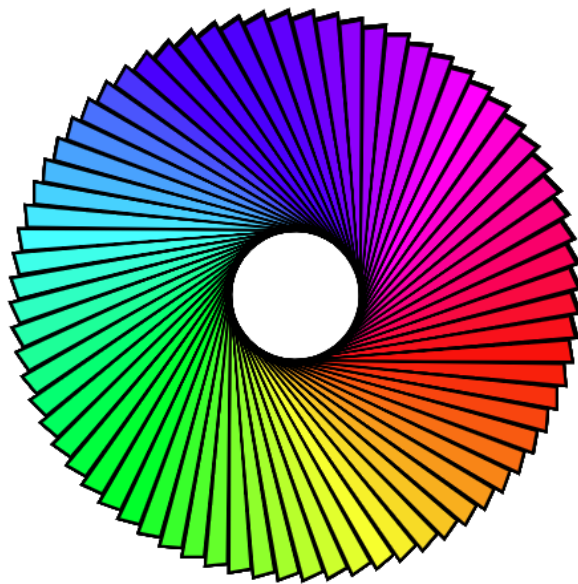USD STEAM Academy

HSVA_Color Lesson

An Introduction to MathArt Creator
by
Paul G. Phillips
Speaker, Artist, Programmer

WELCOME
Your presenter is
Paul Phillips

My Son and I created MathArt so you can make art patterns using math transformations and simple shapes.

To be ready for the lesson:

1. Click the link in your Chat Window.
   https://www.mathart.us/Lesson2020/index.html

2. Shrink the size of the browser to include the Instruction window. So it looks like my shared screen.

3. Figure how to switch between your browser and Zoom window.
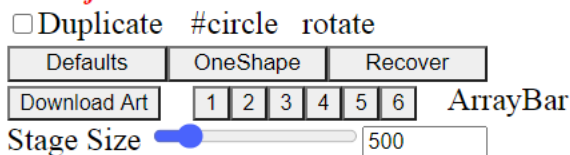
ArtData Demonstration

Demonstration

.

1. Show/Hide ArtData button.
2. Triple Click on Data line.
3. Quick Navigate to Help/Reset.
4. Click the Reset button.
5. Quick Navigate to ArtObjects.
6. Click the Paste Art Data.
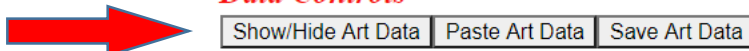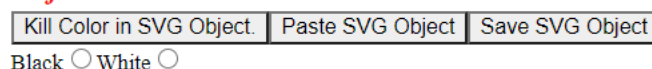7. Paste in the empty field.
8. Click OK.
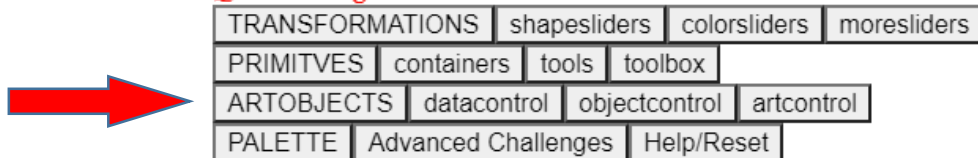
Introduction Computer Color

Setup for Hue Lesson

ArtData:

1_200_100000_360_1_1.5_0_0_0_0_1_100_100_1_0_0_0_#circle_false_false_false_false_false_false_false_false_false_false_false_false

Copy This ArtData String

1. **Paste in using the Paste ArtData button**

Demonstration

Show Hue Primary Colors

1. Set Rotate = 60
2. Set Hue = 60

These are the primary **HUES** for computers in the HSVA system.

HUE	COLOR
0	red
60	yellow
120	green
180	cyan
240	blue
300	magenta
360	red

Activity

Check the Hue Numbers

1. Set Spread = 0
2. Set layers = 2
3. Set Scale = 5
4. Enter the hue numbers in the table and verify they are the colors shown.

HSVA

Saturation numbers determine the brightness of the color. The color fades like you are adding white light.

Values numbers determine the brightness of the color. The color gets darker like you are removing the white light.

Alpha numbers determine how transparent the color is. Alpha =0 means you only see the outline.

Setup for HSVA Lesson

ArtData:

1_200_100000_360_1_1.5_0_0_0_0_1_100_100_1_0_0_0_#circle_false_false_false_false_false_false_false_false_false_false_false_false

Copy This ArtData String

1. Paste in using the Paste ArtData button
2. See the Hue spectrum on the Stage.
   The Hue numbers are from 0 to 360 where
   Hue 0 = red and Hue 360 = red.

