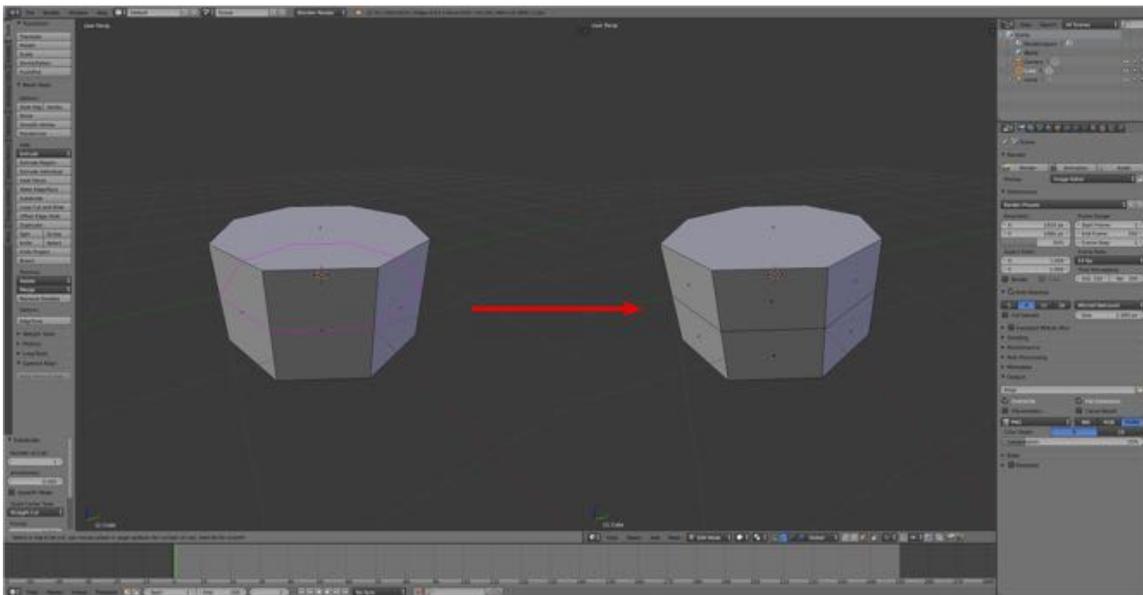# Modeling a Grizzly Bear

# Step 02

Modeling - Body

Topology

For solid modeling of organic shapes, such as this bear, we will rely heavily on the Loop Cut and Slide Tool and the Inset Tool to add geometry in order to maintain a topology that is only made up of quads. Topology is the way in which constituent parts are arranged and interrelated (see website). From a topological point of view a "quad" is a vertex to which four edges are attached. A vertex with three edges attached is called a "tri" (not to be confided with the tri count in Blender's Information Editor which refers to the number of triangles in a model). A vertex with five or more edges attached is called a "pol". Tris and pols terminate edge loops, which makes modeling more difficult. Pols can also distort surfaces when smoothing applied. Both the Loop Cut and Slide Tool and the Inset Tool introduce only quad, not tris or pols.

The Loop Cut and Slide Tool cuts a ring of quad faces into two rings of quad faces.

