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Fractal Art: Advanced Flowers in Apophysis

by Stan Ragets 26 Dec 2014

13-16 minutes



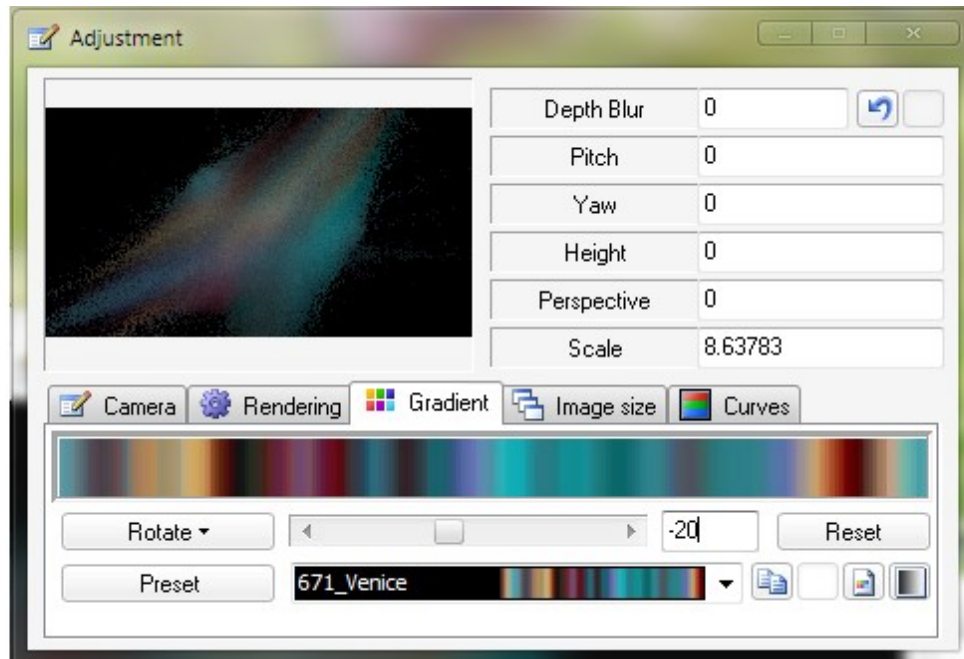
What You'll Be Creating

This tutorial will take you on a journey to create an advanced flower style in the fractal program Apophysis. We will first explore the 2D principles of this flower style. Then we will expand upon the idea using the same fractal to create a 3D version of the flower. Let's begin.

