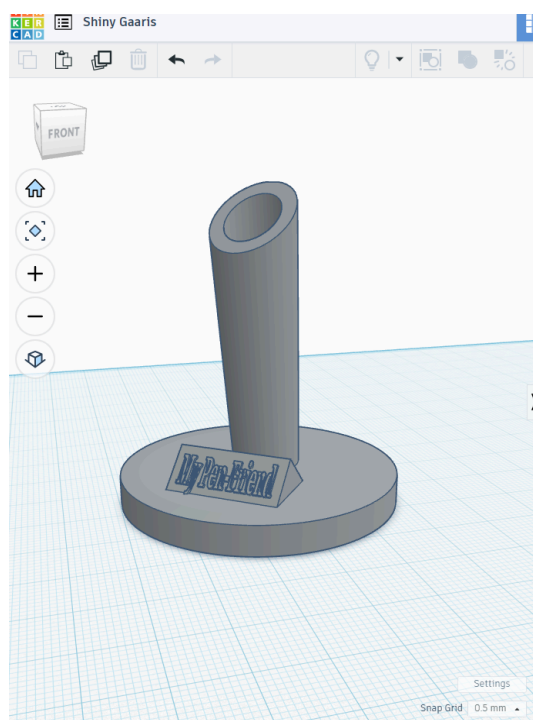# Tinkercad Workshop

Easy Pen Support - Step by Step Tutorial

Introduction

In this tutorial, you will create a base 3D pen holder that you could decorate however you want only using two geometric shapes - a cylinder and a paraboloid. At the end, you would have a nice pen holder of your choice to decorate your table at home or at school.
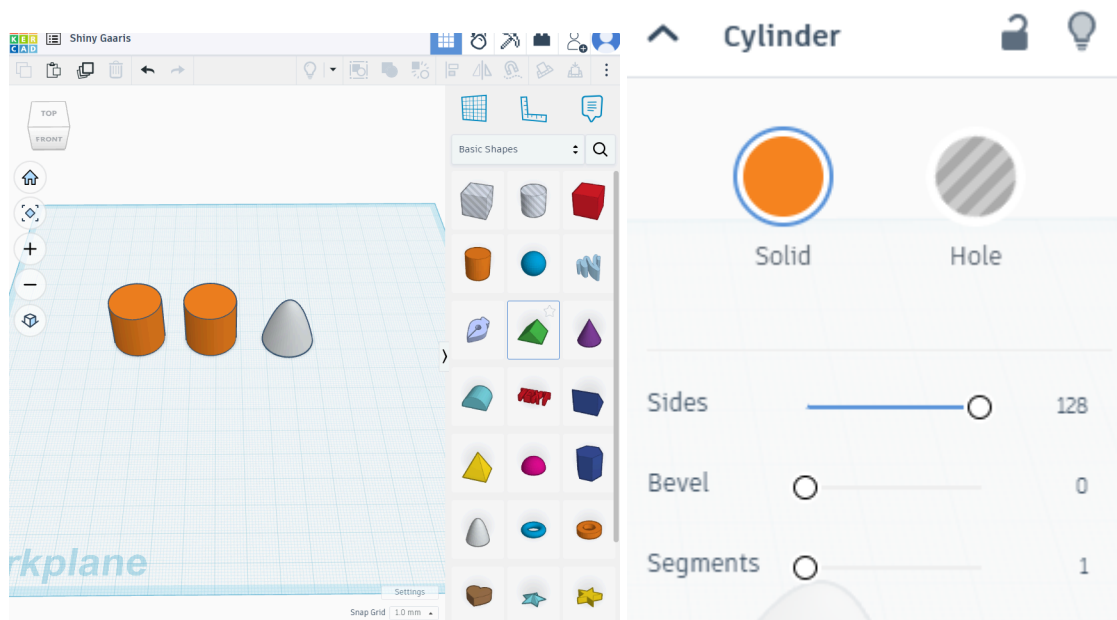
Creating the base

Step 1 - Insert the Shapes

Open Tinkercad and start a new design. Insert the three objects:
- 2 Cylinders
- 1 Paraboloid

