

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.

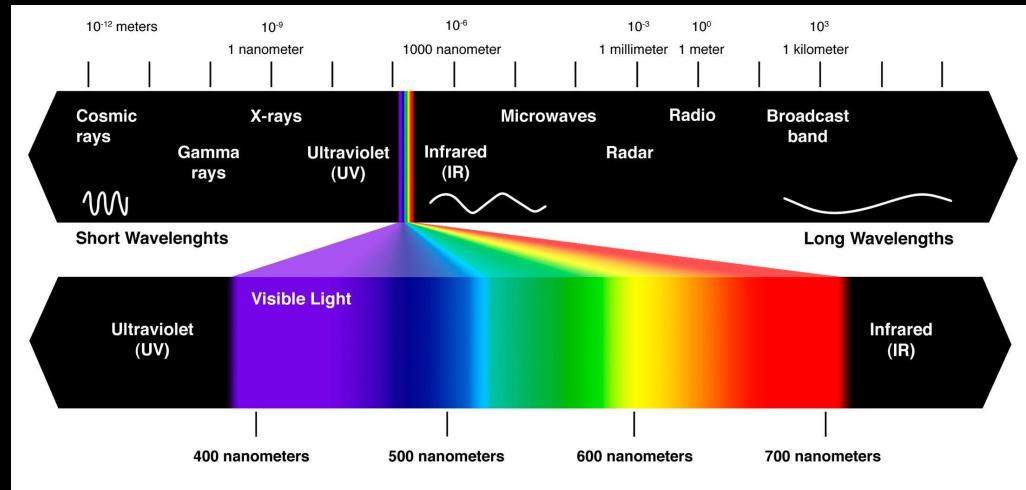
What is color?

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

1. hue
2. saturation
3. lightness

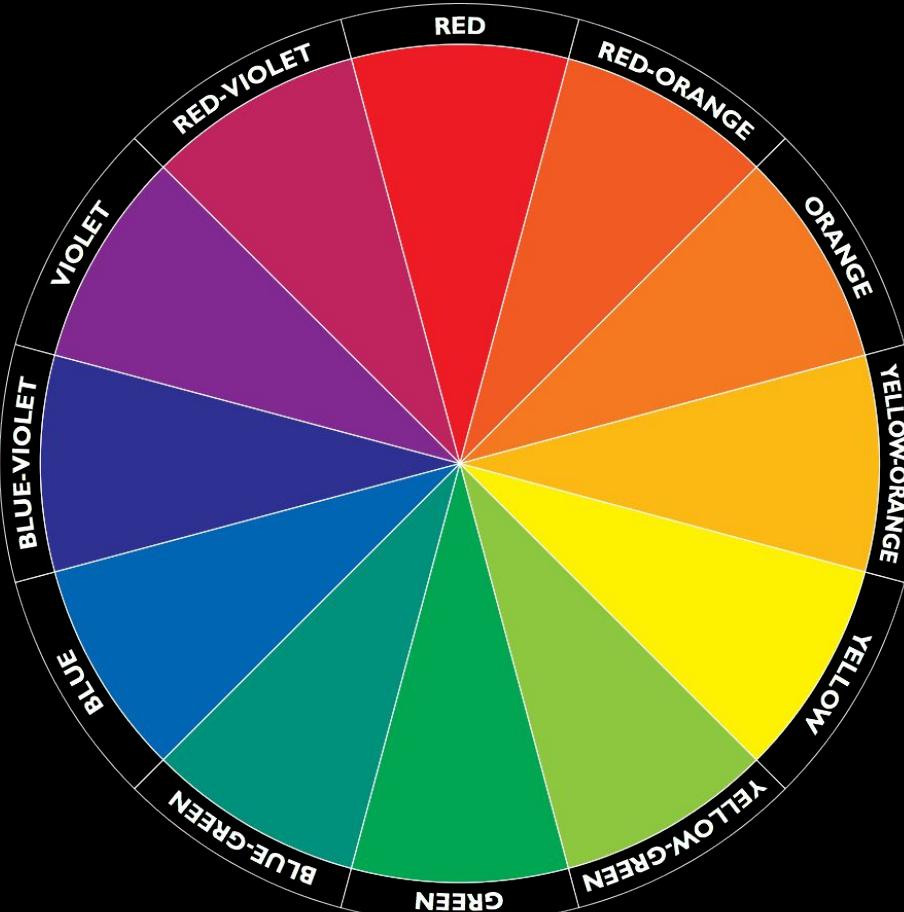
Hue

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.



