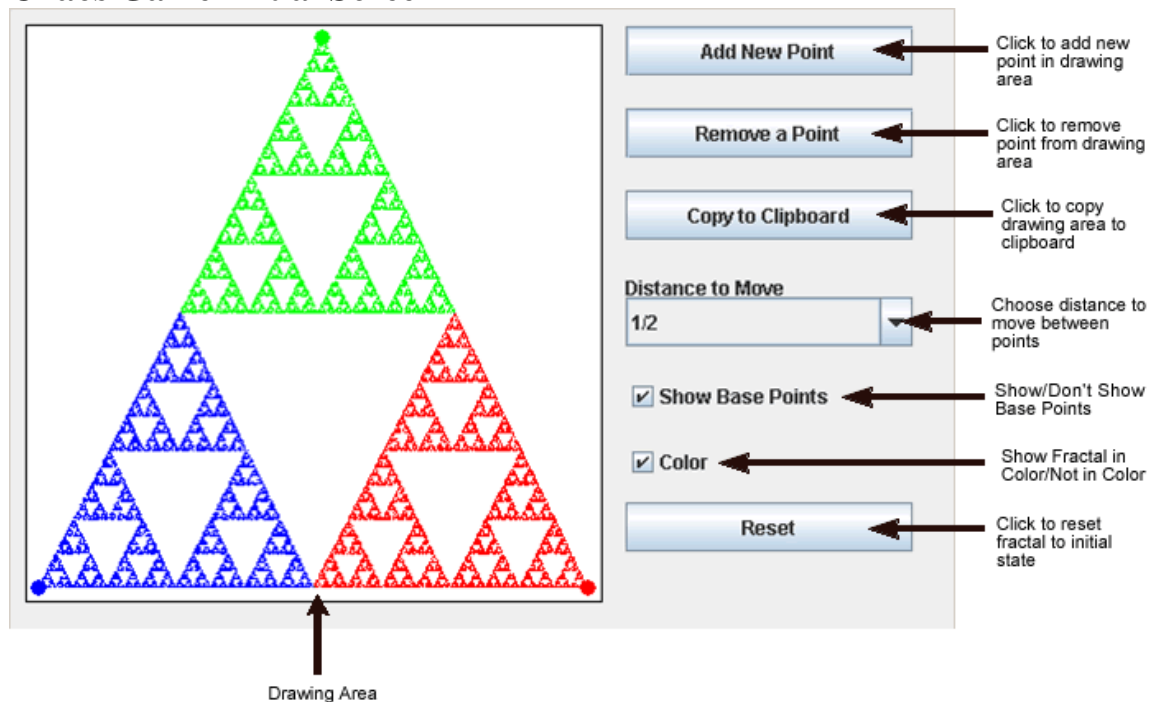


Chaos Game Overview

The Chaos Game fractal generator allows the user to create fractals by adding and removing points and changing the distance to move between points. The user also has the option of showing or not showing the base points and to display the fractal in color or black and white. The user has the ability to drag base points of the fractal and observe the fractal being redrawn in its new position in real-time.

Chaos Game Initial Screen



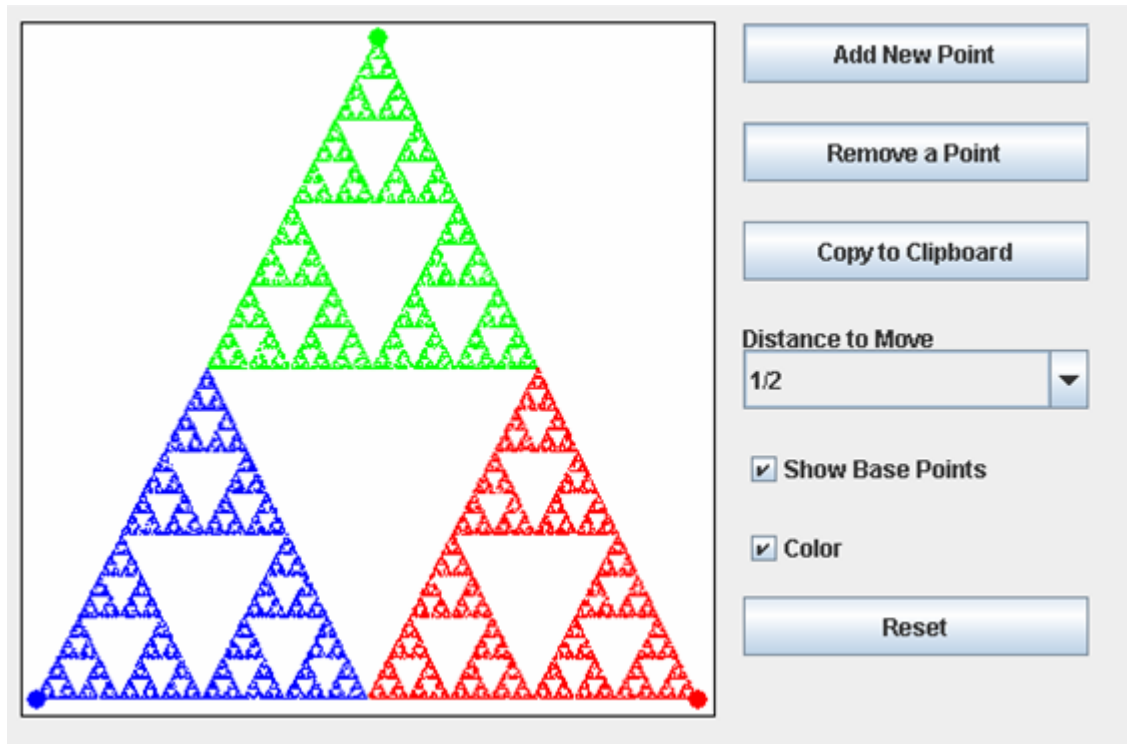
How Chaos Game Generates Fractals

This algorithm generates fractals by randomly choosing a base point and drawing a new point such that the ratio of the distances between the last point and the base point and the new point and the base point is equal to the value selected in the "Distance to Move" drop-down box.