Demonstration

Show The **ColorSliders** effect on the spectrum

RGBA
(Red Green Blue Alpha)

The RGB color system grew out of the early Television Technology when there were 3 color rays activating the coating on the screen.

The combined intensity of the Red Green and Blue rays blended to make the colors of the spectrum.

The Computer Color definition of RGBA us used by the SVG programing to define the colors of the shapes.

MathArt must convert the HSVA to RGB in order display color objects on the Stage.

Setup for RGBA Activity

ArtData:
1_27_100000_360_120_10_0_0_0_0_120_100_100_0.5_0_5_360_#circle_false_false_false_false_false_false_false_false_false_false_false_false

Copy This ArtData String
1. Paste in using the Paste ArtData button
2. See the blending of RGB on the Stage.
3. Use the SAT Slider To see the intensity of the colors change.
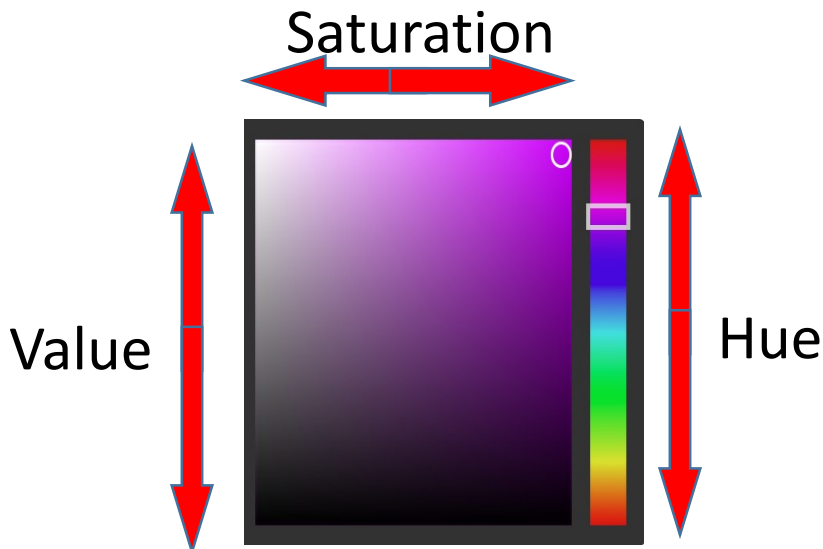4. Use the Alpha Slider to see the transparency change.

Create A Custom Color Palette

- A **PALETTE** is a collection of colors used in a work of art.
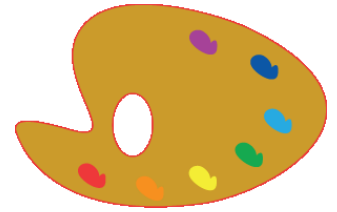
1. Click PALETTE
2. Move Slider on the right up and down to pick a HUE
3. Move the Dot left and right to pick a SATURATION
4. Move the Dot up and down to pick a VALUE
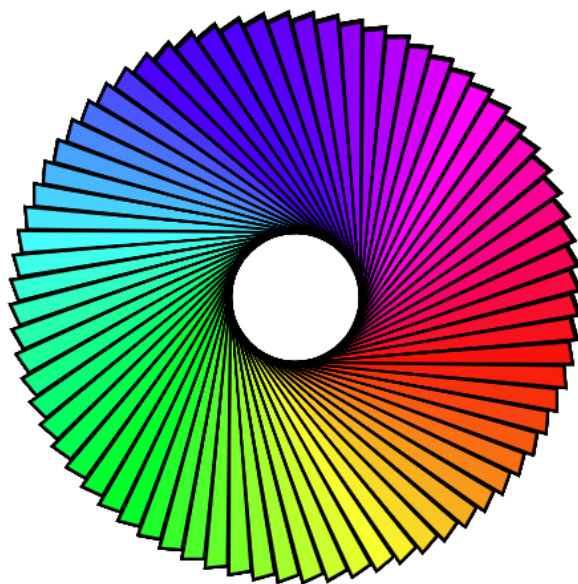5. Click **Add Color** button

Saturation

Value

Hue

Activity: go to PALETTE
1. Change the colors of your design.
2. If you do not like it click NEW PALETTE
3. Move Slider for Hue
4. Move Dot for Shade (SAT and VAL)
5. Click **Add Color** button for each color.

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