

Recalculate Normals

Access:

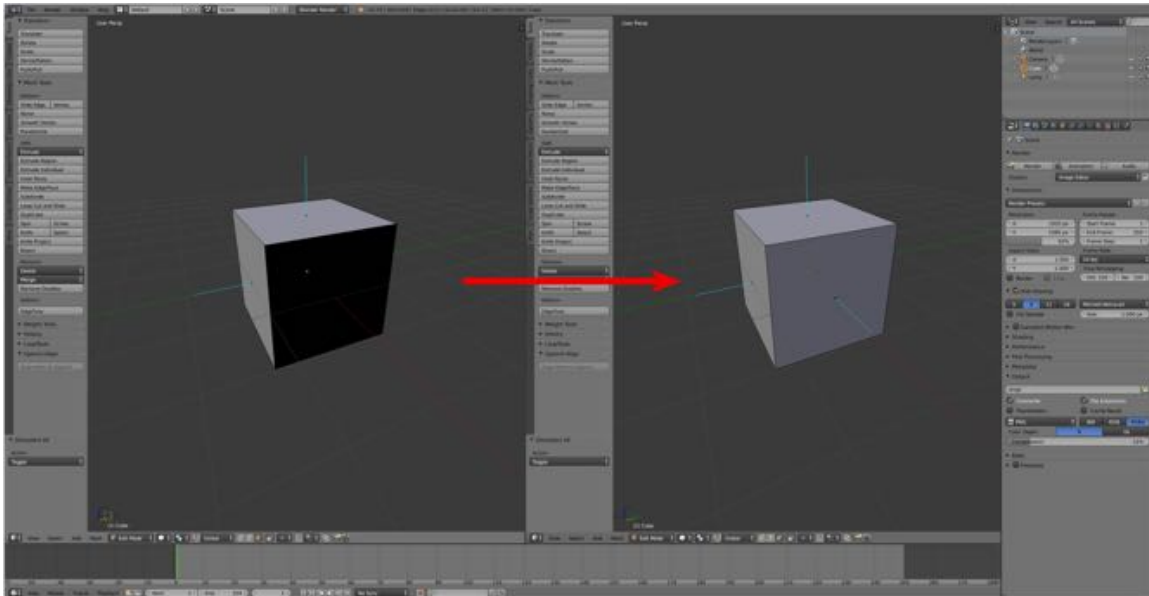
Keyboard shortcut: **CTRL + N-KEY** Recalculate outside
SHIFT + CTRL + N-KEY Recalculate inside

Mode: 3D Editor: Edit Mode

Panel: Tool Shelf > Shading/UVs Tab > Normals > Recalculate

Menu: Mesh > Normals > Recalculate outside
 Mesh > Normals > Recalculate inside

Description:



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The Recalculate Normals Tool recalculates the normals of selected faces so that they point outside (respectively inside) the volume that the faces belong to.

To Use the Tool:

- **Switch** to the 3D Editor's **Edit Mode** and **Face Selection Mode**.
- **Select** the **mesh** or meshes using one of the selection tools (e.g., A-KEY)
- **Press CTRL + N-KEY**.

There is a way to see which direction the normals are facing:

- **Press** the **N-KEY** to bring the 3D Editor's **Properties Panel** in to view.
- **Expand** the **Mesh Display Pane**.

- **Under Normals LMB click on the Face Icon.**

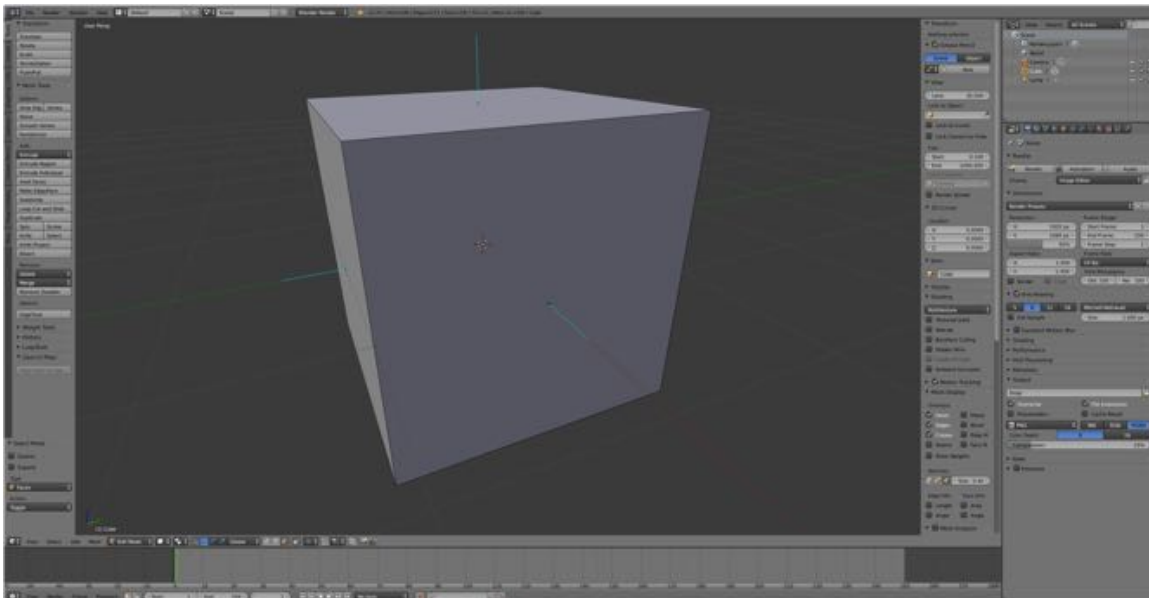
The direction of a face will be indicated by a turquoise line protruding from the center of the face.

