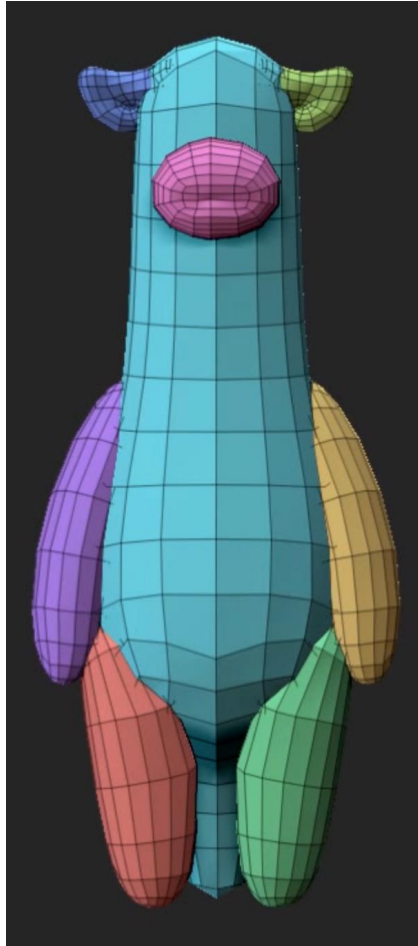


# Mold Design in ZBrush Using Live Draft Analysis

*Note that depending on the model you're using, this process can get pretty complicated and may require significant trial and error, and possibly the use of alternative methods to achieve similar results (of which there are many).*

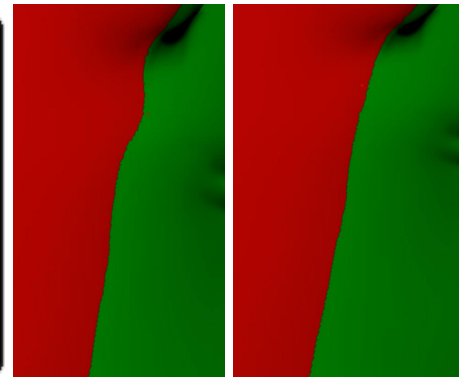
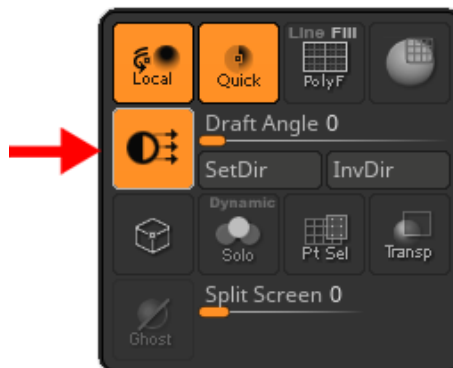
1. Sculpt a thing. I like to start from simple blobs. This is the fun part, so enjoy.



2. When you're more or less satisfied with how it looks, turn on **Draw Draft Analysis** in the **Transform** pallet.

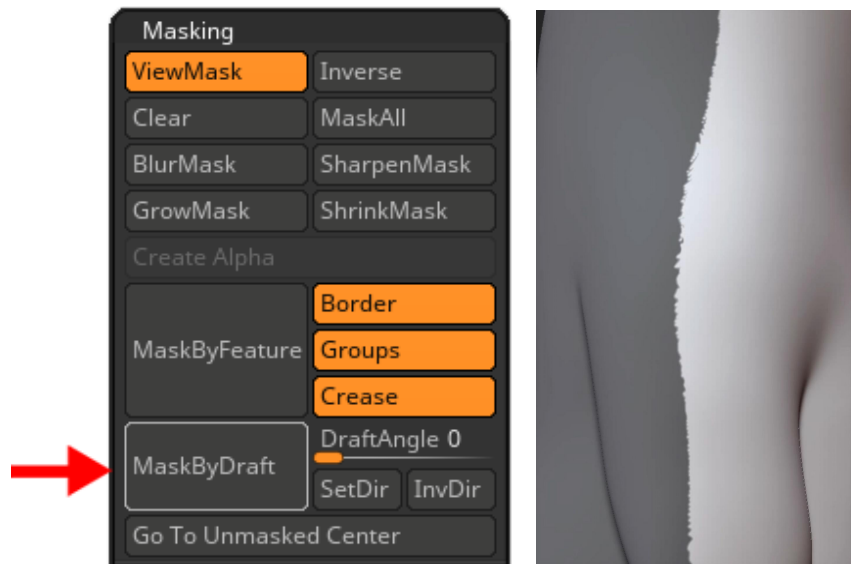
Adjust the model as necessary to create clean, simple parting lines. This may require some sculptural concessions.

