

# Color

Nic Aguirre j363 Fall 2018



# Today

- Inspiration: ColorTheory.ca
- Lecture: Color Theory
  - Hue, saturation, lightness, value
  - Discussion: Meaning of Colors
  - Color Schemes
  - CSS Color Values
- Practice: Building Color Schemes

# Inspiration

<http://www.colortheory.ca/>



# COLOR THEORY

A circular arrangement of many colored pencils of various colors (red, orange, yellow, green, blue, purple, brown) radiating outwards from a central point, creating a vibrant, colorful background.

## What is color?

Color is a profound — possibly the most profound — means of communicating visually.

We have instant, physiological reactions to colors based on a lifetime of observations.

## What is color?

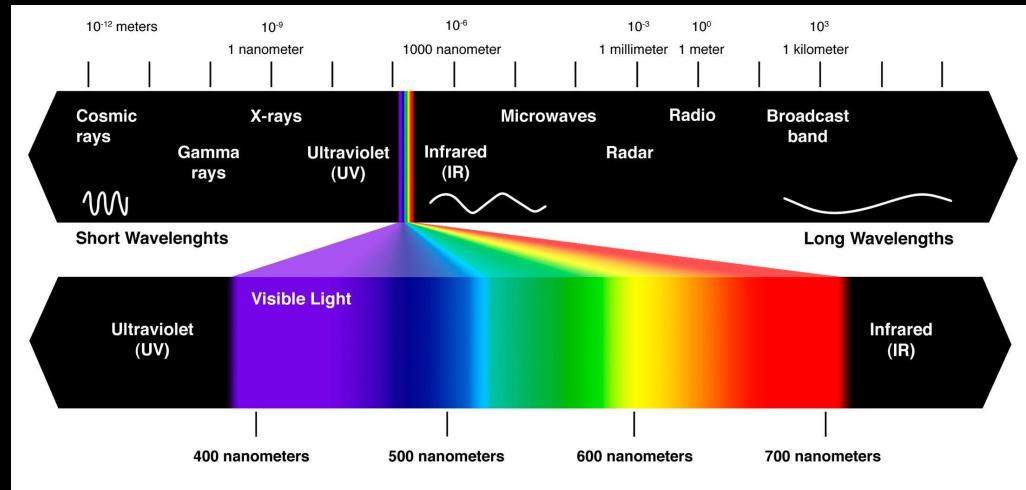
An infinite number of colors can be created by altering the three variables of color:

1. hue
2. saturation
3. lightness



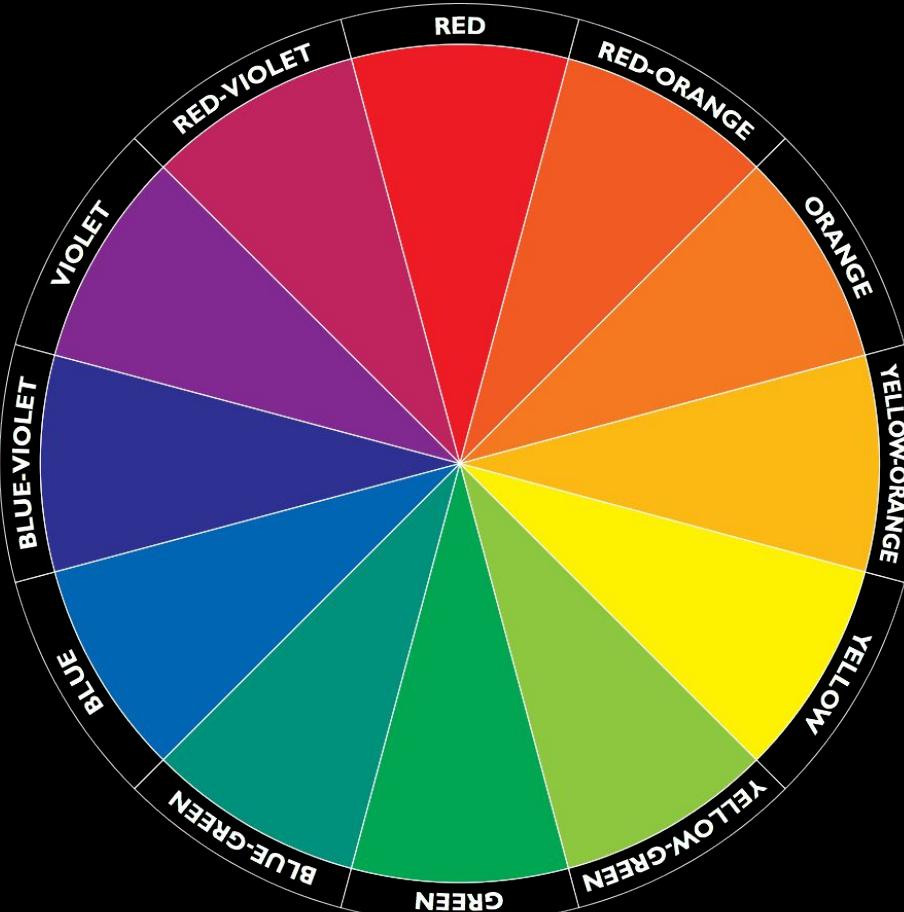
# Hue

Hue is the identity of colors. It is the distinction of colors based on their wavelengths — in other words, how we perceive light being reflected from objects at particular frequencies.