Increase the number of sides of all the objects *(preferably to 128)*
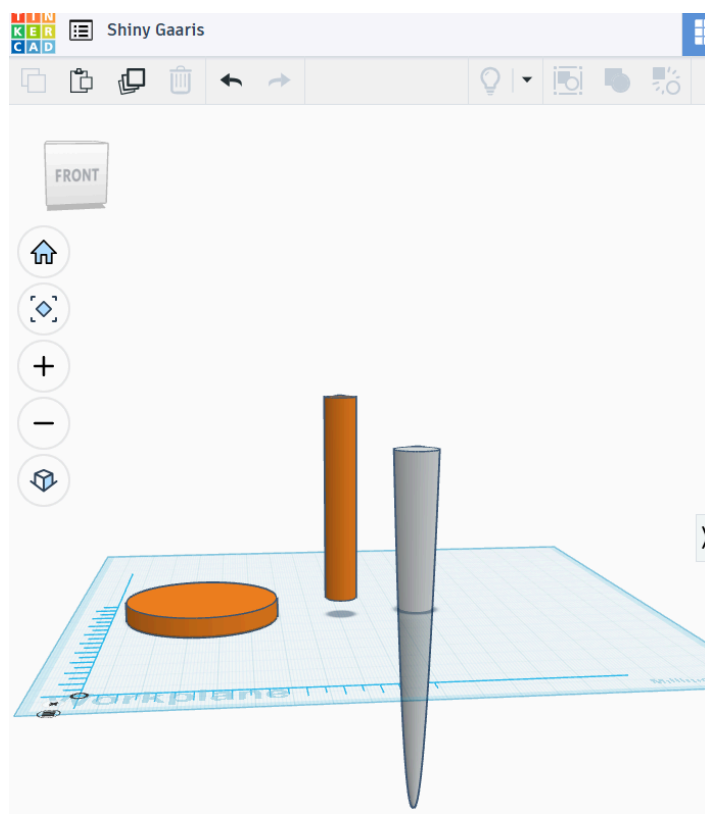
Step 2 - Adjust the Shapes

(Tip: Use Ruler Tool)

Adjust the shapes by the dimensions below:

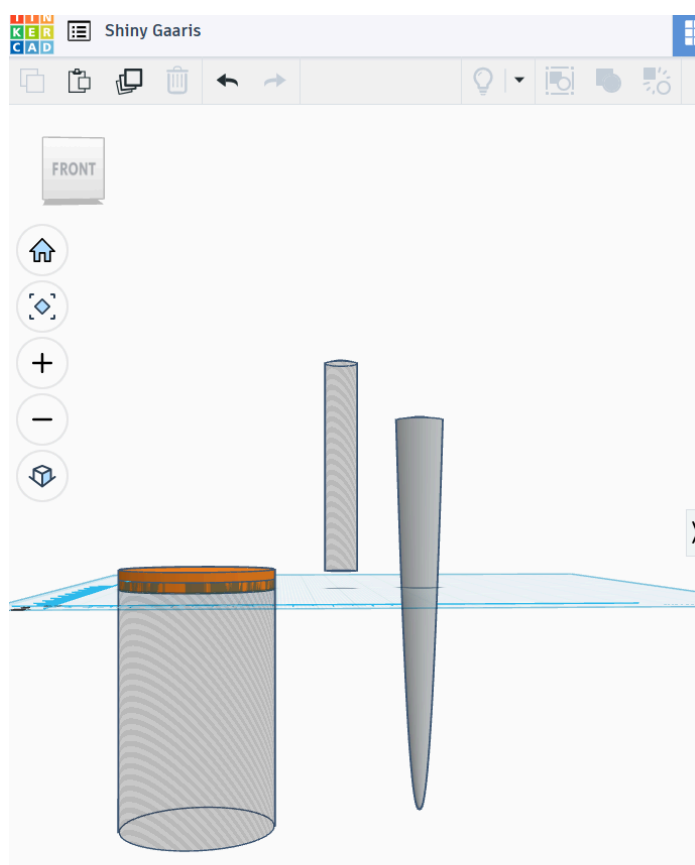| Object	Width (X)	Depth (Z)	Height (Z)
Cylinder 1	50 mm	50 mm	6 mm
Cylinder 2	13 mm	13 mm	70
Paraboloid	18 mm	18 mm	140 mm