For this model, I'll be making a simple 3-part mold - front, back, and bottom. As it will be a plaster mold which doesn't permit undercuts, I have the draft angle set to zero.



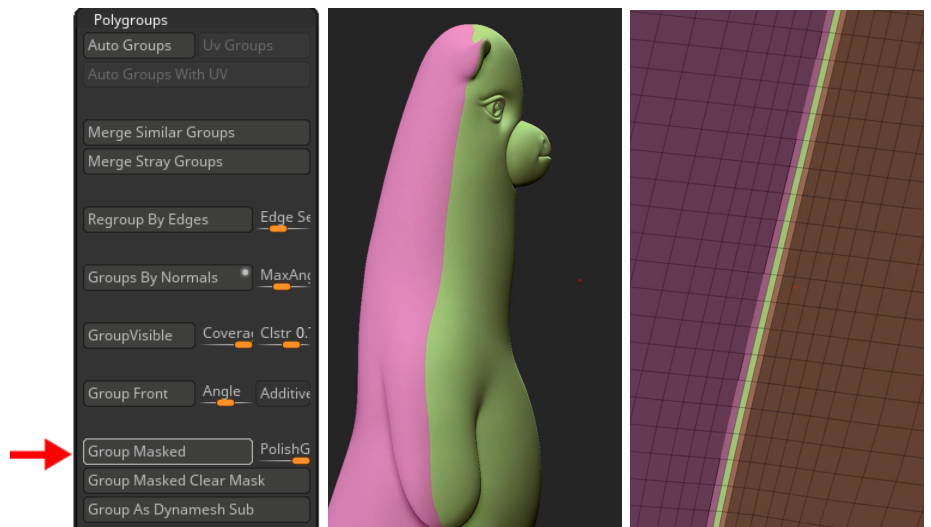
3. Isolate the mold parts into separate polygroups.

For a full side, use **Mask By Draft** in the **Masking** pallet. Adjust and smooth the parting line using a combination of blur/sharpen and the mask brush.



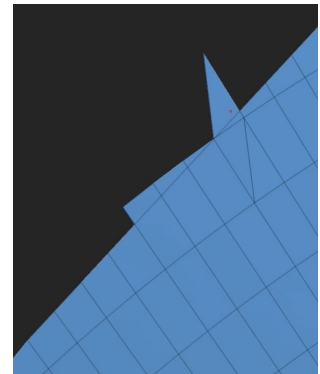
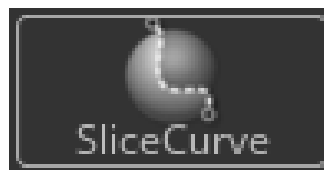
Then, in the **Polygroups** pallet, **Group Masked** with **Polish** set to max (1).

If the parting line still seems jagged, you can use **EdgeLoop** in the **Geometry** pallet > mask > smooth > repeat to clean it up.