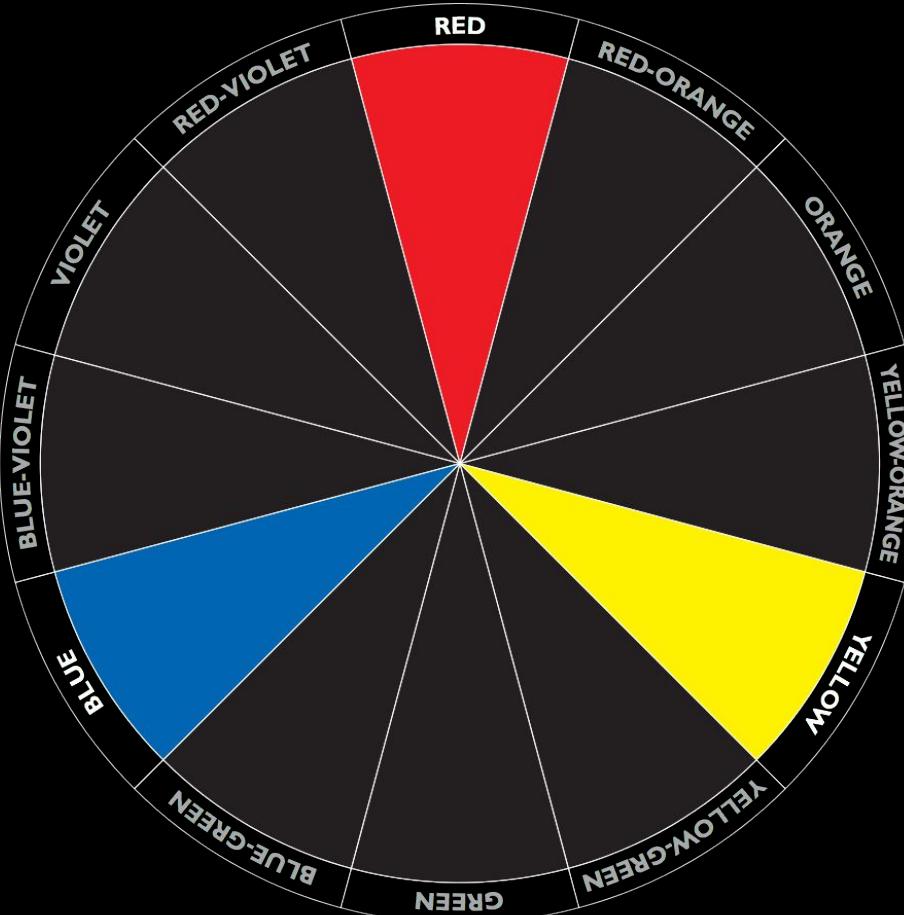
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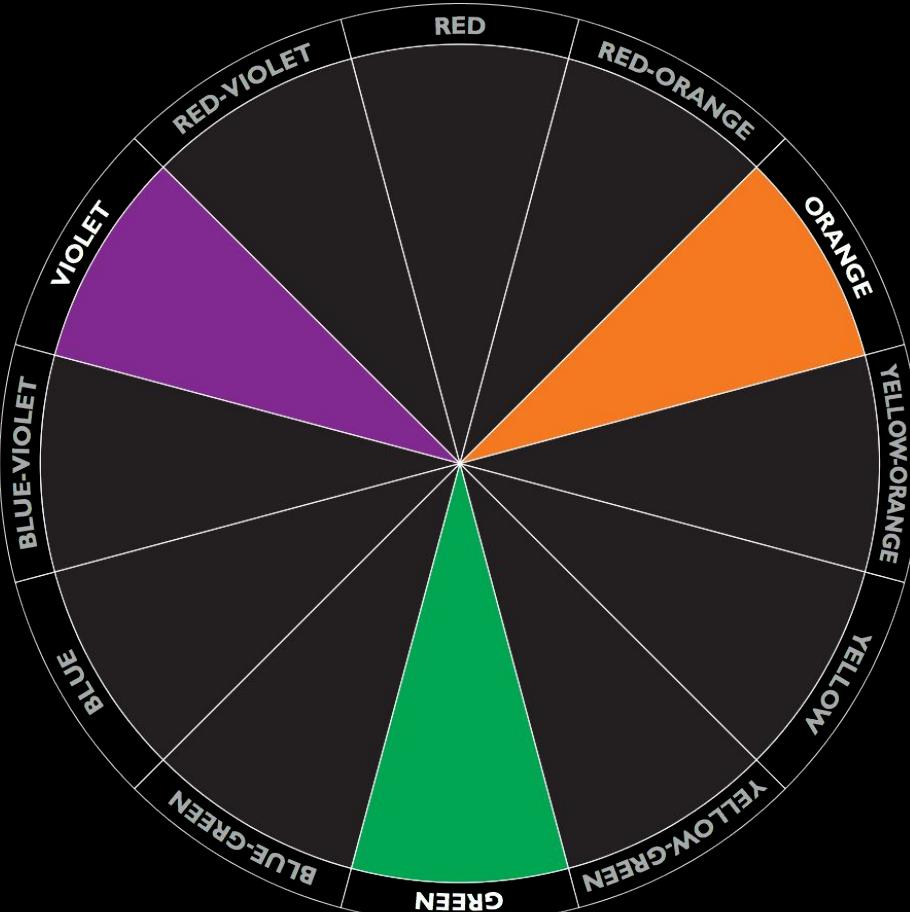
# Hue

Primary colors — red, blue and yellow — are the pure absolutes of the color wheel. All other hues are created by a combination of two or three primary colors.



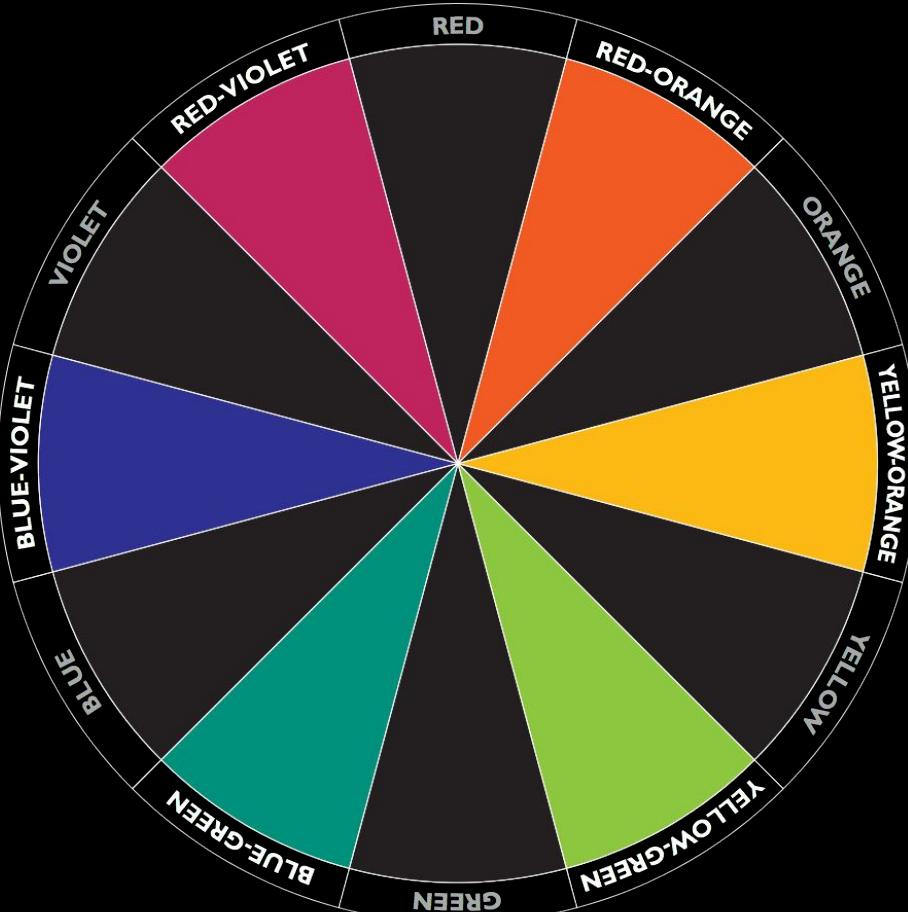
# Hue

Secondary colors are positioned halfway between each of the primaries, and are even mixes of those colors.