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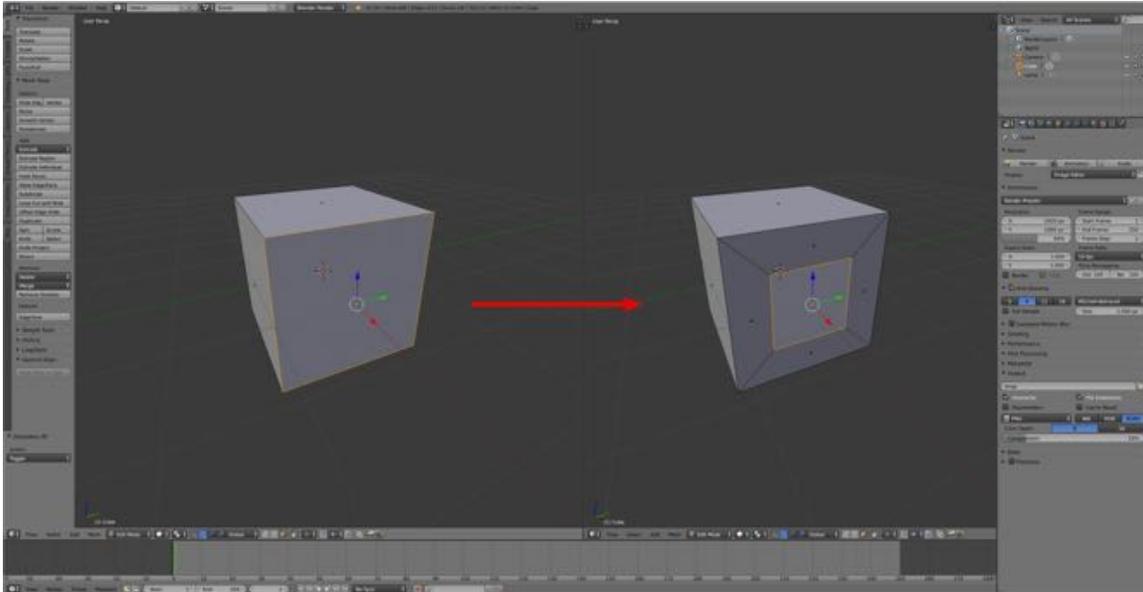
The Inset Tool inserts quads into a single face.

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Basic Structure

For modeling purposes a grizzly bear can be looked at as consisting of five cylinders, the body and the four legs.

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So, we'll start modeling by modeling the cylindrical body. But instead of adding a cylinder, we will add a circle Primitive then extrude the circle to form a cylinder.

• **Switch** to the 3D Editor's **Edit Mode** (**TAB-KEY**) and **Face Selection Mode**
  (**Header > LMB Face Selection Mode Icon**).
• **Center** the **cursor at** the **origin** (**SHIFT + C-KEY**) and make sure you are in
  Right Ortho View (**NUMPAD-3-KEY > NUMPAD-5-KEY**).

Note: I don't know why Blender seems to be backwards. I would of thought we
        were looking at the left side of the bear but Blender considers it the right side.

• **LMB** Click the **Add Menu** and **select Circle**.
• In the **Tool Shelf's Operator Pane** (lower left) **set** the **Vertices** to **16**,
  the **Radius** to **0.90** and the **Fill Type** to **None**.
• **Rotate** the circle **90°** about the **X-axis** (**R-KEY > X-KEY > enter 90"**).
• Using the **Transformation Manipulator Widget Tool**, move the circle up
  and left to just behind the ears.
• **Scale** (**S-KEY > Drag)** and **adjust** the **position** so it surround the neck.
• **Extrude along the Y-axis** (**E-KEY > Y-KEY > Drag**) to the right and **scale**
  (**S-KEY > Drag)** and
 **adjust** the **position** so it surround the body.


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We have modeling the body under way.

• **Continue** extruding, scaling and adjusting the position to create more or less equal
  segment **towards the tail** of the body.