1. Setting the Stage

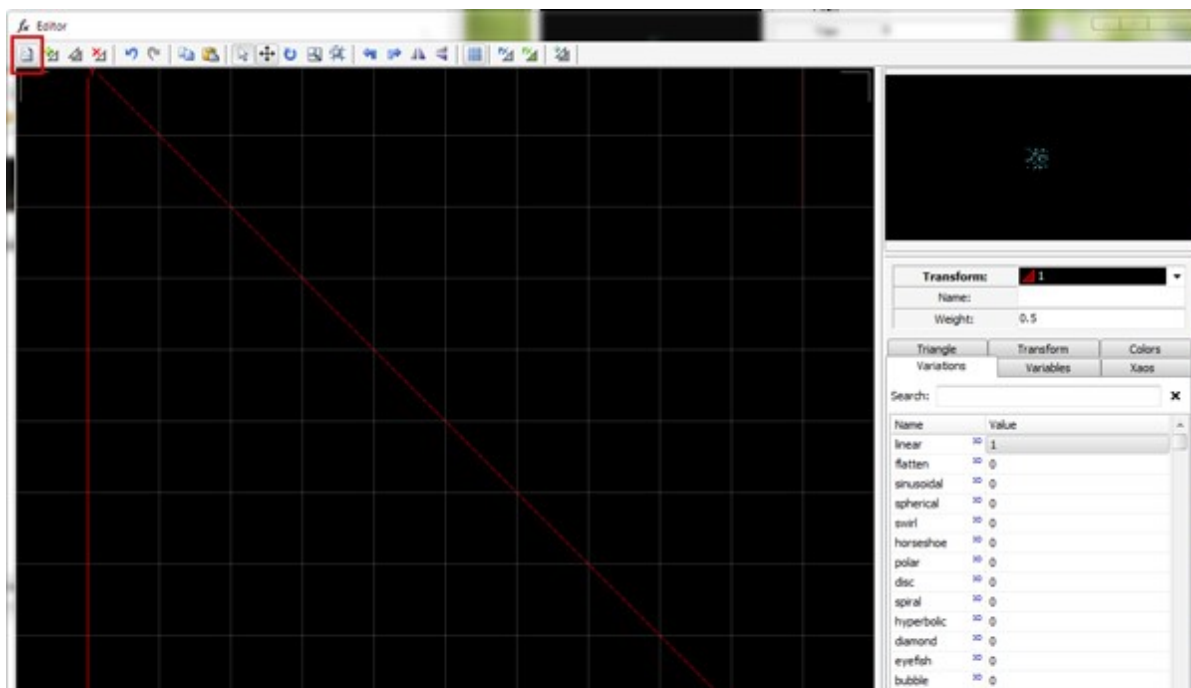
Step 1

To begin, let's select our color gradient. Open the **Adjustment** window in Apophysis and switch to the **Gradient** tab. Choose **671_Venice**. Underneath the gradient you will see the word **Rotate** and a slider to the right of it. To the right of these is a text box. Enter -20 to adjust the gradient.



Step 2

Close the **Adjustment** window and open the editor. Create a blank slate for our fractal by clicking the **New Flame** button.





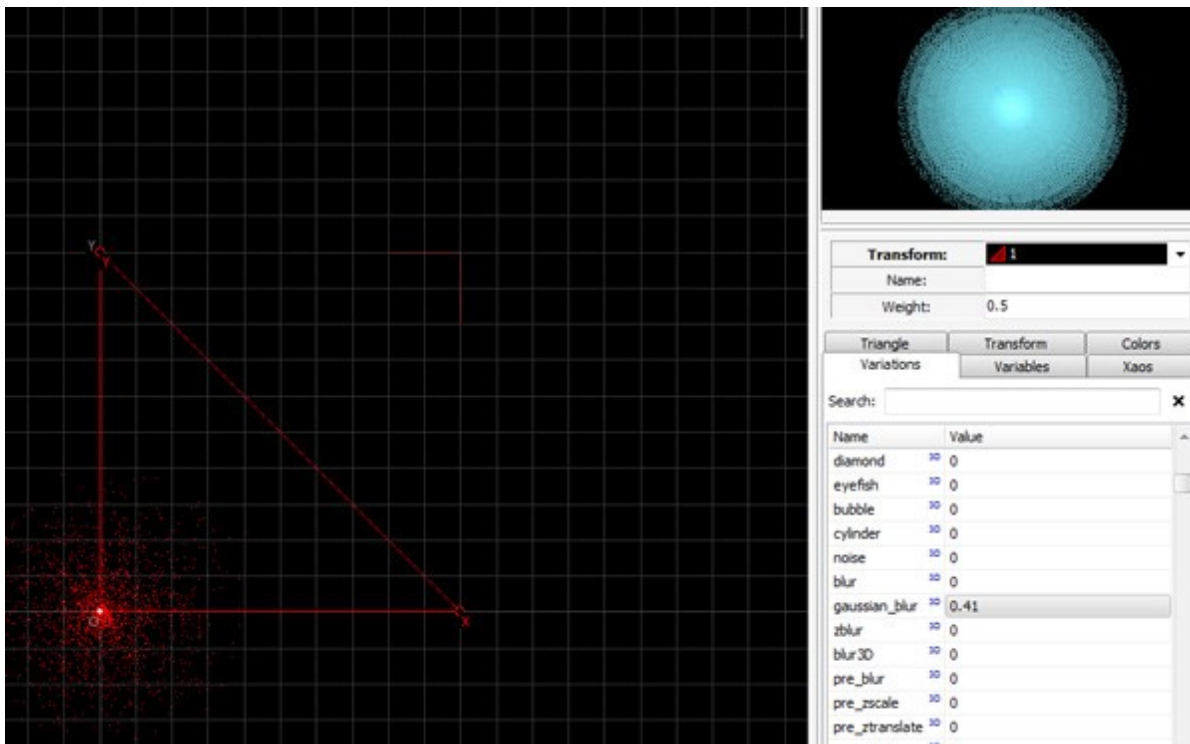
2. Setting Up the Transforms

Step 1

Transform 1 will serve as a foundation on which the rest of the fractal will be built. Whatever variations we add to this transform will affect the overall texture and appearance of the fractal. To begin with, we will aim to have a smooth, silky texture on the flower petals.