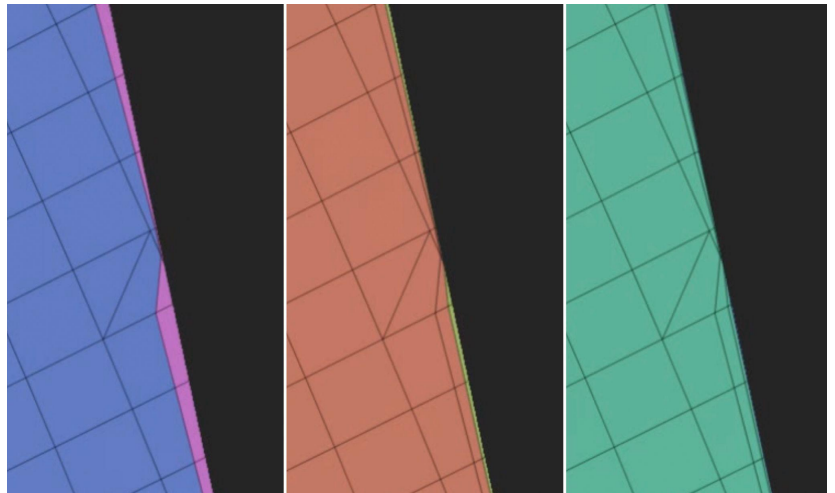
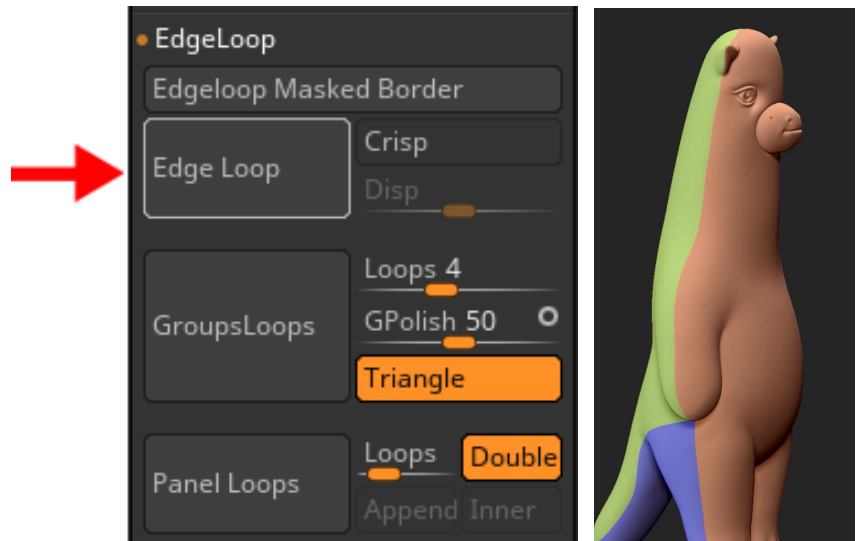
For smaller sections, cut the model into groups manually using the **SliceCurve**. Make sure **Perspective** is off or the cut will end up crooked.

As the slice automation sometimes leaves stray polys along the edge, use the **SelectLasso** to clean up and regroup them with their correct parts.