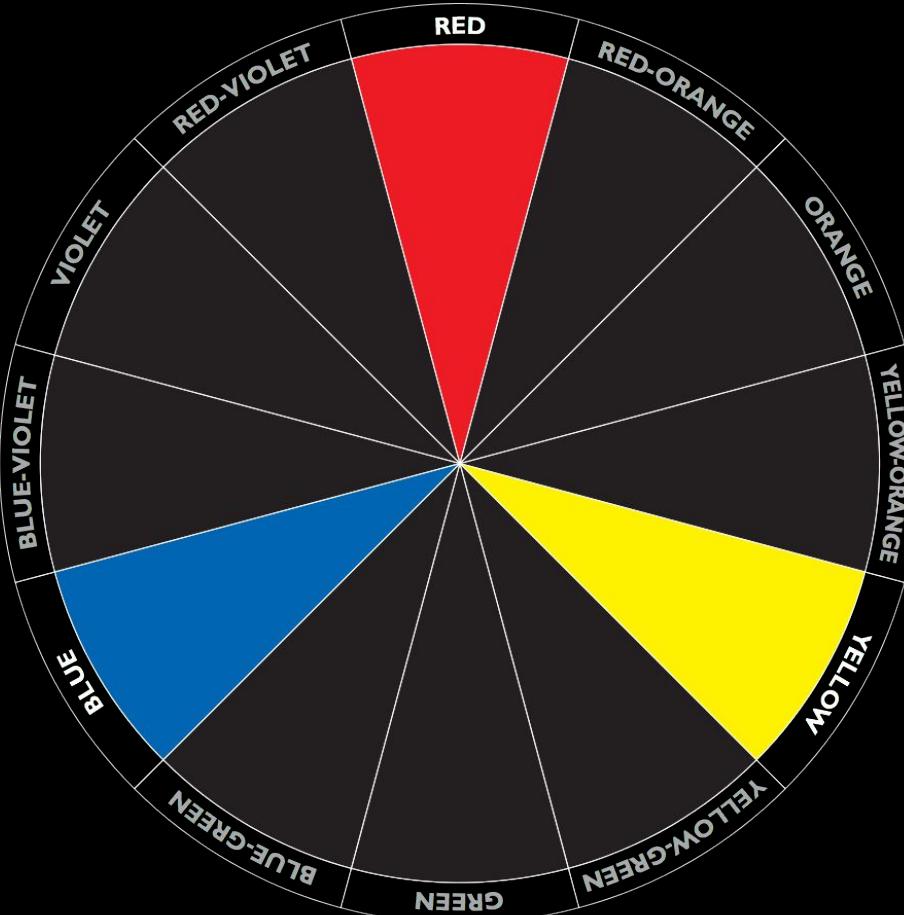
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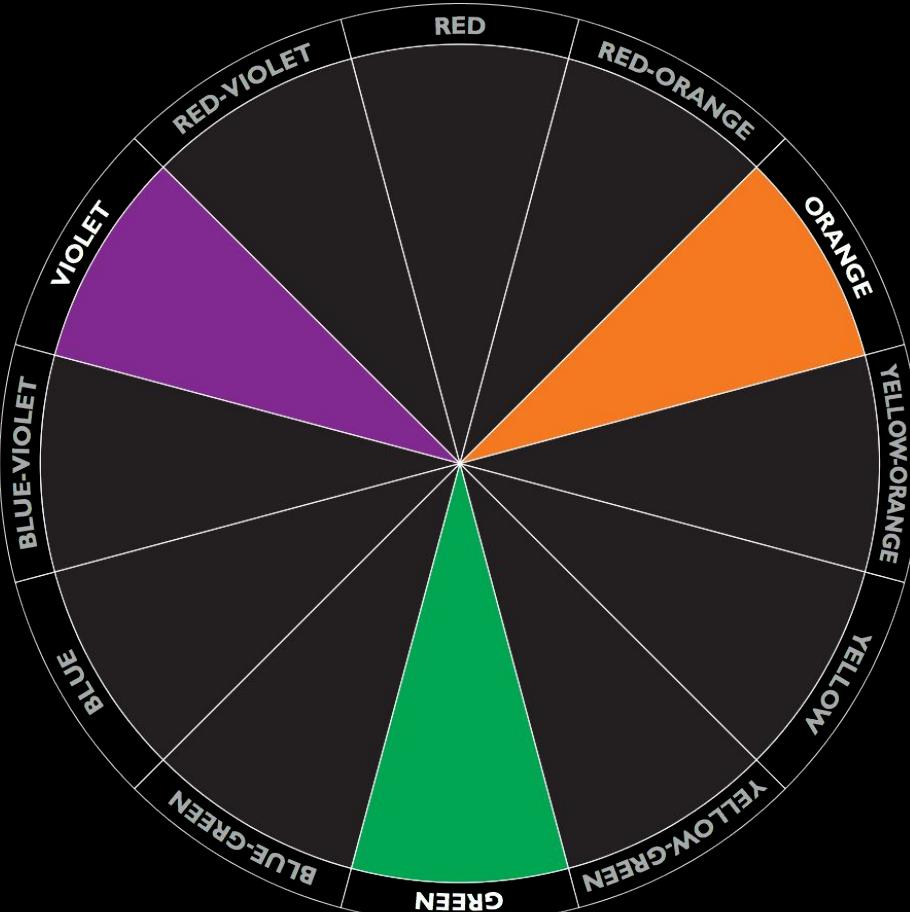
Hue

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.