Note: You can maintain finer control of scaling if you move the mouse cursor away
        from the model before you select the E-KEY. Also, to ensure you are
        extruding along the Y-axis, always press the Y-KEY after the E-KEY.
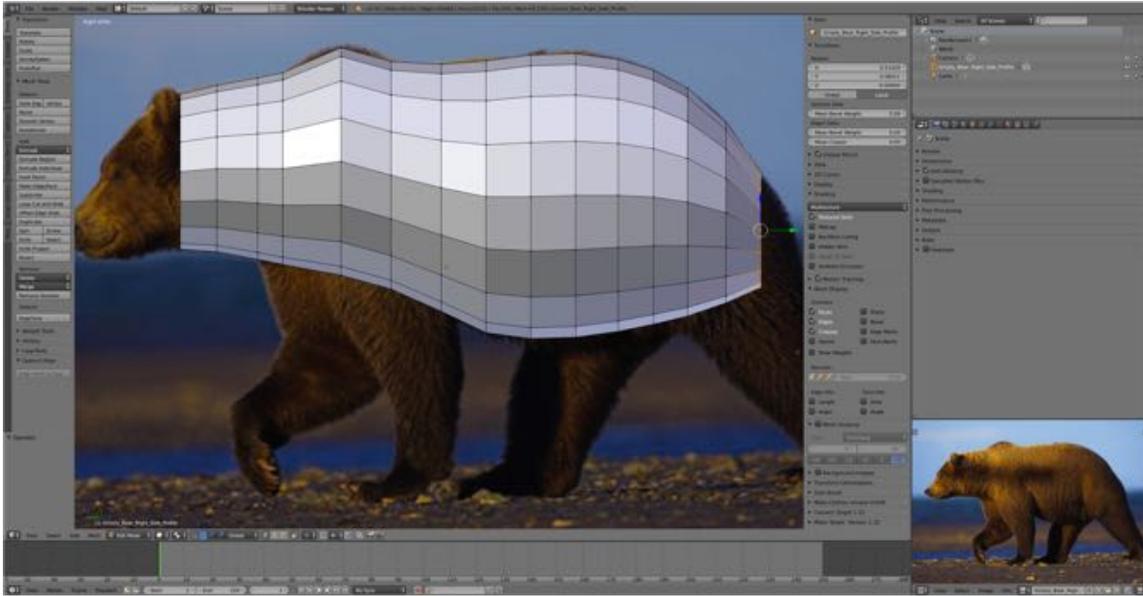
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Note: That the body is positioned around the reference image.
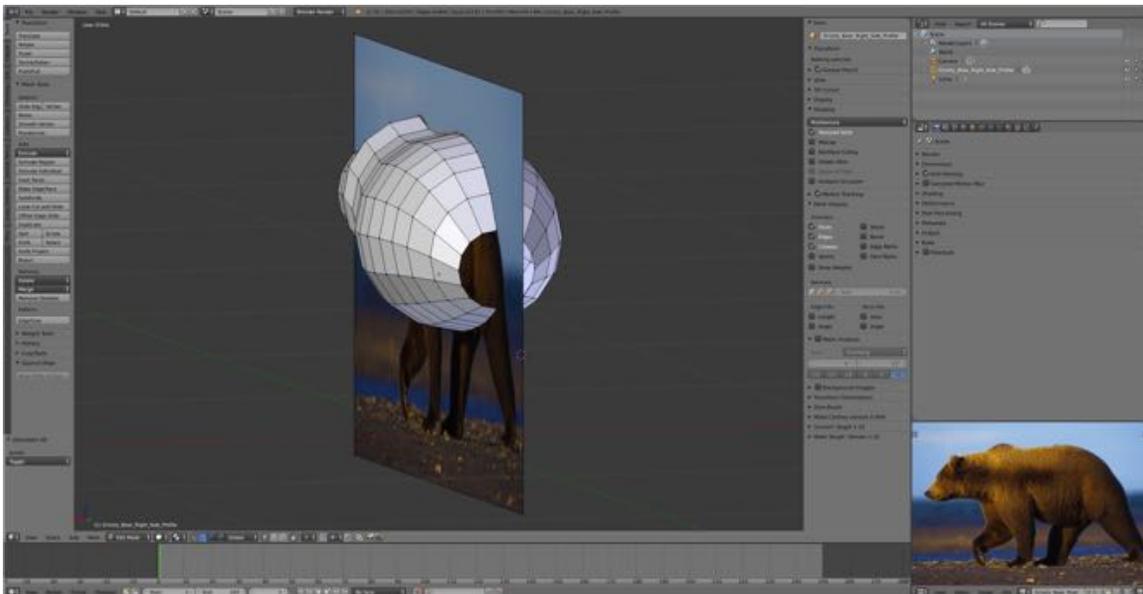
570

