Hue values (0-255)

```
import numpy as np
a=[32,64,96,128,160,192,224,255]
np.random.choice(a=a,size=1)
```

 $256/12 \text{ colors} = 21.333 \approx 21$ 360/12 = 30

RED #FF0000 (255,0,0) Hue: 0 (0°) Sat = 255 Lum = 128

Orange #FF8000 (255,128,0) Hue: 21 Sat = 255 Lum = 128 YELLOW #FFFF00 (255,255,0) Hue: 42 Sat = 255 Lum = 128

chartreuse #80FF00 (128,255,0) Hue:64 Sat = 255 Lum = 128

GREEN #00FF00 (0,255,0) Hue: 85 Sat = 255 Lum = 128 SPRING GREEN #00FF80 (0,255,128) Hue: 106 Sat = 255 Lum = 128

CYAN/Aqua #00FFFF (0,255,255) Hue: 127 (180°) Sat = 255 Lum = 128

AZURE #0000FF (0,128,255) Hue: 149 Sat = 255 Lum = 128

BLUE #0000FF (0,0,255) Hue: 170 Sat = 255 Lum = 128 Violet #8000FF (128,0,255) Hue: 191 Sat = 255 Lum = 128 MAGENTA/Fuc shia #FF00FF (255,0,255) Hue: 213 Sat = 255 Lum = 128

Rose #FF0080 (255,0,128) Hue: 234 Sat = 255 Lum = 128

https://colordesigner.io/color-mixer

https://www.w3schools.com/colors/colors_wheels.asp

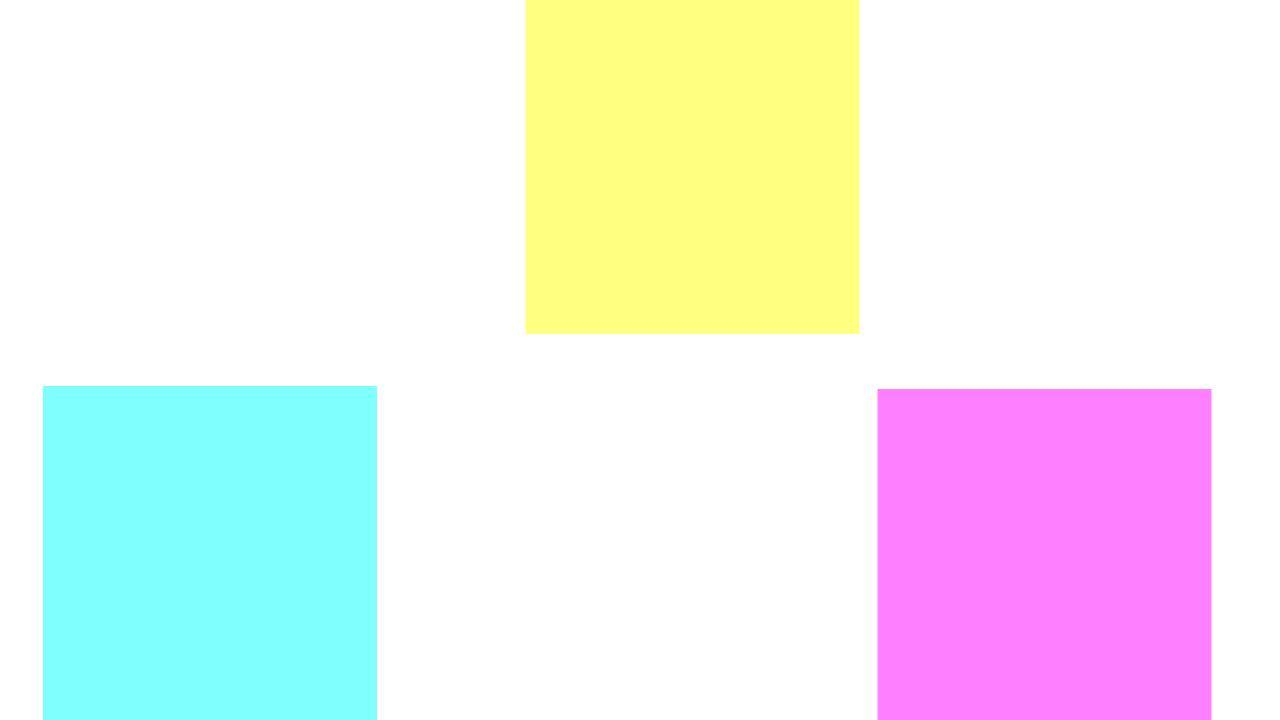
https://combinecolors.com/rgb-color-blender