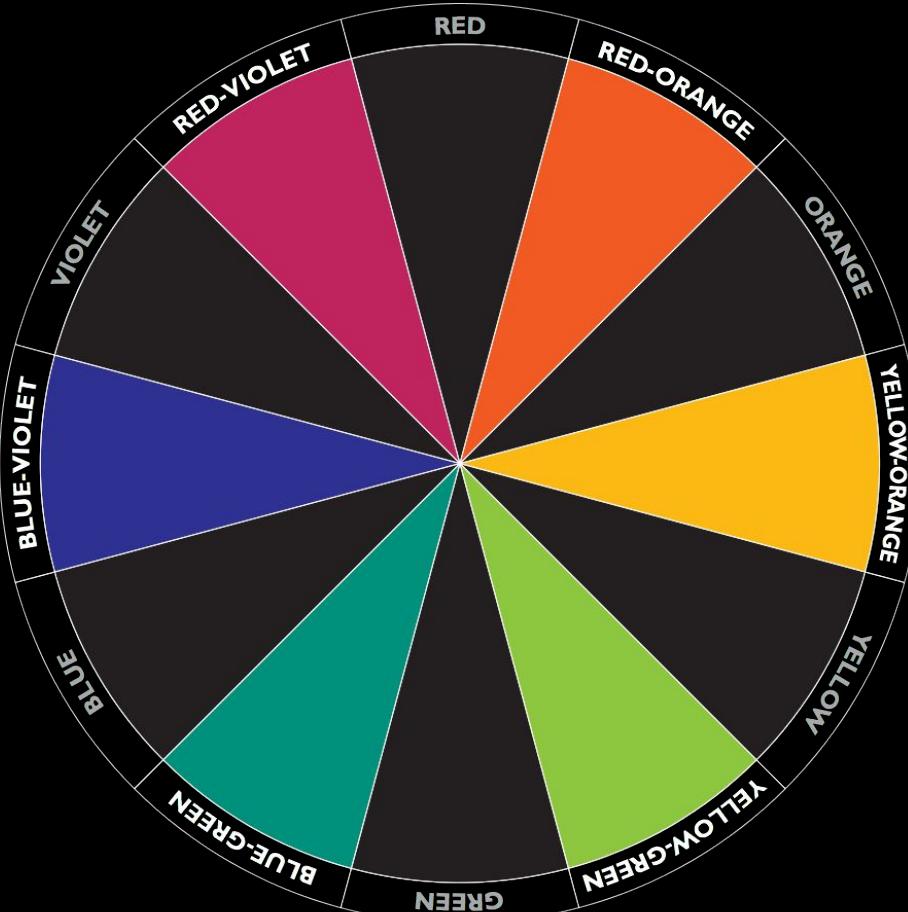
Hue

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



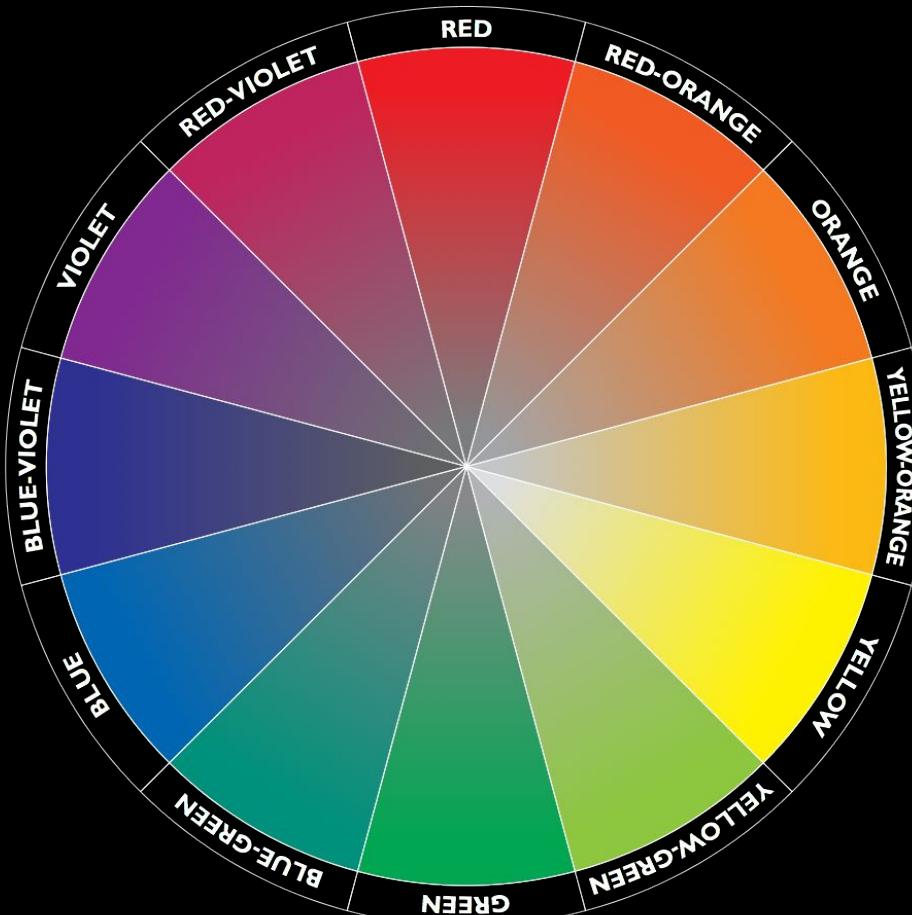
Hue

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



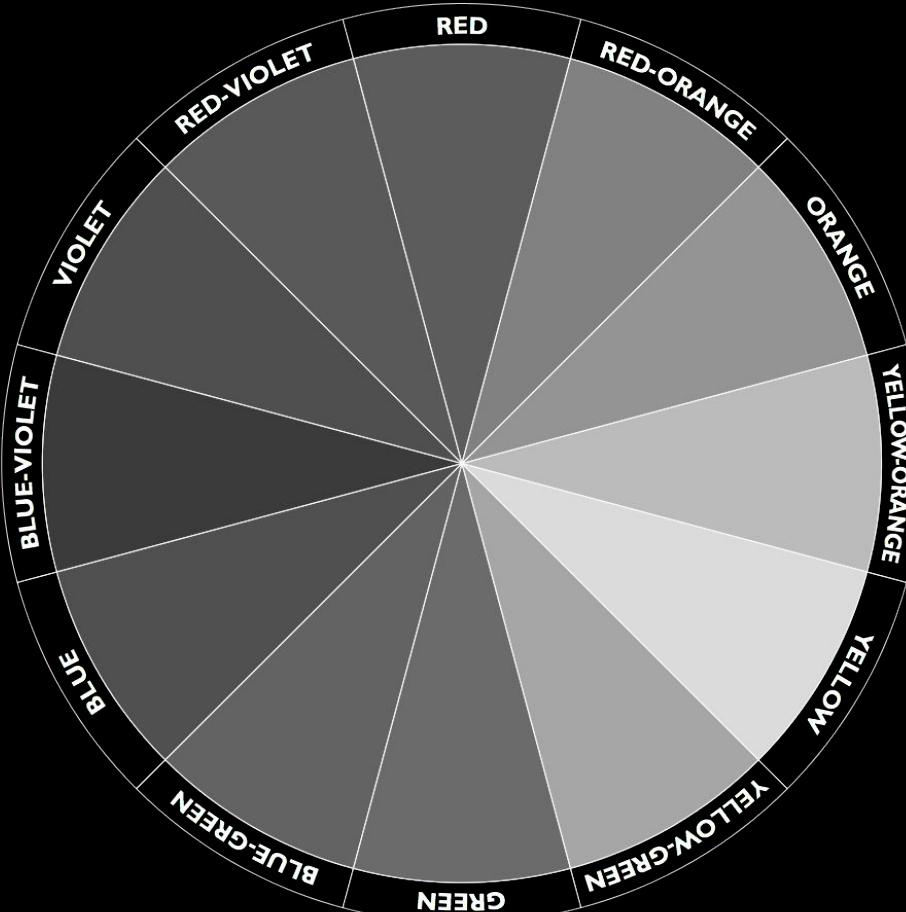
Saturation

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

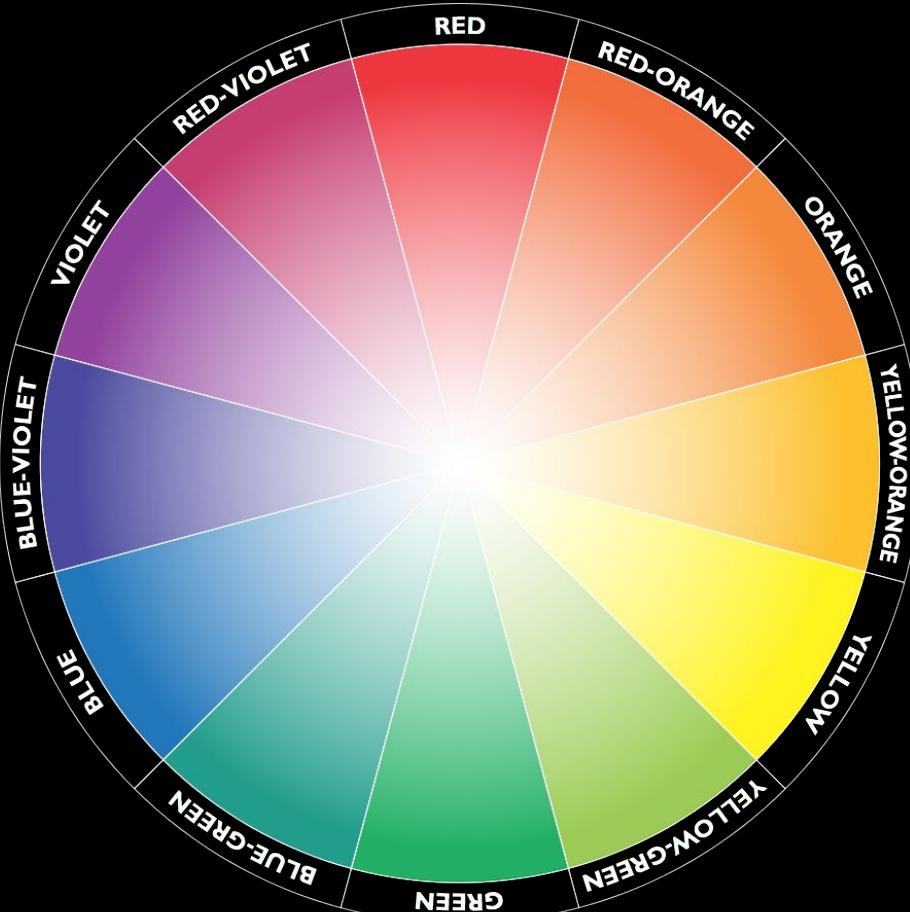