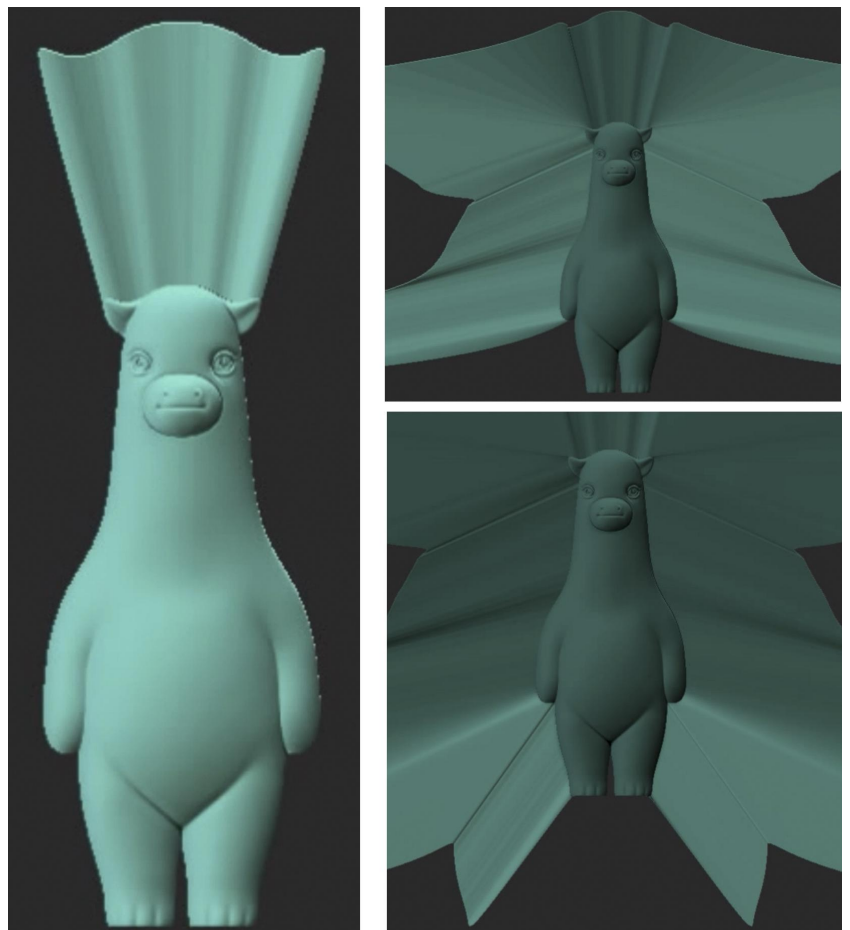


4. In the **Geometry** pallet, use **EdgeLoop** on all the parts four or five times, depending on your geometry. Each part should have a nice thin edge group to work with.

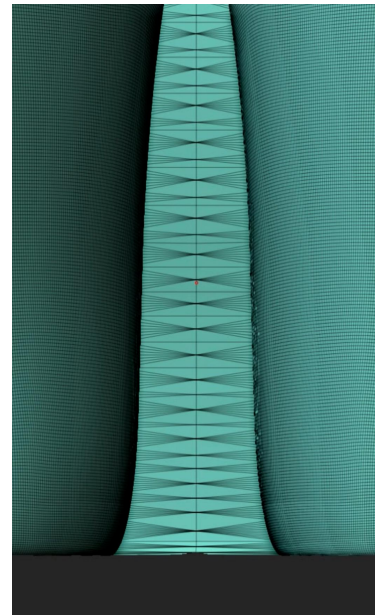
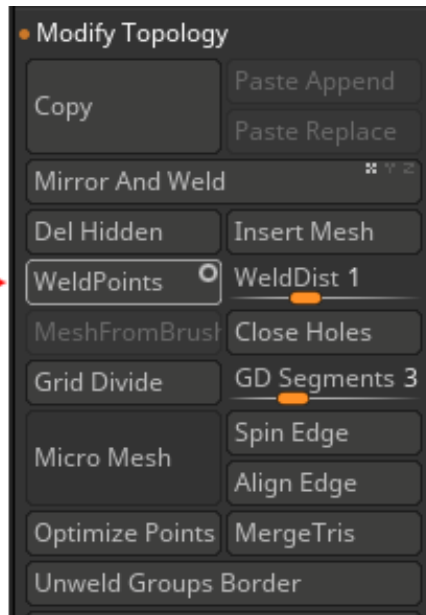
Separate the parts, along with their edge groups, into individual subtools.



5. Expand the edge of the first part (I usually start with the biggest), working in sections to avoid inversions and undercuts in the parting plane.