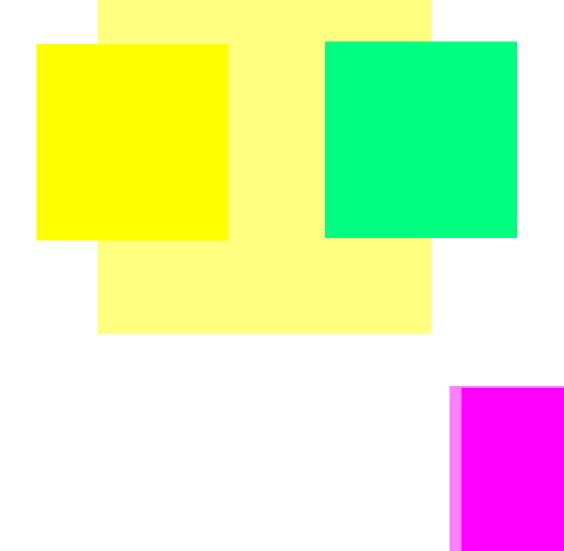
https://pinetools.com/blend-colors

Color names

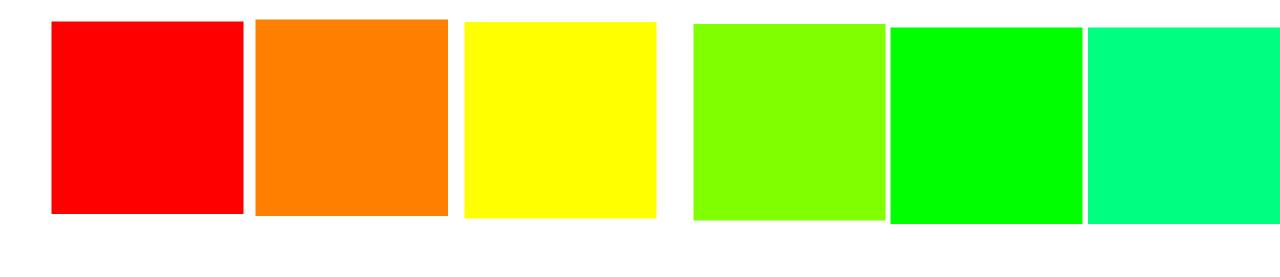
(255, 255, 128) Canary #FFFF80 Hue:60°

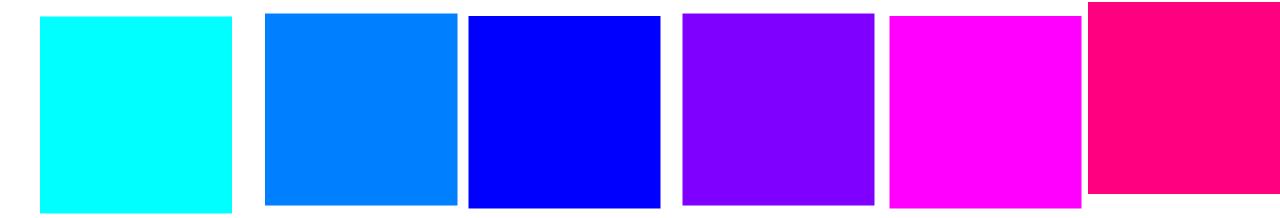
(128, 255, 255) Electric Blue #80FFFF Hue = 180° (255, 128, 255)
Fuchsia Pink
#FF80FF
Hue = 300°