In this image, the colors are heavily saturated: vivid, lurid and electric. But in this version, the image is completely desaturated, removing all chromatic qualities. What remains is an illustration of how *value* creates the image.



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

Lightness

Tints of colors are created by adding white to them.



TEMPERATURE AND MEANING

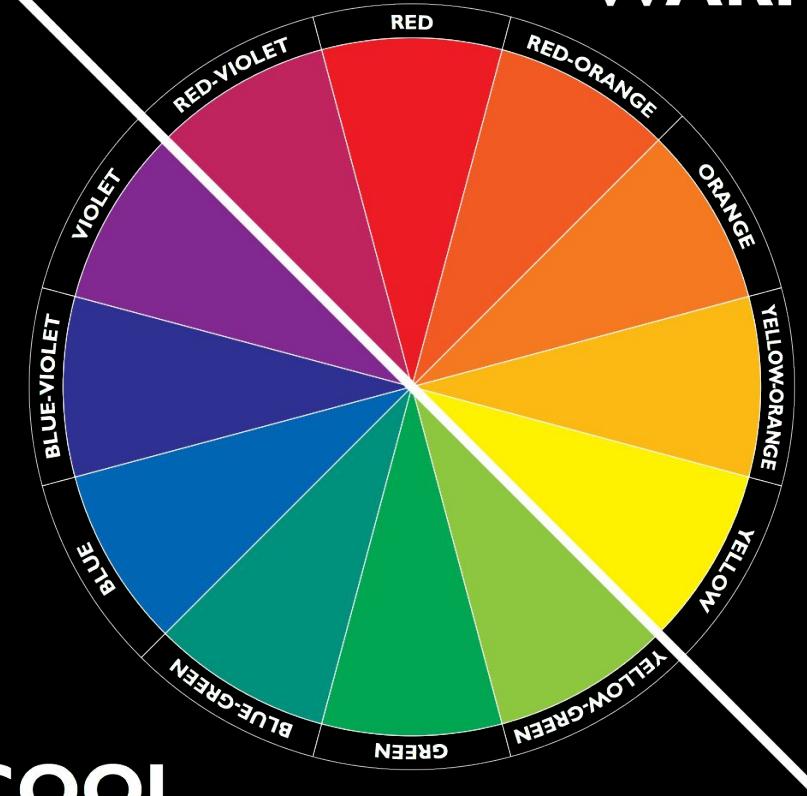
Warm or cool?