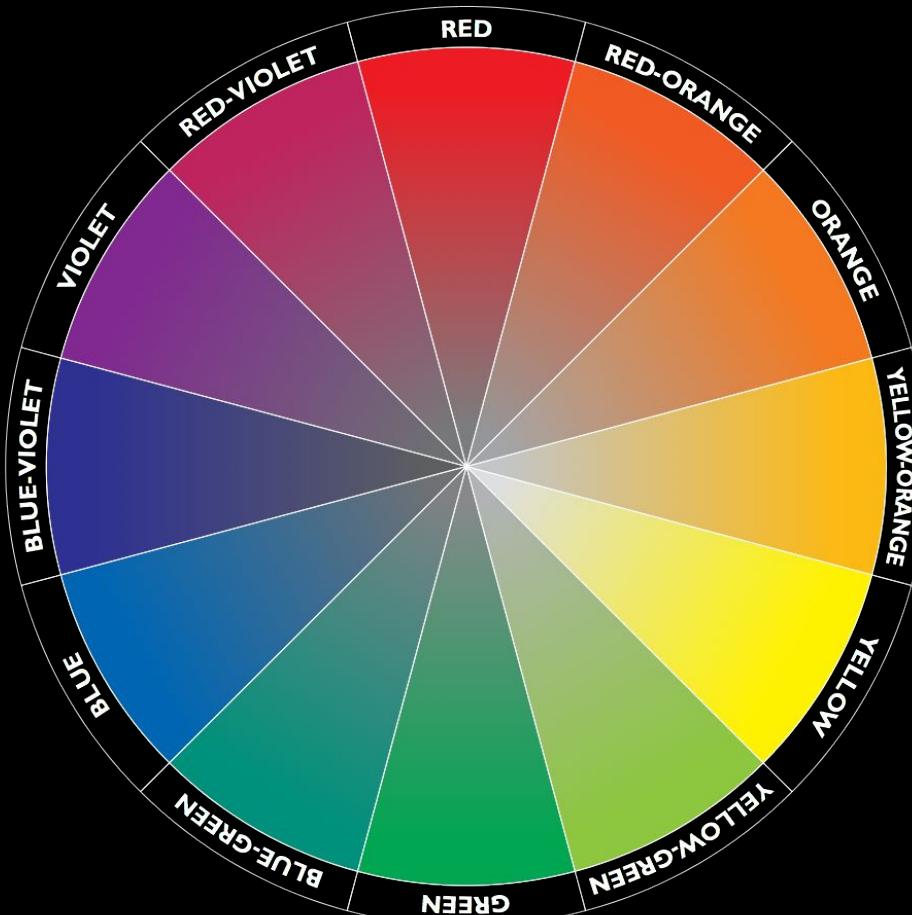
# Hue

The tertiary hues are those based on intermixing the primary and secondary hues.



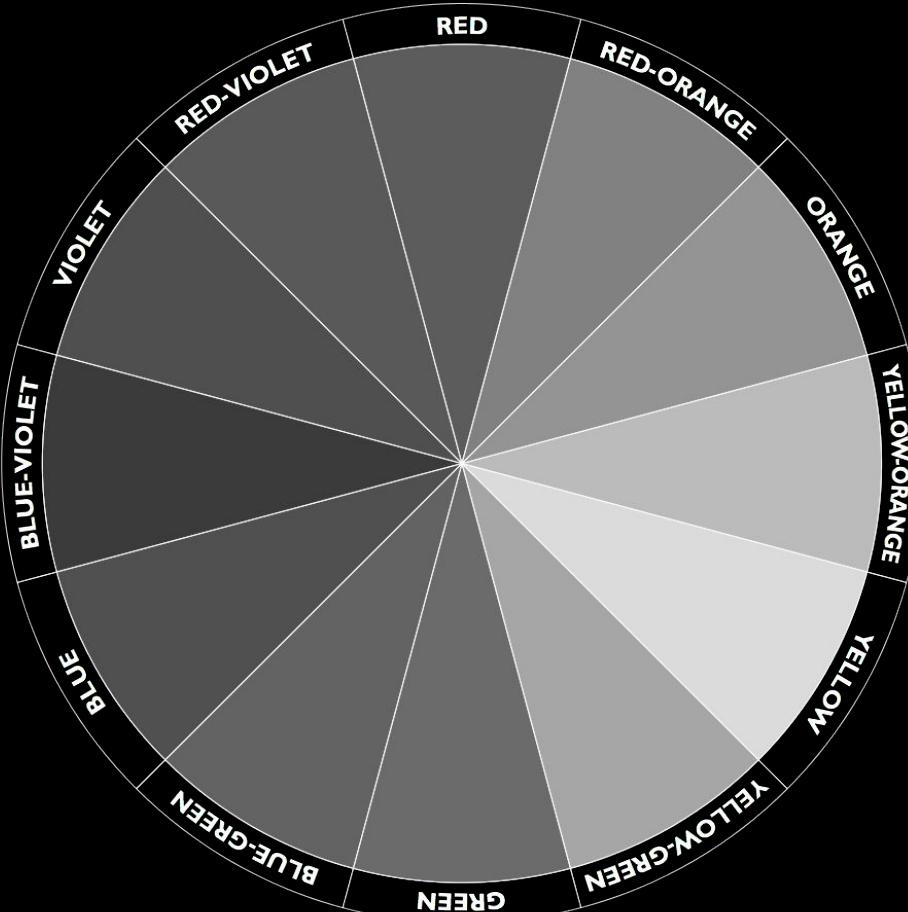
# Saturation

A color's saturation is its intensity, or brilliance. Bright colors are said to be saturated, whereas dull colors are desaturated. Desaturated colors are created by adding gray or by a color's opposite on the color wheel.



# Value

Value is a color's intrinsic lightness or darkness. Yellow is perceived as being light, for example, while blue-violet is thought of as dark.



# Value

Value establishes the contrasts in a composition. The greater the difference in values between two colors, the easier it is to distinguish them. (A good way to see and understand color values is to squint at something.)



# Value

In this image, the colors are heavily saturated: vivid, lurid and electric.