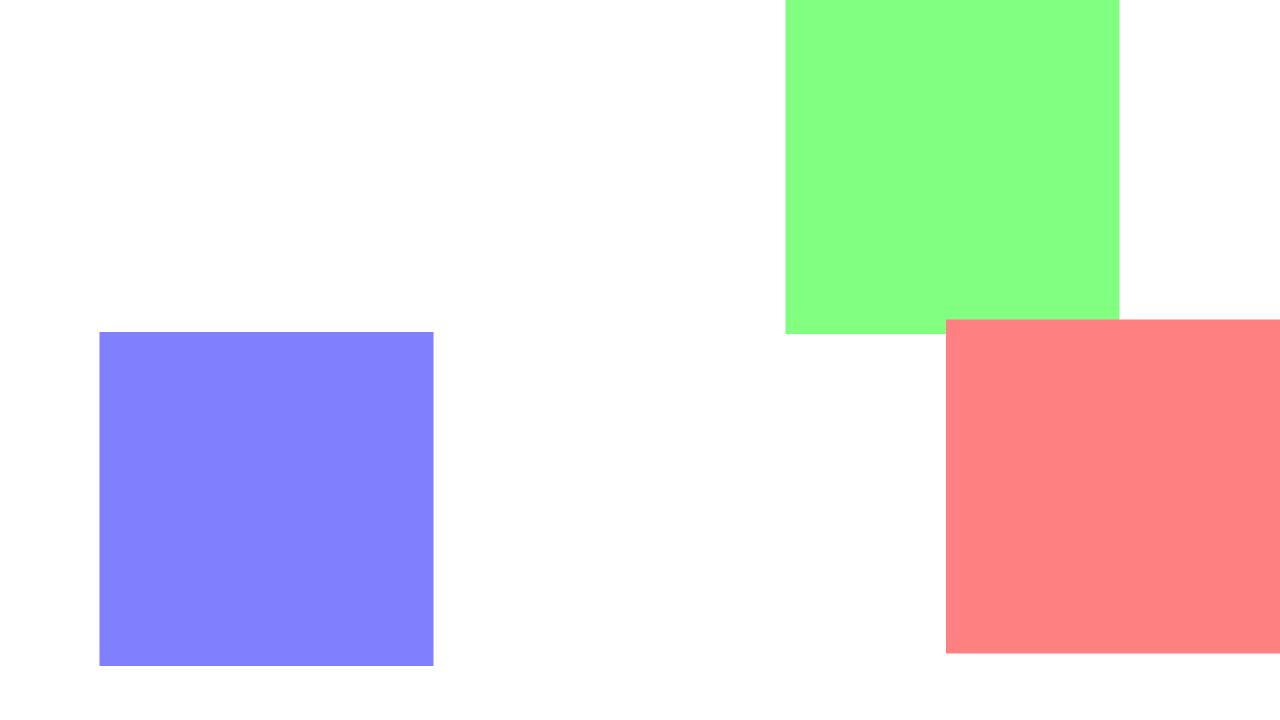


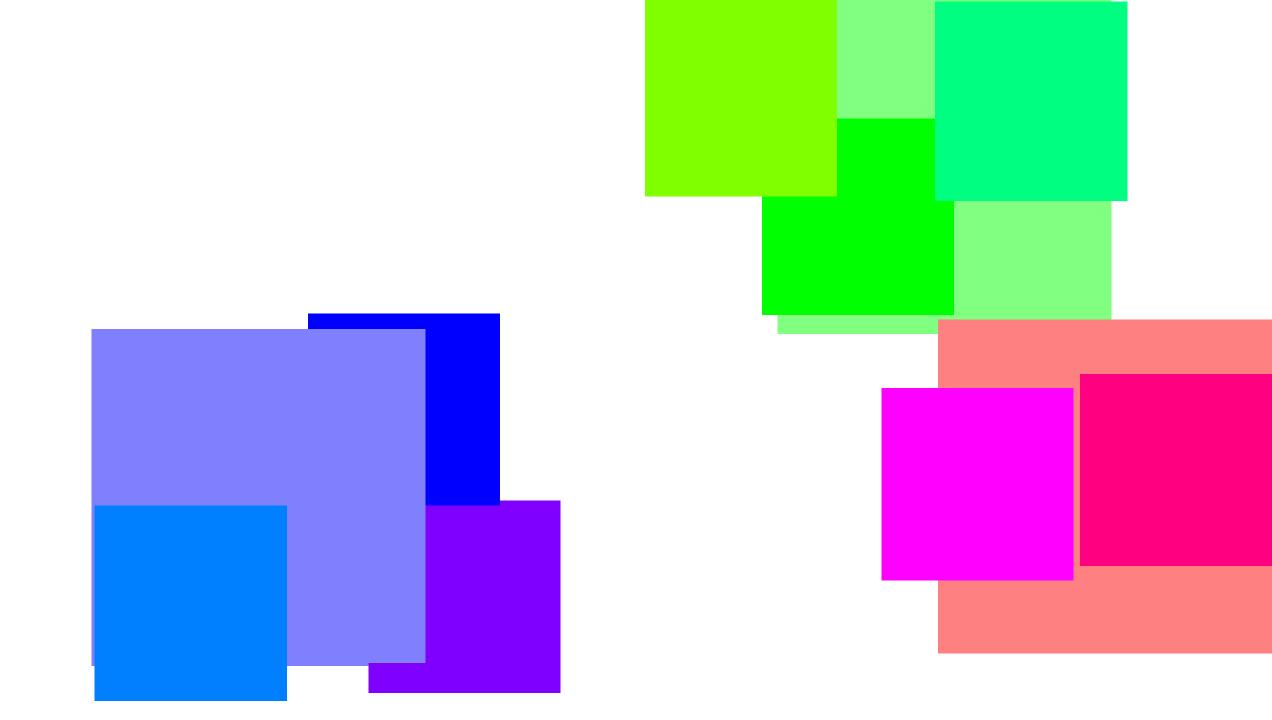


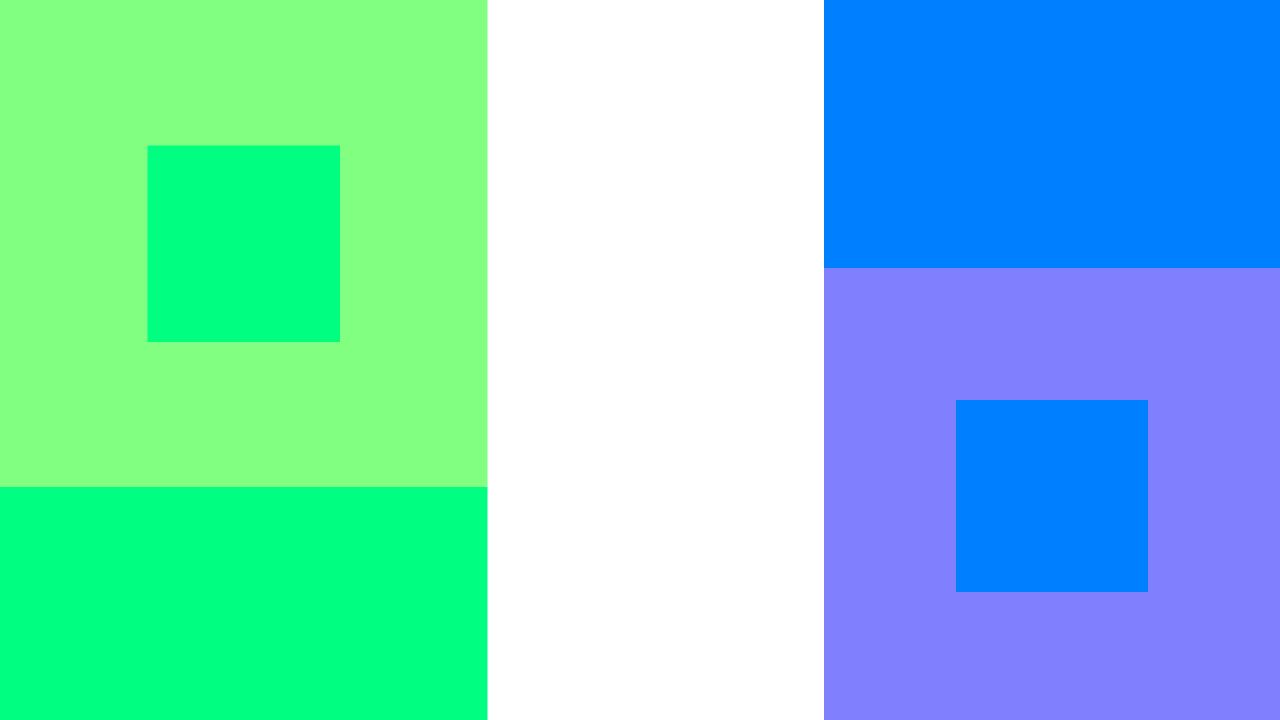






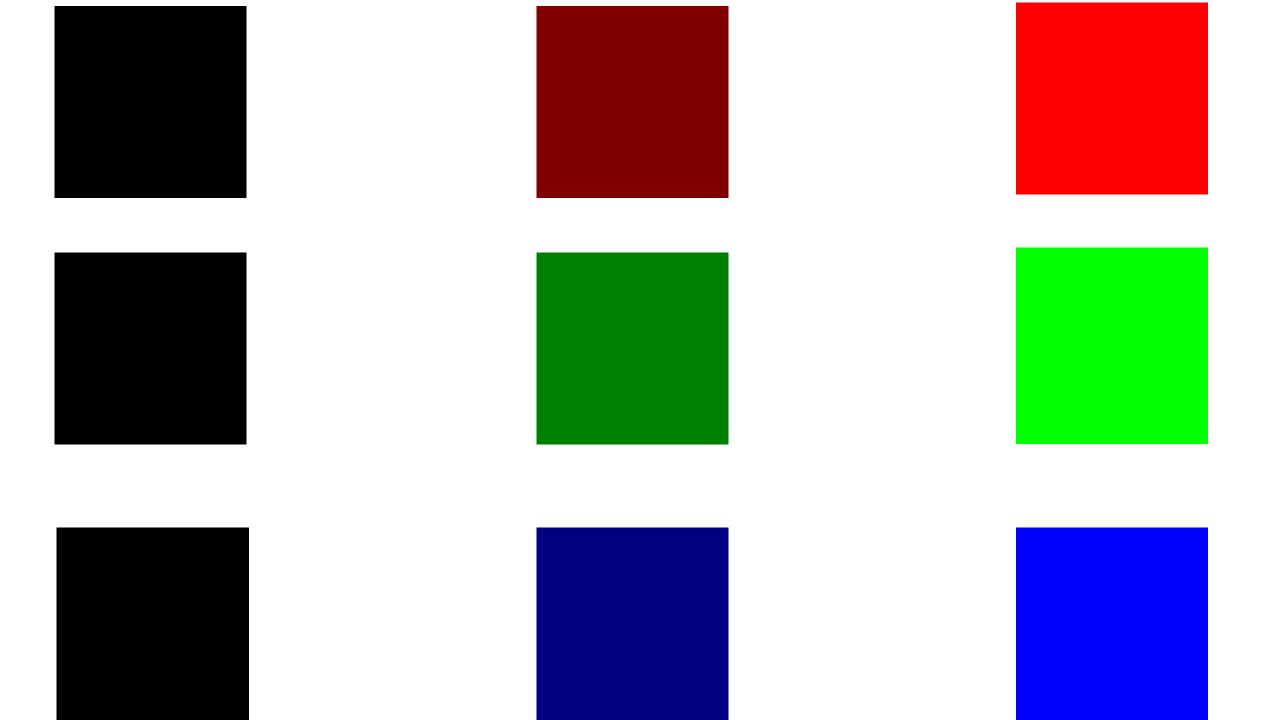


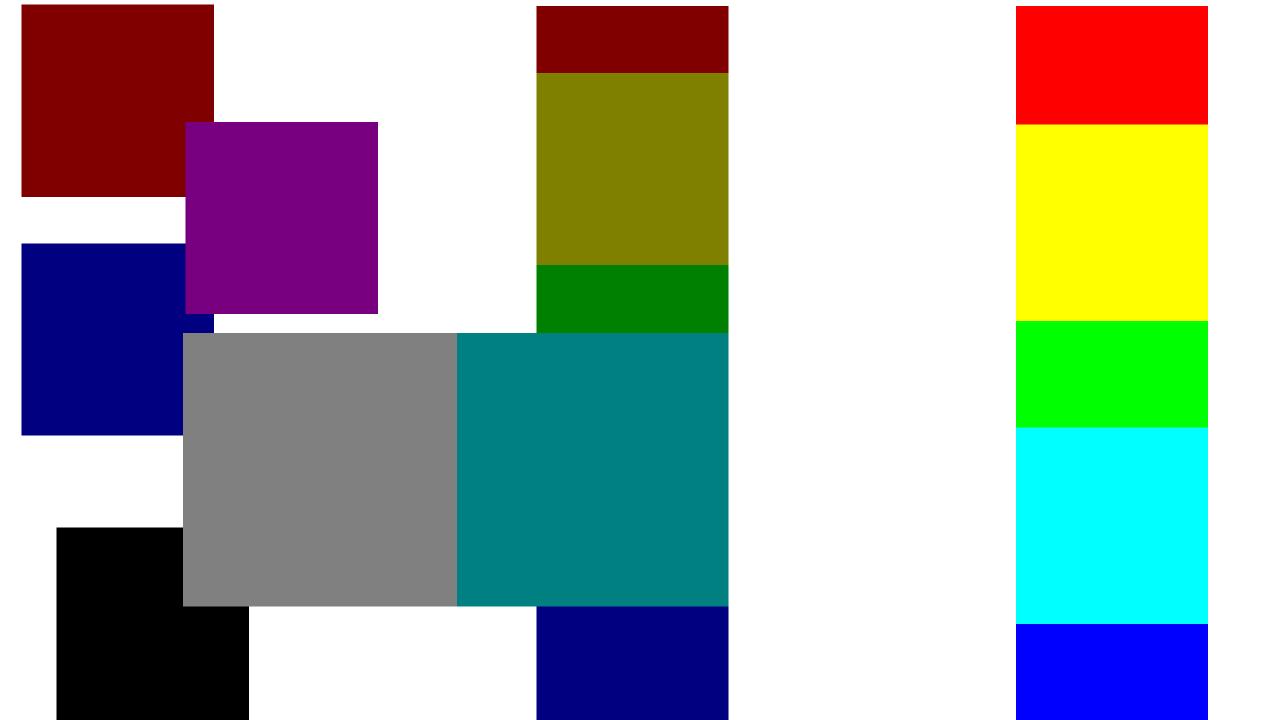