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.

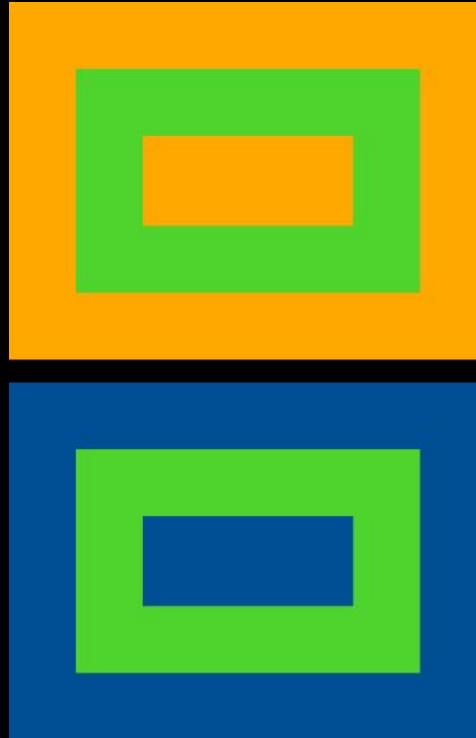
COOL

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.

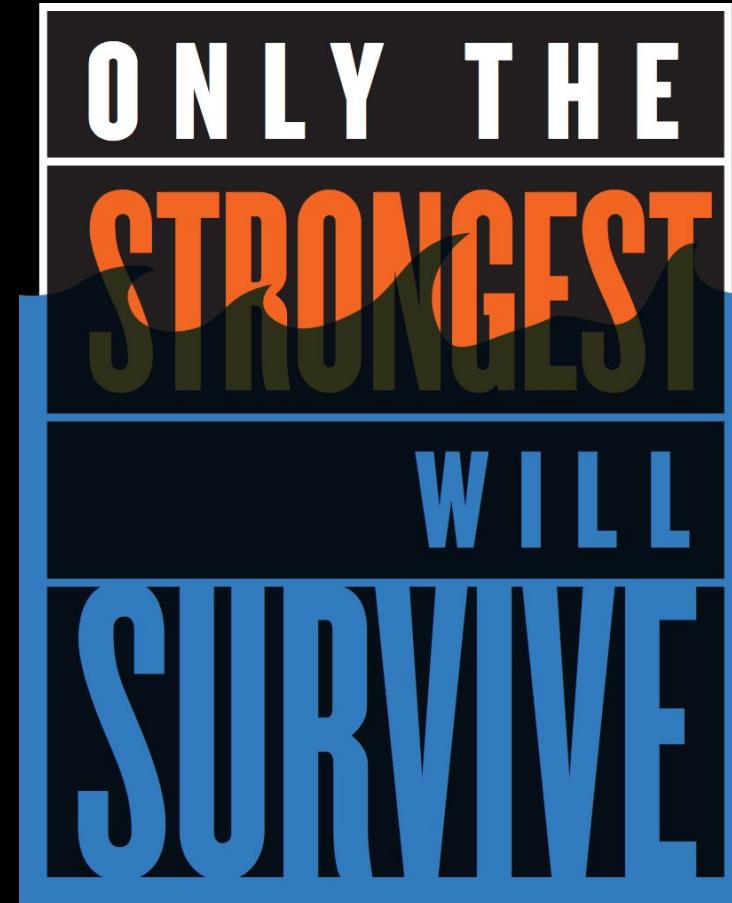


Warm or cool?

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

Cooler tones are more passive and recede.

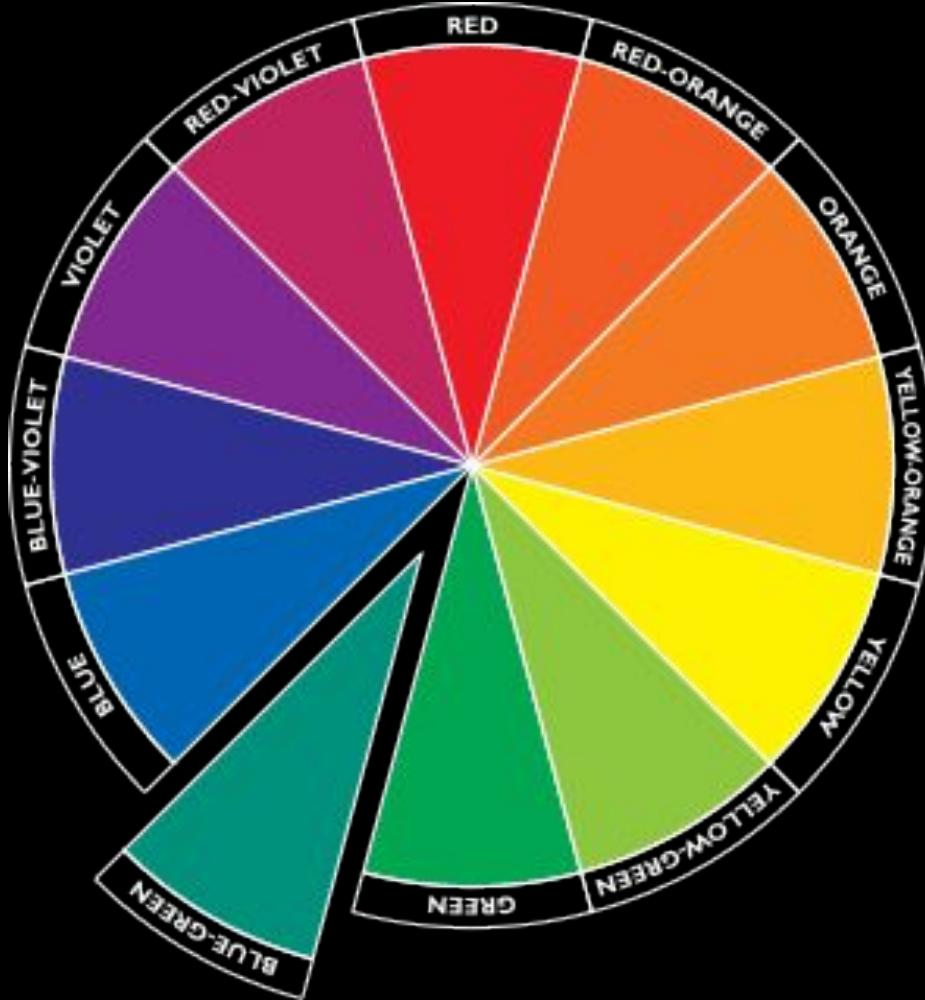
As a designer, you can use this to your advantage.