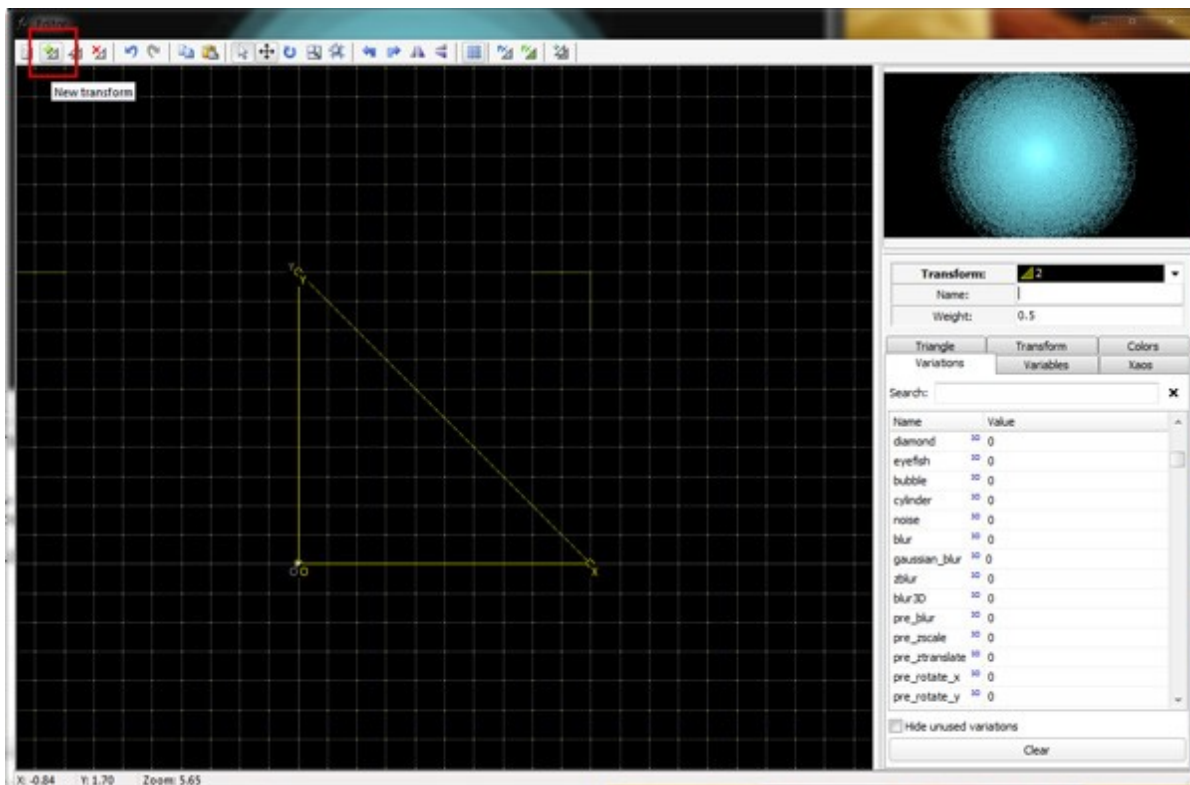
Inside the editor, switch to the **Variations** tab. Remove the **linear** variation from the transform by setting its value to 0.

Next choose either **blur** or **Gaussian blur** as your base variation. For whichever you choose, enter a value of 0.25 up to 0.6. This can be modified later as you see fit. If you wish to replicate my results, I am using 0.41 Gaussian blur.



Step 2

Now let's add a new transform and take note of the different changes the fractal undergoes as we modify the transform. Click the **New Transform** button in the editor window. This transform will give our fractal structure or body.