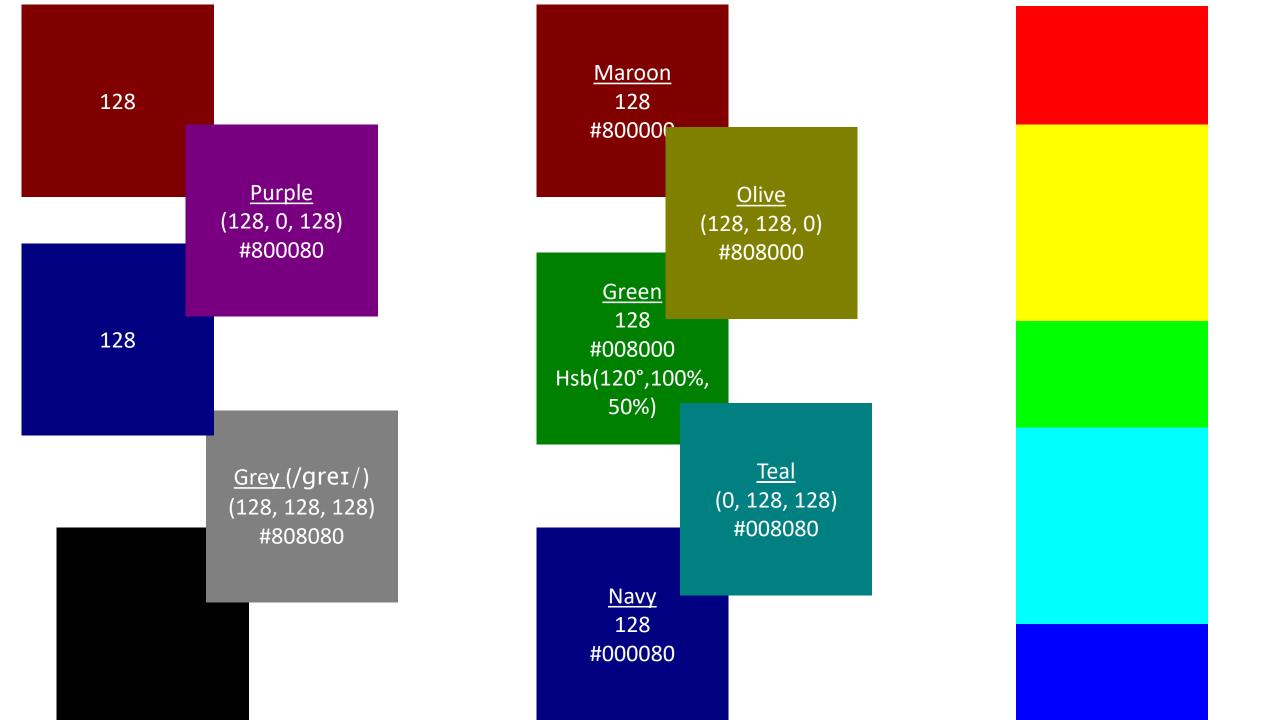


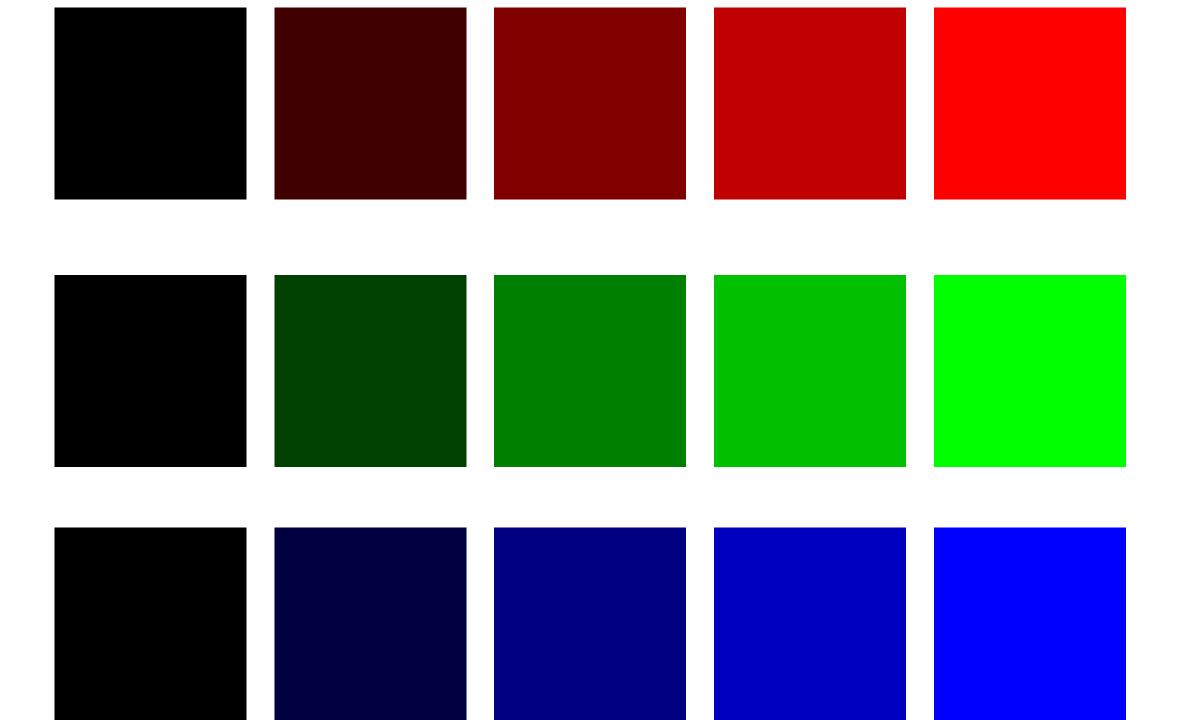
Mint Green rgb(128, 255, 128) #80FF80 Hue = 120°

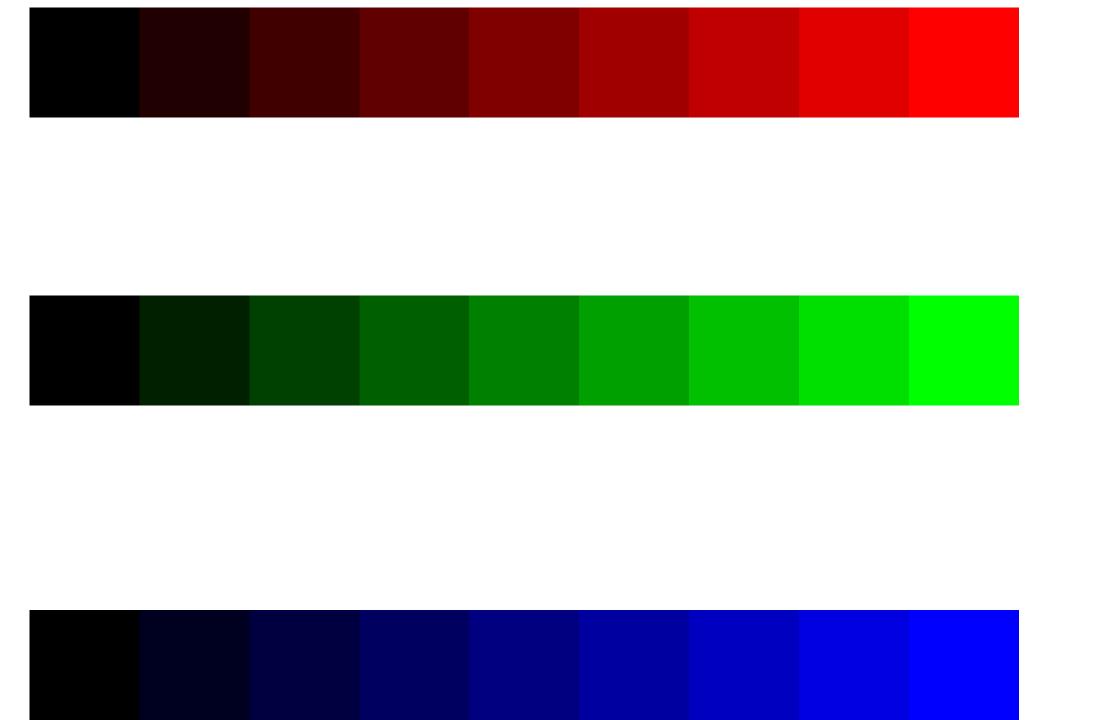
Light Slate Blue rgb(128, 128, 255) #8080FF Hue = 240° Mona Lisa rgb(255, 128, 128) #FF8080 Hue = 0°











Color names in web development

How to use HTML color names

Just like Hex color codes, HTML color names can be used with inline HTML styles or in a separate CSS stylesheet.