COLOR SCHEMES

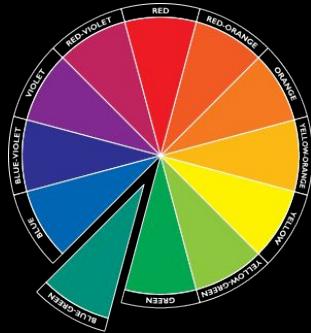
Combining colors

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.



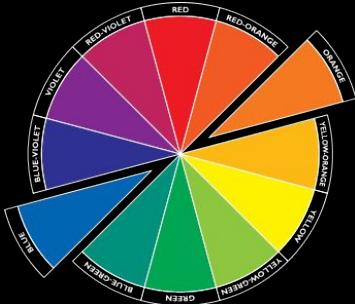
Combining colors

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



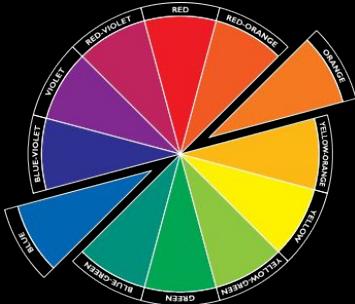
Combining colors

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



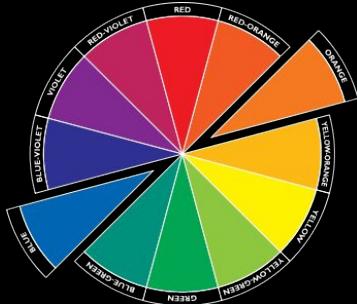
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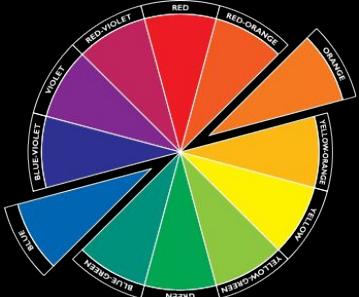
Combining colors

Complementary colors are those that are opposite on the wheel. Often, you'll have to adjust the tints of complements so they don't blend together.



Combining colors

Complementary colors are those that are opposite on the wheel. Often, you'll have to adjust the tints of complements so they don't blend together.



■ technologijos

LIUTAURO LEŠINSKAS

MIELASIS INTERNETO BAUBAS

Rūduo. Per vasarą išsiatostogavę vaikai sukičia nosis ne tik į vadovelius, bet ir į internetą. O ten, beje, jų gall laukti ir ne visai maloniu stagimenu. Pedofilai, patylos, diskriminacija, sokiujantys valdai, lengvatiukų pinigus ir kredito kortelių duomenis medžiolyjantis sukūčiai... Bet ar tikrai sunku išvengti liūdūn padarinių?

50 VERSLO KLASĖ VERSLO ZINIOS 2010 SPALIS

KARTA. NETYČIA ATSIVERĘ SAVO VAIKO NARŠYMO internete istoriją ar pamatę kokią „Skyper“ pokalbio išklotinę, galite tiesiog pakraupti iš sėaučio ir kokiuose tikslinklapiose nepabuvota, o tiktais tėvus, seka, naikintuvus.

Tarp buro ir šio straipsnio autorui, Tačiau prabego keleti metai – o vėlais nei narkomanu tapo, nei pedofiliams į nagsi pakuviuo. Vienintelis nemalonumas – gudras virusas, kuris apsimetra antivirusine programa prasiskleidžia sistemoje. Vienintelis per kokius 5 metus buvo kompiuteris.

Tarp specialistų nemenudė internetas iš tiesų pilnus pavojų, ypač – vaikams, nepilnametiams, žedžiun, toms šalia mygtų esančiomis ašmenybėmis, kurios dar ne visada atskiria gerą iš blogo, ne visada gali pasistemti į žmogaus organizmą ir kilti griežtai nesaversčia. Tuo pate austrijuotame studijos tyrime meninės meditacijos pasaulioje vyksta įvairios aktyvos, skirtingos vaidkių ir ių tėvųčių ūkėjimai. Lietuvos jau nebe pirmus metus minime tarptautinę saugosios interneto dieną ir t.