*Henri de Toulouse-Lautrec: Monsieur Boileau at the Café, 1893*

# Value

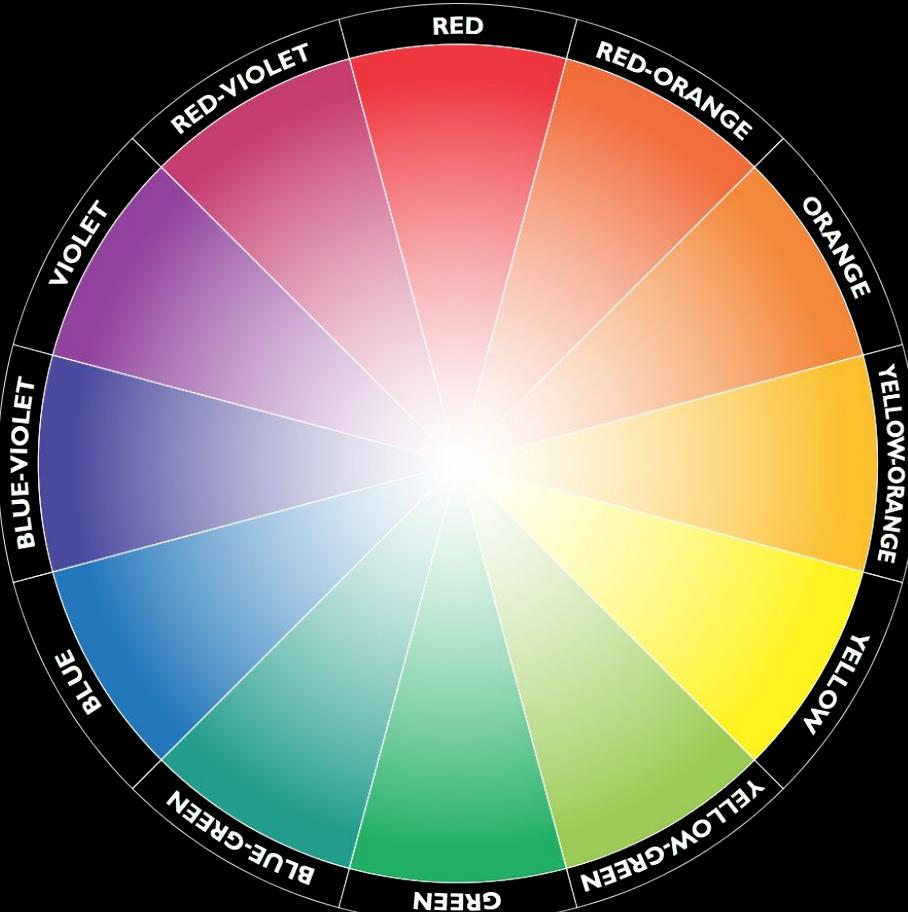
In this image, the colors are heavily saturated: vivid, lurid and electric. But in this version, the image is completely desaturated, removing all chromatic qualities. What remains is an illustration of how *value* creates the image.



*Henri de Toulouse-Lautrec: Monsieur Boileau at the Café, 1893*

# Lightness

Tints of colors are created by adding white to them.



# TEMPERATURE AND MEANING

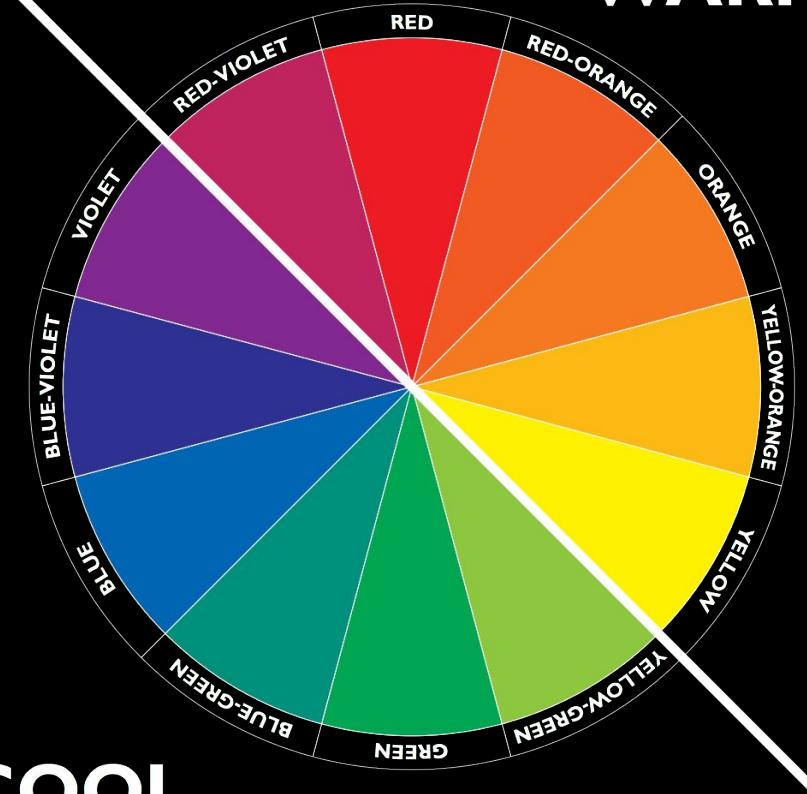
# Warm or cool?

A color's "temperature" is a subjective quality.

Warm colors — reds and oranges — remind us of warm environments, while the cool side of the spectrum — greens and blues, bring to mind cold experiences.

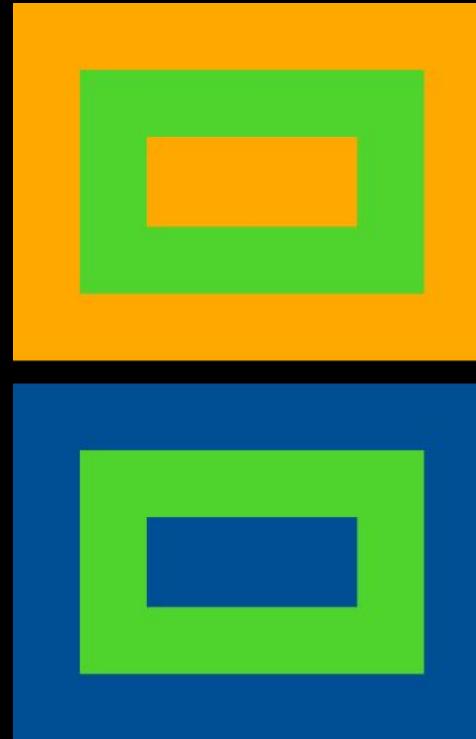
COOL

WARM



## Warm or cool?

Our perception of warm vs. cool can be affected by a color's relativity, or its relationship to nearby colors. For example, a cool green warms up considerably when placed next to a much cooler blue.

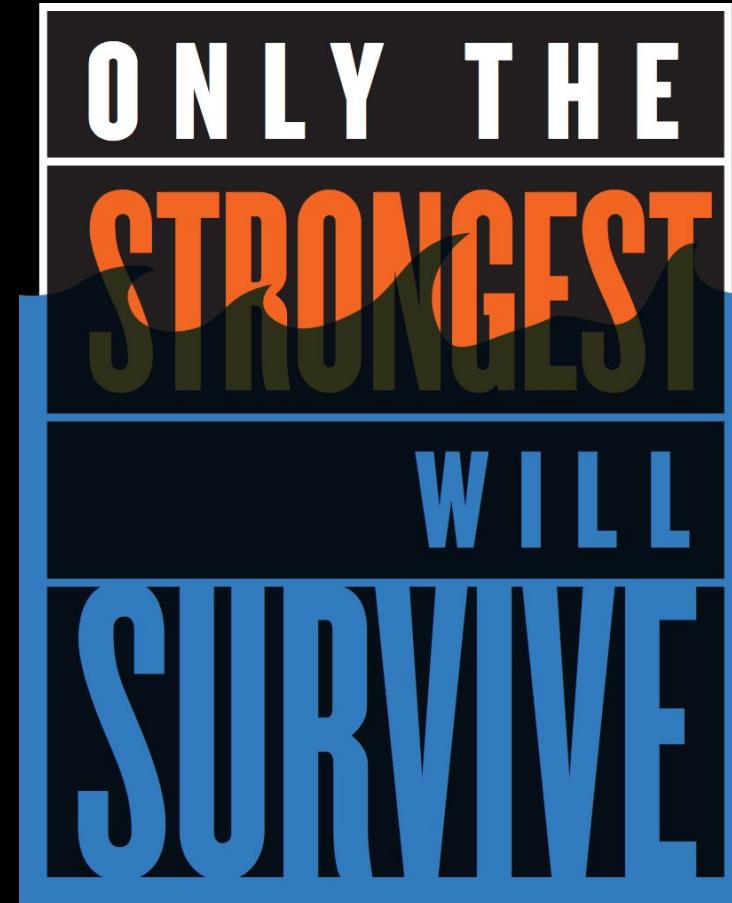


## Warm or cool?

In design, warm colors are aggressive and vivid, and come forward.

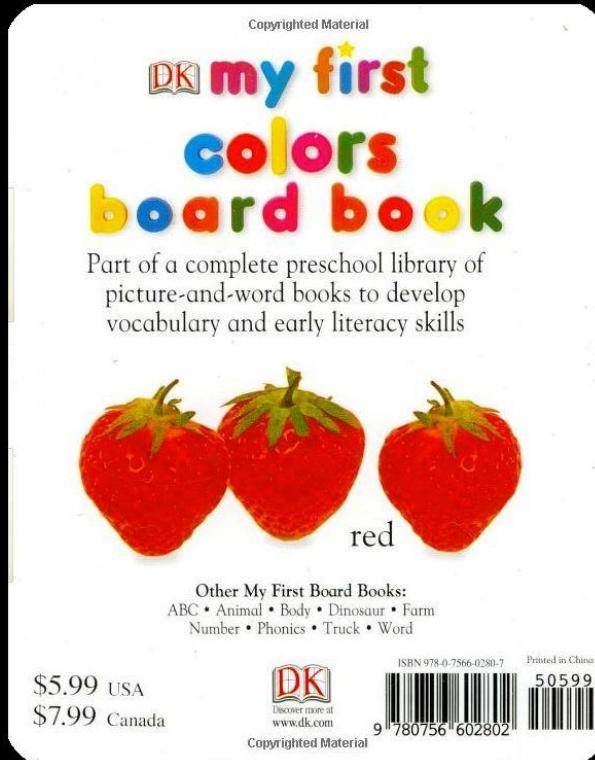
Cooler tones are more passive and recede.

As a designer, you can use this to your advantage.



# What do colors mean?

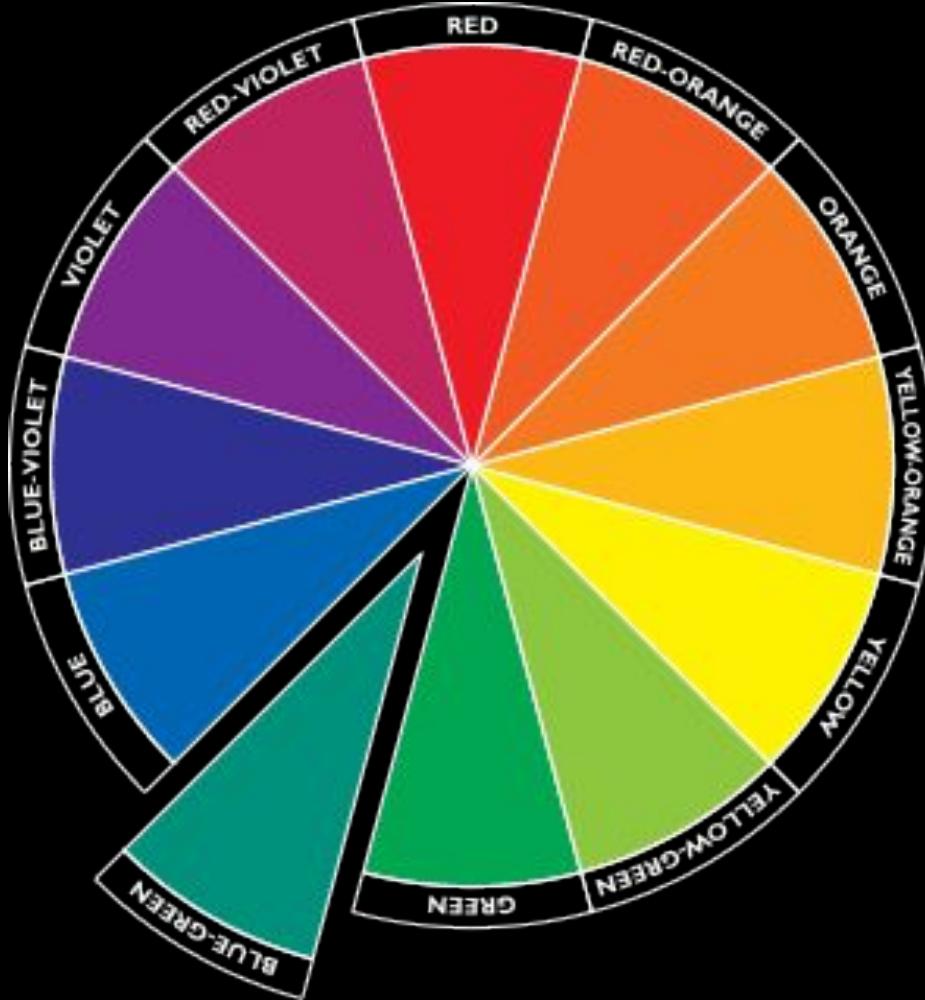
We are conditioned from early life to create associations based on color.