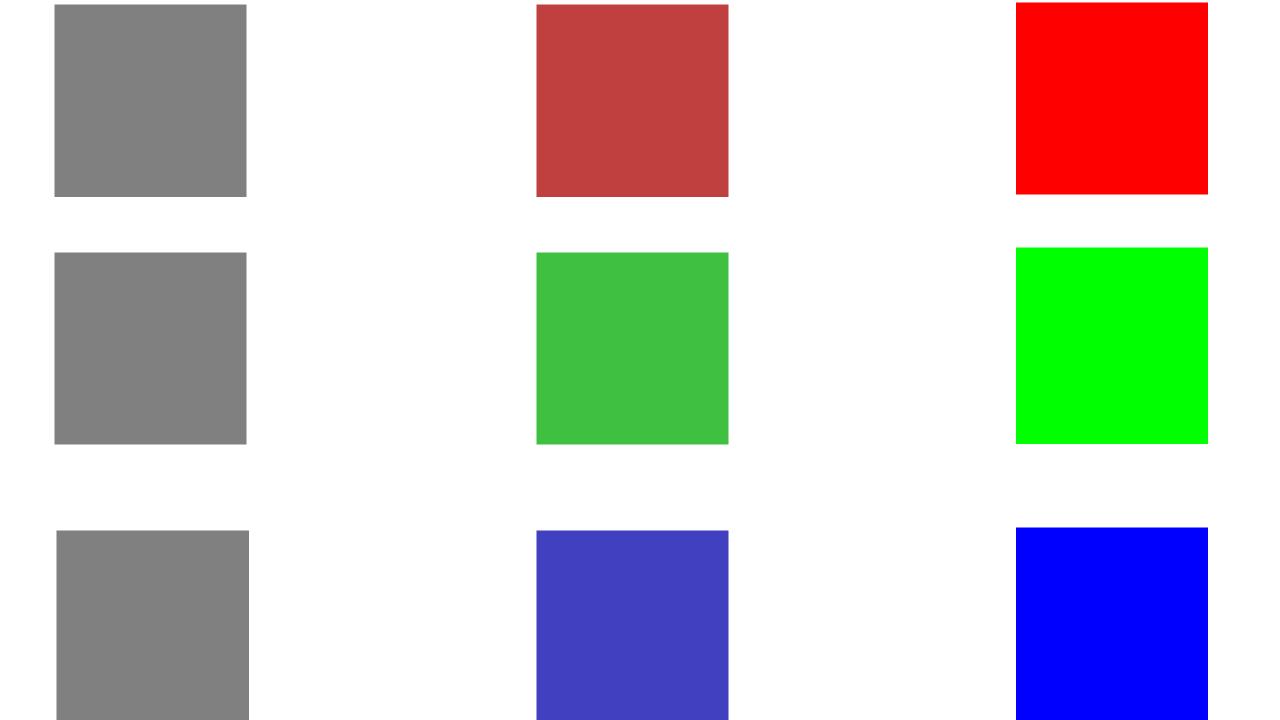
```
/* In your .css stylesheet */
h1 { color: IndianRed; }
p { color: SlateGray; }
```

CSS

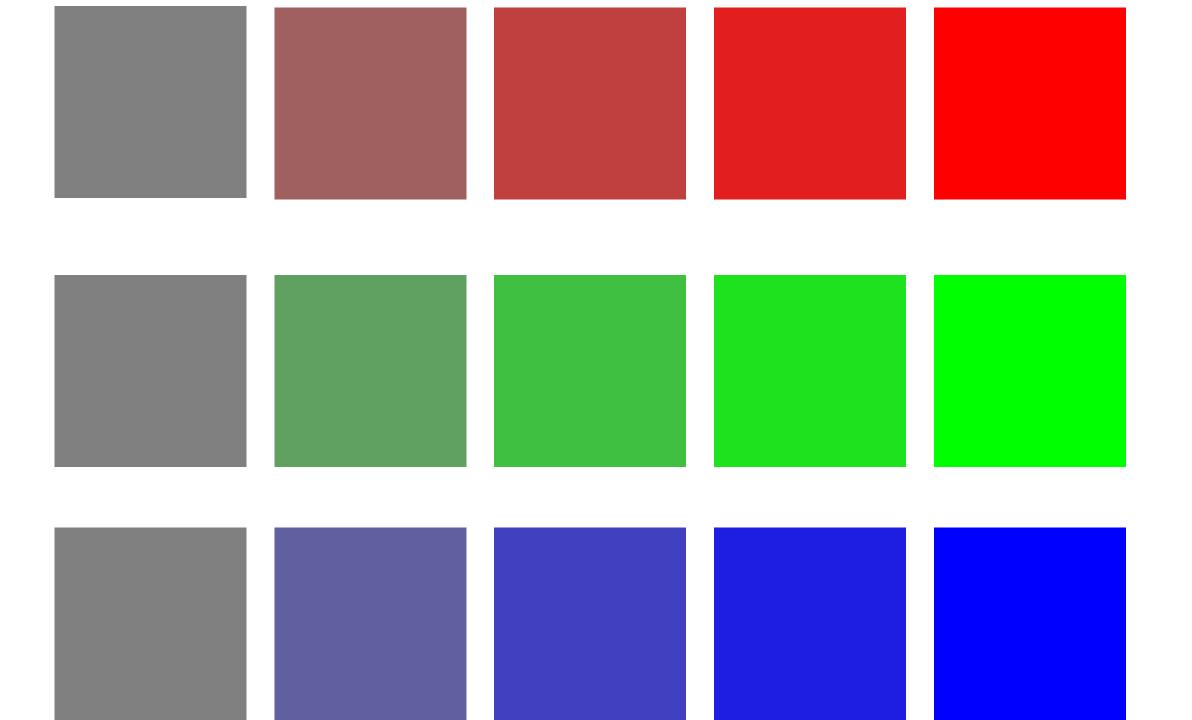
- https://www.color-blindness.com/color-name-hue
- https://www.color-name.com/
- https://colornames.org/