Step 2.5 - Adjust the Shapes

1. Rotate the paraboloid by 180 degrees
2. Lower the paraboloid by 74 mm
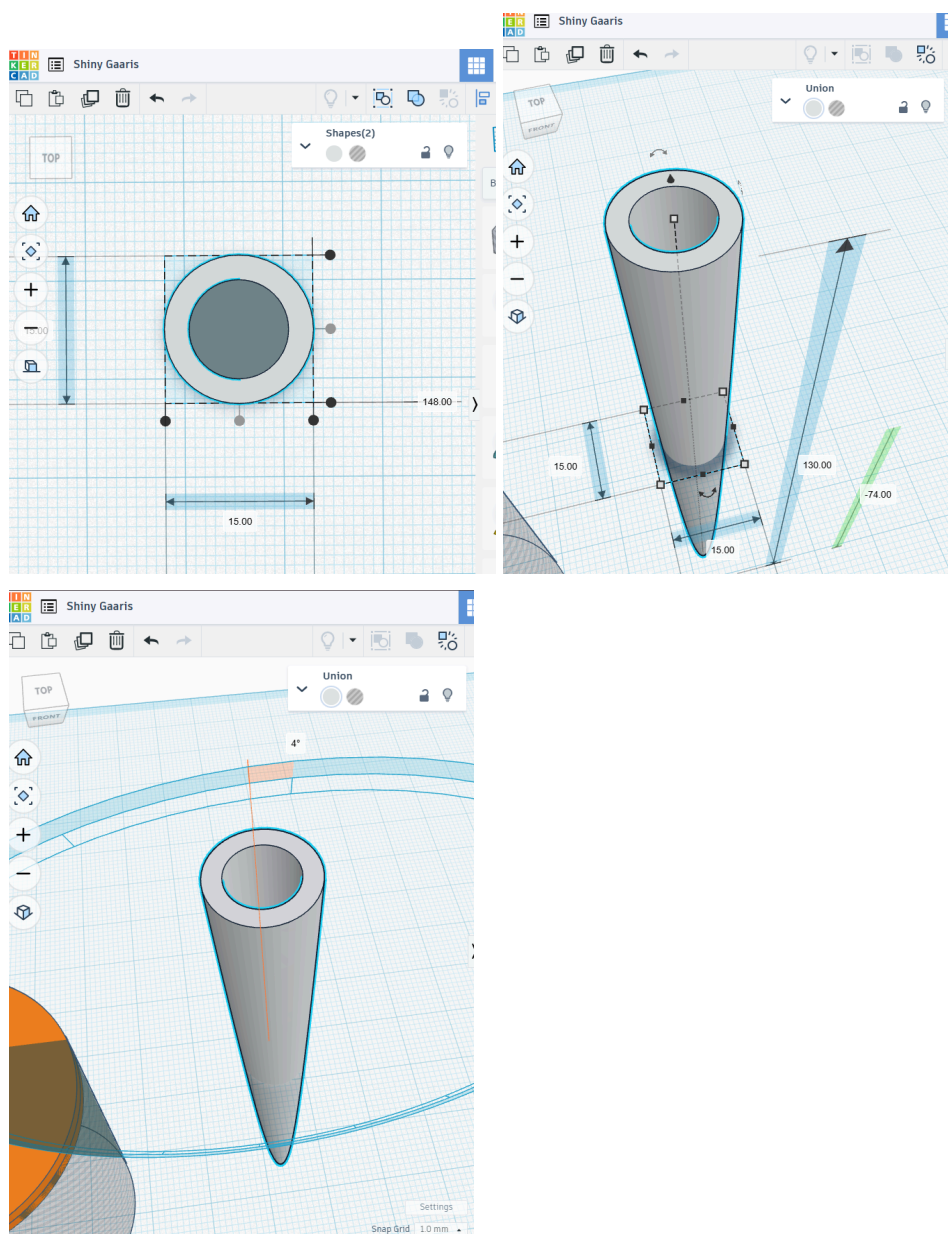3. Elevate Cylinder 2 by 6 mm