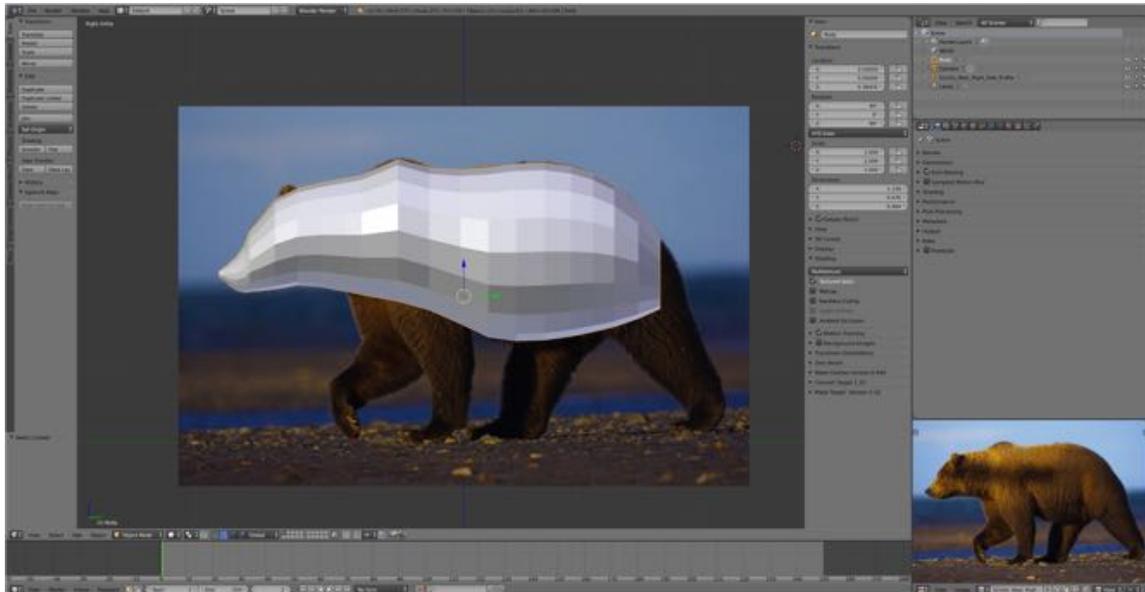This might be a good time to save your work.

- **Press SHIFT + CMD + S-KEY** and NUMPAD-PLUS-KEY to incrementally increase the file number to "**GrizzlyBear02.blend**".
- **LMB** click **Save as Blender File**. The file will be saved to your Grizzly Bear Blender Files folder.
- Under the **Information Editor's Window Menu select Save Screenshot**. The screenshot will be saved with the same incremental number as the Blender file just saved.

Let's complete the body by extruding forward to create the head.

- Switch to edge Selection Mode and select the ring of edges at the neck (ALT/OPT + RMB).
- **Extrude along the Y-axis** (**E-KEY > Y-KEY > Drag**) to the left and **scale (S-KEY > Drag)** and **adjust** the **position** following the contour of the head ignoring the ears. Try to pick up the brow outline and the nose.

Until now I have been modeling the body as park of the reference image object. I could have (should have) separated it into a separate object but its not to late. Let's do that now using the Select Linked Tool (see website) and the Separate Tool (see website).

- **Hover** the mouse cursor **over** the **body** and **press** the **L-KEY** to **select** with the select linked Tool.
- Press the P-KEY and in the Popup menu select (by) selection.
- in the Properties Panel's Item Pane re-label the new object (Grizzly_Bear_Right_Side_Profile.001) to "Body".

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Save your work.

- **Press SHIFT + CMD + S-KEY** and NUMPAD-PLUS-KEY to incrementally increase the file number to "**GrizzlyBear03.blend**".
- **LMB** click **Save as Blender File**. The file will be saved to your Grizzly Bear Blender Files folder.
- Under the **Information Editor's Window Menu select Save Screenshot**. The screenshot will be saved with the same incremental number as the Blender file just saved.