Chaos Game Tutorial

Starting the Application

The following image represents how the application looks when the application is first started. The starting fractal is a standard Sierpinski Triangle with 3 base points.



Changing the ‘Distance to Move’

One manipulation is changing the distance between base points. There are four possible values which are: $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, and $\frac{9}{10}$. The user can select this value by using the “Distance to Move” drop-down menu shown below. Once the new value is selected, the fractal will automatically redraw after calculating the new transformations.

Showing/Hiding Base Points

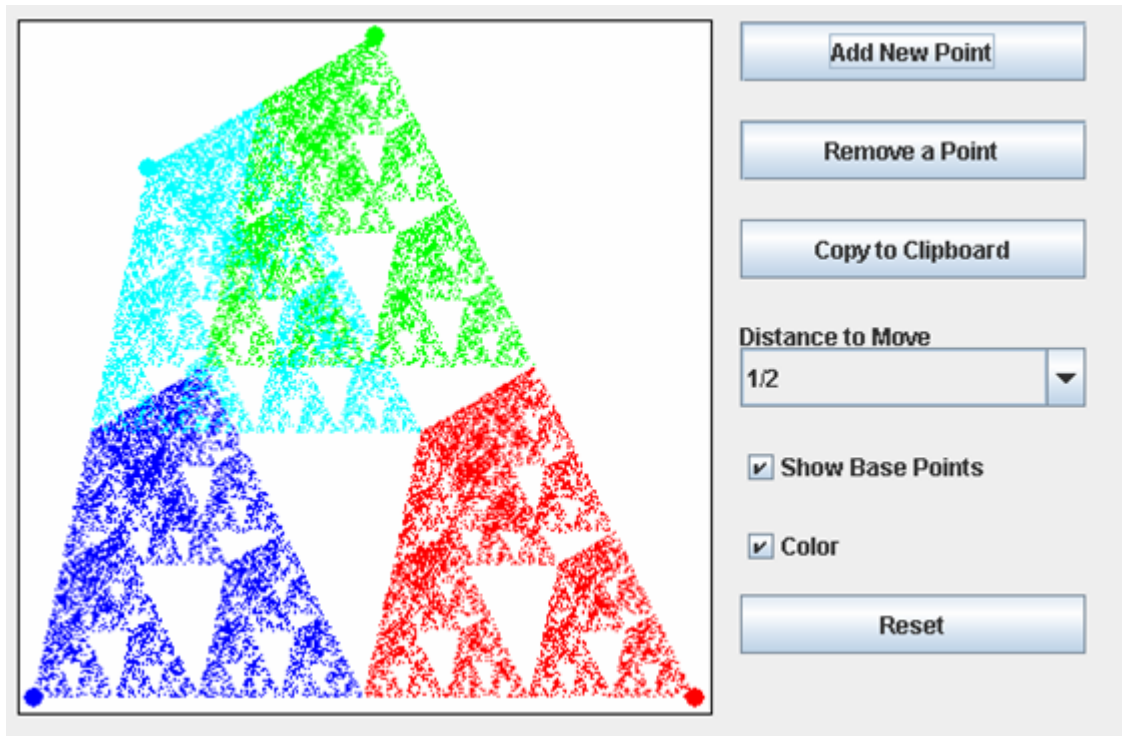
The user can also hide or show the base points of the fractal. A checkmark next to the “Show Base Points” box indicates that base points are visible. Showing/Hiding the base points happens when the checkbox is clicked/unclicked.

Showing/Not Showing Fractal in Color

The application uses colors to visually show which points were drawn from each base point in the fractal. To see only the fractal itself, simply unclick the box next to “Color”.

Adding Base Points

The user can add base points by first clicking the button that says “Add New Point” and then by clicking the place on the drawing area (the white area where the fractal is drawn) where the point should be drawn. Then, the fractal will automatically be redrawn. It is noteworthy that the user can only add up to ten total base points.



Removing Base Points

To remove a base point, simply click the “Remove a Point” button and then click the base point. Then, the fractal will automatically be redrawn.

Resetting the Application

To return to the original Sierpinski Triangle, simply click the button labeled “Reset”.

Copying the Fractal to the Clipboard

The next point of interest is the “Copy to Clipboard” button. This button’s actions are only usable in the stand-alone JAR executable, and not the Web page. By clicking this button, a copy of the created fractal is automatically copied to the system clipboard. The image can then be pasted into a number of programs, such as Microsoft Word, Paint, or Adobe Photoshop. Note, simply clicking “Copy to Clipboard” will not save the image anywhere, it is up to the user to save the image.