# COLOR SCHEMES

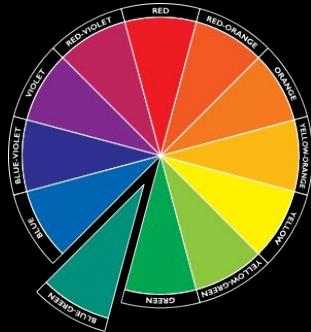
# Combining colors

Creating attractive and harmonious combinations of colors is a skill that one can hone over a lifetime. Here are a few simple methods for beginning to create combinations based on the color wheel.



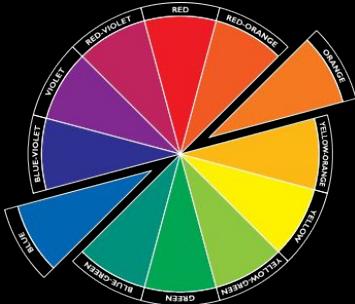
# Combining colors

**Monochromatic** color schemes are created by using various tints or saturations of a single hue.



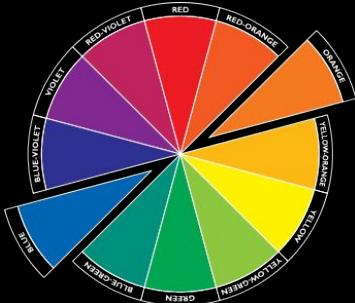
# Combining colors

**Complementary colors** are those that are opposite on the wheel. They might best be used in combination with a black or gray.



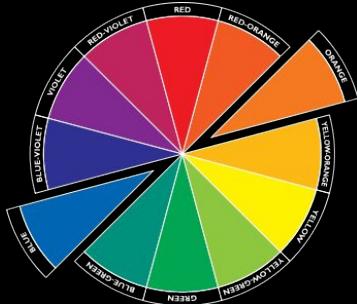
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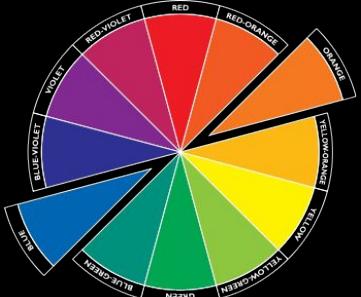
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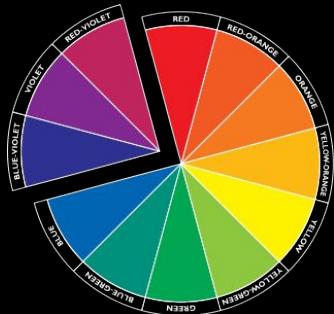
# Combining colors

**Split complements** are created by combining a color with the two colors on either side of its complement.



# Combining colors

**Analogous** palettes are created by using three hues that are next to each other on the color wheel.



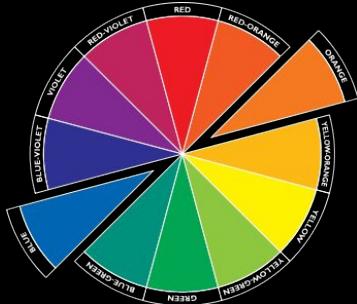
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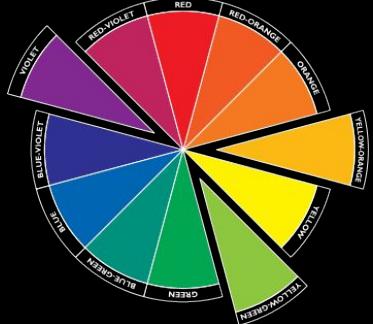
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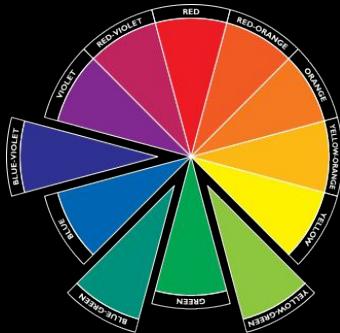
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**Analogous** palettes are created by using three hues that are next to each other on the color wheel.



# Combining colors

A variation of the **analogous scheme** is to use every other color on the wheel to create a palette of three colors.



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A variation of the analogous scheme is to use every other color on the wheel to create a palette of three colors.



„Pfizer“ ir „Lilly“ buvo didžiausios tarp JAV bendrovų, kurios sumokėjo 7 mlrd. JAV dolarų baudą už tai, kad sėlė veisius vartotojus iš pirkimų, kurių nebuvo patvirtinti JAV Maisto ir vaistų administracijos (MVA; angl. „Food and Drugs Administration“). Jos galbūt neteisėti elgsis ir toliau, jeigu prokurorai nenuvarelys vaistų gamintojų į bankrotą.

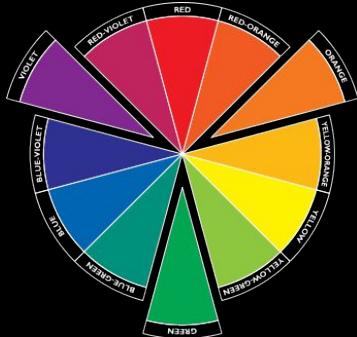
PROKURORAS MICHAELAS LOUCKSAS

gerai prisimena, kaip dirbtuvių pasalynė farmacijos sektoriui buvo imta įtakoti, kai buvo iki karto pusei stalo ir žadys, kad daugiau priatyngų nepaleis. Tai buvo 2001 metai sausį, teisiniškai defizoji federalinio teismo patarant. Beveik dešimt metų po to, kad buvo išteisintas. Cia M. Louckus vadovavo svetainės apangos viršelis meskalinėms padaliniutis. Bylos eame – vienos iš „Pfizer“ padalinių skatinė gydytojus skirti vaistą massi spalvotais rinkiniais, kurių varnoti okaliai arčiai, kurie MVA neaparvartė.