Saturation

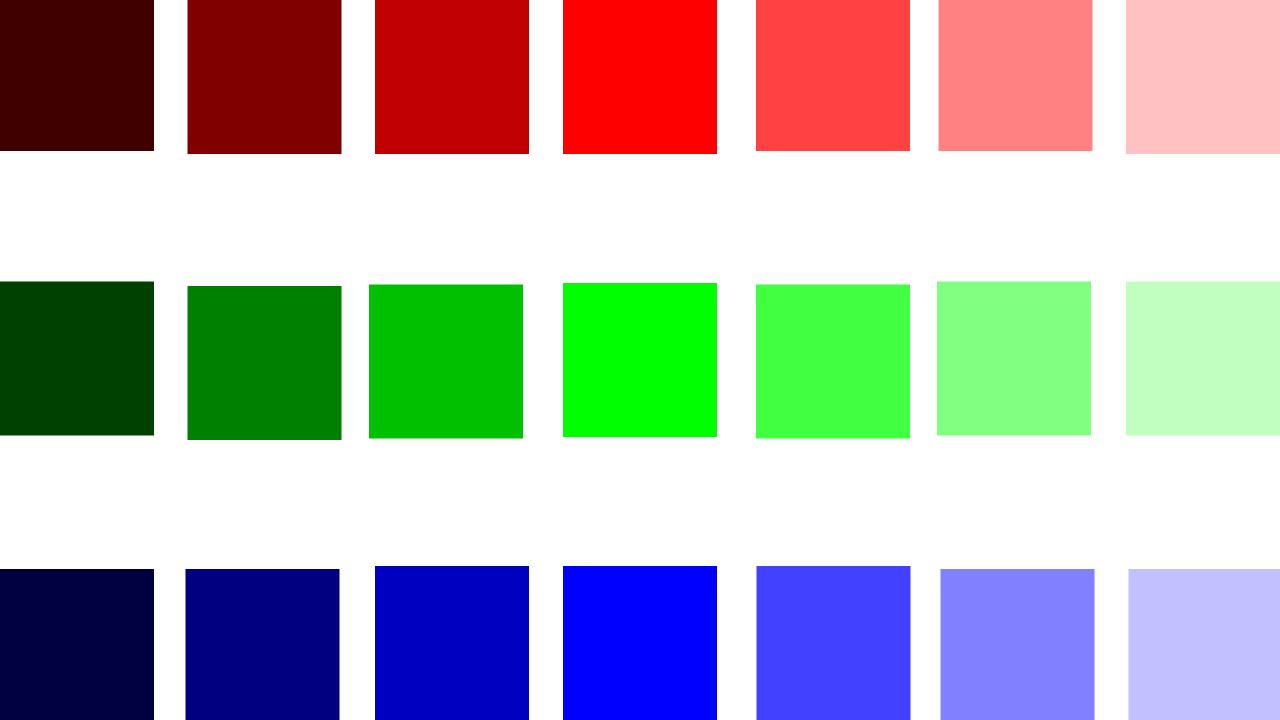




Sunset rgb(192, 64, 64) hsl(0,129,128) #C04040 Lime Green rgb(64, 192, 64) hsl(85,129,128) #C04040 Free Speech Blue rgb(64,64, 192) hsl(170,129,128) #4040C0



Luminosity

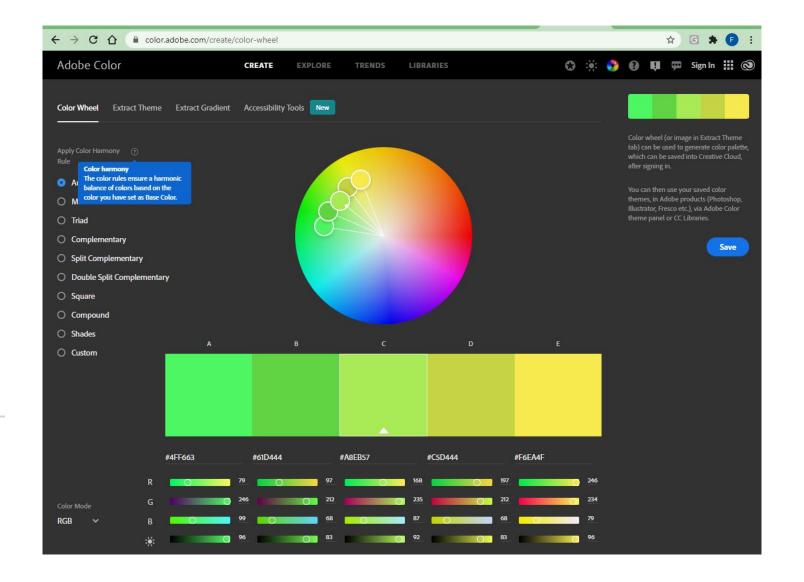


rgb(64, 0,0) H:0,S:255 L:32	rgb(128, 0,0) H:0,S:255 L:64	#C00000 rgb(192, 0,0) H:0,S:255 L:96	rgb(255, 0,0) H:0,S:255 L:128	rgb(255,65,65) H:0,S:255 L:160	Mona Lisa #FF8181 rgb(255,129,129) hsl(0,255,192)	#FFC1C1 rgb(255,193,193) hsl(0,255,224)
rgb(0 64,0) H:85,S:255 L:32	rgb(0, 128,0) H:85,S:255 L:64	rgb(0, 192,0) H:85,S:255 L:128	rgb(0, 255,0) H:85,S:255 L:128	rgb(255,65,65) H:0,S:255 L:160	Mint (light) Green #81FF81 rgb(129,255,129) hsl(85, 255, 192)	Tea Green #C1FFC1 rgb(193,255,193) hsl(85,255,224)

Light Slate Blue rgb(0, 0, 255) Lavender Blue rgb(255,65,65) rgb(0, 0,192) rgb(0, 0,128) rgb(0, 0,64) #C1C1FF #8181FF H:170,S:255 H:170,S:255 H:0,S:255 H:170,S:255 H:170,S:255 rgb(129,129,255) rgb(193,193,255) L:128 L:160 L:32 L:64 L:128 hsl(170,255,192) hsl(170,255,224)

Color contrast

Color relationships (harmony rules)



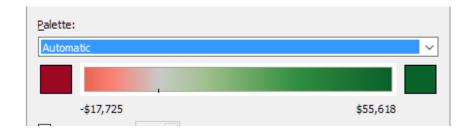
Color harmony rule

- Analogous
- Monochromatic
- Triad
- Complementary
- Split complementary
- Double split complementary
- Square
- Compound
- Shades

Color schemes



- Sequential
 - Monochromatic
 - Divergent



Divergent

• Categorical (a.k.a. qualitative) Palette

https://en.wikipedia.org/wiki/Color depth#True color (24-bit)

Psychology

- **Orange** is energetic and warm. Some common associations with orange include creativity, enthusiasm, lightheartedness, and affordability.
- **Red** is the color of blood, so it's often associated with energy, war, danger, and power but also passion, desire, and love. Some common associations with red include action, adventure, aggression, and excitement.
- **Yellow** evokes positivity, youth, joy, playfulness, sunshine, and warmth.
- **Pink** evokes feelings of innocence and delicateness, gratitude, romance, softness, and appreciation.
- **Blue** is perceived as authoritative, dependable, and trustworthy. Common associations with blue include calmness, serenity, confidence, dignity, and security.
- **Green** is the color of nature. It symbolizes growth, freshness, serenity, money, health, and healing.
- **Black** represents power, elegance, and authority. Common associations with black also include class, distinction, formality, mystery, secrecy, and seriousness.

Accessibility (luminosity contrast ratio)

- https://www.w3.org/WAI/perspective-videos/contrast/
- https://accessible-colors.com/
- https://web.dev/color-and-contrast-accessibility/

Color models

RGB, HSL, Pantone

References

Books

- 2017 Katherine A. Hughes Graphic Design Learn It, Do It.pdf
- 2016 Rhyne, Theresa Marie Applying color theory to digital media and visualization.pdf

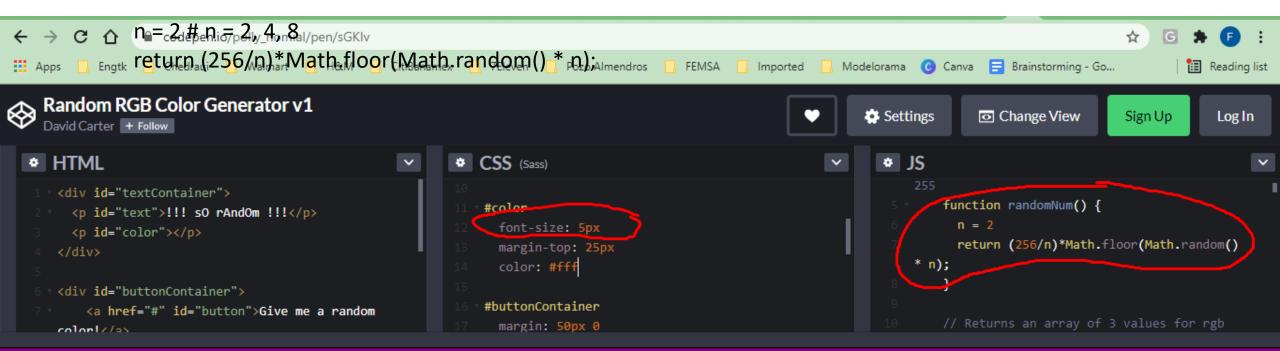
 2017 Samara, Timothy - Making and breaking the grid _ a graphic design layout workshop.pdf

Random color match

- https://codepen.io/polly_nomial/pen/sGKIv
- n = 2 # n = 2, 4, 8
- return (256/n)*Math.floor(Math.random() * n);
- https://github.com/davidmerfield/randomColor
- https://www.npmjs.com/package/randomcolor
- https://www.kirupa.com/html5/generating-random-colors.htm
- https://css-tricks.com/snippets/javascript/random-hex-color/
- https://thisinterestsme.com/random-color-javascript/
- https://dev.to/akhil 001/generating-random-color-with-single-line-of-js-code-fhj
- https://www.youtube.com/watch?v=GMxR6ZJDiMo

https://codepen.io/polly_nomial/pen/sGKIv

var myArray= [0, 128, 255];
return myArray[Math.floor(Math.random()*myArray.length)];



!!! sO rAndOm !!!

GIVE ME A RANDOM COLOR!

- https://www.w3schools.com/colors/colors 2021.asp
- https://mode.com/blog/how-to-use-brand-color-palette-in-datavisualizations/
- https://ubiq.co/analytics-blog/5-best-color-palettes-businessdashboard/
- https://www.pinterest.com/gregmarkzimmerman/trending-datavisualization-design/
- https://www.quicksprout.com/trending-website-color-schemes/
- https://visme.co/blog/website-color-schemes/
- Canva course on graphic design basics

- https://blog.prototypr.io/q-a-how-can-digital-designers-mix-rgb-colors-more-effectively-74aa6915ed97
- https://www.rapidtables.com/web/color/RGB Color.html
- https://www.carbondesignsystem.com/data-visualization/chart-types/
- https://www.displayr.com/choosing-color-palettes-in-displayr/
- https://www.datanovia.com/en/blog/top-r-color-palettes-to-know-for-great-data-visualization/
- Adobe guide for data visualization
- Material Design / Data Visualization

Color Schemes/palettes

- https://color.adobe.com/create/color-wheel
- https://coolors.co/
- https://mycolor.space/

How to choose a brand color palette

GAMES

- https://color.adobe.com/color-wheel-game
- https://color.method.ac/
- https://www.proprofsgames.com/colour-mixing/
- Android apps:
- RGBit Color Mixing Game
- Color Mixer Match, mix, learn colors for Free

Accesibility

- Color contrast
- Accessibility course
- https://webaim.org/articles/contrast/
- https://webaim.org/resources/contrastchecker/
- https://digital.cigna.com/patterns-and-components/accessibility-implementation/color-contrast-grids#full-grid

Color contrast

- https://www.cambridgeincolour.com/tutorials/histograms1.htm
- https://www.deepspacesparkle.com/teach-contrast-emphasis/
- https://processingraw.com/tutorial-dynamic-contrast/
- https://blog.nightnurse.ch/09/2020/tutorial-color-in-composition/
- For charts
- https://www.gimp.org/tutorials/ContrastMask/
- https://worqx.com/color/color_proportion.htm
- https://www.photoshopessentials.com/photo-editing/contrast-blackand-white/

Colors for digital displays

- https://www.uxmatters.com/mt/archives/2006/01/color-theory-for-digital-displays-a-quick-reference-part-i.php
- https://www.gimp.org/tutorials/Basic Color Curves/
- https://blog.frame.io/2017/09/20/beginners-guide-to-color-curves/
- https://mixinglight.com/color-grading-tutorials/
- https://www.rocketstock.com/blog/color-grading-color-correctingtutorial/
- https://www.bhphotovideo.com/explora/video/tips-and-solutions/introduction-color-grading

Photoshop tutorials

- https://helpx.adobe.com/photoshop/using/curves-adjustment.html
- https://helpx.adobe.com/photoshop/using/adjust-color-tone-levelscurves.html
- https://helpx.adobe.com/photoshop/using/adjusting-color-tone-cs6.html
- https://helpx.adobe.com/photoshop/using/adjusting-hue-saturation.html
- https://helpx.adobe.com/photoshop/using/convert-color-image-blackwhite.html
- https://helpx.adobe.com/photoshop/using/adjust-shadow-highlightdetail.html
- https://helpx.adobe.com/photoshop/using/levels-adjustment.html