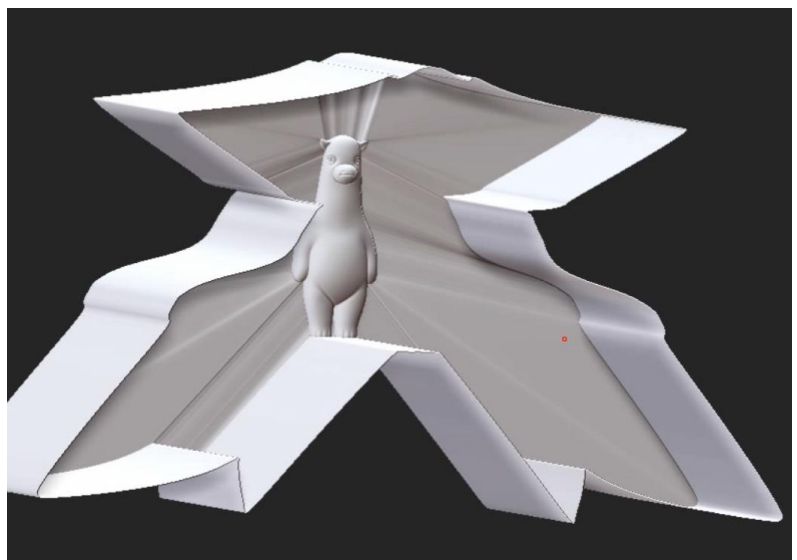
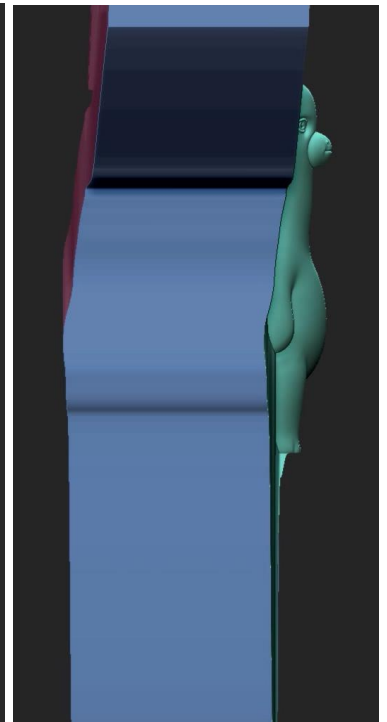
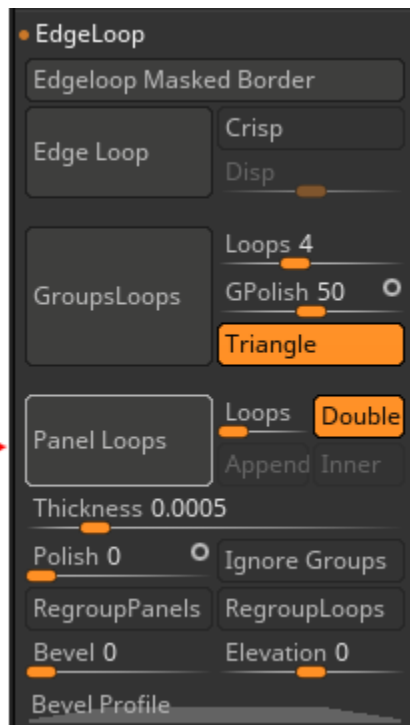
For interior facing edges, expand towards the midline until they meet, then **Weld Points** in **Geometry > Modify Topology** pallet



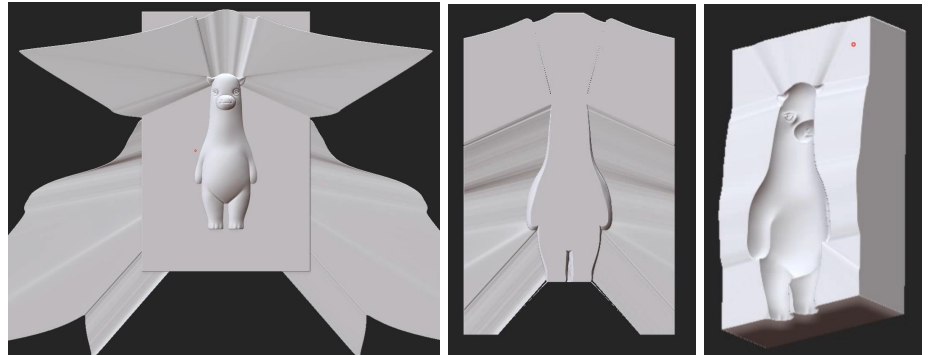
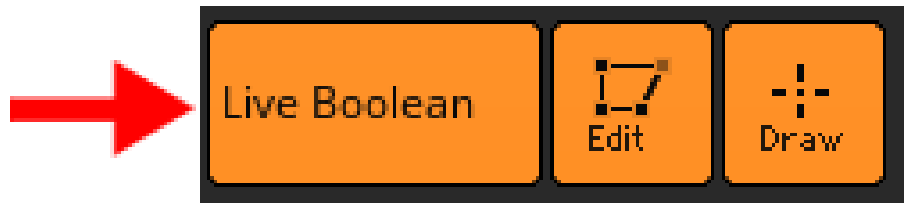
6. **PanelLoop** the sections with **Loops=1, Thickness=.0005, Polish=0, Elevation=0, Bevel=0**.