Tiesininkų iuderintame iutiame „Pfizer“ padaliniu „Winnipeg“ dėl dviem ženklinimų. „Pfizer“ sumokėti 450 mln. JAV dolerių baudą, o bendrovės teisinių laidaivų M. Louckui ir kitiems trimis pro-

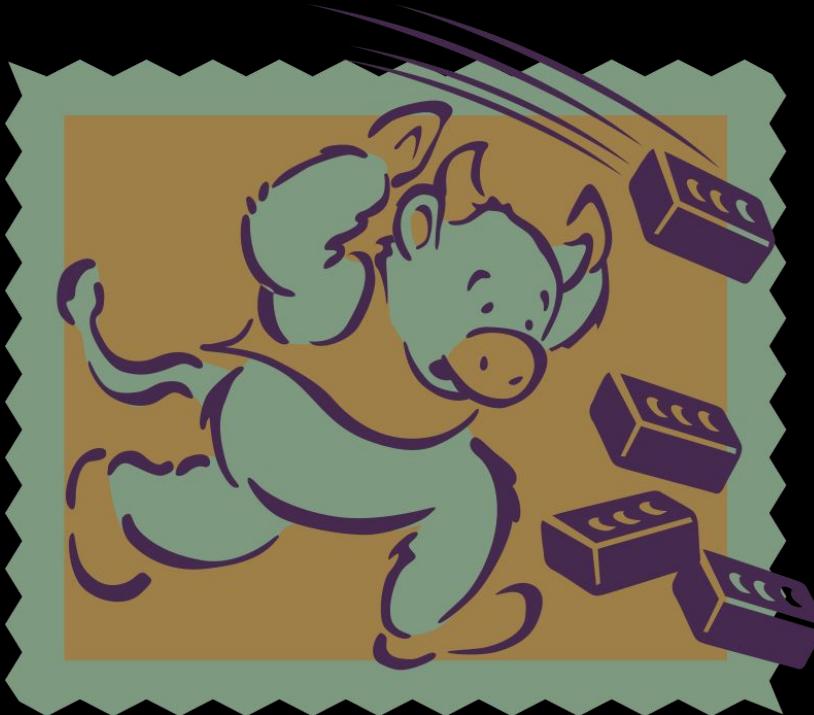
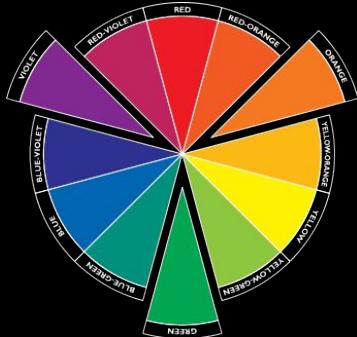
# Combining colors

**Triads** are any three equally spaced colors on the wheel. Here, variations in value and saturation are often necessary to create adequate contrast (and a more sophisticated palette).



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# My method

Building color schemes can be very helpful. I usually start by looking for inspiration in the work of others.

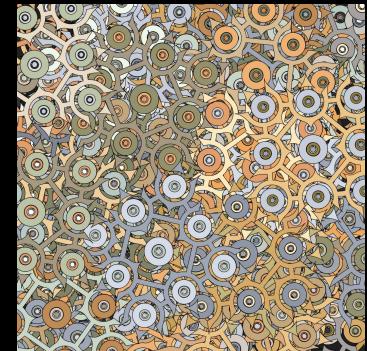
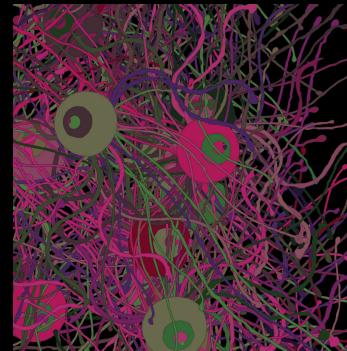
My suggestion - make a [Pinterest](#) account and build a mood board for the project you're working on.

Pin images that have interesting color schemes or designs that you want to capture in your own work, and refer to them.

As a fledgling designer, this approach will quickly give you insight as to how other designers work.



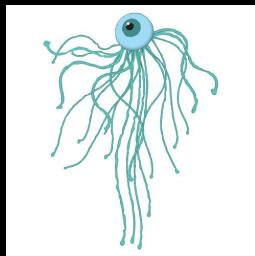
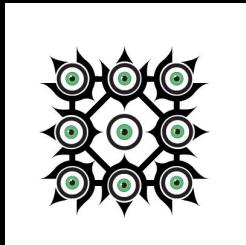
# Application — Generative Art



# Process

Ai

## I. Static assets



## 2. Color Scheme



B3

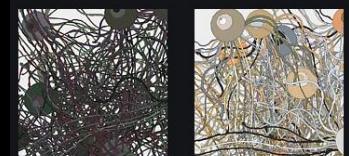
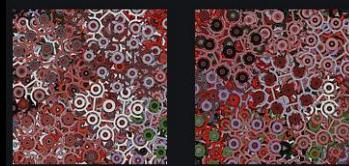
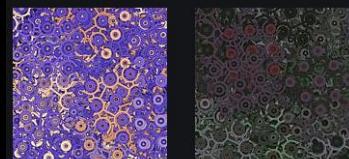
## 3. Code

```
//Complementary
HColorPool comp = new HColorPool("#EEBAA0", "#E1A1A1");
//Birdy Nam Nam
HColorPool bnam = new HColorPool("#6D5B42", "#686868");

HColorPool c = circus;

for (int i = 0; i < 120; i++) {
    HShape d = new HShape("tentac.svg");
    H.add(d)
    .strokeWidth(0.15)
    .stroke("#222222")
    .noFill()
    .anchorAt(H.CENTER)
    // .loc(random(width/2 - 300, width/2 + 300),
    .loc[random(width), random(height)]
    .rotation(random(360))
    // .scale(random(2, 2.5));
    .scale(random(0.75, 1.5));
    d.randomColors(c.fillOnly());
}
```

## 4. Iterate



# My albums:

<https://imgur.com/a/MMKIM/layout/grid>

<https://imgur.com/a/gJWh9/layout/grid>

<https://imgur.com/a/hUOgX/layout/grid>

# CSS Color Values



# CSS Color Values

- Named CSS values
- rgb
- hsl
- hex values
- alpha values (opacity)
  - rgba
  - hsla

# Named CSS Colors

Color Name	Color
<u>AliceBlue</u>	
<u>AntiqueWhite</u>	
<u>Aqua</u>	
<u>Aquamarine</u>	
<u>Azure</u>	
<u>Beige</u>	
<u>Bisque</u>	
<u>Black</u>	
<u>BlanchedAlmond</u>	
<u>Blue</u>	
<u>BlueViolet</u>	
<u>Brown</u>	

# Named CSS Colors

```
<h1 style="background-color:Tomato;">Tomato</h1>
<h1 style="background-color:Orange;">Orange</h1>
<h1 style="background-color:DodgerBlue;">DodgerBlue</h1>
```

**Tomato**

**Orange**

**DodgerBlue**



# rgb value

In HTML, a color can be specified as an RGB value, using this formula:

*rgb(red, green, blue)*

Each parameter (red, green, and blue) defines the intensity of the color between 0 and 255.

For example, `rgb(255, 0, 0)` is displayed as red, because red is set to its highest value (255) and the others are set to 0.

