

## FreeForm Workflow Study “The Mayan Idol Statue”



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**Description:** this workflow study shows how to quickly model a Mayan Idol Statue, based on a sketch, using FreeForm V2.

**Timeline:** two days total

**Software Version:** FreeForm<sup>TM</sup> modeling system, Version 2

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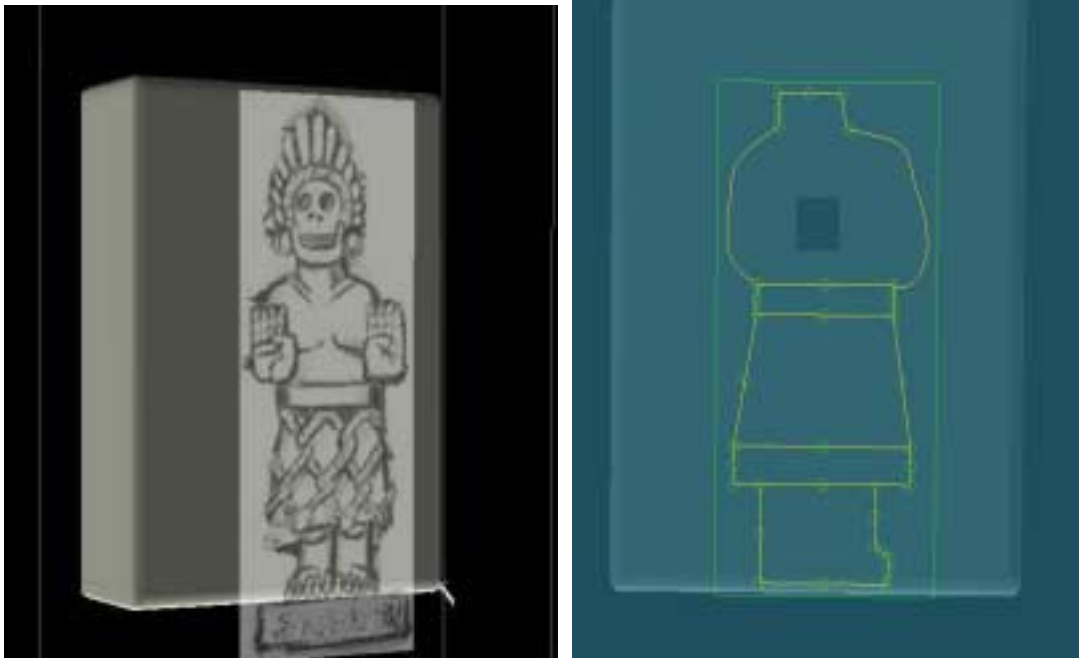
## FreeForm Workflow Study – The Mayan Idol Statue

### Day 1: 6 hours

First, the sketch illustrated below was received from the customer contact. It was brought into FreeForm as a Reference Image.



Using the image as reference, a Wire Cut plane was created and an outline drawn.



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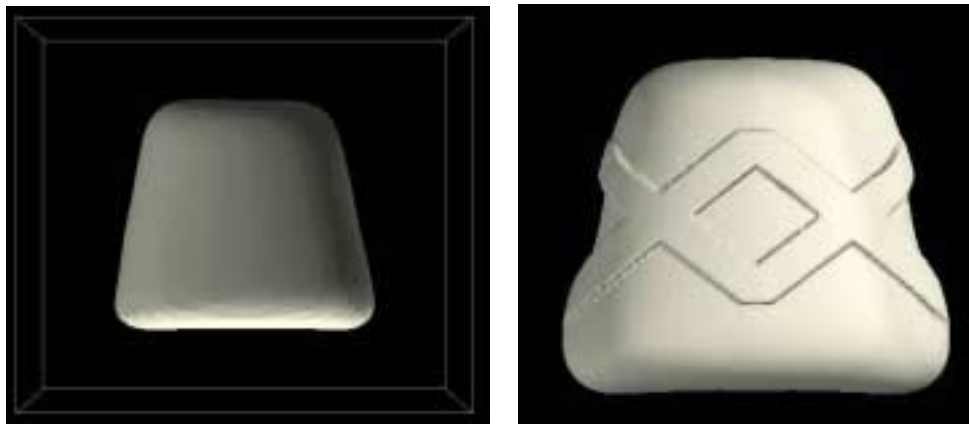
The clay outside of the sketch was cut away, preserving the material inside. Then, a mirror image of one side was created to preserve the symmetry of the model.

*Time: roughly 15 minutes*



The next step was to separate parts of the body in order to work on each individually. This was done by selecting the relevant material, cutting (with Ctrl-X), and using Paste to File. The skirt was chosen first, followed by the legs and torso, which were saved separately.

The skirt piece was smoothed and slightly reshaped. Next, the clay was up-sampled using Change Clay Coareness, so that it could hold more crisp detail. Then, the criss-cross was pulled out from the surface using Wire Cut's "Emboss" option.



Next, the bands were added to the bottom of the skirt. This was done by Copying a band from the shape of the skirt, Pasting the copy, and scaling it up slightly before merging it back into the model.

