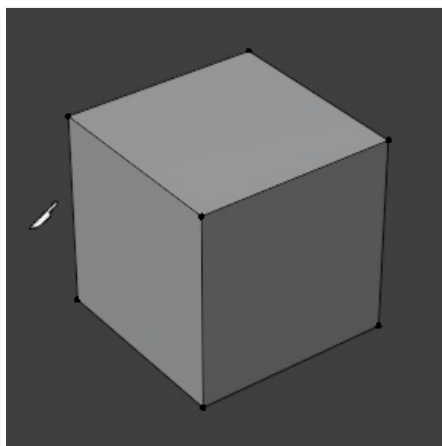
Mesh before knife cut.	Knife cut active.	After applying knife cut.

Tool Settings

These settings are only available when using the tool from the Toolbar (not when pressing `K`). They can be found in the *Tool* tab of the Properties edito and of the Sidebar.

Occlude Geometry
>   Only cut geometry visible on screen. By disabling this, you can cut all the way through the mesh, including faces that are on the backside or behind others.
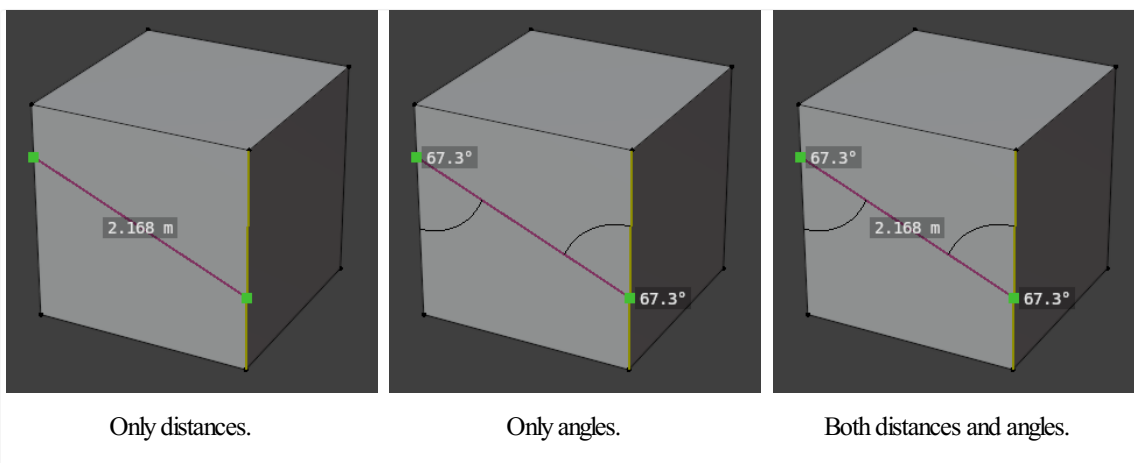
Only Selected
>   Only cut through selected geometry. You can press `Shift – K` instead of `K` to start cutting with this option enabled.

X-Ray

Show the cutting path even if it's occluded by geometry.

Measurements

The measurements to show along the cutting path: distances, angles, or both.

| Only distances. | Only angles. | Both distances and angles. |

Angle Snapping

Whether to constrain the cutting lines to multiples of the *Snap Increment* angle.
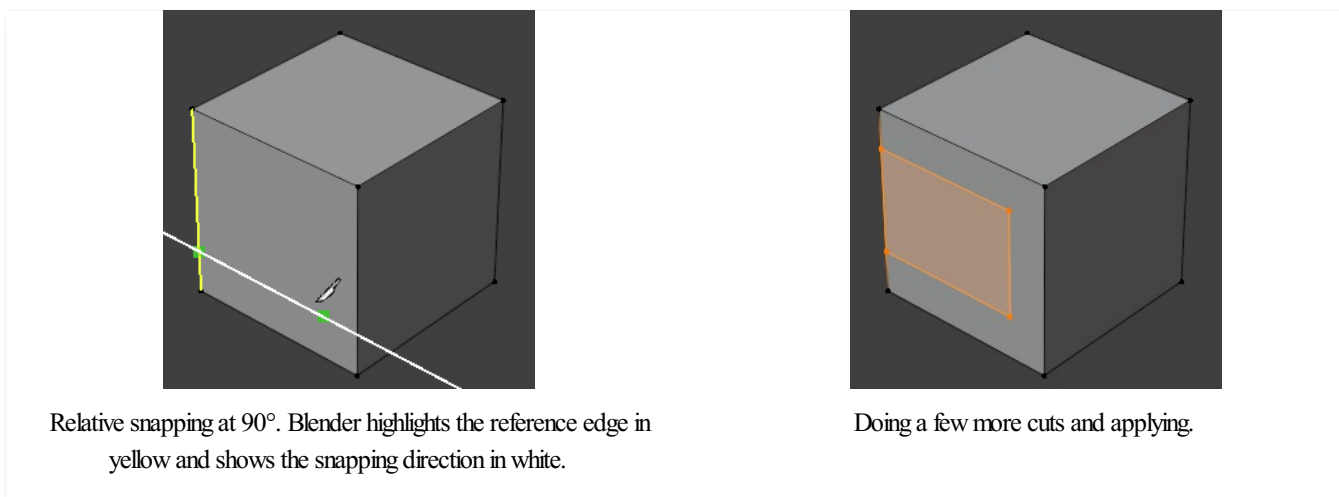
None:

No snapping.

Screen:

Snap in screen space (the viewing plane).

Relative:

Snap in a plane on the geometry, relative to an adjacent edge or cutting line.

Relative snapping at 90°. Blender highlights the reference edge in yellow and shows the snapping direction in white.

Doing a few more cuts and applying.

Snap Increment

The angle to use for *Angle Snapping*.

Controls

These keyboard shortcuts are shown in the status bar while cutting. They're available both when using the tool from the Toolbar and when pressing `K`.

Cut `LMB`

You can either click to add a new cutting line, or drag to create cutting lines as you move the mouse over edges.
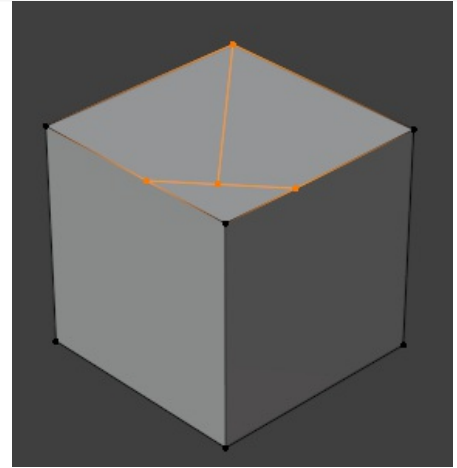
Close Loop - Double-click `LMB`

Adds a cutting point at the cursor (just like when single-clicking) and then connects it to the first point in the current path, closing the loop.

Stop `RMB`

Completes the current cutting path and begins a new one. The cursor will snap to previously defined cuts.
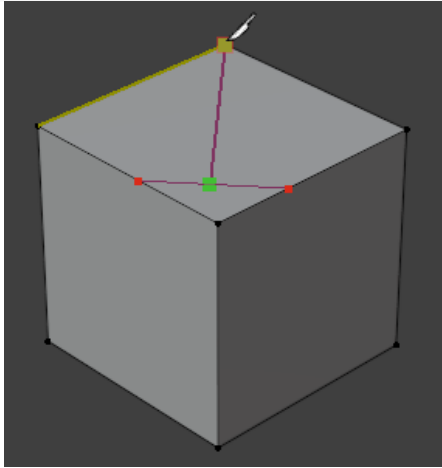
After defining the horizontal cut, press `RMB` and define the vertical one.

Result after applying.

Confirm `Spacebar` or `Return`

Confirms the cut, turning the cutting paths into edges.

Cancel `Esc`

Cancels the cut.

Undo `Ctrl - Z`

Undoes the previous cutting line (or, if you dragged the mouse before, all the cutting lines created during that drag).

Midpoint Snap `Shift`

Hold to snap the cursor to the center of edges.

Ignore Snap `Ctrl`

Hold to temporarily stop the cursor from snapping to existing vertices, edges, and cutting lines.

Cut Through `C`

Also cut through occluded faces, instead of only the visible ones. This is linked to (and the opposite of) the *Occlude Geometry* setting above.

Axis `X`, `Y`, or `Z`

Constrains the current cutting line to a global axis. Press a second time to use the object's local axis, and a third time to disable the constraint again.

Measure `S`

Cycles between measurements to show: distances, angles, or both.

X-Ray `V`

Toggles whether to display cuts occluded by geometry.

Angle Constraint `A`

Constrains cutting lines to multiples of the *Snap Increment* angle. This angle can be specified in the Tool Settings before cutting (see above) or typed while cutting with *Angle Constraint* active.

By default, the snapping is done in the *Screen* plane. Press `A` a second time to snap in planes on the geometry, *Relative* to an automatically chosen edge or cutting line. You can press `R` to select a different reference line.

Press `A` a third time to disable the snapping again.

Known Limitations

Duplicate Vertices

If a cut creates duplicate vertices, this is often caused by the clipping range being too large. Try increasing the Clip Start to avoid this problem. Also see