Visi saugaus naudojimuisi internetu patarejai iš esmės stilo vienai ir tą patį – kelias esminės rekomendacijos, kaip išsigelbėti nuo atvejų (jų išvardindomis tie atitinkamai). Rekomendacijos geriai ir reikiingos. Tačiau gana greitai senstantis ir beveries, jei prire jų prietinkama nerengins už kelios.

Sudėti, virtutuose
Virtuali interneto diena. Virtualus bendrovės internet. Virtualus pokalbiai, konferencijos, palynos internete ir t. t. – tai dar galėjoje vadinti priei 15, gal dar priei 5 metus. Dabar tai jau anotikas virtualybė, internetas tapo lygaverte informacijos ir bendravimo terpe. Pokalbių telefonai juk nebendriname virtualiu bėgimu. Internetas, kuriamas išvystant tampanos savimi, iš tiesų gatauose kai kurios iš ankstokiai amžinimis, daugiau ar mažiau samorangių suvokiančiais save teises, pareigas ir ataskomybes.

Valkartai labiau suvokti – jei neprisimena už metų, kai nesenai atrastas internetas buvo didelis informacijos šaltiniu, kuriamas bet kas anotinėmis išskirtinėmis savybėmis. Internetas buvo didelis skelbimų lenta, kurioje priėja gali pėriaiškinti. Tačiau ankstesnių rojų prieigos nebuvavo apivietos – galėjai išišerti iš tamos ir vel joje pasilepti, o dabar jau kasdien tampa vis išviesiau ir išviesiau.

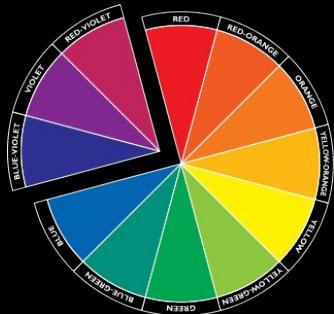
Combining colors

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.



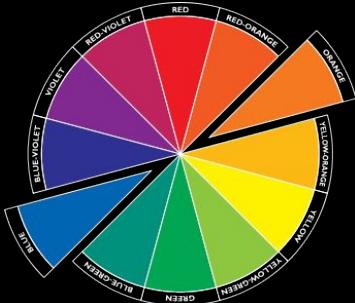
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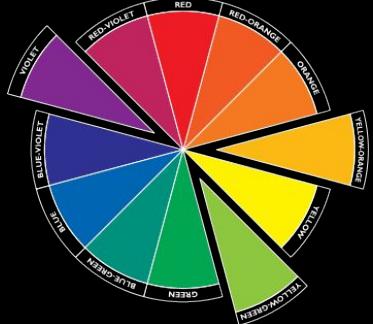
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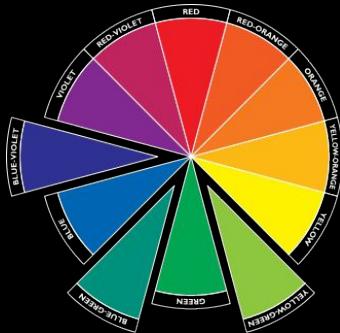
Combining colors

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.



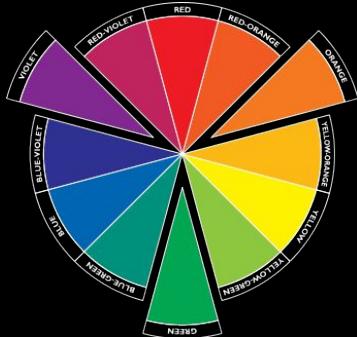
Combining colors

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



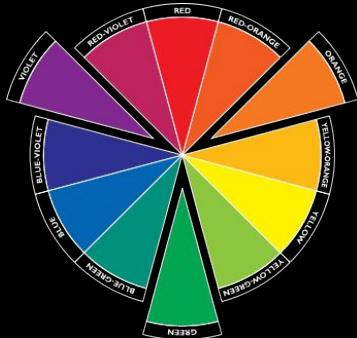
Combining colors

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).



Combining colors

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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.

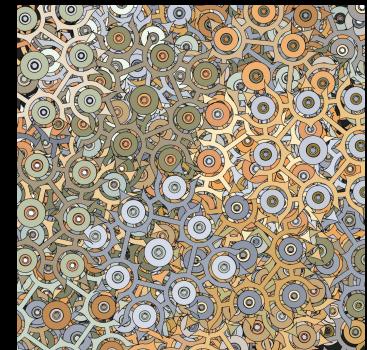
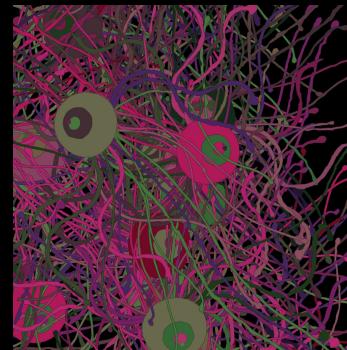
My suggestion - make a [Pinterest](#) account and build a mood board for the project you're working on.

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.