Let's Try It:

- **Open Blender** and switch to the 3D Editor's **Edit Mode** and **Face Selection Mode**.
- **Press the N-KEY** to bring the 3D Editor's **Properties Panel** in to view.
- **Expand the Mesh Display Pane.**
- **Under Normals LMB click on the Face Icon.**

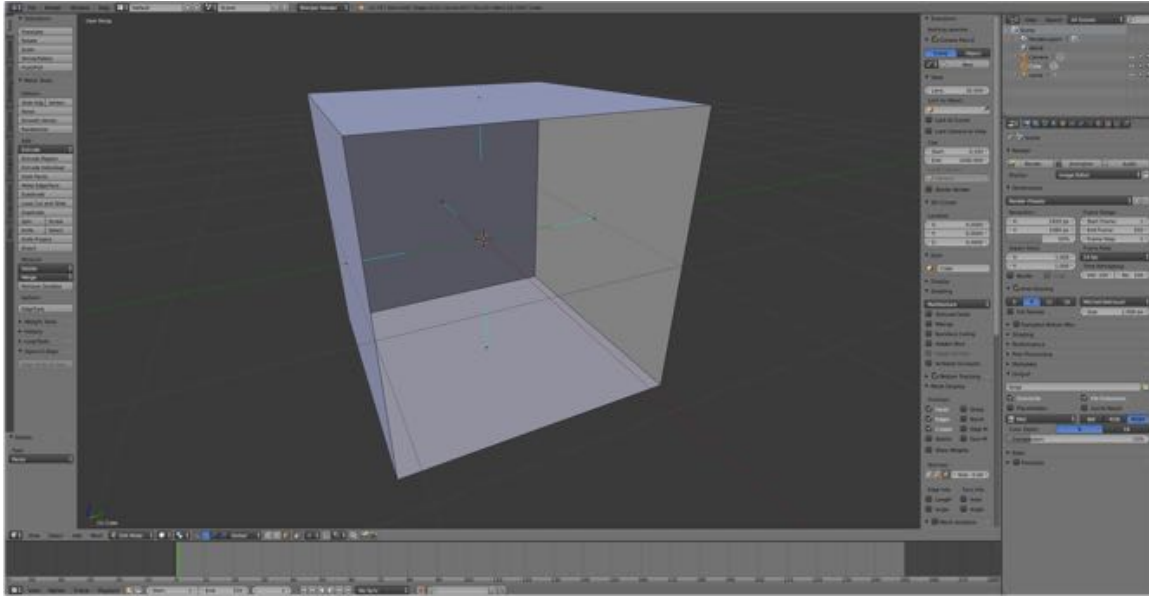
Notice that the faces have a turquoise line protruding from their centers indicating that the normals are facing outwards (outside).

You can increase the length of this line for better visibility by increasing the **size** in the **Mesh Display Pane** under **Normals**.