Mask the back and draw out the front panel.

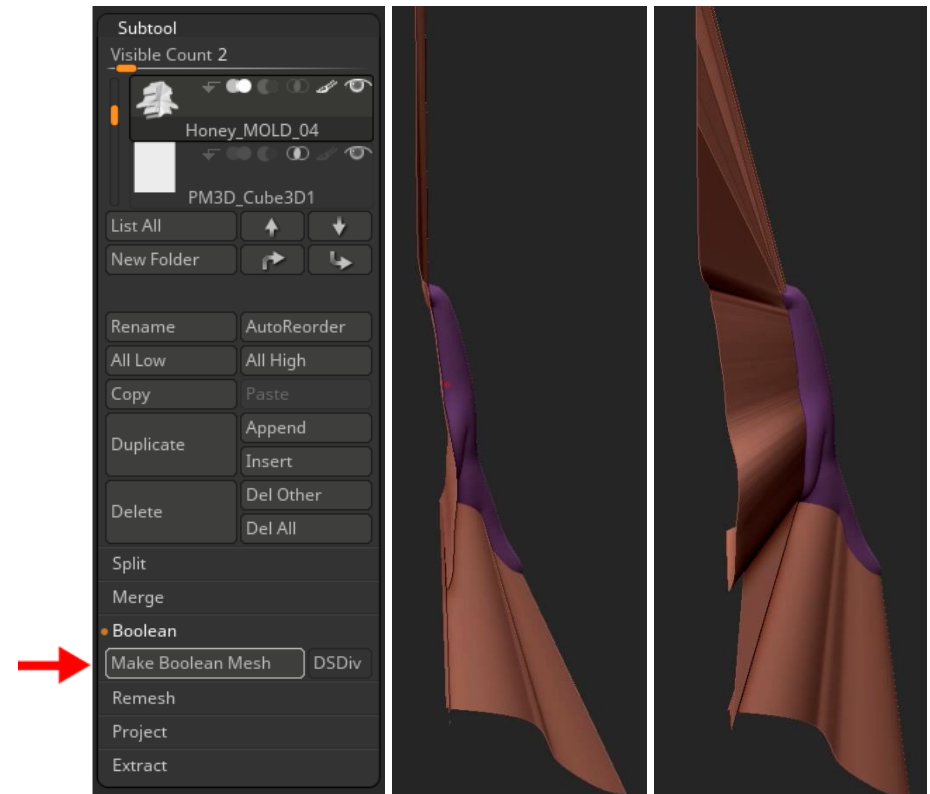
Look inside the mesh to see if there's any crazy nonsense in there (you'll need to have **Double** on in the **Display Properties** pallet to see backfaces). If there is, try to figure out why and correct the problem before proceeding.