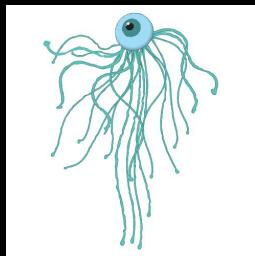
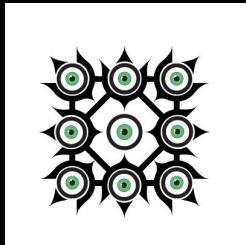
Application — Generative Art



Process

Ai

I. Static assets



2. Color Scheme



B3

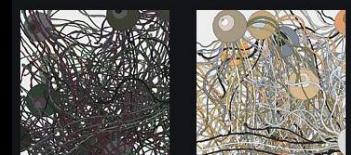
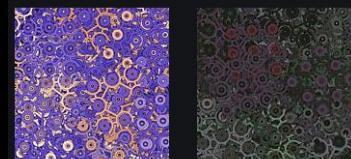
3. Code

```
//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

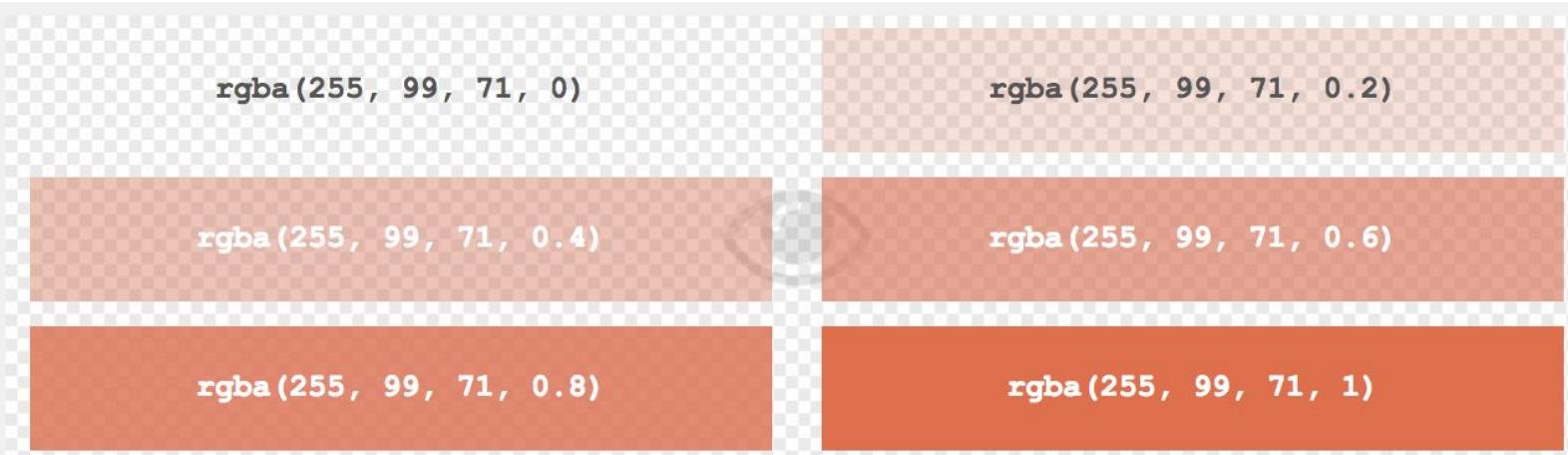
#3cb371

#ee82ee

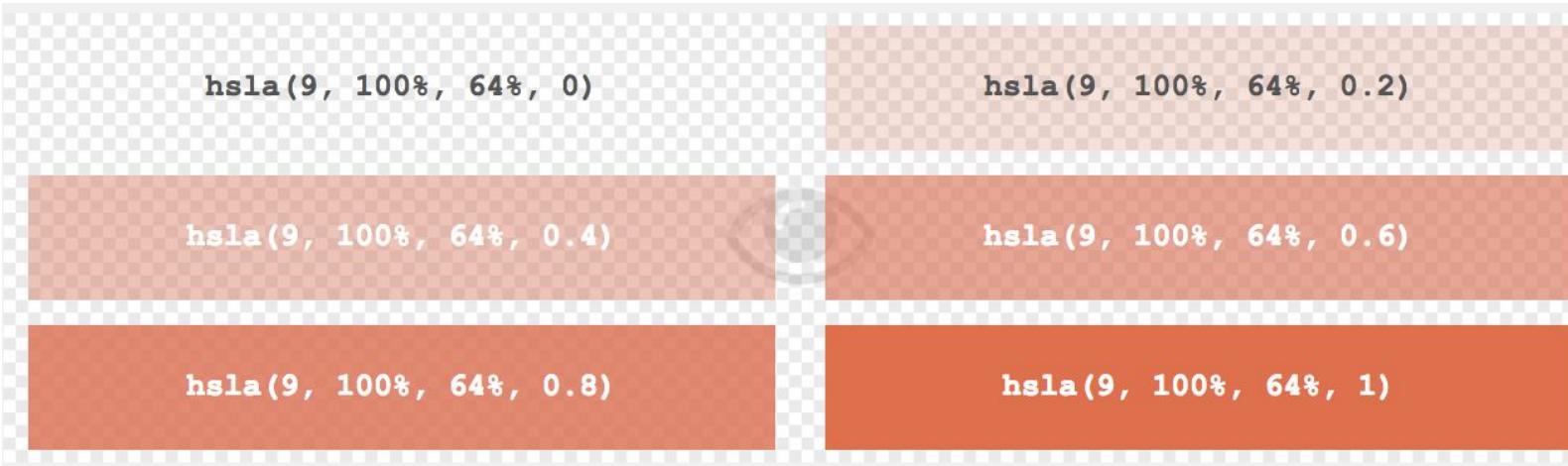
#ffa500

#6a5acd

opacity—rgba()



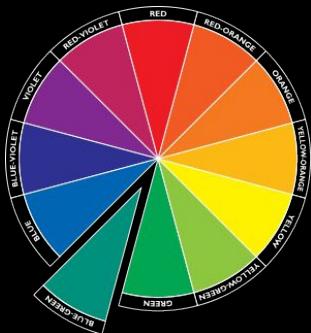
opacity— hsla()



Practice: Building Color Schemes

Download [7.1-color.zip](#)

Monochromatic



Analogous



Complementary