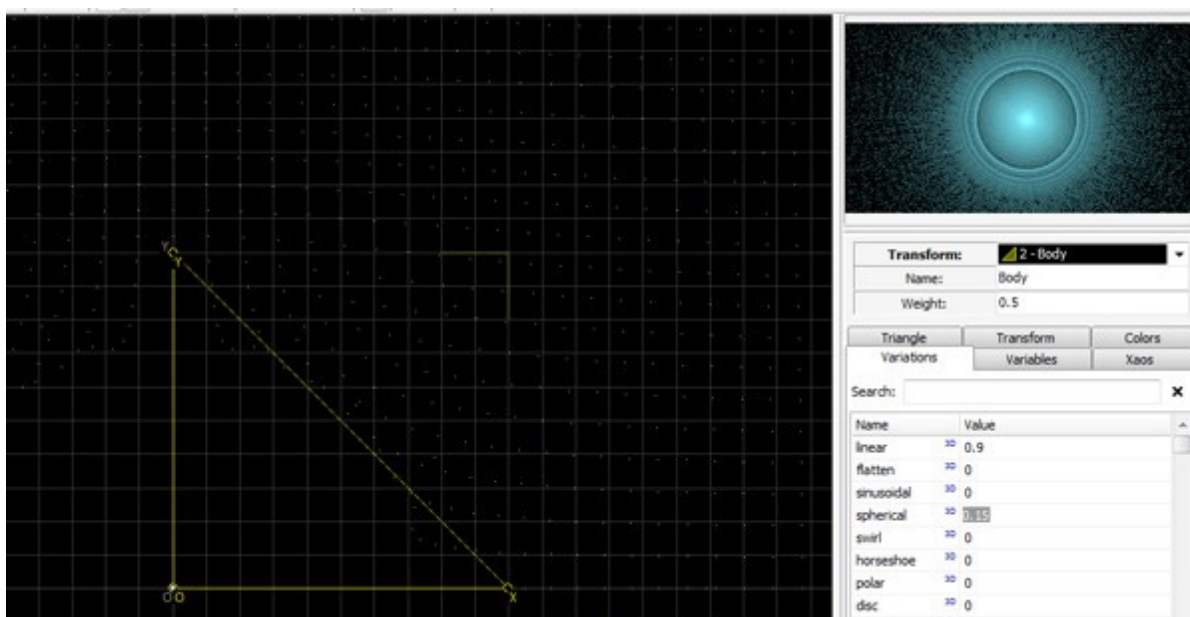
Step 3

Both the linear and spherical variations are required on Transform 2; however the values of each are subjective. Change the **linear** variation to a value between 0.75 and 1.4. I will be using 0.9 for linear.

The **spherical** variation is needed to create a gap in the center which we will later modify into the flower shape. Use a smaller amount of spherical, somewhere between 0.05 and 0.3. For this flower I will be using 0.15.

You will notice in the preview window that there are now several concentric circles around the large circle in the middle. It also appears that there are pixels radiating in columns outward from the circles. These two transforms provide the basis for the flower

fractal. We now need to modify some of the transform properties to further define the flower's appearance.



Step 4

Staying with Transform 2, switch to the **Colors** tab inside the editor.

First change the **Weight** of this transform to a relatively high value, somewhere between 10 and 30. I have chosen 20. The weight of a transform tells Apophysis how much priority to give to the variations on the transform when creating the fractal.

Transform color and color speed are also very subjective. We will most likely need to modify these values toward the end of the creation process. For now, choose a transform color between 0.1 and 0.35. I will be using 0.245.

Color speed affects the distribution of the color palette as a whole throughout the fractal. The higher the number, the more the color is spread out until you reach 1. To get the widest distribution of color, choose a **Color speed** setting between 0.8 and 0.98. I am using 0.896.

*Quick tip: You can click and drag to the left and right on the words **Color speed** in the **Colors** tab to watch a real-time preview of how the colors affect the fractal. This will allow you to quickly make color*

adjustments.

Modifying Transform 2 Settings

Step 5

Select Transform 1 from the **Transform** drop-down menu. We need to make some quick modifications to the colors and weights just as was done to Transform 2.

The weight of Transform 1 is much less than Transform 2. This is a basic principle you can apply in making the majority of fractals: base/textural transforms have lower weights whereas structural transforms have higher weights. Use a value between 0.3 and 0.8 for Transform 1's **Weight**. I have selected 0.6.

Now for the coloring adjustments. The **Transform color** setting can be tricky and I often like to set it in conjunction with the color speed setting. Ultimately I chose to go with 0.854.

As for the **Color speed**, choose a setting between 0.4 and 0.9. Remember the click and drag method can be very useful in finding an ideal setting. After going back and forth a few times between transform color and color speed, I decided to use 0.58.

We now have both of the transforms completed for the flower. The next step is where all of the action takes place!