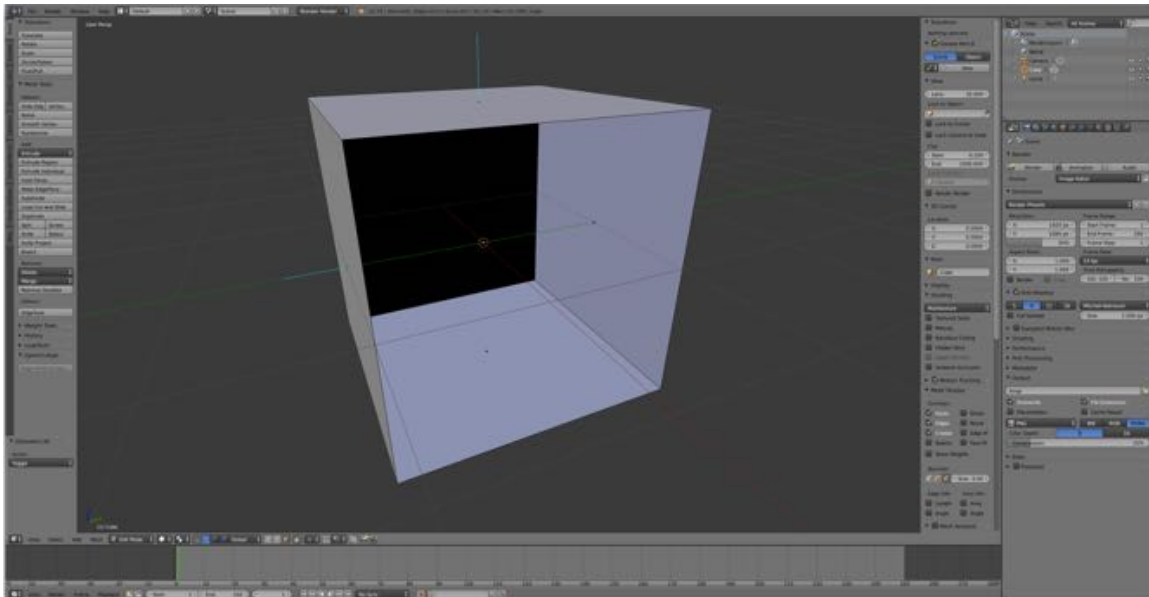
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- **Select (A-KEY) the Default Cube.**
- **Press SHIFT + CTRL + N-KEY** (switch direction of normals to facing inside).
Notice that the faces no longer have a turquoise line protruding from their centers indicating that the normals are facing inwards (inside).
- **Select (RMB) the front face and delete it (X-KEY > Faces)** to see that the normals are facing inwards.



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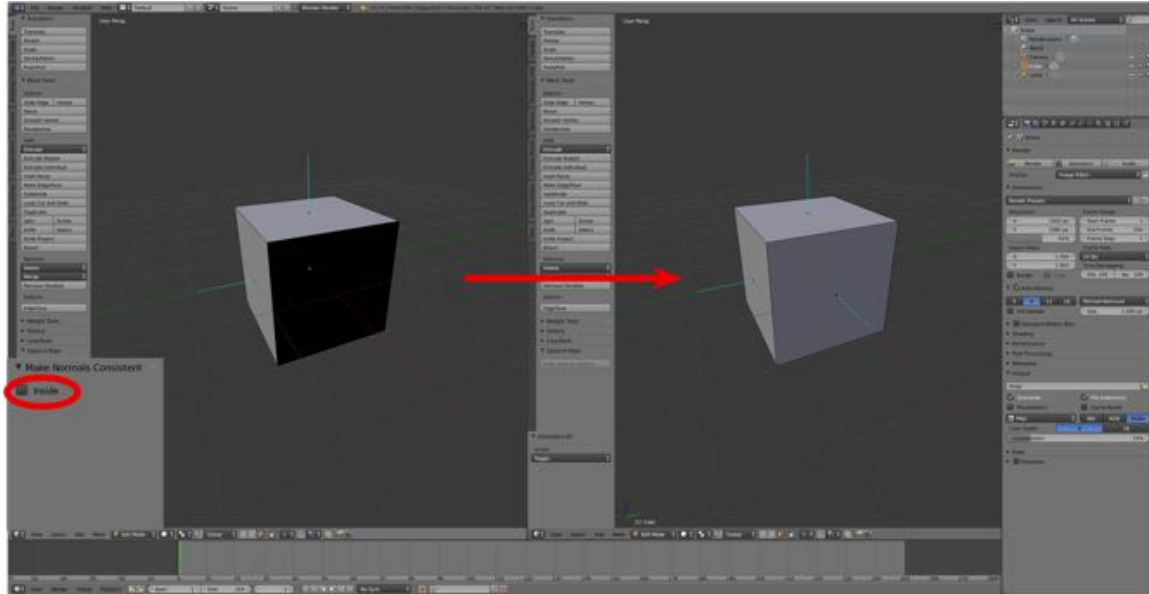
- **Select (A-KEY)** the **cube**.
- **Press CTRL + N-KEY** (switch direction of normals to facing outside).
Notice that the faces are now facing outwards again.



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Additional Comments:

Normals can also be set to be consistent inside or outside in the Tool Shelf Operator Pane by checking or not checking the “Inside Box”, respectively.



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For More Information:

Blender Reference Manual, **Normals**

<https://www.blender.org/manual/modeling/meshes/editing/faces.html#normals>