# rgb values

`rgb(255, 0, 0)`

`rgb(0, 0, 255)`

`rgb(60, 179, 113)`

`rgb(238, 130, 238)`

`rgb(255, 165, 0)`

`rgb(106, 90, 205)`



# HSL value

In HTML, a color can be specified using hue, saturation, and lightness (HSL) in the form:

*hsl(hue, saturation, lightness)*

**Hue** is a degree on the color wheel from 0 to 360. 0 is red, 120 is green, and 240 is blue.

**Saturation** is a percentage value, 0% means a shade of gray, and 100% is the full color.

**Lightness** is also a percentage, 0% is black, 50% is neither light or dark, 100% is white

# HSL value

`hsl(0, 100%, 50%)`

`hsl(240, 100%, 50%)`

`hsl(147, 50%, 47%)`

`hsl(300, 76%, 72%)`

`hsl(39, 100%, 50%)`

`hsl(248, 53%, 58%)`

# hex value

In HTML, a color can be specified using a hexadecimal value in the form:

#**rrggbb**

Where **rr** (red), **gg** (green) and **bb** (blue) are hexadecimal values between 00 and ff (same as decimal 0-255).

For example, #ff0000 is displayed as red, because red is set to its highest value (ff) and the others are set to the lowest value (00).

# hex value

#ff0000

#0000ff

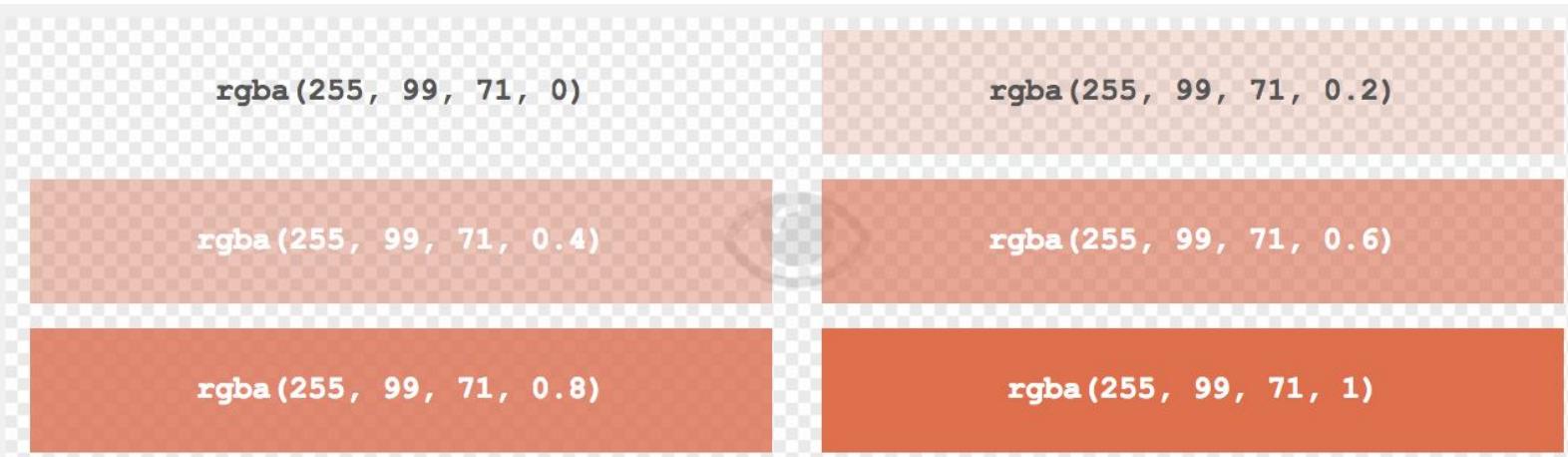
#3cb371

#ee82ee

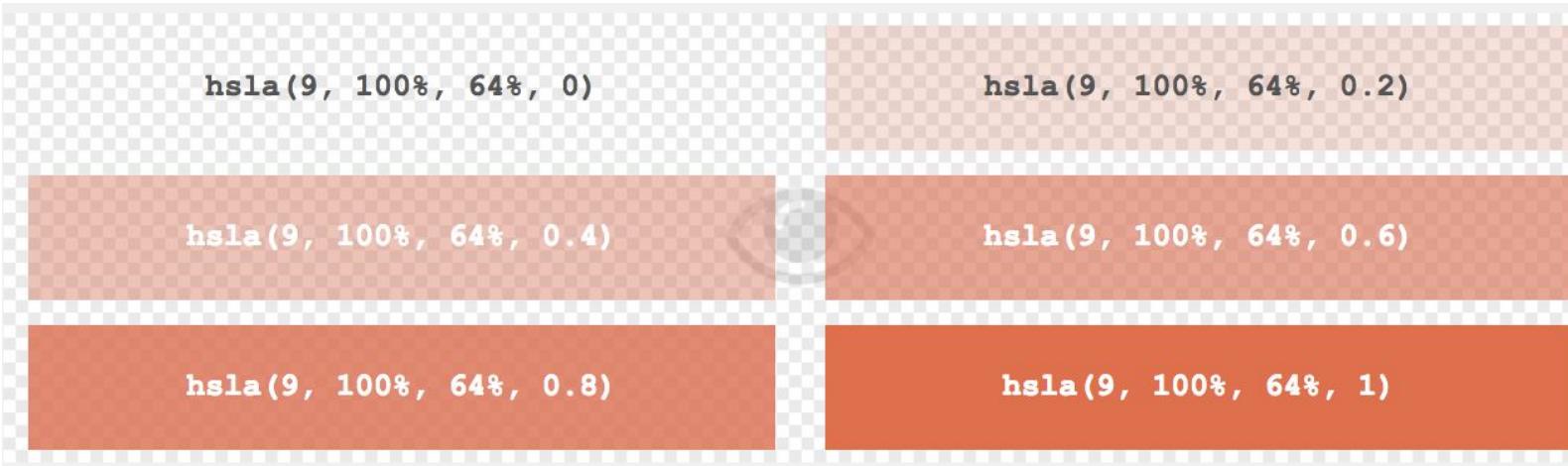
#ffa500

#6a5acd

# opacity—rgba()



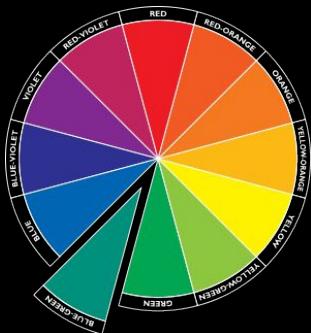
# opacity— hsla()



# Practice: Building Color Schemes

Download [7.1-color.zip](#)

Monochromatic



Analogous



Complementary



# Color Tools

I recommend these resources:

- <https://color.adobe.com/create/color-wheel/>
- <https://pigment.shapefactory.co/>
- <https://colors.co/browser/>
- [https://colorhunt.co/?ref=dribbble&shot=search\\_feature](https://colorhunt.co/?ref=dribbble&shot=search_feature)
- <https://mycolor.space/>
- <https://uigradients.com/>