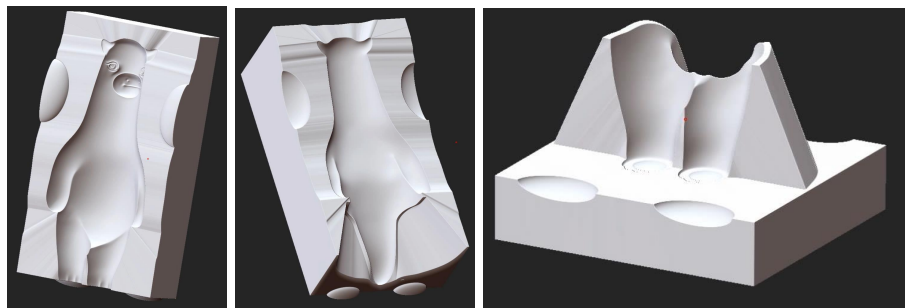
7. Turn on **Live Boolean**, then use an appropriately shaped subtool to **Boolean Intersection** out the usable mold part.



8. Repeat these steps with the other parts, but push the edge loops forward across the parting plane as you expand them out so that each can be booleaned away by the preceding parts. This will ensure a good fit with no gaps.

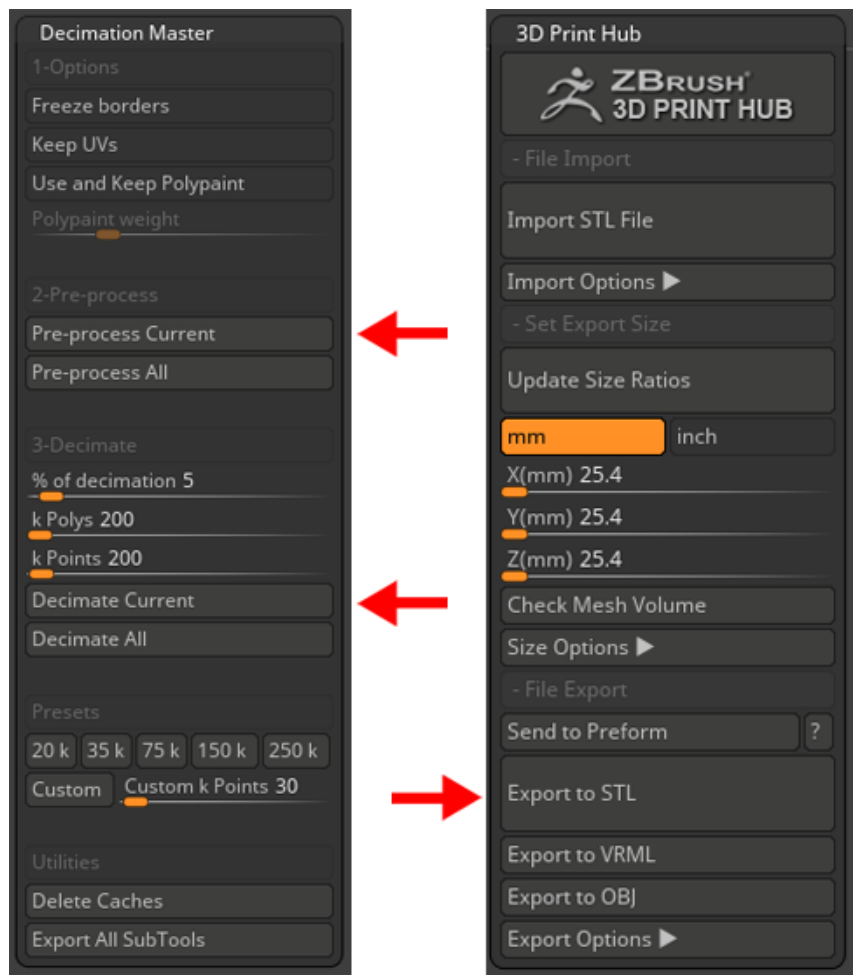


9. Using boolean unions and differences, build out any necessary functional mold parts such as a base, sprues, and keys.





10. **Decimate** the parts if necessary in the **Zplugin > Decimation Master** pallet, and export the parts as **.STL** files in the **Zplugin > 3D Print Hub** pallet.



11. Prep for printing.