Modifying the Settings for Transform 1

3. Adding the Final Transform: Creating Petals

Step 1

The final transform is a very powerful tool in the Apophysis editor. This transform applies to the entire fractal and can drastically alter the entire appearance of a fractal. Add in the final transform by activating it from the editor toolbar. Click the green triangle with the FX above it, which will enable the final transform.

Enabling The Final Transform

Step 2

After all the hype, don't be disappointed that you haven't seen a change in the **preview** window. Just as with any new transform you add, the linear variation has a default value of 1, and the final transform is no exception. Switch to the **Variations** tab and remove **linear** by changing the value to 0. You'll notice that your fractal completely disappeared in the preview window. The linear variation was keeping all of the pixels plotted on the fractal plane. Now that there is nothing to plot, your fractal disappears.

Scroll down in the variations to **julian** and add in a value of 1.

Finally, switch over to the **Variables** tab and change the **julian_power** variable to -2. The **julian_dist** setting should have defaulted to 1 but if not, change it to 1 now.

Setting Up The Final Transform

4. Finding the Flower

Where's the flower, you say? We must search for it!

Step 1

Still in the editor, change back to the **Triangle** tab. Select Transform 2 from the **Transform** drop-down list. At this point the idea is to make small modifications and really search out a nice spiral form.

Step 2

Change the value of the triangle scale to 110. This number is found between the small and large triangle buttons located underneath the four move arrows. Click the **scale up triangle** three times.

Scale Up Transform 2

Step 3

Now comes the fun. In the grid of the editor you will see a yellow triangle. The yellow triangle is a graphical representation of Transform 2. Click the **move triangle left** button once in the editor to be able to see this triangle better.

At each of the corners of the triangle you will see points: X for the x-axis, Y for the y-axis and O for the origin of the transform. Click the O and drag to move the triangle around. Notice how this affects the fractal. On the edges/corners of Transform 2 you will see lines that appear to be the corners of a box. You can click these and drag to rotate the transform.

Utilize the ability to drag Transform 2 around and rotate it to find a nice spiral design. Remember that you can always come back at any step in the process and make modifications.

Drag The Transform Around

Step 4

The petals of the flower are beginning to take shape. We can give more definition to them by adding in a very small amount of the cross variation. This variation in addition to what is already on Transform 2 will create small gaps on the petals.

Switch to the **Variations** tab. Add in a small amount of 0.01 to 0.04 of the **cross** variation. I am starting with only 0.015.

Adding in the Cross Variation

I've only touched on the bare minimum for creating these advanced fractal flowers. You can add very small amounts of other variations to Transform 2 to change the shape of the petals. Change the values or variations on Transform 1 to modify the texture and appearance of the flower. Modify the julian variables on the final transform, or move the final transform to create entirely different

looks. All of these are just the beginning of the possibilities for these flowers. Use your imagination as you make modifications to the fractal, and save your ideas often so you can return to them.

2D Advanced Fractal Flower

5. Going 3D

There are several different ways to go about creating 3D flowers. Each of these paths create different styles, some with the petals extending out and up, and others with the flower mounded more in the center and protruding more like a rose. We are going to focus on just one style today but please do not allow your explorations to stop here.

Step 1

We first need to change our final transform's variable to one that better supports 3D work. In the editor, make certain you are on the **Variations** tab. Choose **Final** from the **Transform** drop-down list.

Remove the **julian** variation by changing its value to 0. Add 2 to the **julia3D** variation.

Finally, change to the **Variables** tab. Set the **julia3D_power** variable to -2.

Making the Final Transform 3D Compatible

Step 2

Close the **Editor** window. We need to modify the perspective to create the 3D look and feel. Open the **Adjustment** window by clicking the button in the menu bar of the main Apophysis window.

At the top, on the right-hand side, you will see several values such as **Depth Blur**, **Pitch**, **Yaw**, etc., that all relate to the 3D view in Apophysis. Change the **Pitch** setting to 50. This setting allows you

to change the pitch of the view finder or camera, if you will, from a 2D setting at 0 to any degree you wish.

Changing the Overall Pitch of the Viewport

Step 3

Close the **Adjustment** window and open the **Editor**. Everything is in place to make the fractal 3D.

In the **Transform** drop-down menu, choose Transform 1.