*Time: roughly 1 hour*

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The next step was to create the torso without arms. The cut of the torso was brought up and then sculpted with the Smudge Tool used to create muscles and a more fleshy look.  
*Time: roughly 45 minutes*



Next, the arms were made using the Add Clay tool, with the “Connect” option on, to get the basic arm shape shown below and to the left. Sculpting from inside the model added a more organic feel, shown to the right.



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At this time, the right arm was mirrored to the other side to make the left arm. Both arms were then merged with the torso. Then, the torso was refined to look more muscular and exaggerated.

*Time: roughly 1.45 hours*



A left foot was then sculpted from the inside using the Ball tool and Smudge. Toes were added afterward with Add Clay. The Mirror tool was used to make the right foot.

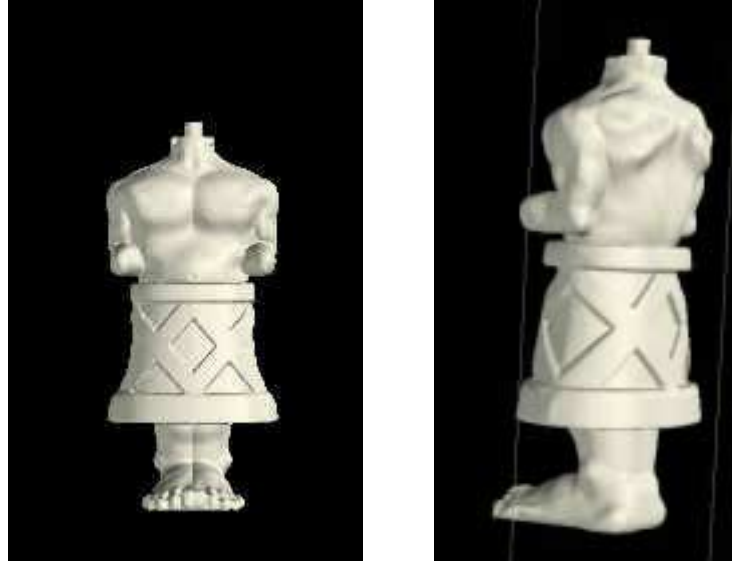
*Time: roughly 30 minutes*



Next, the model was pasted together for a preliminary look. The goals for milling were to a.) create the model and then “peg” it so that the mill had no undercuts to deal with, and b.) to determine parting lines. The head needed to be done separately, so a peg was created on the neck to later glue to the finished model.

*Time: roughly 1.30 hours*

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### **Day 2: 6 hours**

The head was made in Add Clay using a tapered sphere while bands of clay were added to the top for feathers. Wire Cut and Add Clay were used to add the jaw.

Next, the Clay Coarseness was decreased to hold detail more detail. Debossing and Embossing in Wire Cut were used to make the teeth pattern, feather separations and headdress band. Then, the eyes and nose were sculpted.

*Time: roughly 1.5 hours*



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Hands were made using an outline of the original sketch cut from a flat piece of clay. Outlines of the fingers were embossed out to make them look meaty and big. The palm was created by debossing the clay back in order to create depth. The hand was then smoothed.

*Time: roughly 1 hour*



With the model finished, parting lines needed to be determined so that the model could be machined in two halves to maximize quality.

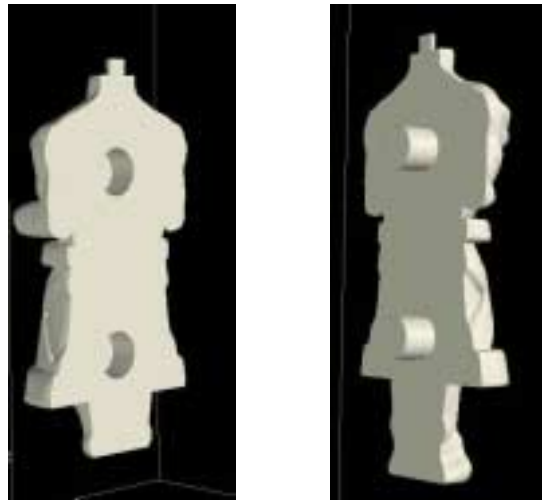


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To make a peg for putting the two halves back together, the head was split down the middle, a projection was made against the half and a peg was added. That part of the peg was then subtracted (using the “Subtract”) option on the Paste Dynabar from the other half to create the female side of the peg.



The body was divided horizontally, and pegs were generated in the same way described above.



Next, the hands were done.

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*Time for pegging process: roughly 2 hours*

The final step was to export each piece as .stl files at the size required for milling. The FreeForm toolkit was used to reduce the polymesh density for the Roland mill. Since the Roland mill can only handle about 100K polygons and the FreeForm model had much more than this, the FreeForm toolkit decimator was used to reduce polycount down to 100K. As the images below indicate, there was virtually no loss of detail.

*Time: roughly 1.5 hours, most of which was computation*



423,000 Polygons

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97,000 Polygons