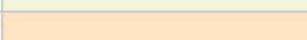# A really basic introduction to Color Space.

Color is a whole science unto itself. Most people are aware of the color wheel, hue (adding black to a color) and tint (adding white) but what is color space?

## Color Space

In its simplest terms a color space is:

### An ordered list of numbers that represents specific colors.

That's why you have numbers when you use a color picker/tool. Anyone familiar with HTML may have used the standard HTML (Hexadecimal) Color Space part of which is pictured below.

| | | |
|---|---|---|
| Antique White | #FAEBD7 | |
| Aqua | #00FFFF | |
| Aquamarine | #7FFFD4 | |
| Azure | #F0FFFF | |
| Beige | #F5F5DC | |
| Bisque | #FFE4C4 | |
| Black | #000000 | |

## Color Management.

Why do we worry about color space? Color space is really all about color management. In most cases I want the colors I see on my screen to be as near as possible to the color of the that images I print.
There are lots of color spaces but the most well known are RGB and CMYK.
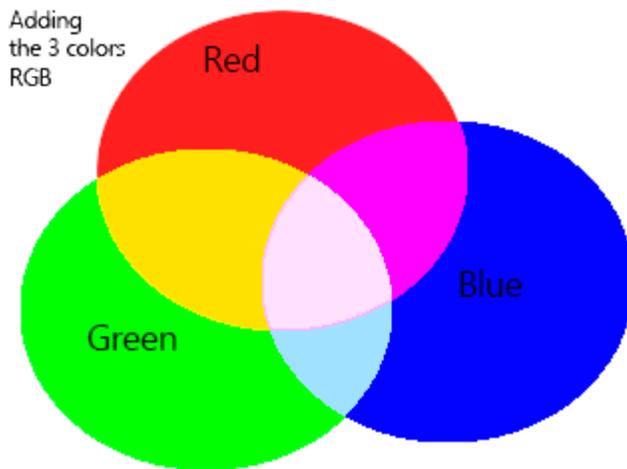
## RGB and CMYK

RGB stands for **R**ed, **G**reen, and **B**lue and CMYK for **C**yan, **M**agenta, Yellow and **B**lack. RGB and CMYK are the two color spaces that most people are aware of but they are many color spaces, in fact you can even make your own.

## RGB

When you view an image on screen you're viewing RGB color. Three color guns project Red, Green and Blue onto the screen.



A few years ago if you were designing your images for use on the web you were advised to use the 256 web safe colors. That was because most computers could only accurately reproduce those 256 colors. Nowadays most computers and devices can see in millions of colors.

**Note:**

256 Colors is also known as 8 bit color. Each pixel is made up of one 8 bit, byte. (A byte being made up of the amount of information it takes to store 1 character on a computer.) A 16 bit system gives thousands of colors, and 24 bit system renders millions of colors.

RGB also has sub groups or think of them as different flavors of RGB color.
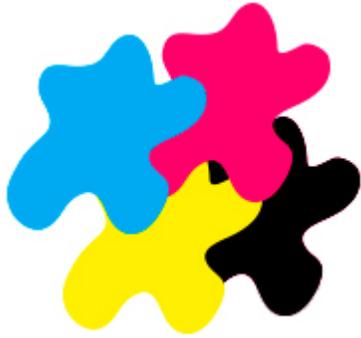
For example:

- **sRGB** is a color space that came about in 1996 when Microsoft and Hewlett Packard got together to decide on a standard for their monitors, and printers.
- **Adobe RGB** was created by Adobe in 1998 to coincide with the release of Photoshop 5.0.

# CMYK

CMYK is used in printing. The four inks are applied in the order Cyan, Magenta, Yellow then Black. I always thought that they decided to take the last letter of black, because the B for blue was already taken but the K actually stands for Key. The four printing blocks were originally "keyed" in alignment with each other the key plate on the bottom being black.

Other Color Spaces.
Greyscale
Greyscale is exactly what it says
If you are a Photoshop user and you look under the Image Menu – Mode You will see a list including Lab (Pronounced L-ab and not lab) This is a quite interesting color space based on the human ability to see differences in colors opposite to each other on the color wheel.

This has barely touched the surface of color so for those of you who have a need to satisfy your inner Geek further reading can be found at:

International Color Consortium

Adobe RGB (1998) color image encoding

By Lyn Tuckwell
Posted on July 11, 2012
Cameraphotoart.com