This step is *absolutely essential* in making the flower 3D. In the **Variations** tab add the value of 1 to the **flatten** variation. Yes, it might seem crazy to add something called “flatten” to a 3D project, but it is imperative that you do so. Otherwise everything will disappear in the next step.

Step 4

Switch to Transform 2 in the **Transform** drop-down menu. Still on the **Variations** tab, add in 0.2 to the **zcone** variation. Additionally, add -0.02 to the **ztranslate** variation. Take note of the drastic change of the fractal’s appearance.

Slight Adjustments to Transform 2

6. Embellishing the Fractal

We could stop here, but why not add some flair to the fractal?

Perhaps you would like to add some stamens, the long stem-like protrusions in some flowers.

Step 1

Switch to **Transform 1** by selecting it from the **Transform** drop-down menu. Click the **Duplicate Transform** button in the toolbar of the Editor window. This will create Transform 3.

Step 2

Switch to the **Variations** tab and click **Clear** at the bottom to remove all variation settings on this transform.

Step 3

Pay careful attention here, as we need to set the values of several variables. Each of these can be adjusted to your liking later. For instance, I will likely increase the amount of Gaussian blur once I have found the positioning of the stamen that I like. Set each of the variables as follows.

- **Bubble:** 0.016
- **gaussian_blur:** 0.01
- **zscale:** -0.289
- **ztranslate:** 0.403
- **zcone:** 0.62
- **post_rotate_x:** 0.255

Changes to Transform 3 Variations

Step 4

Change the **Weight** to 0.3. In the **Colors** tab, change the **Color speed** to 1. Feel free to modify the values of the variations on Transform 3 at any point.

Step 5

Switch to the **Triangle** tab. At the top of the editor window, to the left of the Final Transform button there is a button with PX and a Triangle. Click this button and it will activate what is known as the Post Transform mode of the triangle. This mode allows you to move the entire transform around without affecting the shape of the fractal

variations applied to it. The best way to understand this is to now either click on the **green triangle** (Transform 3) and move it around the window, or use the **move** and **rotate** tools in the **Triangle** tab to move the triangle around.

Find an area where you think the stamens of the flower look appealing.

Positioning the Stamen on the Flower

7. More Flair

Step 1

Finally, we will add some fun lighting effects to give the fractal more visual interest. To do this, select **Transform 1** from the **Transform** drop-down menu and **Duplicate** this transform. In the **Variations** tab, click the **Clear** button at the bottom to remove all variations.

Step 2

Add in a very small amount of **blur3D**. A value of 0.02 is a good starting place. Additionally, change the **Weight** to 0.1.

Step 3

Activate the **Post Transform** for Transform 4 and move this transform around, notice where the lighting shows up in the preview window. You may wish to add in some **ztranslate** on the **Variations** tab or adjust the amount of **blur3D** as you move the transform around.

Adding Lighting Effects

You can continue to follow the techniques above to add as many different effects to the fractal as you like. When you're finished, close the editor window and we will proceed to setting up the render and rendering the fractal.

8. Rendering the Fractal

Step 1

Now we need to focus the image on an interesting part of the fractal. Apophysis provides several tools in the main window toolbar to accomplish this. Use the **move** and **zoom** tools to find a focal point of the fractal.

Finding a Focal Point

Step 2

Open the **Adjustment** window. Switch to the **Rendering** tab. Change the **Gamma** setting to 3. Close out the Adjustment window.

Adjusting Gamma of Overall Fractal

Step 3

Click the purple gear in the main window to open the rendering options. Select a place to save your fractal. For **Density** choose 10,000. A **Filter Radius** of 1 is very nice for flowers. **Oversample** of 2 or 3 at the most is fine. Once you've adjusted all render settings, click **Start** to begin the render. After several minutes your 3D fractal flower will be complete!

Adjusting the Rendering Settings

Awesome Work, You've Done It!

By following the steps outlined above, you now have created your first 3D flower in Apophysis. Not only do you have an amazing image, but also the tools to create more stunning fractal artwork.

Final Render by Stan Ragets

Take all of these principles and combine them together. Start by

modifying Transform 2. Rotate it, move it around, add and remove variations and the amounts thereof. This will allow you to find many different petal shapes. Then experiment with the final transform. Finally, use the different lighting and texture methods to achieve some out-of-this-world designs. You will be amazed and very pleased with the wonderful fractal flowers you can create!