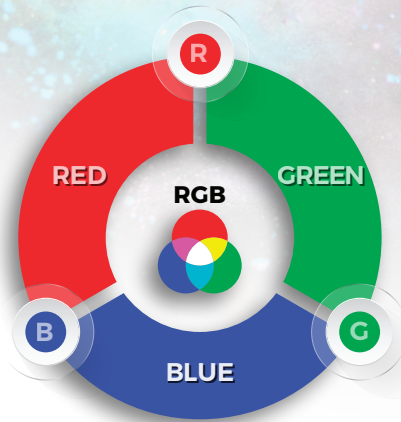# The Colorful World of print

The visual spectrum of color is all colors visible to the human eye. In nature, we can recreate all colors with a combination of red, green and blue light, but unfortunately, this is not the case for print, or even on screen. Below are examples of color gamuts, so you can see how they differ, and the correct use for each.

Keep in mind that how you view this image will change the look of the colors, as a screen reproduces the colors differently than in print.

RGB Color Gamut

Visible Color Spectrum

Pantone Color Gamut

CMYK Color Gamut

Visible Color Spectrum with Print Gamuts

RGB

R — RED — GREEN — B — BLUE — G

CMYK

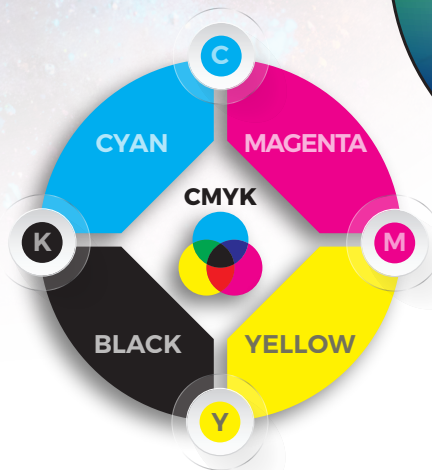C — CYAN — MAGENTA — K — BLACK — YELLOW — M — Y

Over 16 Million Colors

RGB is a combination of the three primary colors, **Red**, **Green**, and **Blue**. When combined, you see pure white, and when absent, you see pure black.

RGB is the standard color profile for digital viewing. Remember colors will never look the same from one screen to another. For instance, a website might look one color on one computer and slightly changed on a different computer, and yet another on your tablet or phone. The cause for this is each device interprets colors based on profiles installed on the machine.

Lastly, RGB does not lend well to reliable printing because most printing is CMYK. Since the RGB Gamut is much larger than the CMYK Gamut, a high percentage of colors cannot accurately convert. In summary, if you send a file in RGB, there will be a noticeable difference once printed CMYK.
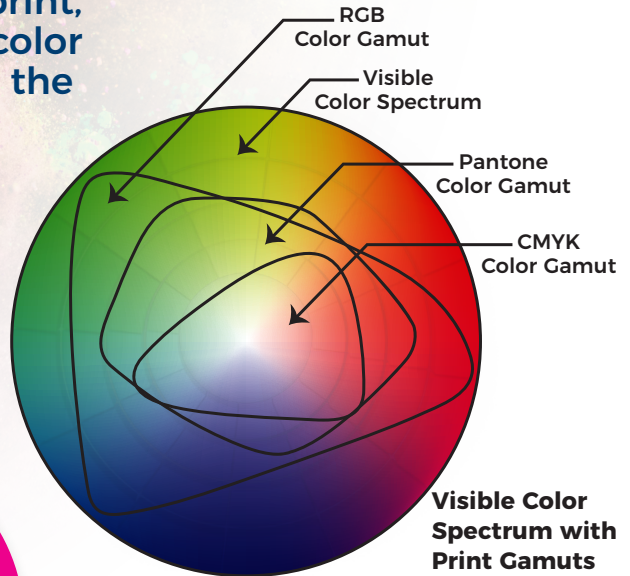
RGB Image Sample

1 Million Colors

CMYK is the standard color profile for print, utilizing the colors **Cyan**, **Magenta**, **Yellow**, and **Black**. When all colors are combined, you see rich black, and when absent, you see white.

CMYK is best for all types of traditional printing. Colors are applied in four passes, each building on the others, resulting in a CMYK print. When printing Digital there may be a variance in color from each run. Choosing quality printers, who adhere to your brand guidelines, will minimize this variance.
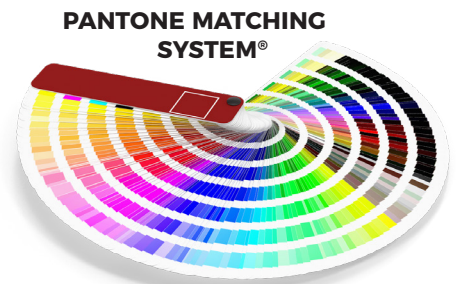
One final note, some websites do not accept CMYK files for viewing. Always convert files to RBG before uploading to the internet.
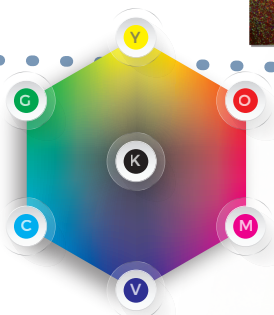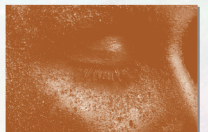
CMYK Image Sample

PANTONE MATCHING SYSTEM®

Pantone/Spot Colors are a universally accepted color matching system that provides a standard to duplicate colors reliably.

Colors are organized by a proprietary numbering system, that one can reference and repeat. Reproduction is particularly manageable as printers are able to purchase pre-mixed colors, that are able to be put directly on the press, removing the guesswork. However, digital color matching is more difficult as the Pantone Gamut is more extensive than the CMYK Gamut. When selecting a color that will need to print both digital and offset it's best to choose one that falls within both the CMYK and Pantone Gamut. Pantone colors are best when building a Corporate Identity.

Lastly, Pantone books age with time and become faded and less reliable for visual color matching. It's recommended to replace annually.

Pantone Image Sample

Extended Gamut Printing is a system of expanding the **CMYK** Gamut with the colors **Orange**, **Green** and **Violet**. Also known as High Fidelity printing, this system produces images that are more colorful and closer to the original RGB Images. This method can reduce the need for custom spot colors, and typically a press can run the same 7 colors on all jobs, resulting in significant cost savings passed onto the customer.