

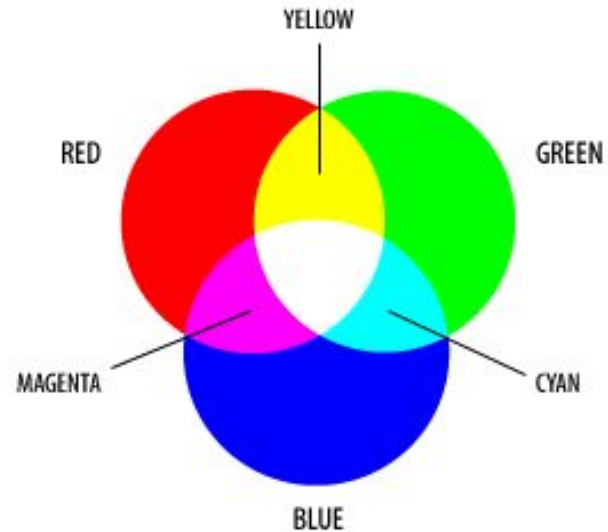
# Color Encoding

A horizontal line is drawn across the top of the slide. Below the line, the background is a smooth, horizontal rainbow gradient. The colors transition from red on the far left, through orange, yellow, green, cyan, blue, and purple, back to red on the far right.

# Color Theory 101

## Additive vs. Subtractive color modeling

- Using light or ink to display color
- RGB and CYMK
- Additive superimposes different intensities ( saturations)
- Subtractive masks other colors and creates a filter





CYAN



MAGENTA



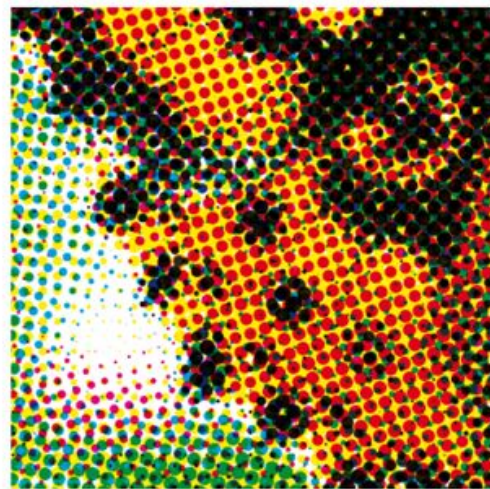
YELLOW



BLACK

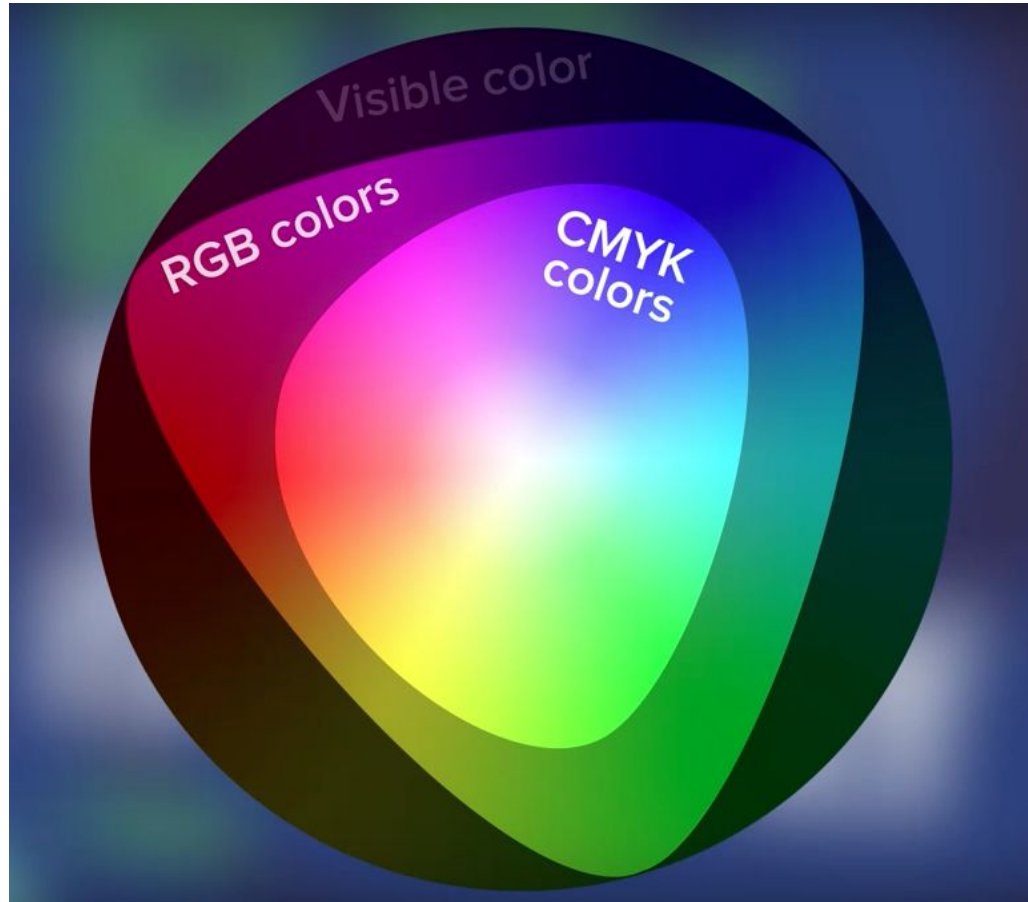


FINAL CMYK



DETAIL VIEW





# Standardizing Color

## RGB

RGB(red, green, blue)

- Decimal number system (0-9)
- Range of 0-255
- Standard for digital displays
- 3 values

## HEX

#RRGGBB

- Hexadecimal number system (0-F)
- Base 16 simplification of binary
- Standard for colorists, designers, HTML
- Uniformity derived from RGB system
- 6 digits

$256 \times 256 \times 256 = 16,777,216$  possible colors



# RGB to Hex

Each RGB value becomes two digits in Hex

Divide each RGB value by the base (16) of Hex

- The whole number and remainder each give a digit

Multiply the remainder by 16 to get the second digit

decimal	hexadecimal	binary
0	0	0000
1	1	0001
2	2	0010
3	3	0011
4	4	0100
5	5	0101
6	6	0110
7	7	0111
8	8	1000
9	9	1001
10	A	1010
11	B	1011
12	C	1100
13	D	1101
14	E	1110
15	F	1111

# Hex to RGB

Each pair of Hex digits becomes one RGB value

Convert first digit to decimal scale

- Multiply this result by 16 to get the partial value

Convert second digit to decimal scale

- Add to the partial value

decimal	hexadecimal	binary
0	0	0000
1	1	0001
2	2	0010
3	3	0011
4	4	0100
5	5	0101
6	6	0110
7	7	0111
8	8	1000
9	9	1001
10	A	1010
11	B	1011
12	C	1100
13	D	1101
14	E	1110
15	F	1111

<https://color.adobe.com/create/color-wheel>



104,104,171



<https://color.adobe.com/create/color-wheel>

<https://www.pantone.com/color-of-the-year-2022-tools-for-designers>

<https://www.rcreative.marketing/graphic-design/difference-rgb-hex-cmyk-pms-color/#:~:text=There%20is%20no%20informational%20difference.based%20reference%20of%20RGB%20numbers>

<https://sites.google.com/site/sisuee30s17/franksnotes/70-binary-bit-logic>

<https://encycolorpedia.com/9bb7d4#:~:text=Paints-,Pantone%20%2F%20PMS%2015%2D40%20%20TCX%20%2F%20Cerulean%20%2F%20%239bb7d4,%25%20saturation%20and%2072%25%20lightness>

<https://www.developintelligence.com/blog/2017/02/rgb-to-hex-understanding-the-major-web-color-codes/>

<https://donatbalipapp.medium.com/colours-maths-90346fb5abda>

<https://www.educba.com/rgb-color-model/>

<https://www.pixartprinting.co.uk/blog/cmyk-printing-explained/>

<https://www.kornit.com/blog/glossary-item/cmyk-definition/#:~:text=CMYK%20refers%20to%20the%20four,that%20would%20otherwise%20be%20reflected>