Step 3 - Prepare the holes

1. Transform Cylinder 2 into a hole
2. Copy and paste Cylinder 1 *(Tip: Use Alt and drag the object)*
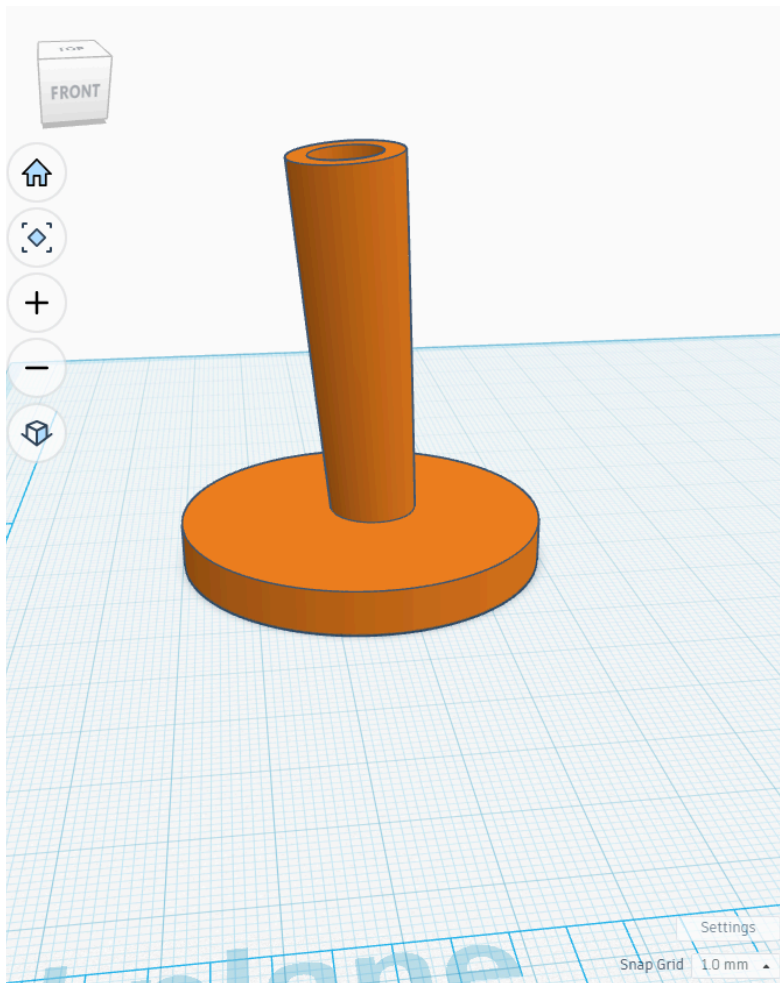3. Scale its lower part by 75 mm and lower it by approximately 3 mm

Step 4 - Combine: Part 1

1. Drag Cylinder 2 to the center of the Paraboloid *(Tip: use Align Tool and Flat View)*
2. Group them to make a hole.
3. Change the objects angle to 3-5 degrees on both sides to make it look good

Step 5 - Combine: Part 2

1. Drag the Paraboloid the the center of Cylinder 1 *(Tip: use Align Tool)*
2. Combine Paraboloid and a Cylinder hole prepared previously
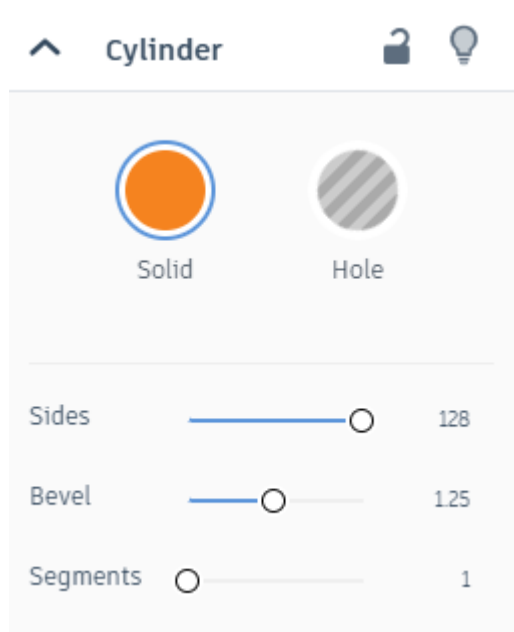3. Combine the two remaining objects.

Now the base is ready!

Now customize your pen holder however you want.

Here's some suggestions to your decoration:

Designing the Pen Holder

Suggestion 1:

1. Ungroup the two objects
2. Change the bevel of the Cylinder to any value you want

Suggestion 2:

Add a text to your pen holder

Suggestion 3:

Cut the top part of a pen holder diagonally using a triangle, so it would look beautiful
(Tip: I highly recommend)

Suggested end result: