

[illegible]

# Color Printing Basics

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Unless noted otherwise, scans of printed images are all from KDP (Kindle Direct Publishing) tests.

It is my guess that 90% of books published as print-on-demand do not have problems. The files are created, uploaded, and printed. In fact, it is possible to print most books, certainly with KDP, and to know nothing about color or graphics, do no design, no formatting, just upload the Word file (interior) as is and use their Cover Creator to create the cover. If this describes you and your book, this PDF is probably not for you.

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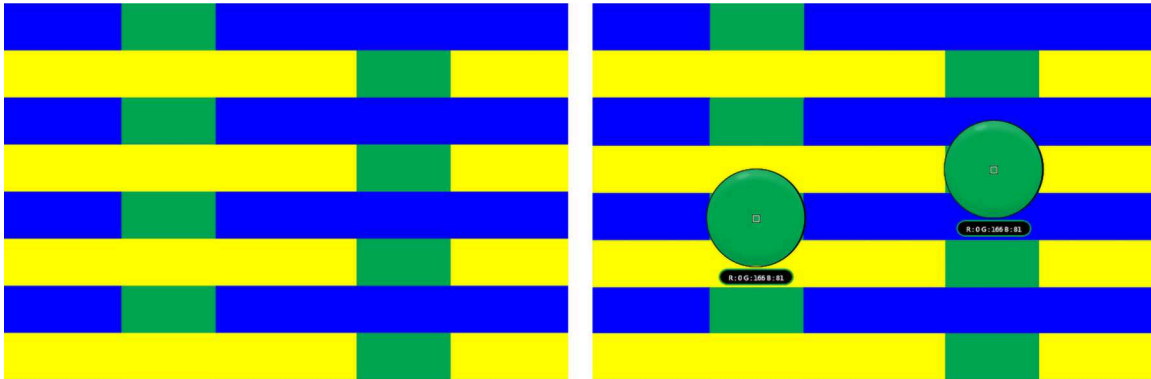
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# Color Printing Basics

Every book has a cover; and almost every cover is in color. It isn't necessary to understand color theory or how full color images can be produced from four printing colors (even boxes of crayons and the old paint-by-number sets had more colors). But I think you can avoid some problems and fix others if you understand some of this. Certainly, you should be more accepting of the differences between the image you see on your screen versus the image printed on your cover.

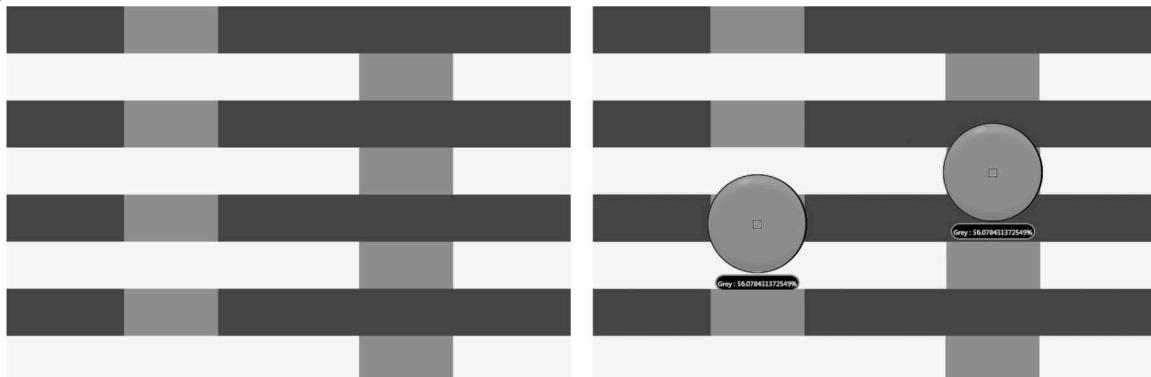
I've written about color before. Each time I put some things at the end. For this paper, before we get into color theory and printing basics, I will reverse that. I want to show you why color—what our eyes see—is so amazing.



This exemplifies what is called *simultaneous contrast*. It is the Munker illusion. There are only three colors: blue, yellow, and green. One green! If you enlarge the “bottle caps” on the right, these are Affinity Photo’s color sampling tool, and you’ll see the small print: Red 0 G166 B81. Both green stripes are the same.

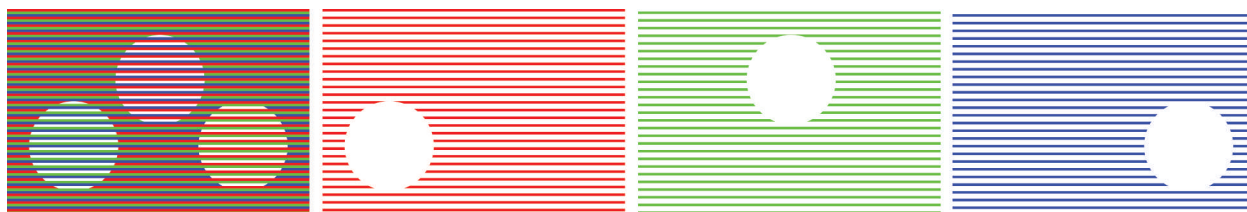
This is the first time I’ve included this illusion without measuring the greens again: I never believe it’s true.

Just in case you think, “Yeah, sure, those colors are special,” I made the same illusion in grayscale:

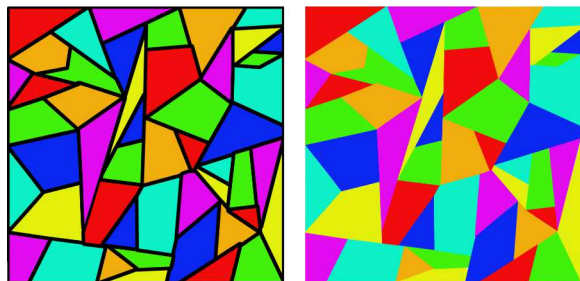


The two vertical gray stripes are each 56% black only (OK, 56.078431372549%, if that matters).

Another related illusion is Color Assimilation. Here the perceived color of a region shifts or spreads toward that of its neighbors:

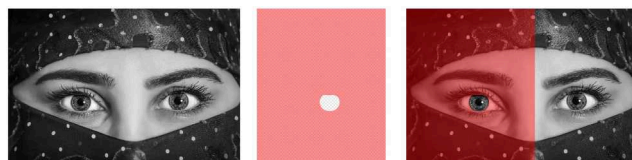


The three disks on the left appear cyan, magenta, and yellow. But when the layers of the image are separated, you can see that the disks are white. The lines alternate between transparent and color—they are not white and color.

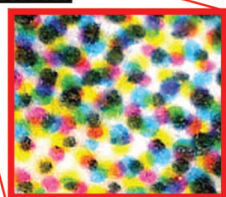
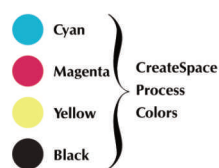
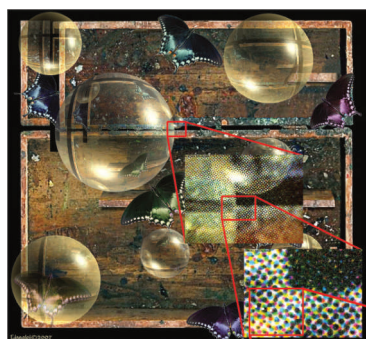


The Boundary Effect is exactly what it says. It places a boundary around each color, and they, in turn, are not just brighter, but they appear to be different, albeit related, colors.

Another example of color assimilation, showing how colors can be changed, sometimes dramatically, is created by placing a transparent, reddish layer over a B&W image. There is a hole in it that corresponds to the iris of the eye. To me, her eye is blue.



These are quite different from illusions like the young lady and the old hag (sometimes the wife and the mother-in-law) or the duck and the rabbit. I have no data to support this, but I think it's possible for some people to never see the hag or the duck; whereas we "all" see the Munker Illusion.



I don't think I've heard anyone call four-color printing (using only Cyan, Magenta, Yellow, and Black—CMYK, where K is used because B stands for Blue) an optical illusion, but if it's not an illusion, it's amazing magic.

Although it is possible to print with different colors (see page 7, RYB) or with more than those four colors—outside of advertising and packaging—almost every *printed* color image we see was printed with those four colors.



## Color Theory

Let me dispense with a few nerdy statements:

*Color is the visual perception of a small range or band of wave lengths and frequencies on the electromagnetic spectrum of electromagnetic radiation, which range from Extremely Low Frequency (ELF waves at 100 Mm—100 x 1,000,000 meters), Radio waves, to Gamma Waves (at 10 pm—10 x 1/1,000,000,000,000 meter). Visible light is tiny sliver between within that range, between infrared and ultraviolet. Color is a perceptual quality.*

*The color of something is related to how light is absorbed, reflected, and transmitted: the emission spectrum (different chemicals emit different frequencies of electromagnetic radiation), and interference (how different waves interact with each other).*

*The human eye perceives Red, Green, and Blue light (RGB). Simplistically: for most people, we have three cones cells in the eye (trichromacy<sup>\*</sup>): short cones (blue light), medium cones (green), long cone (red). From red, green and blue, all visible colors can be realized, but no other colors can be combined to produce red, green, or blue; therefore, they are called primary colors. Be warned, these are not the only “primary colors,” so do not be confused: what are primaries depends on the system or model they are a part of.*

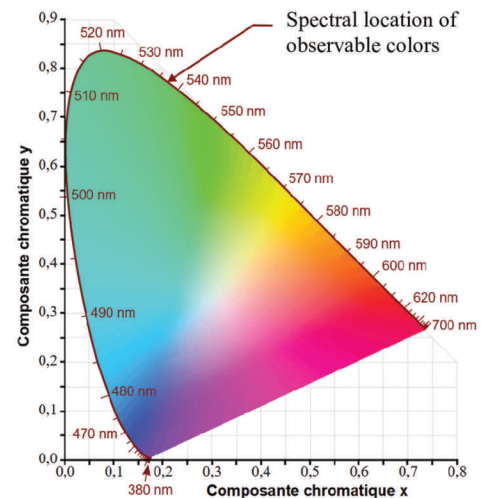
*Color can be described by its three characteristics: color, brightness, and saturation. And like the word “primary,” these go by different names—color/hue, brightness/value/lightness, saturation/chroma.*

*Color models that try to demonstrate color, brightness, and saturation are called Color Space. Because there are three dimensions to color, color models try to portray a 3-D model in 2-D representations. These, like maps of the earth, must be compromises.*

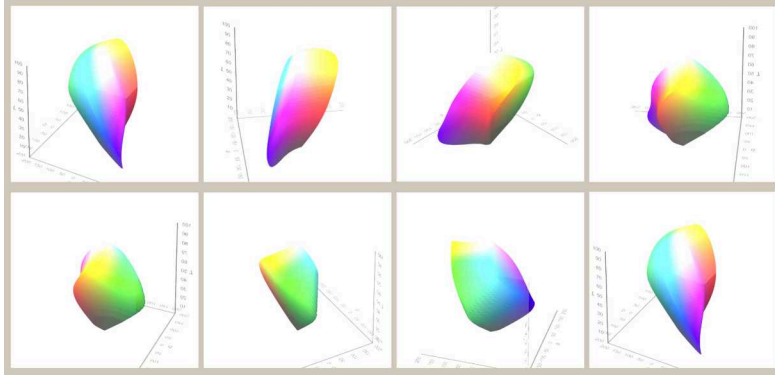
*Colorfulness, chroma, and saturation are qualities of perceived color that contribute to chromatic intensity. Qualities like chromatic intensity, can only be measured psychometrically.*

In 1931, the CIE (Commission internationale de l'éclairage, or International Commission on Illumination) established a scientific system for defining light colors and the physiology of perceived color vision—psychometric. They developed the model of the Standard Observer to help determine how the average person sees color. Test subjects looked through holes in a box at two colored dots, created by colored light beams. One dot was fixed, while the other could be adjusted by varying the amounts of Red, Green, and Blue light. They had to dial-in the colors of the second dot to match the first. One of their important findings was that there are often many ways to create a specific color using different proportions—the effect is called metamerism.

Another contribution from the CIE 1931 was this model of observable colors. This is a horizontal slice of the model which goes from black at the lowest point, to white at the highest point.



<sup>\*</sup> There are a few people, mostly women, who have a fourth type of cone. Having four cones is called tetrachromacy. People with a fourth cone *may* see a richer, broader, gamut of colors. The research is relatively new, and is far from complete.

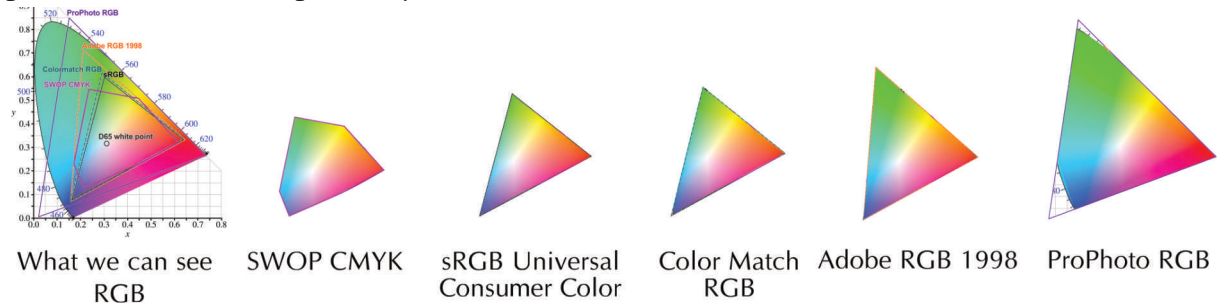


Although this is the model I will continue to use, on the left is a revised model from CIE. These are stills from an animated version that displayed RGB in 3-D simulation.

Using the more common RGB illustration below, this shows the several different “flavors” of RGB and CMYK. While there are different versions of CMYK, they occupy the

same basic space; see Pantone Process Colors (the printing industry standard), page 14.

A more functional model shows how these two color spaces, RGB and CMYK, create a full spectrum of color. Simplistically:

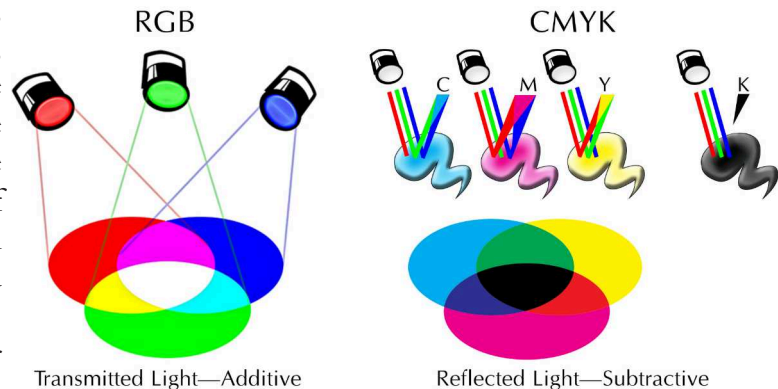


RGB is transmitted light: monitors, “real life,” etc. This model is additive; that is, colors added together create new colors, and if you add all the colors together, you get white. The secondary colors, combinations of any two of the primaries, produce an approximation of CMY. Our world is RGB.

CMYK is reflected light. The color that an object *is not* is absorbed (subtracted) from the light illuminating the object, and the reflected light (color) is what we see. The combination of any two colors (CMY) produces secondary colors, approximations of RGB. The absence/subtraction of all color/light is black. Printed images (commercially screened and printed images, photographs, drawings, paintings, etc.) are CMYK.

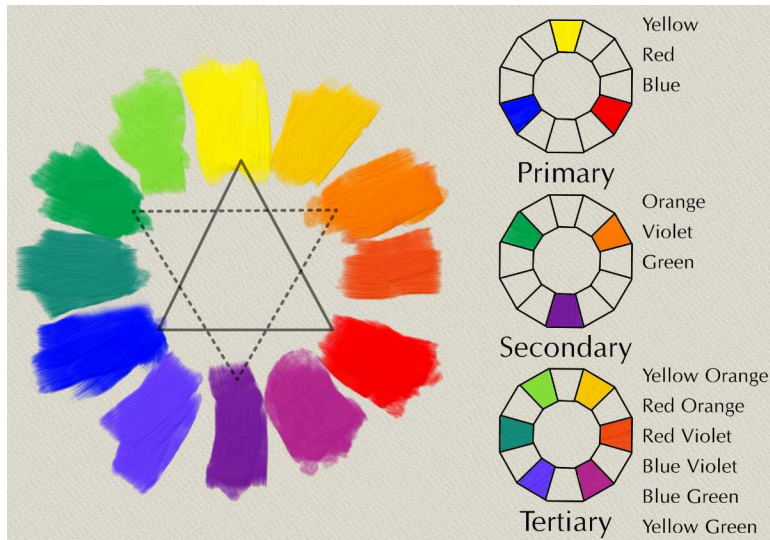
In both of these systems, red, green, and blue are the primary colors in RGB; and cyan, magenta, and yellow are the primary colors in CMYK. A primary color is one that cannot be produced by the combination of *any* other colors.

There may be some confusion if you’ve taken art classes, because in painting, RYB are the primaries:



Up until, say, the late 1920s, early 30s, color images produced photographically or lithographically

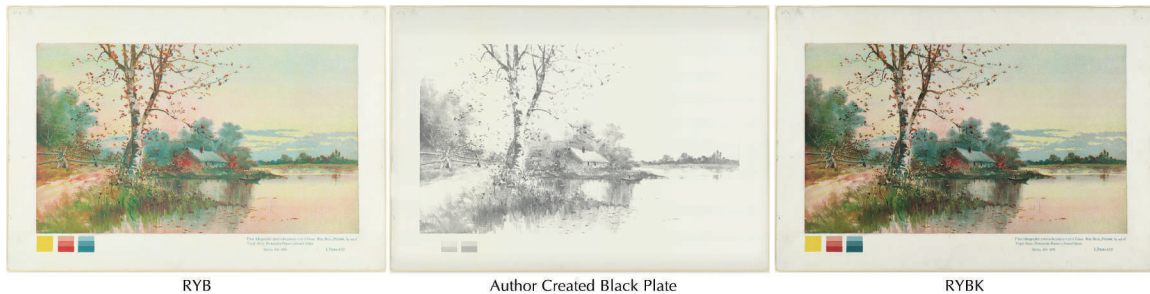




were often RYB, not CMY. I have found little, not even speculation, as to why the shift from RYB to CMY.

K was often added to both models to bring out detail, strengthen some of the colors, and deepen the shadows. In theory, CMY or RYB combined should produce black. The best I've ever seen or tried is mud. Adding black is transformative:

Here is a RYB lithograph from 1893 (I created both the black plate and the RYBK image):



And here is a contemporary photograph (I removed and added back the black):

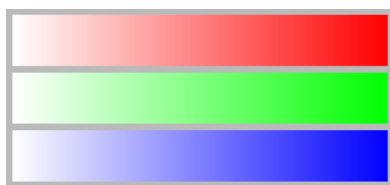


In both cases, the addition of black is essential to a more robust image.

Briefly, I think that the switch to CMYK occurred because:

- Pigments for printing are very expensive. A pure, synthetic, and relatively inexpensive form of Cyan was discovered in around 1930—therefore there was a strong commercial incentive.
- The photographic arts had matured; photomechanical and reprographic methods were being developed, which offered to make all sorts of commercial printing better and less expensive.
- Plastics were being developed and manufactured.
- There were significant advances in halftone screening.

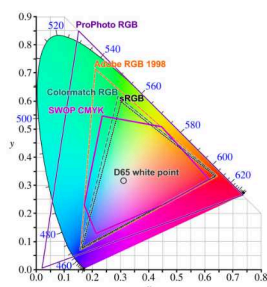
There is a prevalent theory online that there are 16,777,216 colors in RGB. There are 256 colors in red from white to 100% red; same for green and blue: because there are 8 bits in 1 byte, and that byte defines a pixel of color. Each bit is either on or off, and eight-bits is  $2^8$ , which equals



256 combinations, and thus 256 colors/steps. If they are combined, you get 256 Reds x 256 Greens x 256 Blues = 16,777,216 possible colors. If you are a monitor manufacturer, doesn't "Over 16 million colors!" sound great? RGB can also be divided into percentages, therefore 100 colors per channel, 1,000,000 colors total.

The online theory continues, CMYK has only 16,000 colors!<sup>1</sup> That would mean that there are 16,761,216 colors in RGB that cannot be printed in CMYK. Oh? Using the same combinatory process, CMYK should have 4,294,967,296 colors. I don't believe either grand totals.

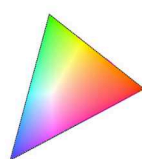
This is based on the CIE model:



What we can see  
RGB



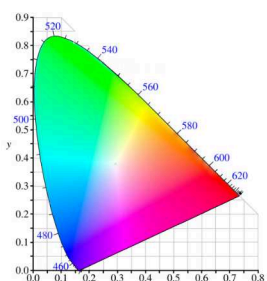
SWOP CMYK



sRGB Universal  
Consumer Color



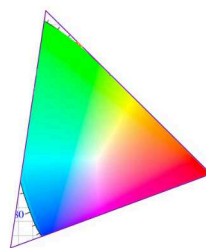
Color Match  
RGB



What we can see  
RGB

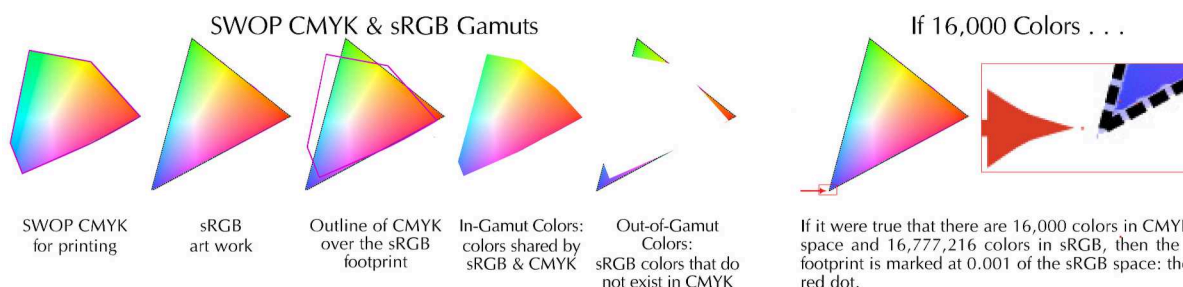


Adobe RGB 1998



ProPhoto RGB

If we compare CMYK to sRGB (sRGB is the universal consumer color):



they're the "same." Measuring these shapes, I calculated the area of CMYK as 5.93 in<sup>2</sup> and sRGB

<sup>1</sup>I have traced references to 16,000 CMYK colors on several commercial printers' websites, where it is simply stated as fact. For example, "Also, the maximum color combinations of RGB reach over 16.7 million, whereas CMYK has 16,000 color possibilities. Be that as it may, CMYK files are still larger than RGB files despite their limited color yield." <<https://www.citypressinc.com/post/cmyk-vs-rgb-for-printing>> The same image in CMYK and RGB has the same number of pixels, but CMYK has an additional channel so the file is bigger!

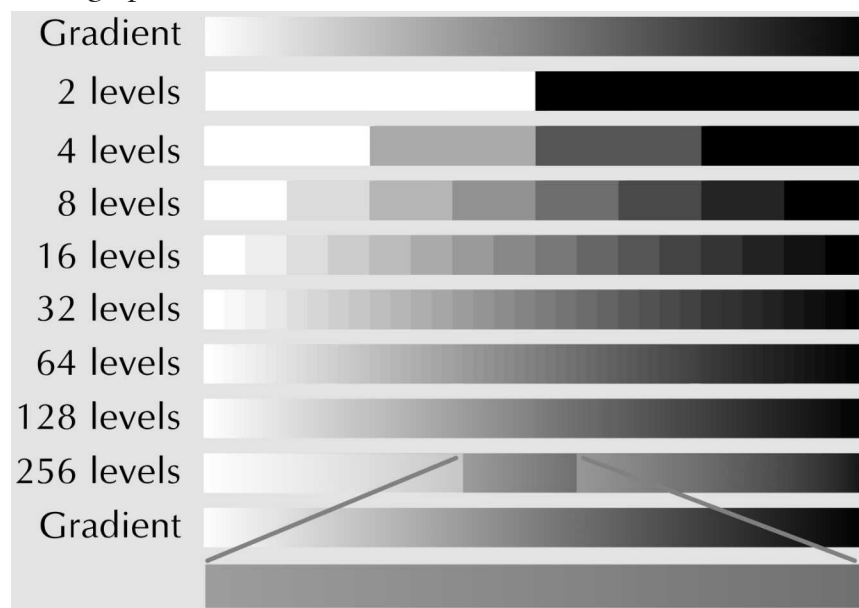
as 5.90 in<sup>2</sup>. However inaccurate, I think we can say they are nearly the same size. Whether compared visually or measured, sRGB and CMYK have nearly the same number of colors!

Our eyes are receptive to 3 colors: red, green, and blue, called *tristimulus*. Some people, mostly women, are sensitive to a 4th color. This is called tetrachromacy, but that research is still very new, and some argue inconclusive.

The CIE (International Commission on Illumination) found that because color is a perceptual phenomenon, many or most combinations of RGB are identical in terms of how we perceive them. How many colors do we see? I don't know. Theories run from 10M-12M, 3M-4M, and 1M-3M. I believe it's more in the 1M-3M range.

The range from 0–256 doesn't sound like a lot of colors. Here it is in grayscale, achromatic, white to black.

I did not do the entire 256 levels gradient. The divisions in the midtones are the most obvious to most people, so that's the area I worked on. The rest of that gradient has been frosted. This graphic took a long, solid day. I saw no reason to divide the entire 256 levels gradient just to show that you can't see the distinct levels. The marked section is 44 levels, and it's been enlarged 579% at the bottom of the graphic.



You should have no trouble seeing the 64 levels, and probably most of the 128 levels. Much above that, the steps disappear. This should give you an idea of how many colors we can see, which is how many colors there are. If we say 128, then we can see 2 million colors. When you see those big numbers, like 16,777,216, the overall range of colors in sRGB does not change—from white to black, white to red, etc.—only how many divisions and therefore theoretical combinations: mostly divisions we cannot see.

Not wanting to go further into that fray, let's ask the question, not how many colors can we see, or how many colors are there, but how many do we need? In asking this, I am thinking practically about printing, and specifically four-color printing.

It is easy to reduce the number of colors in an image with a good graphics program. Here are three RGB images, where I have systematically reduce the number of colors.



This is more colorful than most:



Original: 256 Colors/Channel  
16,777,216 Theoretical Colors



128 Colors/Channel  
2,097,152 Theoretical Colors



64 Colors/Channel  
262,144 Theoretical Colors



32 Colors/Channel  
32,768 Theoretical Colors



16 Colors/Channel  
4,096 Theoretical Colors



8 Colors/Channel  
512 Theoretical Colors



4 Colors/Channel  
64 Theoretical Colors



2 Colors/Channel  
8 Theoretical Colors

Although you can find deficiencies, the image holds up even down to 64 colors. But the number of colors we need changes when there are longer and more subtle gradients:



Original: 256 Colors/Channel  
16,777,216 Theoretical Colors



128 Colors/Channel  
2,097,152 Theoretical Colors



64 Colors/Channel  
262,144 Theoretical Colors



32 Colors/Channel  
32,768 Theoretical Colors



16 Colors/Channel  
4,096 Theoretical Colors



8 Colors/Channel  
512 Theoretical Colors



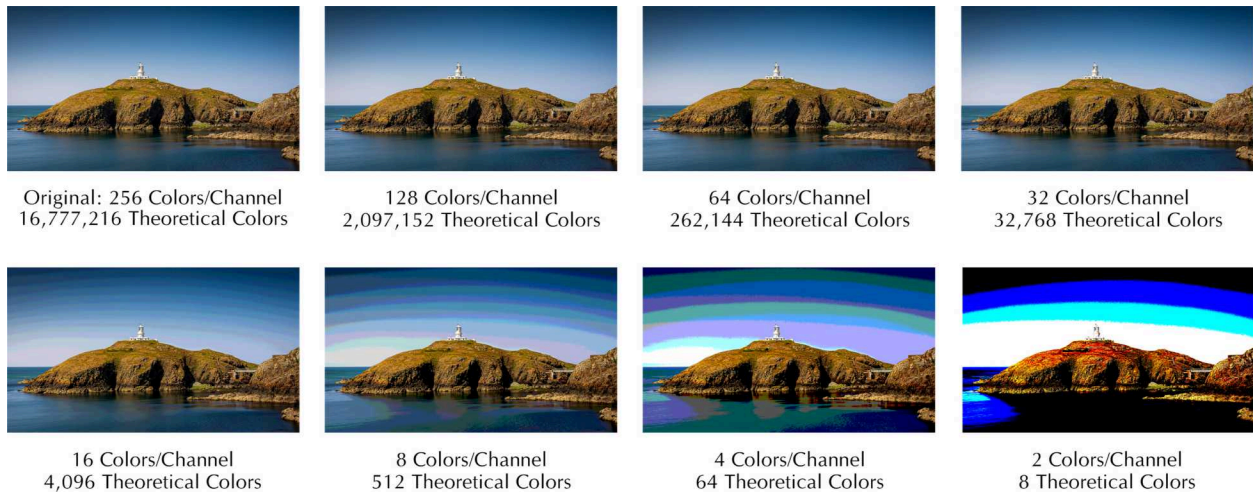
4 Colors/Channel  
64 Theoretical Colors



2 Colors/Channel  
8 Theoretical Colors

This image, and the one on the next page, develops banding at around 32,768 colors, more colors less banding, less colors more banding.

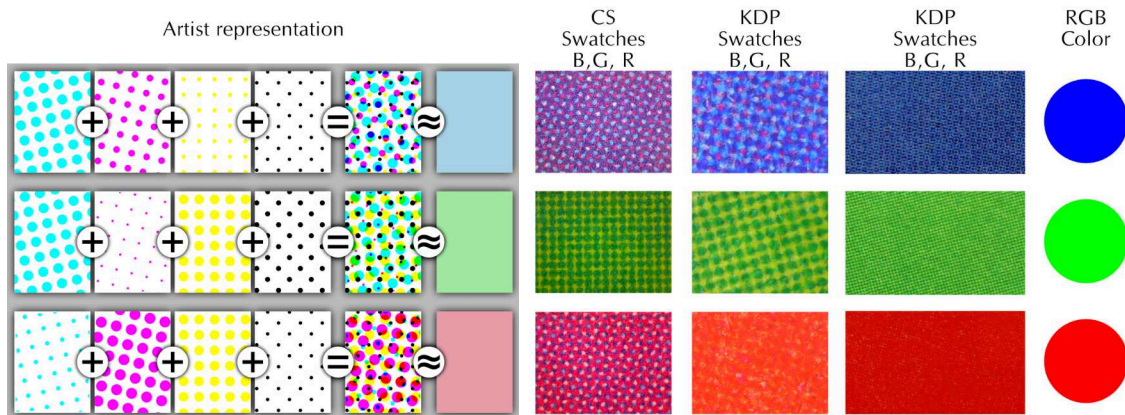




I am not suggesting that we need few colors, actually quite the opposite, but as a practical matter, we often don't need as many colors as we think.

## Color Printing

Standard color printing uses four colors, called *process colors*, CMYK:



The three sets of swatches are scans of printed tests. As you can see, for the three RGB primaries, printing using KDP's CMYK does an convincing job.

Every color image is broken down into four components, called separations. Each separation is actually grayscale, but it is displayed or printed in color:

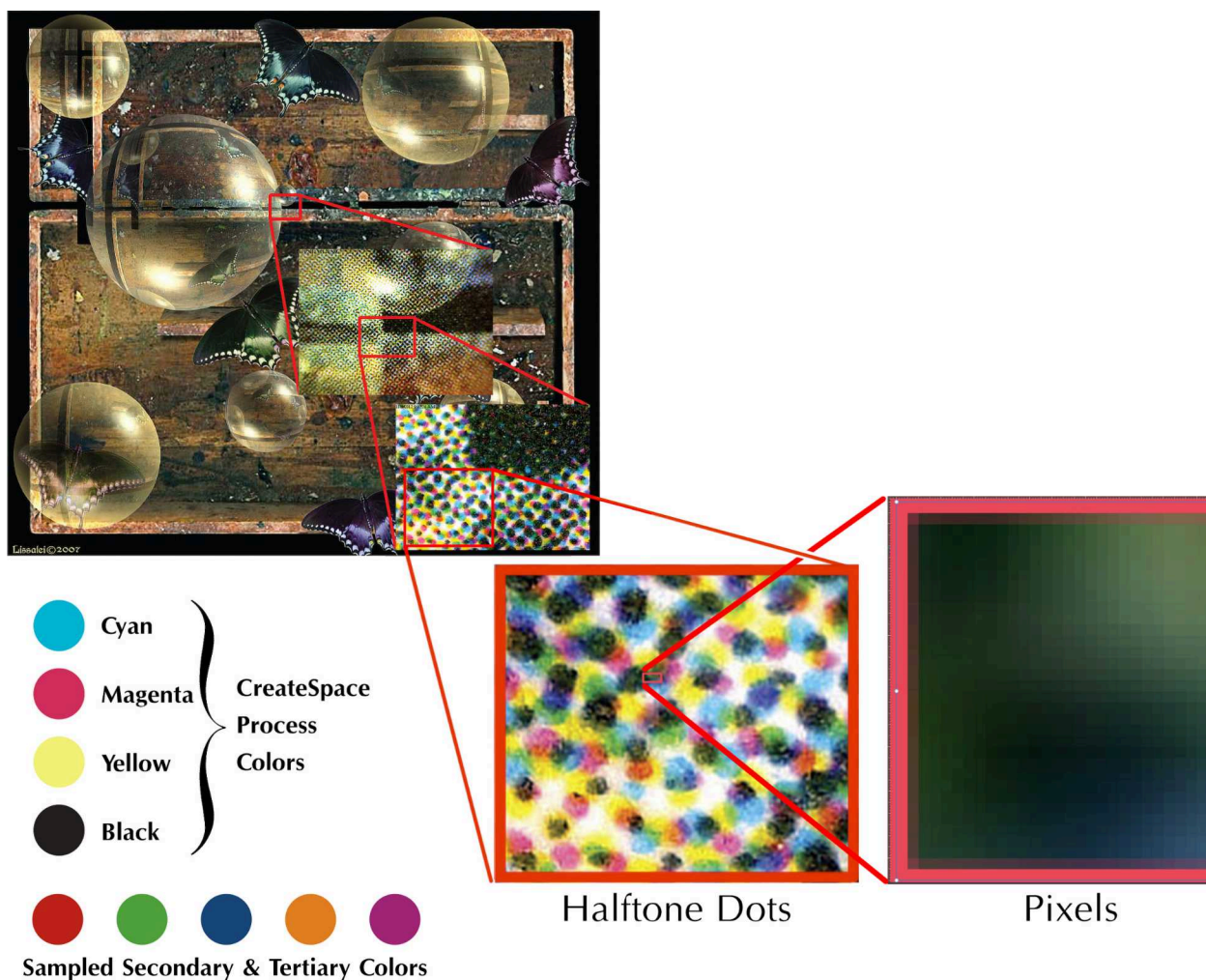


This shows the digital separations; these are not scans of printed material, although they would be very similar.

Most digital presses have a resolution of about 2400 dpi, that is, true dots per inch. The tiny dots of ink or toner are 0.0004167" wide. A halftone dot in a color book is as big as 0.00588". KDP uses 170 lpi (lines per inch, which means 170 halftone dots per inch). Each halftone dot could contain as many as 200 dots of ink in one color. These dots are also called addressable dots of ink because just before each page is printed, the exact location of each dot—as many as 1,144,684,800 dots—is calculated.

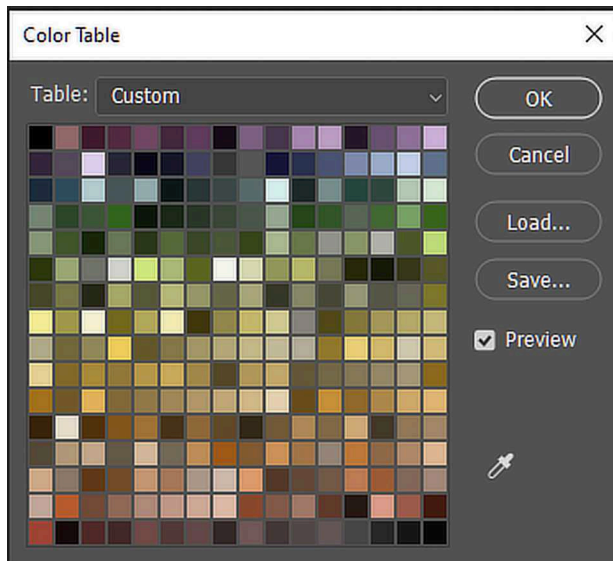
To reuse an earlier example, here is how a full-color image prints in detail:

The dots of ink in the enlargements are the halftone dots. They are not the same as pixels. Most of the color we see is from the proximity of the dots; but like working with paints, some of the dots overlap and produce new colors:



Even with the additional colors caused by overlapping colors, we see many more colors. A simple color table, which captures the most important 256 color shows what our eyes perceive:





## Out-of-Gamut Colors

The out-of-gamut colors are not just the single layer we saw on page 8. They are those colors that exist in one 3-D color space, sRGB, but do not exist in CMYK, and which extend towards white and towards black. Again, it is not that there are more colors in sRGB, but that the two color spaces are not the same shape and parts do not overlap.



Large solid areas of out-of-gamut color (often bright and saturated colors) suffer the most (left). However, in most continuous-tone images, out-of-gamut color is often not a big problem: there



sRGB Original Art



Out-of-Gamut Color in Red



Scan of CMYK Printed Piece

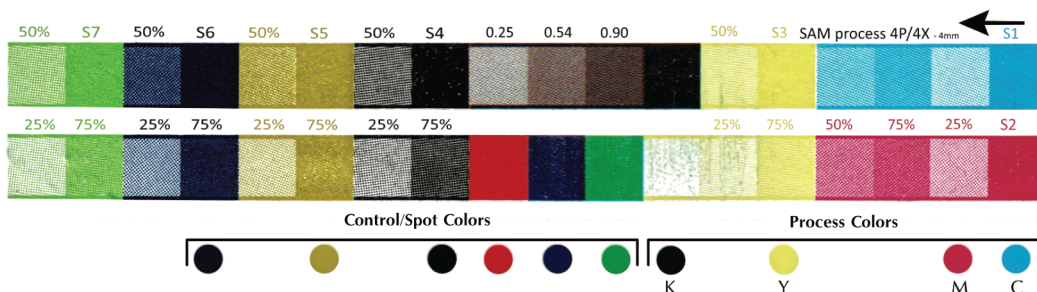
is quite a bit of out-of-gamut color in these images, but you would be hard pressed to find any

fault with the printed (CMYK) version. I have printed this montage with CreateSpace and KDP throughout the last ten plus years, and the image on the right is typical (see page 20).

There are several ways to deal with sRGB to CMYK conversions and out-of-gamut colors.

*Work in CMYK:* If you work in CMYK, you can't have out-of-gamut color. When I am working in color, I often change from sRGB to CMYK, even to Lab, to take advantage of how I can adjust certain colors that are unique to each mode. I would rather sacrifice some small amount of color for the control. Working in CMYK, I rarely miss those colors. However, when I convert sRGB to CMYK, I will always compare the CMYK to the sRGB before I simply upload the art for printing. Sometimes the change can be significant. Therefore, do not simply save an sRGB file to PDF/X-1a. The art will be converted to CMYK. Either convert it to CMYK, then export to PDF, or examine the PDF carefully. With KDP, I prefer to work in sRGB and upload sRGB.

*Control Colors:* No matter how good the printer, if you have colors that are vital, like corporate identification or packaging, one solution is control or spot colors (control and spot are interchangeable). These are special colors that print using additional printing plates (or the equivalent). For example:



I am unaware of any print-on-demand company that permits control or spot colors.

*Use the printer's profile*—some printers will give you their profiles to accommodate converting from sRGB to CMYK. Print-on-demand companies don't make these public.

*Trust in the system:* Digital printing has changed the landscape. Our home color printers emulate sRGB magnificently, and they are CMYK! Commercial digital presses are different, but most manufacturers talk about emulating sRGB. Here is one way:



CMYK are the standard process colors, and Pantone Process Colors are the industry standard.

Every printer, monitor, etc., has its own profile(s) that lets digital files appear correctly on your monitor or be printed correctly. As you can see, there is a fair variety between just a few different CMYKs. Most products associated with your computer will make their profiles available. Most printers will tell you what their preferred profiles are (these will take into account the ink colors, paper, rotation, press, etc.). But I am unaware of any print-on-demand company, certainly not KDP,

that will tell you much of anything along these lines. Never their profiles.

*Rendering Intents:* There are rendering intents: these are instructions that tell the software that is converting from one RGB to CMYK, how, in part, to handle out-of-gamut color. There are four:

Perceptual—compresses all RGB color into the CMYK destination, preserving the overall perceptual appearance of the image. All colors will change a little, both in-gamut and out-of-gamut.

Relative Colorimetric—scales the white of the source file to that of the target file (output media).

Then all the colors are mapped to the CMYK file, lightness and hue are maintained, but the out-of-gamut colors are clipped to the nearest reproducible colors at the expense of saturation.

Absolute Colorimetric—all in-gamut colors are exactly converted, while the out-of-gamut colors are clipped to the nearest reproducible hue. Lightness and saturation are lost.

Saturation—maps the fully saturated colors to fully saturated colors in the CMYK at the expense of hue and lightness. This is best suited to charts and logos where certain colors are intended to pop, but specific hues are less important.

The differences between them depends a lot on the image. Some changes could be quite noticeable, while other are negligible. Although many graphics programs default to Relative Colorimetric, I find, on the whole, that Perceptual Rendering is consistently the most effective.

*Convert and adjust:* Set the rendering intent to Perceptual Rendering Intent, for example, then convert your work from sRGB to CMYK. Display both the original sRGB and the CMYK versions side-by-side on the same monitor. Or if you print them, view them side-by-side under the same light and ambient conditions.

Both Photoshop and Affinity Photo let you mark out-of-gamut colors (based on traditional CMYK profiles and process colors), see center montage at bottom of page 13. Knowing what colors/areas are out-of-gamut you can select those areas and adjust them, do overall adjustments, etc. Tools to consider: Curves, Color Balance, or similar. Two approaches (take notes while you work): reduce the over all colors equally, as a start; or reduce the unwanted color(s): for example, if you have an orange, try reducing cyan and maybe some black.

## **Software Generalities**

For an all text interior, you could work in Word, or Libre Office/OpenOffice, as well as InDesign or Affinity Publisher. They all work reasonably well. Word and LibreOffice/OpenOffice export to PDF/A, which embeds fonts, removes transparency, and converts all art to sRGB.

Desktop publishing programs (InDesign, Affinity Publisher, etc.) offer much more nuanced control of text and images, as well as ease of use—once you learn the programs.

There are free PDF conversion programs. They generally convert CMYK to sRGB. They produce generic PDFs.

Adobe Acrobat creates and permits editing PDFs (albeit limited). Desktop publishing programs permit converting to PDF with a range of presets. There are also online conversion sites. I do not know how they deal with CMYK or PDF presets (PDF/X-1a or PDF/X-3).

For images, especially covers, graphics programs that support layers are important. Depending on what kind of PDF you require, you might get away with something like GIMP, which is free, or you might need Photoshop or Affinity Design.

I also recommend a tablet if you do lots of graphics work.



## CMYK vs RGB

Most traditional commercial printers will give you a lot of help, including a profile to use. They want your work to print well. Most print-on-demand companies, KDP especially, are quite secretive.

Printers talk about PDF presets. Presets are a set of standards that are incorporated into the resulting PDF. For example, PDF/A was designed for archival purposes; PDF/X for graphics/printing.

IngramSpark recommends submitting CMYK work. They prefer a PDF/X-1a file, which converts RGB to CMYK, or PDF/X-3, but your work should be CMYK. This means that for the most part you should be working in Photoshop, InDesign, Affinity Photo, Affinity Publisher, and maybe have Acrobat. Other software might export to PDF/X-1a or PDF/X-3. In GIMP, while you can change the color mode to CMYK, you can't work in CMYK. You can export to a generic PDF, but not to a preset.

KDP, while recommending PDF/X-1, will accept almost anything from Word files to text files, generic PDFs to PDF/A, PDF/X-1, PDF/X-3, and PDF/X-4. They will also accept RGB as well as CMYK.

Even with converting from sRGB to CMYK, the color spaces are close enough that most images are not hurt. Before Affinity Photo, which permits color correcting in LAB, RGB, and CMYK without converting the image color mode, I often converted color spaces in order to have access specifically to Y and K. However, as you will see, most continuous tone images print well even with out-of-gamut color.

With regard to KDP, I give the nod to sRGB as the color space of choice.

### Examples

All of the following examples have out-of-gamut colors based on CMYK Coated FOGRA39 (a CMYK profile). We cannot know what is truly out-of-gamut for KDP et al. because there are no published color profiles.

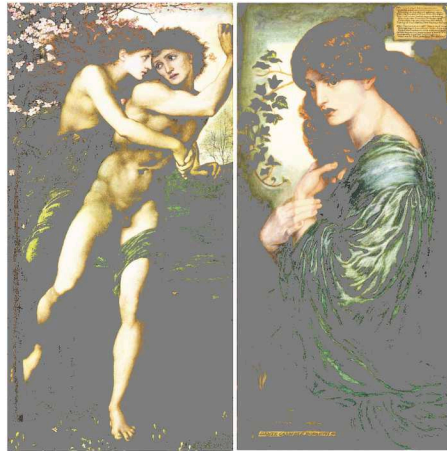
Both KDP and IS will strip off whatever profiles and color management we or our software assigns our images.

None of the art was prepared for printing or enhanced in any way, other than sizing it for the test books and the CMYK conversion itself. Although there were many generations of the test books, I did not correct any image based on how it printed.

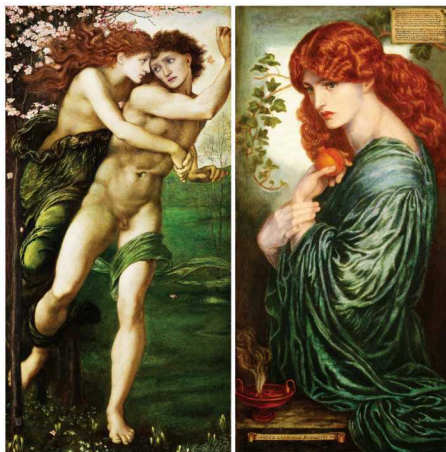
All of the color work shown here was scanned from Premium Color books, except as noted. The test books were chosen at random, so that I didn't bias the choices. Later, comparing these scans to many other examples, I would say these are representative.

KDP Premium Color compresses the three-quarter (dark/shadow) tones; see page 24. Of course this can be compensated for by opening up the shadow detail. I didn't do that because then the tests would be showing more what I can do and not KDP.

In traditional printing, where a print run could be 1,000 to 10,000,000, individual sheets are examined and corrections made, with print-on-demand presses each sheet is a complete run, even if they are printing multiple copies of the book. On-press color correcting with p-o-d has to be done before a book is printed. More on this later, but it's important to understand the limitations of the system.



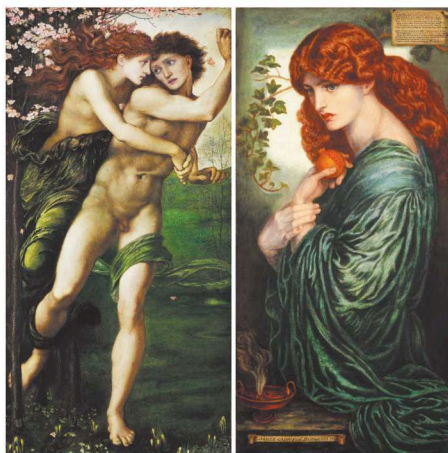
Out-of-Gamut Color (Gray)



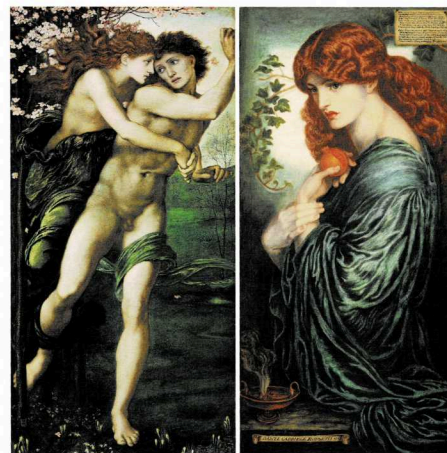
sRGB Original Art



sRGB Printed & Scanned



CMYK Original Art



CMYK Printed & Scanned



Out-of-Gamut Color (Gray)



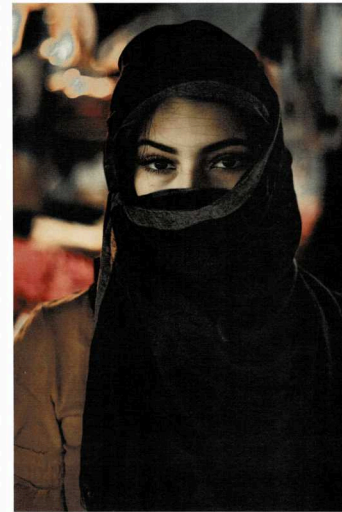
sRGB Original Art



sRGB Printed & Scanned

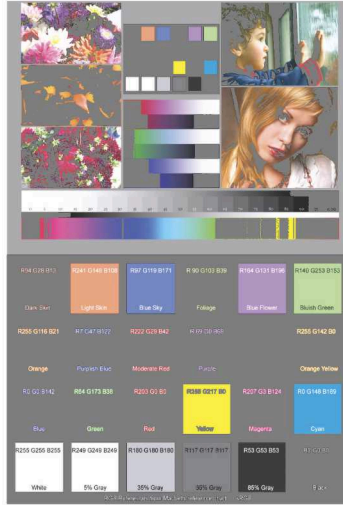


CMYK Original Art



CMYK Printed & Scanned





Out-of-Gamut Color (Gray)



sRGB Original Art



sRGB Printed & Scanned



CMYK Original Art



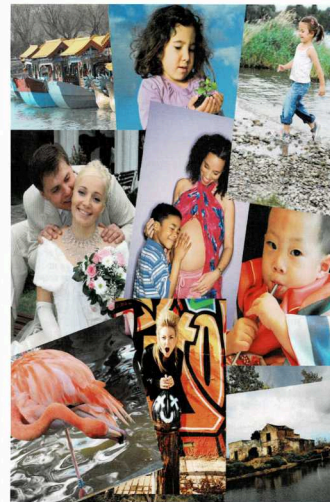
CMYK Printed & Scanned



Out-of-Gamut Color (Gray)



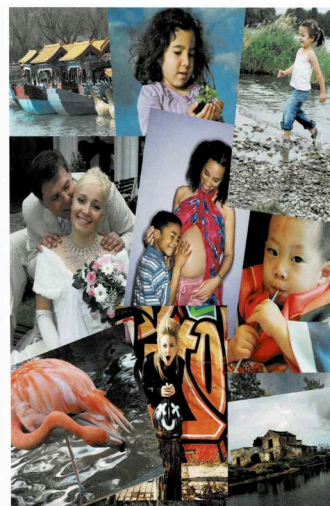
sRGB Original Art



sRGB Printed & Scanned



CMYK Original Art



CMYK Printed & Scanned



Out-of-Gamut Color (Gray)



sRGB Original Art



sRGB Printed & Scanned



CMYK Original Art



CMYK Printed & Scanned

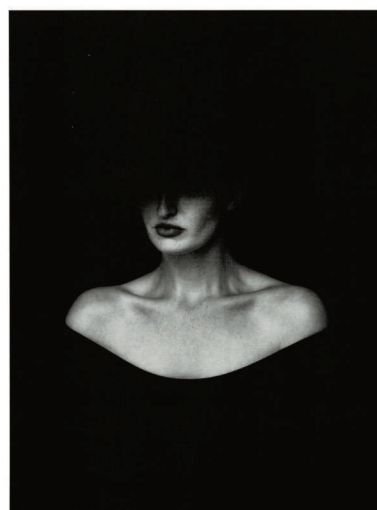




Out-of-Gamut Color (Gray)



sRGB Original Art



sRGB Printed & Scanned



CMYK Original Art



CMYK Printed & Scanned

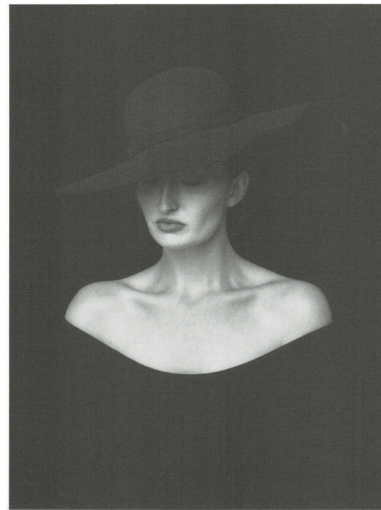
Printed Premium Color



Out-of-Gamut Color (Gray)



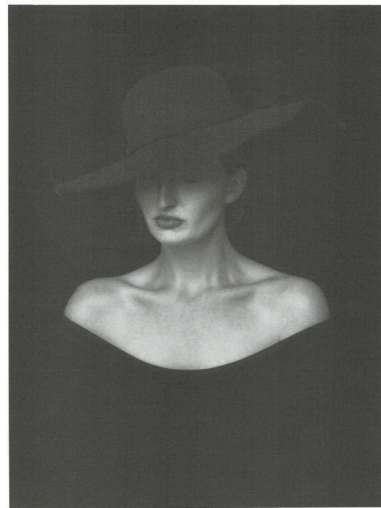
sRGB Original Art



sRGB Printed & Scanned

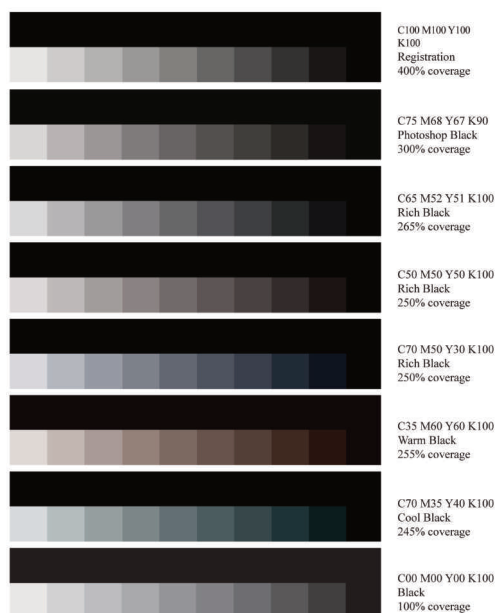


CMYK Original Art



CMYK Printed & Scanned

Printed B&W

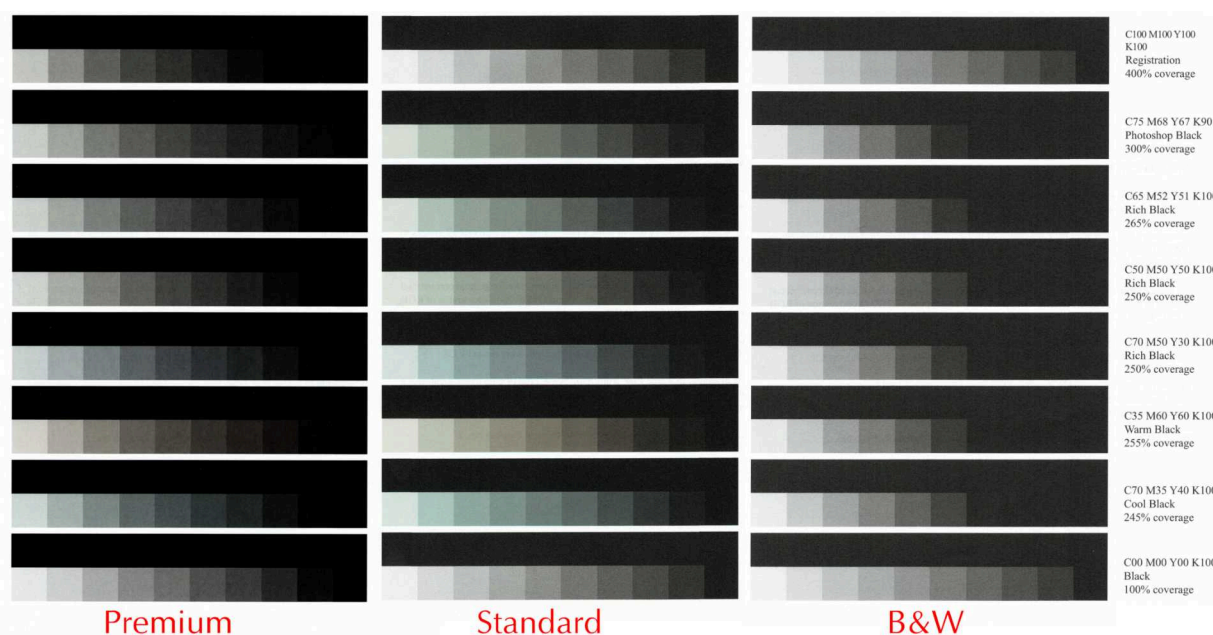


This is the original art (left) for the scans showing how KDP prints step wedges. For the most part, you can see a distinction between 90% and 100% Black. And you can see that some of the black step wedges show some compression in the darkest areas.

Below, some of the three-quarter tones (shadow detail) compress or choke up in these scans.

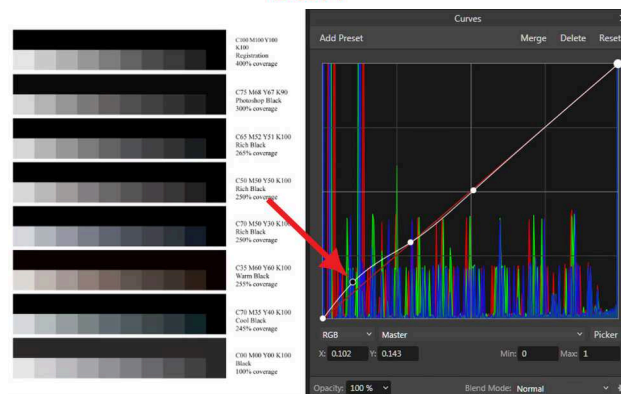
Some inks take from a few days to a couple of weeks for the shadow detail to develop. When evaluating how the shadows print, give the printed proof at least a few days before making an assessment. I noticed this some years ago, but more recently with KDP, I have not encountered it.

Below these, you'll see how the shadows can be opened up.



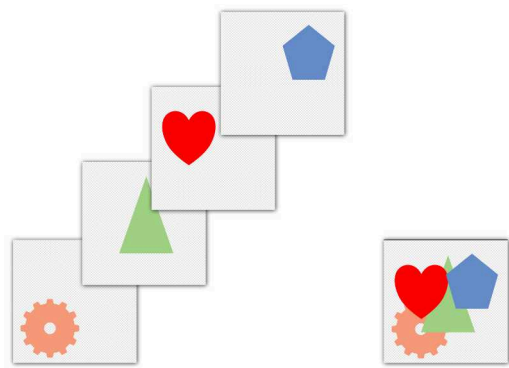
Here you can see the effect of opening up the shadow details on the Premium scan. In the case of the bottom stepwedge, K-only, it was lightened bit too much. That could have been prevented by excluding it from the selection.

The point, however, is that shadow detail can be opened up, either globally, as in this example, or targeted, where the adjustments can be applied to a selection(s).



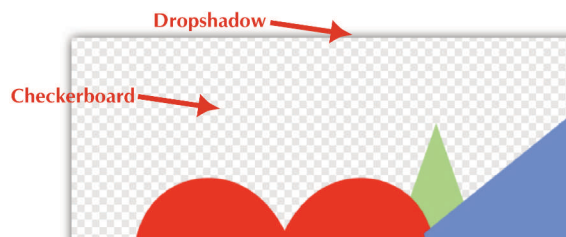


## Transparency



Layer Stack

Layers Viewed Together



Another issue that often effects whether a book is blocked or not is transparency. Transparency is literally the quality of letting light through—a quality of seeing what is beneath an object. In the example, left, there are 4 layers, like 4 acetates, or cartoon cells. Each layer is transparent except for the object on it, which masks out anything beneath it. The blue pentagon masks out some of the green triangle; the red heart masks out part of the green triangle and the salmon colored gear; etc. In this sense, transparency is quite simple.

Transparency in most graphics programs is indicated by the checkerboard background.

Another example of transparency is effects like drop shadows. There is a drop shadow around the boxes in these examples of layers.



Layers Flattened

But how transparency is handled to be printed is hugely complicated. One thing that happens when multiple layers are flattened—four layers have been combined and reduced to one—there is often a color shift. Usually it is negligible, but sometimes it is quite obvious. KDP, IS, et al., do not want the possible surprise of a color shift, and because handling transparency and printing can be problematic, it is best that it's removed (flattened). When flattened, the checkerboard/transparent background becomes white, above right—in printing this is paper color, there is no white ink in CMYK. The ultimate consumer image file format is JPG. JPGs are single layer images, that have no transparency.

Although this is not generally talked about, nor is it what people mean by “transparency,” editable text requires transparency. Here, what you're reading now has a white background that shows through. When PDFs are flattened—the transparency is removed—editable text remains editable.

Most PDF conversions (generic, PDF/A, PDF/X-1a, PDF/X-3, even PDF/4, if you don't select keeping layers) will flatten transparency. Ironically, it is Word where it is possible to have transparency in a PDF, using Word's word art feature, but *not* if you select PDF/A (under Options): however, PDF/A will remove the transparency effects.

## Color Fidelity: Named Hex Colors

It is impossible to show all the colors can and cannot be printed. This becomes important when using large, solid, areas of color that might be out of gamut. The following are approximately 740 named hex (the color code) colors.

Each page has two large columns of three smaller columns: the Name of the color, the hex code of the color, and a column of the in-gamut colors based on standard out-of-gamut plugins. Each spread shows the PDF art on the left page and a scan of the printed examples (Premium Color) on the right page.

| Name               | Hex Code | In-Gamut              | Name          | Hex Code | In-Gamut              |
|--------------------|----------|-----------------------|---------------|----------|-----------------------|
| Lemon Yellow       | #fff44f  | Lemon Yellow          | Lincoln green | #195905  | Missing: Out-of-Gamut |
| Lemon chiffon      | #fffacd  | Lemon chiffon         | Linen         | #faf0e6  | Linen                 |
| Lemon lime         | #bfff00  | Missing: Out-of-Gamut | Lion          | #c19a6b  | Lion                  |
| Light Crimson      | #f56991  | Light Crimson         | Liver         | #534b4f  | Liver                 |
| Light Thulian pink | #e68fac  | Light Thulian pink    | Lust          | #e62020  | Missing: Out-of-Gamut |

These colors are printed twice, first, alphabetically, second, sorted by color/name. I tried to categorize them by color family, from dark to light. Some colors are included where they are

### Test Colors

| Blues                |        |                     |                          |        |                 | Blues                |        |                     |                          |        |                 |
|----------------------|--------|---------------------|--------------------------|--------|-----------------|----------------------|--------|---------------------|--------------------------|--------|-----------------|
| All Colors           | Hex    | In-gamut            | All Colors               | Hex    | In-gamut        | All Colors           | Hex    | In-gamut            | All Colors               | Hex    | In-gamut        |
| Prussian Blue        | 003153 |                     | Dark midnight blue       | 003366 |                 | Prussian Blue        | 003153 |                     | Dark midnight blue       | 003366 |                 |
| Orford Blue          | 002147 |                     | Slate Peacock Blue       | 23297a |                 | Orford Blue          | 002147 |                     | Slate Peacock Blue       | 23297a |                 |
| Midnight Blue        | 191970 |                     | Dark Blue                | 00008b |                 | Midnight Blue        | 191970 |                     | Dark Blue                | 00008b |                 |
| Navy Blue            | 000080 |                     | Hamden Blue              | 00008b |                 | Navy Blue            | 000080 |                     | Hamden Blue              | 00008b |                 |
| Ultramarine          | 120a8f |                     | Dark smoky blue          | 003399 |                 | Ultramarine          | 120a8f |                     | Dark smoky blue          | 003399 |                 |
| Deep Blue            | 00009c |                     | Zaffre                   | 0014a8 |                 | Deep Blue            | 00009c |                     | Zaffre                   | 0014a8 |                 |
| Deep cerulean        | 08457e |                     | Scuba                    | 003399 |                 | Deep cerulean        | 08457e |                     | Scuba                    | 003399 |                 |
| Medium electric blue | 035096 |                     | International Klein Blue | 0020a7 |                 | Medium electric blue | 035096 |                     | International Klein Blue | 0020a7 |                 |
| Egyptian Blue        | 1034a8 |                     | Royal Azure              | 0030a8 |                 | Egyptian Blue        | 1034a8 |                     | Royal Azure              | 0030a8 |                 |
| Ice Blue             | 0033aa |                     | Dark slate blue          | 483d8b | Dark slate blue | Ice Blue             | 0033aa |                     | Dark slate blue          | 483d8b | Dark slate blue |
| Cadet                | 0047ab |                     | Yale Blue                | 004802 |                 | Cadet                | 0047ab |                     | Yale Blue                | 004802 |                 |
| Moroccan Blue        | 0000d1 |                     | Modern Ultramarine       | 3100ff |                 | Moroccan Blue        | 0000d1 |                     | Modern Ultramarine       | 3100ff |                 |
| Resonant Blue        | 2730a2 |                     | Modern Indigo Blue       | 0054b4 |                 | Resonant Blue        | 2730a2 |                     | Modern Indigo Blue       | 0054b4 |                 |
| Blue                 | 0000ff |                     | Persian Blue             | 1c39bb |                 | Blue                 | 0000ff |                     | Persian Blue             | 1c39bb |                 |
| Cerulean blue        | 2a52be | Cerulean blue       | UCLA Blue                | 536895 | UCLA Blue       | Cerulean blue        | 2a52be | Cerulean blue       | UCLA Blue                | 536895 | UCLA Blue       |
| Denim                | 1960b3 |                     | Space Blue               | 6a5acd |                 | Denim                | 1960b3 |                     | Space Blue               | 6a5acd |                 |
| Steel blue           | 0073cf |                     | Sapphire                 | 0f52ba |                 | Steel blue           | 0073cf |                     | Sapphire                 | 0f52ba |                 |
| French Blue          | 0072bc | French Blue         | Hazy Blue                | 6000dc |                 | French Blue          | 0072bc | French Blue         | Hazy Blue                | 6000dc |                 |
| Medium Persian blue  | 0067a5 | Medium Persian blue | Lapis Lazuli             | 2661bc | Lapis Lazuli    | Medium Persian blue  | 0067a5 | Medium Persian blue | Lapis Lazuli             | 2661bc | Lapis Lazuli    |
| Cerulean             | 0077a7 | Cerulean            | Ice Blue                 | 4480cf |                 | Cerulean             | 0077a7 | Cerulean            | Ice Blue                 | 4480cf |                 |
| Cadet Blue           | 5f9ead | Cadet Blue          | Sea Blue                 | 008094 | Sea Blue        | Cadet Blue           | 5f9ead | Cadet Blue          | Sea Blue                 | 008094 | Sea Blue        |
| Bright cerulean      | 10a0cb | Bright cerulean     | Green Blue               | 1164d4 | Green Blue      | Bright cerulean      | 10a0cb | Bright cerulean     | Green Blue               | 1164d4 | Green Blue      |
| Indigo               | 2146cd | Indigo              | CG Blue                  | 0070a5 | CG Blue         | Indigo               | 2146cd | Indigo              | CG Blue                  | 0070a5 | CG Blue         |
| Wild blue yonder     | a2a8d0 | Wild blue yonder    | Ice Blue                 | 367588 | Ice Blue        | Wild blue yonder     | a2a8d0 | Wild blue yonder    | Ice Blue                 | 367588 | Ice Blue        |
| Blue Bell            | a2a2d0 | Blue Bell           | Bond Blue                | 0095d6 | Bond Blue       | Blue Bell            | a2a2d0 | Blue Bell           | Bond Blue                | 0095d6 | Bond Blue       |

because of their names: for example, I might have put Cadet blue with the greens except for its name. Other colors look different as the sorting changes them relative to surrounding colors—simultaneous contrast! The final selection and arrangements are idiosyncratic.

As noted earlier, large solid areas of color are difficult, and if the color is important, a control or spot color is usually used. The following set of scanned printed pages was picked at random from a dozen or so test books. I have compared it to the other test books and it is a fair representation

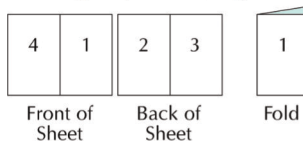
of how KDP prints these solid colors; however, things drift and and change. I cannot recommend enough that you do a test book. Presses change, inks/toners change. Profiles are changed. I should note that I've been printing test books for almost 15 years with Create Space and now KDP. KDP does a remarkable job of printing color images over a span of years that matches as well as or even better than many traditional printers.

## Quality Control

Before the examples, this is a good place to discuss quality control. Most printers have print runs of 500 to 5,000,000 sheets per run. All of one sheet is printed at a time, in what is called a press or print run.

A sheet, printed both sides, could contain, 16, 32, or 64 pages. Generally there will be a press-man pulling a sheet out every few minutes or so, to check the color, and to make adjustments to the ink flow will be made accordingly. Quality control is in real time and can be amortized to pennies per book.

Four-Page Imposition & Signature



The print-on-demand model (KDP, IS, Lulu, et al.) is that a book is printed to order. They use digital presses, and usually print four pages per sheet (or from a roll, called a web). Each side of the sheet is a complete run. It cannot be checked. These presses print five 1-color book pages per second. All quality control must be done before books are printed.

Although finished books may get a quick look-through, it cannot be more than cursory. To sit and scan a 300-page book takes 5 minutes. If any care is given, no one can do more than two or three books before the brain turns to mush. But even two-seconds a spread cannot necessarily catch if pages from other books have found there way in, or images printed badly without comparing the book to the PDF. If there were some question, comparing pages to the PDF, could easily take 10–15 minutes (at, say, an average of \$10/book), which would make p-o-d books prohibitively expensive.

“I’d be willing to pay a premium for better quality control,” won’t work with the p-o-d model. Special orders don’t fit the model.

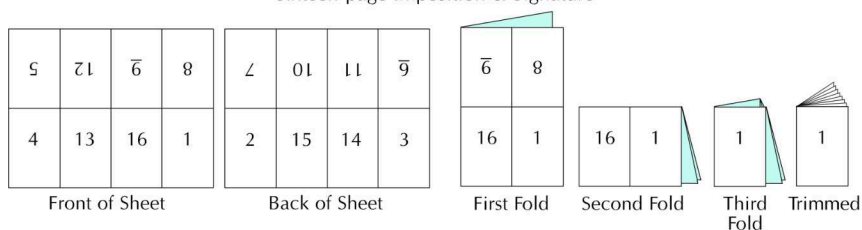
If someone orders 500 copies of a book, each copy is printed in full before the next copy. Again, no one can pull sheets to check them.

For the most part, a continuous tone image, e.g., pages 17–23, can hide some color infidelity much easier than large, solid areas, as in the following pages. However, almost no one will be comparing your book to another copy of it, much less to your original art.

Shifts in color can be due to variations in ink or toner flow (e.g., not enough or too much cyan), halftone dots slightly out of registration (even a 0.001" out of register); changes in ink/toner temperature; changes in paper stock (whiteness, fillers, coatings, thickness); changes in humidity; etc.

None of the following has been changed other than to fit these pages: no image enhancements, not before printing or after scanning. The original art and the scans are sRGB.

Sixteen-page Imposition & Signature





|                  |         |                  |                       |         |                 |
|------------------|---------|------------------|-----------------------|---------|-----------------|
| Air Force blue   | #5d8aa8 | Air Force blue   | Baby blue eyes        | #a1caf1 | Baby blue eyes  |
| Alice blue       | #f0f8ff | Alice blue       | Baby pink             | #f4c2c2 | Baby pink       |
| Alizarin crimson | #e32636 | Alizarin crimson | Ball Blue             | #21abcd | Ball Blue       |
| Almond           | #efdcd  | Almond           | Banana Mania          | #fae7b5 | Banana Mania    |
| Amaranth         | #e52b50 | Amaranth         | Banana yellow         | #ffe135 | Banana yellow   |
| Amber            | #ffb600 |                  | Battleship grey       | #848482 | Battleship grey |
| American rose    | #ff033e |                  | Bazaar                | #98777b | Bazaar          |
| Amethyst         | #9966cc |                  | Beau blue             | #bcd4e6 | Beau blue       |
| Android Green    | #a4c639 | Android Green    | Beaver                | #9f8170 | Beaver          |
| Anti-flash white | #f2f3f4 | Anti-flash white | Beige                 | #f5f5dc | Beige           |
| Antique brass    | #cd9575 | Antique brass    | Bisque                | #ffe4c4 | Bisque          |
| Antique fuchsia  | #915c83 | Antique fuchsia  | Bistre                | #3d2b1f |                 |
| Antique white    | #faebd7 | Antique white    | Bittersweet           | #fe6f5e |                 |
| Ao               | #008000 |                  | Black                 | #000000 |                 |
| Apple green      | #8db600 |                  | Blanched Almond       | #ffebcd | Blanched Almond |
| Apricot          | #fbceb1 | Apricot          | Bleu de France        | #318ce7 |                 |
| Aqua             | #00ffff |                  | Blizzard Blue         | #ace5ee | Blizzard Blue   |
| Aquamarine       | #7fffd4 |                  | Blond                 | #faf0be | Blond           |
| Army green       | #4b5320 |                  | Blue                  | #0000ff |                 |
| Arylide yellow   | #e9d66b | Arylide yellow   | Blue Bell             | #a2a2d0 | Blue Bell       |
| Ash grey         | #b2beb5 | Ash grey         | Blue Gray             | #6699cc | Blue Gray       |
| Asparagus        | #87a96b | Asparagus        | Blue green            | #0d98ba | Blue green      |
| Atomic tangerine | #ff9966 | Atomic tangerine | Blue purple           | #8a2be2 |                 |
| Auburn           | #a52a2a |                  | Blue violet           | #8a2be2 |                 |
| Aureolin         | #fdee00 | Aureolin         | Blush                 | #de5d83 | Blush           |
| AuroMetalSaurus  | #6e7f80 | AuroMetalSaurus  | Bole                  | #79443b | Bole            |
| Awesome          | #ff2052 |                  | Bondi blue            | #0095b6 | Bondi blue      |
| Azure            | #007fff |                  | Bone                  | #e3dac9 | Bone            |
| Azure mist/web   | #f0ffff | Azure mist/web   | Boston University Red | #cc0000 |                 |
| Baby blue        | #89cff0 | Baby blue        | Bottle green          | #006a4e | Bottle green    |

# Test Colors

|                  |         |                  |                       |         |                 |
|------------------|---------|------------------|-----------------------|---------|-----------------|
| Air Force blue   | #5d8aa8 | Air Force blue   | Baby blue eyes        | #a1caf1 | Baby blue eyes  |
| Alice blue       | #f0f8ff | Alice blue       | Baby pink             | #f4c2c2 | Baby pink       |
| Alizarin crimson | #e32636 | Alizarin crimson | Ball Blue             | #21abcd | Ball Blue       |
| Almond           | #efdcd  | Almond           | Banana Mania          | #fae7b5 | Banana Mania    |
| Amaranth         | #e52b50 | Amaranth         | Banana yellow         | #ffe135 | Banana yellow   |
| Amber            | #ffb700 |                  | Battleship grey       | #848482 | Battleship grey |
| American rose    | #ff033e |                  | Bazaar                | #98777b | Bazaar          |
| Amethyst         | #9966cc |                  | Beau blue             | #bcd4e6 | Beau blue       |
| Android Green    | #a4c639 | Android Green    | Beaver                | #9f8170 | Beaver          |
| Anti-flash white | #f2f3f4 | Anti-flash white | Beige                 | #f5f5dc | Beige           |
| Antique brass    | #cd9575 | Antique brass    | Bisque                | #ffe4c4 | Bisque          |
| Antique fuchsia  | #915c83 | Antique fuchsia  | Bistre                | #3d2b1f |                 |
| Antique white    | #faebd7 | Antique white    | Bittersweet           | #fe6f5e |                 |
| Ao               | #008000 |                  | Black                 | #000000 |                 |
| Apple green      | #8db600 |                  | Blanched Almond       | #ffebcd | Blanched Almond |
| Apricot          | #fbceb1 | Apricot          | Bleu de France        | #318ce7 |                 |
| Aqua             | #00ffff |                  | Blizzard Blue         | #ace5ee | Blizzard Blue   |
| Aquamarine       | #7fffd4 |                  | Blond                 | #faf0be | Blond           |
| Army green       | #4b5320 |                  | Blue                  | #0000ff |                 |
| Arylide yellow   | #e9d66b | Arylide yellow   | Blue Bell             | #a2a2d0 | Blue Bell       |
| Ash grey         | #b2beb5 | Ash grey         | Blue Gray             | #6699cc | Blue Gray       |
| Asparagus        | #87a96b | Asparagus        | Blue green            | #0d98ba | Blue green      |
| Atomic tangerine | #ff9966 | Atomic tangerine | Blue purple           | #8a2be2 |                 |
| Auburn           | #a52a2a |                  | Blue violet           | #8a2be2 |                 |
| Aureolin         | #fdee00 | Aureolin         | Blush                 | #de5d83 | Blush           |
| AuroMetalSaurus  | #6e7f80 | AuroMetalSaurus  | Bole                  | #79443b | Bole            |
| Awesome          | #ff2052 |                  | Bondi blue            | #0095b6 | Bondi blue      |
| Azure            | #007fff |                  | Bone                  | #e3dac9 | Bone            |
| Azure mist/web   | #f0ffff | Azure mist/web   | Boston University Red | #cc0000 |                 |
| Baby blue        | #89cff0 | Baby blue        | Bottle green          | #006a4e | Bottle green    |

|                      |         |                 |
|----------------------|---------|-----------------|
| Boysenberry          | #873260 | Boysenberry     |
| Brandeis blue        | #0070ff |                 |
| Brass                | #b5a642 | Brass           |
| Brick red            | #cb4154 | Brick red       |
| Bright cerulean      | #1dacd6 | Bright cerulean |
| Bright green         | #66ff00 |                 |
| Bright lavender      | #bf94e4 |                 |
| Bright maroon        | #c32148 | Bright maroon   |
| Bright pink          | #ff007f |                 |
| Bright turquoise     | #08e8de |                 |
| Bright ube           | #d19fe8 |                 |
| Brilliant lavender   | #f4bbff |                 |
| Brilliant rose       | #ff55a3 |                 |
| Brink pink           | #fb607f |                 |
| British racing green | #004225 |                 |
| Bronze               | #cd7f32 | Bronze          |
| Brown                | #a52a2a |                 |
| Bubble gum           | #ffc1cc | Bubble gum      |
| Bubbles              | #e7feff | Bubbles         |
| Buff                 | #f0dc82 | Buff            |
| Bulgarian rose       | #480607 |                 |
| Burgundy             | #800020 |                 |
| Burlywood            | #deb887 | Burlywood       |
| Burnt orange         | #cc5500 |                 |
| Burnt sienna         | #e97451 | Burnt sienna    |
| Burnt umber          | #8a3324 |                 |
| Byzantine            | #bd33a4 |                 |
| Byzantium            | #702963 |                 |
| CG Blue              | #007aa5 | CG Blue         |
| CG Red               | #e03c31 |                 |

|                       |         |                  |
|-----------------------|---------|------------------|
| Cadet                 | #536872 | Cadet            |
| Cadet blue            | #5f9ea0 | Cadet blue       |
| Cadet grey            | #91a3b0 | Cadet grey       |
| Cadmium green         | #006b3c | Cadmium green    |
| Cadmium orange        | #ed872d | Cadmium orange   |
| Cadmium red           | #e30022 |                  |
| Cadmium yellow        | #fff600 |                  |
| Café au lait          | #a67b5b | Café au lait     |
| Café noir             | #4b3621 |                  |
| Cal Poly Pomona green | #1e4d2b |                  |
| Cambridge Blue        | #a3c1ad | Cambridge Blue   |
| Camel                 | #c19a6b | Camel            |
| Camouflage green      | #78866b | Camouflage green |
| Canary                | #ffff99 |                  |
| Canary yellow         | #ffef00 | Canary yellow    |
| Candy apple red       | #ff0800 |                  |
| Candy pink            | #e4717a | Candy pink       |
| Capri                 | #00bfff |                  |
| Caput mortuum         | #592720 |                  |
| Cardinal              | #c41e3a |                  |
| Caribbean green       | #00cc99 |                  |
| Carmine               | #ff0040 |                  |
| Carmine pink          | #eb4c42 | Carmine pink     |
| Carmine red           | #ff0038 |                  |
| Carnation pink        | #ffa6c9 | Carnation pink   |
| Carnelian             | #b31b1b |                  |
| Carolina blue         | #99badd | Carolina blue    |
| Carrot orange         | #ed9121 |                  |
| Celadon               | #ace1af |                  |
| Celeste               | #b2ffff |                  |



# Test Colors

|                      |         |                 |                       |         |                  |
|----------------------|---------|-----------------|-----------------------|---------|------------------|
| Boysenberry          | #873260 | Boysenberry     | Cadet                 | #536872 | Cadet            |
| Brandeis blue        | #0070ff |                 | Cadet blue            | #5f9ea0 | Cadet blue       |
| Brass                | #b5a642 | Brass           | Cadet grey            | #91a3b0 | Cadet grey       |
| Brick red            | #cb4154 | Brick red       | Cadmium green         | #006b3c | Cadmium green    |
| Bright cerulean      | #1dacd6 | Bright cerulean | Cadmium orange        | #ed872d | Cadmium orange   |
| Bright green         | #66ff00 |                 | Cadmium red           | #e30022 |                  |
| Bright lavender      | #bf94e4 |                 | Cadmium yellow        | #fff600 |                  |
| Bright maroon        | #c32148 | Bright maroon   | Café au lait          | #a67b5b | Café au lait     |
| Bright pink          | #ff007f |                 | Café noir             | #4b3621 |                  |
| Bright turquoise     | #08e8de |                 | Cal Poly Pomona green | #1e4d2b |                  |
| Bright ube           | #d19fe8 |                 | Cambridge Blue        | #a3c1ad | Cambridge Blue   |
| Brilliant lavender   | #f4bbff |                 | Camel                 | #c19a6b | Camel            |
| Brilliant rose       | #ff55a3 |                 | Camouflage green      | #78866b | Camouflage green |
| Brink pink           | #fb607f |                 | Canary                | #ffff99 |                  |
| British racing green | #004225 |                 | Canary yellow         | #ffef00 | Canary yellow    |
| Bronze               | #cd7f32 | Bronze          | Candy apple red       | #ff0800 |                  |
| Brown                | #a52a2a |                 | Candy pink            | #e4717a | Candy pink       |
| Bubble gum           | #ffc1cc | Bubble gum      | Capri                 | #00bfff |                  |
| Bubbles              | #e7feff | Bubbles         | Caput mortuum         | #592720 |                  |
| Buff                 | #f0dc82 | Buff            | Cardinal              | #c41e3a |                  |
| Bulgarian rose       | #480607 |                 | Caribbean green       | #00cc99 |                  |
| Burgundy             | #800020 |                 | Carmine               | #ff0040 |                  |
| Burlywood            | #deb887 | Burlywood       | Carmine pink          | #eb4c42 | Carmine pink     |
| Burnt orange         | #cc5500 |                 | Carmine red           | #ff0038 |                  |
| Burnt sienna         | #e97451 | Burnt sienna    | Carnation pink        | #ffa6c9 | Carnation pink   |
| Burnt umber          | #8a3324 |                 | Carnelian             | #b31b1b |                  |
| Byzantine            | #bd33a4 |                 | Carolina blue         | #99badd | Carolina blue    |
| Byzantium            | #702963 |                 | Carrot orange         | #ed9121 |                  |
| CG Blue              | #007aa5 | CG Blue         | Celadon               | #ace1af |                  |
| CG Red               | #e03c31 |                 | Celeste               | #b2ffff |                  |

|                     |         |                     |                      |         |                    |
|---------------------|---------|---------------------|----------------------|---------|--------------------|
| Celestial blue      | #4997d0 | Celestial blue      | Coral red            | #ff4040 |                    |
| Cerise              | #de3163 | Cerise              | Cordovan             | #893f45 | Cordovan           |
| Cerise pink         | #ec3b83 | Cerise pink         | Corn                 | #fbec5d | Corn               |
| Cerulean            | #007ba7 | Cerulean            | Cornell Red          | #b31b1b |                    |
| Cerulean blue       | #2a52be | Cerulean blue       | Cornflower           | #9aceeb | Cornflower         |
| Chamoisee           | #a0785a | Chamoisee           | Cornflower blue      | #6495ed |                    |
| Champagne           | #fad6a5 | Champagne           | Cornsilk             | #fff8dc | Cornsilk           |
| Charcoal            | #36454f | Charcoal            | Cosmic latte         | #fff8e7 | Cosmic latte       |
| Chartreuse          | #7fff00 |                     | Cotton candy         | #ffbcd9 | Cotton candy       |
| Cherry              | #de3163 | Cherry              | Cream                | #ffdd0  | Cream              |
| Cherry blossom pink | #ffb7c5 | Cherry blossom pink | Crimson              | #dc143c |                    |
| Chestnut            | #cd5c5c | Chestnut            | Crimson Red          | #990000 |                    |
| Chocolate           | #d2691e |                     | Crimson glory        | #be0032 |                    |
| Chrome yellow       | #ffa700 |                     | Cyan                 | #00ffff |                    |
| Cinereous           | #98817b | Cinereous           | Daffodil             | #ffff31 |                    |
| Cinnabar            | #e34234 | Cinnabar            | Dandelion            | #f0e130 | Dandelion          |
| Cinnamon            | #d2691e |                     | Dark blue            | #00008b |                    |
| Citrine             | #e4d00a |                     | Dark brown           | #654321 |                    |
| Classic rose        | #fbce7  |                     | Dark byzantium       | #5d3954 | Dark byzantium     |
| Cobalt              | #0047ab |                     | Dark candy apple red | #a40000 |                    |
| Cocoa brown         | #d2691e |                     | Dark cerulean        | #08457e |                    |
| Coffee              | #6f4e37 | Coffee              | Dark chestnut        | #986960 | Dark chestnut      |
| Columbia blue       | #9bddff | Columbia blue       | Dark coral           | #cd5b45 | Dark coral         |
| Cool black          | #002e63 |                     | Dark cyan            | #008b8b | Dark cyan          |
| Cool grey           | #8c92ac | Cool grey           | Dark electric blue   | #536878 | Dark electric blue |
| Copper              | #b87333 |                     | Dark goldenrod       | #b8860b |                    |
| Copper rose         | #996666 | Copper rose         | Dark gray            | #a9a9a9 | Dark gray          |
| Coquelicot          | #ff3800 |                     | Dark green           | #013220 |                    |
| Coral               | #ff7f50 | Coral               | Dark jungle green    | #1a2421 |                    |
| Coral pink          | #f88379 | Coral pink          | Dark khaki           | #bdb76b | Dark khaki         |



# Test Colors

|                     |         |                     |                      |         |                    |
|---------------------|---------|---------------------|----------------------|---------|--------------------|
| Celestial blue      | #4997d0 | Celestial blue      | Coral red            | #ff4040 |                    |
| Cerise              | #de3163 | Cerise              | Cordovan             | #893f45 | Cordovan           |
| Cerise pink         | #ec3b83 | Cerise pink         | Corn                 | #fbec5d | Corn               |
| Cerulean            | #007ba7 | Cerulean            | Cornell Red          | #b31b1b |                    |
| Cerulean blue       | #2a52be | Cerulean blue       | Cornflower           | #9aceeb | Cornflower         |
| Chamoisee           | #a0785a | Chamoisee           | Cornflower blue      | #6495ed |                    |
| Champagne           | #fad6a5 | Champagne           | Cornsilk             | #fff8dc | Cornsilk           |
| Charcoal            | #36454f | Charcoal            | Cosmic latte         | #fff8e7 | Cosmic latte       |
| Chartreuse          | #7fff00 |                     | Cotton candy         | #ffbcd9 | Cotton candy       |
| Cherry              | #de3163 | Cherry              | Cream                | #ffdd00 | Cream              |
| Cherry blossom pink | #ffb7c5 | Cherry blossom pink | Crimson              | #dc143c |                    |
| Chestnut            | #cd5c5c | Chestnut            | Crimson Red          | #990000 |                    |
| Chocolate           | #d2691e |                     | Crimson glory        | #be0032 |                    |
| Chrome yellow       | #ffa700 |                     | Cyan                 | #00ffff |                    |
| Cinereous           | #98817b | Cinereous           | Daffodil             | #ffff31 |                    |
| Cinnabar            | #e34234 | Cinnabar            | Dandelion            | #f0e130 | Dandelion          |
| Cinnamon            | #d2691e |                     | Dark blue            | #00008b |                    |
| Citrine             | #e4d00a |                     | Dark brown           | #654321 |                    |
| Classic rose        | #fbce7  |                     | Dark byzantium       | #5d3954 | Dark byzantium     |
| Cobalt              | #0047ab |                     | Dark candy apple red | #a40000 |                    |
| Cocoa brown         | #d2691e |                     | Dark cerulean        | #08457e |                    |
| Coffee              | #6f4e37 | Coffee              | Dark chestnut        | #986960 | Dark chestnut      |
| Columbia blue       | #9bddff | Columbia blue       | Dark coral           | #cd5b45 | Dark coral         |
| Cool black          | #002e63 |                     | Dark cyan            | #008b8b | Dark cyan          |
| Cool grey           | #8c92ac | Cool grey           | Dark electric blue   | #536878 | Dark electric blue |
| Copper              | #b87333 |                     | Dark goldenrod       | #b8860b |                    |
| Copper rose         | #996666 | Copper rose         | Dark gray            | #a9a9a9 | Dark gray          |
| Coquelicot          | #ff3800 |                     | Dark green           | #013220 |                    |
| Coral               | #ff7f50 | Coral               | Dark jungle green    | #1a2421 |                    |
| Coral pink          | #f88379 | Coral pink          | Dark khaki           | #bdb76b | Dark khaki         |



|                    |         |                   |                    |         |                   |
|--------------------|---------|-------------------|--------------------|---------|-------------------|
| Dark lava          | #483c32 | Dark lava         | Davy grey          | #555555 | Davy grey         |
| Dark lavender      | #734f96 | Dark lavender     | Debian red         | #d70a53 |                   |
| Dark magenta       | #8b008b |                   | Deep carmine       | #a9203e |                   |
| Dark midnight blue | #003366 |                   | Deep carmine pink  | #ef3038 | Deep carmine pink |
| Dark olive green   | #556b2f |                   | Deep carrot orange | #e9692c |                   |
| Dark orange        | #ff8c00 |                   | Deep cerise        | #da3287 | Deep cerise       |
| Dark orchid        | #9932cc |                   | Deep champagne     | #fad6a5 | Deep champagne    |
| Dark pastel blue   | #779ecb | Dark pastel blue  | Deep chestnut      | #b94e48 | Deep chestnut     |
| Dark pastel green  | #03c03c |                   | Deep coffee        | #704241 | Deep coffee       |
| Dark pastel purple | #966fd6 |                   | Deep fuchsia       | #c154c1 |                   |
| Dark pastel red    | #c23b22 |                   | Deep jungle green  | #004b49 | Deep jungle green |
| Dark pink          | #e75480 | Dark pink         | Deep lilac         | #9955bb |                   |
| Dark powder blue   | #003399 |                   | Deep magenta       | #cc00cc |                   |
| Dark raspberry     | #872657 |                   | Deep peach         | #ffcba4 | Deep peach        |
| Dark red           | #8b0000 |                   | Deep pink          | #ff1493 |                   |
| Dark salmon        | #e9967a | Dark salmon       | Deep saffron       | #ff9933 | Deep saffron      |
| Dark scarlet       | #560319 |                   | Deep sky blue      | #00bfff |                   |
| Dark sea green     | #8fbc8f | Dark sea green    | Denim              | #1560bd |                   |
| Dark sienna        | #3c1414 |                   | Desert             | #c19a6b | Desert            |
| Dark slate blue    | #483d8b | Dark slate blue   | Desert sand        | #edc9af | Desert sand       |
| Dark slate gray    | #2f4f4f | Dark slate gray   | Dim gray           | #696969 | Dim gray          |
| Dark spring green  | #177245 | Dark spring green | Dodger blue        | #1e90ff |                   |
| Dark tan           | #918151 | Dark tan          | Dogwood rose       | #d71868 |                   |
| Dark tangerine     | #ffa812 |                   | Dollar bill        | #85bb65 | Dollar bill       |
| Dark taupe         | #483c32 | Dark taupe        | Drab               | #967117 | Drab              |
| Dark terra cotta   | #cc4e5c | Dark terra cotta  | Duke blue          | #00009c |                   |
| Dark turquoise     | #00ced1 |                   | Earth yellow       | #e1a95f | Earth yellow      |
| Dark violet        | #9400d3 |                   | Ecru               | #c2b280 | Ecru              |
| Dartmouth green    | #00693e | Dartmouth green   | Eggplant           | #614051 | Eggplant          |

# Test Colors

|                    |         |                   |                    |         |                   |
|--------------------|---------|-------------------|--------------------|---------|-------------------|
| Dark lava          | #483c32 | Dark lava         | Davy grey          | #555555 | Davy grey         |
| Dark lavender      | #734f96 | Dark lavender     | Debian red         | #d70a53 |                   |
| Dark magenta       | #8b008b |                   | Deep carmine       | #a9203e |                   |
| Dark midnight blue | #003366 |                   | Deep carmine pink  | #ef3038 | Deep carmine pink |
| Dark olive green   | #556b2f |                   | Deep carrot orange | #e9692c |                   |
| Dark orange        | #ff8c00 |                   | Deep cerise        | #da3287 | Deep cerise       |
| Dark orchid        | #9932cc |                   | Deep champagne     | #fad6a5 | Deep champagne    |
| Dark pastel blue   | #779ecb | Dark pastel blue  | Deep chestnut      | #b94e48 | Deep chestnut     |
| Dark pastel green  | #03c03c |                   | Deep coffee        | #704241 | Deep coffee       |
| Dark pastel purple | #966fd6 |                   | Deep fuchsia       | #c154c1 |                   |
| Dark pastel red    | #c23b22 |                   | Deep jungle green  | #004b49 | Deep jungle green |
| Dark pink          | #e75480 | Dark pink         | Deep lilac         | #9955bb |                   |
| Dark powder blue   | #003399 |                   | Deep magenta       | #cc00cc |                   |
| Dark raspberry     | #872657 |                   | Deep peach         | #ffcba4 | Deep peach        |
| Dark red           | #8b0000 |                   | Deep pink          | #ff1493 |                   |
| Dark salmon        | #e9967a | Dark salmon       | Deep saffron       | #ff9933 | Deep saffron      |
| Dark scarlet       | #560319 |                   | Deep sky blue      | #00bfff |                   |
| Dark sea green     | #8fbc8f | Dark sea green    | Denim              | #1560bd |                   |
| Dark sienna        | #3c1414 |                   | Desert             | #c19a6b | Desert            |
| Dark slate blue    | #483d8b | Dark slate blue   | Desert sand        | #edc9af | Desert sand       |
| Dark slate gray    | #2f4f4f | Dark slate gray   | Dim gray           | #696969 | Dim gray          |
| Dark spring green  | #177245 | Dark spring green | Dodger blue        | #1e90ff |                   |
| Dark tan           | #918151 | Dark tan          | Dogwood rose       | #d71868 |                   |
| Dark tangerine     | #ffa812 |                   | Dollar bill        | #85bb65 | Dollar bill       |
| Dark taupe         | #483c32 | Dark taupe        | Drab               | #967117 | Drab              |
| Dark terra cotta   | #cc4e5c | Dark terra cotta  | Duke blue          | #00009c |                   |
| Dark turquoise     | #00ced1 |                   | Earth yellow       | #e1a95f | Earth yellow      |
| Dark violet        | #9400d3 |                   | Ecu                | #c2b280 | Ecu               |
| Dartmouth green    | #00693e | Dartmouth green   | Eggplant           | #614051 | Eggplant          |

|                      |         |            |
|----------------------|---------|------------|
| Eggshell             | #f0ead6 | Eggshell   |
| Egyptian blue        | #1034a6 |            |
| Electric blue        | #7df9ff |            |
| Electric crimson     | #ff003f |            |
| Electric cyan        | #00ffff |            |
| Electric green       | #00ff00 |            |
| Electric indigo      | #6f00ff |            |
| Electric lavender    | #f4bbff |            |
| Electric lime        | #ccff00 |            |
| Electric purple      | #bf00ff |            |
| Electric ultramarine | #3f00ff |            |
| Electric violet      | #8f00ff |            |
| Electric yellow      | #ffff00 |            |
| Emerald              | #50c878 |            |
| Eton blue            | #96c8a2 | Eton blue  |
| Fallow               | #c19a6b | Fallow     |
| Falu red             | #801818 |            |
| Famous               | #ff00ff |            |
| Fandango             | #b53389 | Fandango   |
| Fashion fuchsia      | #f400a1 |            |
| Fawn                 | #e5aa70 | Fawn       |
| Feldgrau             | #4d5d53 | Feldgrau   |
| Fern                 | #71bc78 | Fern       |
| Fern green           | #4f7942 | Fern green |
| Ferrari Red          | #ff2800 |            |
| Field drab           | #6c541e |            |
| Fire engine red      | #ce2029 |            |
| Firebrick            | #b22222 |            |
| Flame                | #e25822 |            |

|                    |         |               |
|--------------------|---------|---------------|
| Flamingo pink      | #fc8eac | Flamingo pink |
| Flavescent         | #f7e98e | Flavescent    |
| Flax               | #eedc82 | Flax          |
| Floral white       | #fffaf0 | Floral white  |
| Fluorescent orange | #ffb000 |               |
| Fluorescent pink   | #ff1493 |               |
| Fluorescent yellow | #ccff00 |               |
| Folly              | #ff004f |               |
| Forest green       | #228b22 |               |
| French beige       | #a67b5t | French beige  |
| French blue        | #0072bb | French blue   |
| French lilac       | #86608e | French lilac  |
| French rose        | #f64a8a | French rose   |
| Fuchsia            | #ff00ff |               |
| Fuchsia pink       | #ff77ff |               |
| Fulvous            | #e48400 |               |
| Fuzzy Wuzzy        | #cc6666 | Fuzzy Wuzzy   |
| Gainsboro          | #dcdcdc | Gainsboro     |
| Gamboge            | #e49b0f |               |
| Ghost white        | #f8f8ff | Ghost white   |
| Ginger             | #b06500 |               |
| Glaucous           | #6082b6 | Glaucous      |
| Glitter            | #e6e8fa | Glitter       |
| Gold               | #ffd700 | Gold          |
| Golden brown       | #996515 |               |
| Golden poppy       | #fcc200 |               |
| Golden yellow      | #ffdf00 | Golden yellow |
| Goldenrod          | #daa520 |               |
| Granny Smith Apple | #a8e4a0 |               |



# Test Colors

|                      |         |            |                    |         |               |
|----------------------|---------|------------|--------------------|---------|---------------|
| Eggshell             | #f0ead6 | Eggshell   | Flamingo pink      | #fc8eac | Flamingo pink |
| Egyptian blue        | #1034a6 |            | Flavescent         | #f7e98e | Flavescent    |
| Electric blue        | #7df9ff |            | Flax               | #eedc82 | Flax          |
| Electric crimson     | #ff003f |            | Floral white       | #fffaf0 | Floral white  |
| Electric cyan        | #00ffff |            | Fluorescent orange | #ffb000 |               |
| Electric green       | #00ff00 |            | Fluorescent pink   | #ff1493 |               |
| Electric indigo      | #6f00ff |            | Fluorescent yellow | #ccff00 |               |
| Electric lavender    | #f4bbff |            | Folly              | #ff004f |               |
| Electric lime        | #ccff00 |            | Forest green       | #228b22 |               |
| Electric purple      | #bf00ff |            | French beige       | #a67b5b | French beige  |
| Electric ultramarine | #3f00ff |            | French blue        | #0072bc | French blue   |
| Electric violet      | #8f00ff |            | French lilac       | #86608e | French lilac  |
| Electric yellow      | #ffff00 |            | French rose        | #f64a8a | French rose   |
| Emerald              | #50c878 |            | Fuchsia            | #ff00ff |               |
| Eton blue            | #96c8a2 | Eton blue  | Fuchsia pink       | #ff77ff |               |
| Fallow               | #c19a6b | Fallow     | Fulvous            | #e48400 |               |
| Falu red             | #801818 |            | Fuzzy Wuzzy        | #cc6666 | Fuzzy Wuzzy   |
| Famous               | #ff00ff |            | Gainsboro          | #dcdcdc | Gainsboro     |
| Fandango             | #b53389 | Fandango   | Gamboge            | #e49b0f |               |
| Fashion fuchsia      | #f400a1 |            | Ghost white        | #f8f8ff | Ghost white   |
| Fawn                 | #e5aa70 | Fawn       | Ginger             | #b06500 |               |
| Feldgrau             | #4d5d53 | Feldgrau   | Glaucous           | #6082b6 | Glaucous      |
| Fern                 | #71bc78 | Fern       | Glitter            | #e6e8fa | Glitter       |
| Fern green           | #4f7942 | Fern green | Gold               | #ffd700 | Gold          |
| Ferrari Red          | #ff2800 |            | Golden brown       | #996515 |               |
| Field drab           | #6c541e |            | Golden poppy       | #fcc200 |               |
| Fire engine red      | #ce2029 |            | Golden yellow      | #ffd000 | Golden yellow |
| Firebrick            | #b22222 |            | Goldenrod          | #daa520 |               |
| Flame                | #e25822 |            | Granny Smith Apple | #a8e4a0 |               |

|                          |         |                |                      |         |                  |
|--------------------------|---------|----------------|----------------------|---------|------------------|
| Gray                     | #808080 |                | International orange | #ff4f00 |                  |
| Gray asparagus           | #465945 | Gray asparagus | Iris                 | #5a4fcf |                  |
| Green                    | #00ff00 |                | Isabelline           | #f4f0ec | Isabelline       |
| Green Blue               | #1164b4 | Green Blue     | Islamic green        | #009000 |                  |
| Green yellow             | #adff2f |                | Ivory                | #fffff0 | Ivory            |
| Grullo                   | #a99a86 | Grullo         | Jade                 | #00a86b | Jade             |
| Guppie green             | #00ff7f |                | Jasmine              | #f8de7e | Jasmine          |
| Halayà úbe               | #663854 | Halayà úbe     | Jasper               | #d73b3e | Jasper           |
| Han blue                 | #446ccf |                | Jazzberry jam        | #a50b5e |                  |
| Han purple               | #5218fa |                | Jonquil              | #fada5e | Jonquil          |
| Hansa yellow             | #e9d66b | Hansa yellow   | June bud             | #bdda57 | June bud         |
| Harlequin                | #3fff00 |                | Jungle green         | #29ab87 | Jungle green     |
| Harvard crimson          | #c90016 |                | KU Crimson           | #e8000d |                  |
| Harvest Gold             | #da9100 |                | Kelly green          | #4cbb17 |                  |
| Heart Gold               | #808000 |                | Khaki                | #c3b091 | Khaki            |
| Heliotrope               | #df73ff |                | La Salle Green       | #087830 |                  |
| Hollywood cerise         | #f400a1 |                | Languid lavender     | #d6cadd | Languid lavender |
| Honeydew                 | #f0fff0 | Honeydew       | Lapis lazuli         | #26619c | Lapis lazuli     |
| Hooker green             | #49796b | Hooker green   | Laser Lemon          | #fefe22 |                  |
| Hot magenta              | #ff1dce |                | Laurel green         | #a9ba9d | Laurel green     |
| Hot pink                 | #ff69b4 |                | Lava                 | #cf1020 |                  |
| Hunter green             | #355e3b | Hunter green   | Lavender             | #e6e6fa | Lavender         |
| Icterine                 | #fcf75e |                | Lavender blue        | #ccccff |                  |
| Inchworm                 | #b2ec5d |                | Lavender blush       | #fff0f5 | Lavender blush   |
| India green              | #138808 |                | Lavender gray        | #c4c3d0 | Lavender gray    |
| Indian red               | #cd5c5c | Indian red     | Lavender indigo      | #9457eb |                  |
| Indian yellow            | #e3a857 | Indian yellow  | Lavender magenta     | #ee82ee |                  |
| Indigo                   | #4b0082 |                | Lavender mist        | #e6e6fa | Lavender mist    |
| International Klein Blue | #002fa7 |                | Lavender pink        | #fbaed2 | Lavender pink    |



# Test Colors

|                          |         |                |                      |         |                  |
|--------------------------|---------|----------------|----------------------|---------|------------------|
| Gray                     | #808080 |                | International orange | #ff4f00 |                  |
| Gray asparagus           | #465945 | Gray asparagus | Iris                 | #5a4fcf |                  |
| Green                    | #00ff00 |                | Isabelline           | #f4f0ec | Isabelline       |
| Green Blue               | #1164b4 | Green Blue     | Islamic green        | #009000 |                  |
| Green yellow             | #adff2f |                | Ivory                | #fffff0 | Ivory            |
| Grullo                   | #a99a86 | Grullo         | Jade                 | #00a86b | Jade             |
| Guppie green             | #00ff7f |                | Jasmine              | #f8de7e | Jasmine          |
| Halayà úbe               | #663854 | Halayà úbe     | Jasper               | #d73b3e | Jasper           |
| Han blue                 | #446ccf |                | Jazzberry jam        | #a50b5e |                  |
| Han purple               | #5218fa |                | Jonquil              | #fada5e | Jonquil          |
| Hansa yellow             | #e9d66b | Hansa yellow   | June bud             | #bdda57 | June bud         |
| Harlequin                | #3fff00 |                | Jungle green         | #29ab87 | Jungle green     |
| Harvard crimson          | #c90016 |                | KU Crimson           | #e8000d |                  |
| Harvest Gold             | #da9100 |                | Kelly green          | #4cbb17 |                  |
| Heart Gold               | #808000 |                | Khaki                | #c3b091 | Khaki            |
| Heliotrope               | #df73ff |                | La Salle Green       | #087830 |                  |
| Hollywood cerise         | #f400a1 |                | Languid lavender     | #d6cadd | Languid lavender |
| Honeydew                 | #f0fff0 | Honeydew       | Lapis lazuli         | #26619c | Lapis lazuli     |
| Hooker green             | #49796b | Hooker green   | Laser Lemon          | #fefe22 |                  |
| Hot magenta              | #ff1dce |                | Laurel green         | #a9ba9d | Laurel green     |
| Hot pink                 | #ff69b4 |                | Lava                 | #cf1020 |                  |
| Hunter green             | #355e3b | Hunter green   | Lavender             | #e6e6fa | Lavender         |
| Icterine                 | #fcf75e |                | Lavender blue        | #ccccff |                  |
| Inchworm                 | #b2ec5d |                | Lavender blush       | #fff0f5 | Lavender blush   |
| India green              | #138808 |                | Lavender gray        | #c4c3d0 | Lavender gray    |
| Indian red               | #cd5c5c | Indian red     | Lavender indigo      | #9457eb |                  |
| Indian yellow            | #e3a857 | Indian yellow  | Lavender magenta     | #ee82ee |                  |
| Indigo                   | #4b0082 |                | Lavender mist        | #e6e6fa | Lavender mist    |
| International Klein Blue | #002fa7 |                | Lavender pink        | #fbaed2 | Lavender pink    |



|                        |         |                        |                     |         |                     |
|------------------------|---------|------------------------|---------------------|---------|---------------------|
| Lavender purple        | #967bb6 | Lavender purple        | Light yellow        | #ffffed | Light yellow        |
| Lavender rose          | #fba0e3 |                        | Lilac               | #c8a2c8 | Lilac               |
| Lawn green             | #7fcf00 |                        | Lime                | #bfff00 |                     |
| Lemon                  | #ffff70 |                        | Lime green          | #32cd32 |                     |
| Lemon Yellow           | #ffff4f | Lemon Yellow           | Lincoln green       | #195905 |                     |
| Lemon chiffon          | #fffacd | Lemon chiffon          | Linen               | #faf0e6 | Linen               |
| Lemon lime             | #bfff00 |                        | Lion                | #c19a6b | Lion                |
| Light Crimson          | #f56991 | Light Crimson          | Liver               | #534b4f | Liver               |
| Light Thulian pink     | #e68fac | Light Thulian pink     | Lust                | #e62020 |                     |
| Light apricot          | #fdd5b1 | Light apricot          | MSU Green           | #18453b | MSU Green           |
| Light blue             | #add8e6 | Light blue             | Macaroni and Cheese | #ffbd88 | Macaroni and Cheese |
| Light brown            | #b5651d |                        | Magenta             | #ff00ff |                     |
| Light carmine pink     | #e66771 | Light carmine pink     | Magic mint          | #aaf0d1 |                     |
| Light coral            | #f08080 | Light coral            | Magnolia            | #f8f4ff | Magnolia            |
| Light cornflower blue  | #93acea | Light cornflower blue  | Mahogany            | #c04000 |                     |
| Light cyan             | #e0ffff |                        | Maize               | #fbec5d | Maize               |
| Light fuchsia pink     | #f984ef |                        | Majorelle Blue      | #6050dc |                     |
| Light goldenrod yellow | #fafad2 | Light goldenrod yellow | Malachite           | #0bda51 |                     |
| Light gray             | #d3d3d3 | Light gray             | Manatee             | #979aaa | Manatee             |
| Light green            | #90ee90 |                        | Mango Tango         | #ff8243 | Mango Tango         |
| Light khaki            | #f0e68c | Light khaki            | Mantis              | #74c365 | Mantis              |
| Light pastel purple    | #b19cd9 |                        | Maroon              | #800000 |                     |
| Light pink             | #ffb6c1 | Light pink             | Mauve               | #e0b0ff |                     |
| Light salmon           | #ffa07a | Light salmon           | Mauve taupe         | #915f6d | Mauve taupe         |
| Light salmon pink      | #ff9999 | Light salmon pink      | Mauvelous           | #ef98aa | Mauvelous           |
| Light sea green        | #20b2aa | Light sea green        | Maya blue           | #73c2fb |                     |
| Light sky blue         | #87cefa |                        | Meat brown          | #e5b73b | Meat brown          |
| Light slate gray       | #778899 | Light slate gray       | Medium Persian blue | #0067a5 | Medium Persian blue |
| Light taupe            | #b38b6d | Light taupe            | Medium aquamarine   | #66ddaa |                     |

# Test Colors

|                        |         |                        |                     |         |                     |
|------------------------|---------|------------------------|---------------------|---------|---------------------|
| Lavender purple        | #967bb6 | Lavender purple        | Light yellow        | #ffffed | Light yellow        |
| Lavender rose          | #fba0e3 |                        | Lilac               | #c8a2c8 | Lilac               |
| Lawn green             | #7fc000 |                        | Lime                | #bfff00 |                     |
| Lemon                  | #fff700 |                        | Lime green          | #32cd32 |                     |
| Lemon Yellow           | #fff44f | Lemon Yellow           | Lincoln green       | #195905 |                     |
| Lemon chiffon          | #fffacd | Lemon chiffon          | Linen               | #faf0e6 | Linen               |
| Lemon lime             | #bfff00 |                        | Lion                | #c19a6b | Lion                |
| Light Crimson          | #f56991 | Light Crimson          | Liver               | #534b4f | Liver               |
| Light Thulian pink     | #e68fac | Light Thulian pink     | Lust                | #e62020 |                     |
| Light apricot          | #fdd5b1 | Light apricot          | MSU Green           | #18453b | MSU Green           |
| Light blue             | #add8e6 | Light blue             | Macaroni and Cheese | #ffbd88 | Macaroni and Cheese |
| Light brown            | #b5651d |                        | Magenta             | #ff00ff |                     |
| Light carmine pink     | #e66771 | Light carmine pink     | Magic mint          | #aaf0d1 |                     |
| Light coral            | #f08080 | Light coral            | Magnolia            | #f8f4ff | Magnolia            |
| Light cornflower blue  | #93ceca | Light cornflower blue  | Mahogany            | #c04000 |                     |
| Light cyan             | #e0ffff |                        | Maize               | #fbec5d | Maize               |
| Light fuchsia pink     | #f984ef |                        | Majorelle Blue      | #6050dc |                     |
| Light goldenrod yellow | #fafad2 | Light goldenrod yellow | Malachite           | #0bda51 |                     |
| Light gray             | #d3d3d3 | Light gray             | Manatee             | #979aaa | Manatee             |
| Light green            | #90ee90 |                        | Mango Tango         | #ff8243 | Mango Tango         |
| Light khaki            | #f0e68c | Light khaki            | Mantis              | #74c365 | Mantis              |
| Light pastel purple    | #b19cd9 |                        | Maroon              | #800000 |                     |
| Light pink             | #ffb6c1 | Light pink             | Mauve               | #e0b0ff |                     |
| Light salmon           | #ffa07a | Light salmon           | Mauve taupe         | #915f6d | Mauve taupe         |
| Light salmon pink      | #ff9999 | Light salmon pink      | Mauvelous           | #ef98aa | Mauvelous           |
| Light sea green        | #20b2aa | Light sea green        | Maya blue           | #73c2fb |                     |
| Light sky blue         | #87cefa |                        | Meat brown          | #e5b73b | Meat brown          |
| Light slate gray       | #778899 | Light slate gray       | Medium Persian blue | #0067a5 | Medium Persian blue |
| Light taupe            | #b38b6d | Light taupe            | Medium aquamarine   | #66ddaa |                     |

|                         |         |                   |                   |         |                  |
|-------------------------|---------|-------------------|-------------------|---------|------------------|
| Medium blue             | #0000cd |                   | Mordant red 19    | #ae0c00 |                  |
| Medium candy apple red  | #e2062c |                   | Moss green        | #addfad |                  |
| Medium carmine          | #af4035 | Medium carmine    | Mountain Meadow   | #30ba8f | Mountain Meadow  |
| Medium champagne        | #f3e5ab | Medium champagne  | Mountbatten pink  | #997a8d | Mountbatten pink |
| Medium electric blue    | #035096 |                   | Mulberry          | #c54b8c | Mulberry         |
| Medium jungle green     | #1c352d |                   | Munsell           | #f2f3f4 | Munsell          |
| Medium lavender magenta | #dda0dd |                   | Mustard           | #ffdb58 | Mustard          |
| Medium orchid           | #ba55d3 |                   | Myrtle            | #21421e |                  |
| Medium purple           | #9370db |                   | Nadeshiko pink    | #f6adc6 | Nadeshiko pink   |
| Medium red violet       | #bb3385 | Medium red violet | Napier green      | #2a8000 |                  |
| Medium sea green        | #3cb371 | Medium sea green  | Naples yellow     | #fada5e | Naples yellow    |
| Medium slate blue       | #7b68ee |                   | Navajo white      | #ffdead | Navajo white     |
| Medium spring bud       | #c9dc87 | Medium spring bud | Navy blue         | #000080 |                  |
| Medium spring green     | #00fa9a |                   | Neon Carrot       | #ffa343 | Neon Carrot      |
| Medium taupe            | #674c47 | Medium taupe      | Neon fuchsia      | #fe59c2 |                  |
| Medium teal blue        | #0054b4 |                   | Neon green        | #39ff14 |                  |
| Medium turquoise        | #48d1cc |                   | Non-photo blue    | #a4ddeb | Non-photo blue   |
| Medium violet red       | #c71585 |                   | North Texas Green | #059033 |                  |
| Melon                   | #fdbc04 | Melon             | Ocean Boat Blue   | #0077be | Ocean Boat Blue  |
| Midnight blue           | #191970 |                   | Ochre             | #cc7722 |                  |
| Midnight green          | #004953 |                   | Office green      | #008000 |                  |
| Mikado yellow           | #ffc40c |                   | Old gold          | #cfb53b | Old gold         |
| Mint                    | #3eb489 | Mint              | Old lace          | #fdf5e6 | Old lace         |
| Mint cream              | #f5fffa | Mint cream        | Old lavender      | #796878 | Old lavender     |
| Mint green              | #98ff98 |                   | Old mauve         | #673147 | Old mauve        |
| Misty rose              | #ffe4e1 | Misty rose        | Old rose          | #c08081 | Old rose         |
| Moccasin                | #faebd7 | Moccasin          | Olive             | #808000 |                  |
| Mode beige              | #967117 |                   | Olive Drab        | #6b8e23 |                  |
| Moonstone blue          | #73a9c2 | Moonstone blue    | Olive Green       | #bab86c | Olive Green      |



# Test Colors

|                         |         |                   |                   |         |                  |
|-------------------------|---------|-------------------|-------------------|---------|------------------|
| Medium blue             | #0000cd |                   | Mordant red 19    | #ae0c00 |                  |
| Medium candy apple red  | #e2062c |                   | Moss green        | #addfad |                  |
| Medium carmine          | #af4035 | Medium carmine    | Mountain Meadow   | #30ba8f | Mountain Meadow  |
| Medium champagne        | #f3e5ab | Medium champagne  | Mountbatten pink  | #997a8d | Mountbatten pink |
| Medium electric blue    | #035096 |                   | Mulberry          | #c54b8c | Mulberry         |
| Medium jungle green     | #1c352d |                   | Munsell           | #f2f3f4 | Munsell          |
| Medium lavender magenta | #dda0dd |                   | Mustard           | #ffdb58 | Mustard          |
| Medium orchid           | #ba55d3 |                   | Myrtle            | #21421e |                  |
| Medium purple           | #9370db |                   | Nadeshiko pink    | #f6adc6 | Nadeshiko pink   |
| Medium red violet       | #bb3385 | Medium red violet | Napier green      | #2a8000 |                  |
| Medium sea green        | #3cb371 | Medium sea green  | Naples yellow     | #fada5e | Naples yellow    |
| Medium slate blue       | #7b68ee |                   | Navajo white      | #ffdead | Navajo white     |
| Medium spring bud       | #c9dc87 | Medium spring bud | Navy blue         | #000080 |                  |
| Medium spring green     | #00fa9a |                   | Neon Carrot       | #ffa343 | Neon Carrot      |
| Medium taupe            | #674c47 | Medium taupe      | Neon fuchsia      | #fe59c2 |                  |
| Medium teal blue        | #0054b4 |                   | Neon green        | #39ff14 |                  |
| Medium turquoise        | #48d1cc |                   | Non-photo blue    | #a4dded | Non-photo blue   |
| Medium violet red       | #c71585 |                   | North Texas Green | #059033 |                  |
| Melon                   | #fdbcb4 | Melon             | Ocean Boat Blue   | #0077be | Ocean Boat Blue  |
| Midnight blue           | #191970 |                   | Ochre             | #cc7722 |                  |
| Midnight green          | #004953 |                   | Office green      | #008000 |                  |
| Mikado yellow           | #ffc40c |                   | Old gold          | #cfb53b | Old gold         |
| Mint                    | #3eb489 | Mint              | Old lace          | #fdf5e6 | Old lace         |
| Mint cream              | #f5fffa | Mint cream        | Old lavender      | #796878 | Old lavender     |
| Mint green              | #98ff98 |                   | Old mauve         | #673147 | Old mauve        |
| Misty rose              | #ffe4e1 | Misty rose        | Old rose          | #c08081 | Old rose         |
| Moccasin                | #faebd7 | Moccasin          | Olive             | #808000 |                  |
| Mode beige              | #967117 |                   | Olive Drab        | #6b8e23 |                  |
| Moonstone blue          | #73a9c2 | Moonstone blue    | Olive Green       | #bab86c | Olive Green      |

|                      |         |                      |                     |         |                 |
|----------------------|---------|----------------------|---------------------|---------|-----------------|
| Olivine              | #9ab973 | Olivine              | Pale pink           | #fadadd | Pale pink       |
| Onyx                 | #0f0f0f |                      | Pale plum           | #dda0dd |                 |
| Opera mauve          | #b784a7 | Opera mauve          | Pale red violet     | #db7093 | Pale red violet |
| Orange               | #ffa500 |                      | Pale robin egg blue | #96ded1 |                 |
| Orange Yellow        | #f8d568 | Orange Yellow        | Pale silver         | #c9c0bb | Pale silver     |
| Orange peel          | #ff9f00 |                      | Pale spring bud     | #ecebba | Pale spring bud |
| Orange red           | #ff4500 |                      | Pale taupe          | #bc987e | Pale taupe      |
| Orchid               | #da70d6 |                      | Pale violet red     | #db7093 | Pale violet red |
| Otter brown          | #654321 |                      | Pansy purple        | #78184a |                 |
| Outer Space          | #414a4c | Outer Space          | Papaya whip         | #ffefd5 | Papaya whip     |
| Outrageous Orange    | #ff6e4a |                      | Paris Green         | #50c878 |                 |
| Oxford Blue          | #002147 |                      | Pastel blue         | #aec6cf | Pastel blue     |
| Pacific Blue         | #1ca9c9 | Pacific Blue         | Pastel brown        | #836953 | Pastel brown    |
| Pakistan green       | #006600 |                      | Pastel gray         | #cfcfc4 | Pastel gray     |
| Palatinate blue      | #273be2 |                      | Pastel green        | #77dd77 |                 |
| Palatinate purple    | #682860 |                      | Pastel magenta      | #f49ac2 | Pastel magenta  |
| Pale aqua            | #bcd4e6 | Pale aqua            | Pastel orange       | #ffb347 | Pastel orange   |
| Pale blue            | #afeeee |                      | Pastel pink         | #ffd1dc | Pastel pink     |
| Pale brown           | #987654 | Pale brown           | Pastel purple       | #b39eb5 | Pastel purple   |
| Pale carmine         | #af4035 | Pale carmine         | Pastel red          | #ff6961 |                 |
| Pale cerulean        | #9bc4e2 | Pale cerulean        | Pastel violet       | #cb99c9 | Pastel violet   |
| Pale chestnut        | #ddadaf | Pale chestnut        | Pastel yellow       | #fdfd96 |                 |
| Pale copper          | #da8a67 | Pale copper          | Patriarch           | #800080 |                 |
| Pale cornflower blue | #abcdef | Pale cornflower blue | Payne grey          | #536878 | Payne grey      |
| Pale gold            | #e6be8a | Pale gold            | Peach               | #ffe5b4 | Peach           |
| Pale goldenrod       | #eee8aa | Pale goldenrod       | Peach puff          | #ffdab9 | Peach puff      |
| Pale green           | #98fb98 |                      | Peach yellow        | #fadfad | Peach yellow    |
| Pale lavender        | #dcd0ff |                      | Pear                | #d1e231 |                 |
| Pale magenta         | #f984e5 |                      | Pearl               | #eae0c8 | Pearl           |



# Test Colors

|                      |         |                      |                     |         |                 |
|----------------------|---------|----------------------|---------------------|---------|-----------------|
| Olivine              | #9ab973 | Olivine              | Pale pink           | #fadadd | Pale pink       |
| Onyx                 | #0f0f0f |                      | Pale plum           | #dda0dd |                 |
| Opera mauve          | #b784a7 | Opera mauve          | Pale red violet     | #db7093 | Pale red violet |
| Orange               | #ffa500 |                      | Pale robin egg blue | #96ded1 |                 |
| Orange Yellow        | #f8d568 | Orange Yellow        | Pale silver         | #c9c0bb | Pale silver     |
| Orange peel          | #ff9f00 |                      | Pale spring bud     | #e6ebdd | Pale spring bud |
| Orange red           | #ff4500 |                      | Pale taupe          | #bc987e | Pale taupe      |
| Orchid               | #da70d6 |                      | Pale violet red     | #db7093 | Pale violet red |
| Otter brown          | #654321 |                      | Pansy purple        | #78184a |                 |
| Outer Space          | #414a4c | Outer Space          | Papaya whip         | #ffefd5 | Papaya whip     |
| Outrageous Orange    | #ff6e4a |                      | Paris Green         | #50c878 |                 |
| Oxford Blue          | #002147 |                      | Pastel blue         | #aec6cf | Pastel blue     |
| Pacific Blue         | #1ca9c9 | Pacific Blue         | Pastel brown        | #836953 | Pastel brown    |
| Pakistan green       | #006600 |                      | Pastel gray         | #cfcfc4 | Pastel gray     |
| Palatinate blue      | #273be2 |                      | Pastel green        | #77dd77 |                 |
| Palatinate purple    | #682860 |                      | Pastel magenta      | #f49ac2 | Pastel magenta  |
| Pale aqua            | #bcd4e6 | Pale aqua            | Pastel orange       | #ffb347 | Pastel orange   |
| Pale blue            | #afeeee |                      | Pastel pink         | #ffd1dc | Pastel pink     |
| Pale brown           | #987654 | Pale brown           | Pastel purple       | #b39eb5 | Pastel purple   |
| Pale carmine         | #af4035 | Pale carmine         | Pastel red          | #ff6961 |                 |
| Pale cerulean        | #9bc4e2 | Pale cerulean        | Pastel violet       | #cb99c9 | Pastel violet   |
| Pale chestnut        | #ddadaf | Pale chestnut        | Pastel yellow       | #fdfd96 |                 |
| Pale copper          | #da8a67 | Pale copper          | Patriarch           | #800080 |                 |
| Pale cornflower blue | #abcdef | Pale cornflower blue | Payne grey          | #536878 | Payne grey      |
| Pale gold            | #e6be8a | Pale gold            | Peach               | #ffe5b4 | Peach           |
| Pale goldenrod       | #eee8aa | Pale goldenrod       | Peach puff          | #ffdab9 | Peach puff      |
| Pale green           | #98fb98 |                      | Peach yellow        | #fadfad | Peach yellow    |
| Pale lavender        | #dcd0ff |                      | Pear                | #d1e231 |                 |
| Pale magenta         | #f984e5 |                      | Pearl               | #eae0c8 | Pearl           |



|                           |         |                           |  |
|---------------------------|---------|---------------------------|--|
| Pearl Aqua                | #88d8c0 |                           |  |
| Peridot                   | #e6e200 |                           |  |
| Periwinkle                | #ccccff |                           |  |
| Persian blue              | #1c39bb |                           |  |
| Persian indigo            | #32127a |                           |  |
| Persian orange            | #d99058 | Persian orange            |  |
| Persian pink              | #f77fbe |                           |  |
| Persian plum              | #701c1c |                           |  |
| Persian red               | #cc3333 | Persian red               |  |
| Persian rose              | #fe28a2 |                           |  |
| Phlox                     | #df00ff |                           |  |
| Phthalo blue              | #000f89 |                           |  |
| Phthalo green             | #123524 |                           |  |
| Piggy pink                | #fddde6 | Piggy pink                |  |
| Pine green                | #01796f | Pine green                |  |
| Pink                      | #ffc0cb | Pink                      |  |
| Pink Flamingo             | #fc74fd |                           |  |
| Pink Sherbet              | #f78fa7 | Pink Sherbet              |  |
| Pink pearl                | #e7accf | Pink pearl                |  |
| Pistachio                 | #93c572 | Pistachio                 |  |
| Platinum                  | #e5e4e2 | Platinum                  |  |
| Plum                      | #dda0dd |                           |  |
| Portland Orange           | #ff5a36 |                           |  |
| Powder blue               | #b0e0e6 | Powder blue               |  |
| Princeton orange          | #ff8f00 |                           |  |
| Prussian blue             | #003153 |                           |  |
| Psychedelic purple        | #df00ff |                           |  |
| Puce                      | #cc8899 | Puce                      |  |
| Pumpkin                   | #ff7518 |                           |  |
| Purple                    | #800080 |                           |  |
| Purple Heart              | #69359c |                           |  |
| Purple Mountain's Majesty | #9d81ba | Purple Mountain's Majesty |  |
| Purple mountain majesty   | #9678b6 | Purple mountain majesty   |  |
| Purple pizzazz            | #fe4eda |                           |  |
| Purple taupe              | #50404d | Purple taupe              |  |
| Rackley                   | #5d8aa8 | Rackley                   |  |
| Radical Red               | #ff355e |                           |  |
| Raspberry                 | #e30b5d |                           |  |
| Raspberry glaze           | #915f6d | Raspberry glaze           |  |
| Raspberry pink            | #e25098 | Raspberry pink            |  |
| Raspberry rose            | #b3446c | Raspberry rose            |  |
| Raw Sienna                | #d68a59 | Raw Sienna                |  |
| Razzle dazzle rose        | #ff33cc |                           |  |
| Razzmatazz                | #e3256b | Razzmatazz                |  |
| Red                       | #ff0000 |                           |  |
| Red Orange                | #ff5349 |                           |  |
| Red brown                 | #a52a2a |                           |  |
| Red violet                | #c71585 |                           |  |
| Rich black                | #004040 |                           |  |
| Rich carmine              | #d70040 |                           |  |
| Rich electric blue        | #0892d0 | Rich electric blue        |  |
| Rich lilac                | #b666d2 |                           |  |
| Rich maroon               | #b03060 | Rich maroon               |  |
| Rifle green               | #414833 | Rifle green               |  |
| Robin's Egg Blue          | #1fceed |                           |  |
| Rose                      | #ff00ff |                           |  |
| Rose bonbon               | #f9429e |                           |  |
| Rose ebony                | #674846 | Rose ebony                |  |

# Test Colors

|                    |         |                |                           |         |                           |
|--------------------|---------|----------------|---------------------------|---------|---------------------------|
| Pearl Aqua         | #88d8c0 |                | Purple                    | #80008c |                           |
| Peridot            | #e6e200 |                | Purple Heart              | #69359c |                           |
| Periwinkle         | #ccccff |                | Purple Mountain's Majesty | #9d81ba | Purple Mountain's Majesty |
| Persian blue       | #1c39bb |                | Purple mountain majesty   | #9678b6 | Purple mountain majesty   |
| Persian indigo     | #32127a |                | Purple pizzazz            | #fe4eda |                           |
| Persian orange     | #d99058 | Persian orange | Purple taupe              | #50404c | Purple taupe              |
| Persian pink       | #f77fbe |                | Rackley                   | #5d8aa8 | Rackley                   |
| Persian plum       | #701c1c |                | Radical Red               | #ff355e |                           |
| Persian red        | #cc3333 | Persian red    | Raspberry                 | #e30b5d |                           |
| Persian rose       | #fe28a2 |                | Raspberry glaze           | #915f6d | Raspberry glaze           |
| Phlox              | #df00ff |                | Raspberry pink            | #e25098 | Raspberry pink            |
| Phthalo blue       | #000f89 |                | Raspberry rose            | #b3446c | Raspberry rose            |
| Phthalo green      | #123524 |                | Raw Sienna                | #d68a59 | Raw Sienna                |
| Piggy pink         | #fddde6 | Piggy pink     | Razzle dazzle rose        | #ff33cc |                           |
| Pine green         | #01796f | Pine green     | Razzmatazz                | #e3256b | Razzmatazz                |
| Pink               | #ffc0cb | Pink           | Red                       | #ff0000 |                           |
| Pink Flamingo      | #fc74fd |                | Red Orange                | #ff5349 |                           |
| Pink Sherbet       | #f78fa7 | Pink Sherbet   | Red brown                 | #a52a2a |                           |
| Pink pearl         | #e7accf | Pink pearl     | Red violet                | #c71585 |                           |
| Pistachio          | #93c572 | Pistachio      | Rich black                | #004040 |                           |
| Platinum           | #e5e4e2 | Platinum       | Rich carmine              | #d70040 |                           |
| Plum               | #dda0dd |                | Rich electric blue        | #0892d0 | Rich electric blue        |
| Portland Orange    | #ff5a36 |                | Rich lilac                | #b666d2 |                           |
| Powder blue        | #b0e0e6 | Powder blue    | Rich maroon               | #b03060 | Rich maroon               |
| Princeton orange   | #ff8f00 |                | Rifle green               | #414833 | Rifle green               |
| Prussian blue      | #003153 |                | Robin's Egg Blue          | #1fcec9 |                           |
| Psychedelic purple | #df00ff |                | Rose                      | #ff007f |                           |
| Puce               | #cc8899 | Puce           | Rose bonbon               | #f9429e |                           |
| Pumpkin            | #ff7518 |                | Rose ebony                | #67484e | Rose ebony                |

|                        |         |                        |                   |         |                   |
|------------------------|---------|------------------------|-------------------|---------|-------------------|
| Rose gold              | #b76e79 | Rose gold              | Sandstorm         | #ecd540 | Sandstorm         |
| Rose madder            | #e32636 | Rose madder            | Sandy brown       | #f4a460 | Sandy brown       |
| Rose pink              | #ff66cc |                        | Sandy taupe       | #967117 |                   |
| Rose quartz            | #aa98a9 | Rose quartz            | Sap green         | #507d2a |                   |
| Rose taupe             | #905d5d | Rose taupe             | Sapphire          | #0f52ba |                   |
| Rose vale              | #ab4e52 | Rose vale              | Satin sheen gold  | #cba135 | Satin sheen gold  |
| Rosewood               | #65000b |                        | Scarlet           | #ff2400 |                   |
| Rosso corsa            | #d40000 |                        | School bus yellow | #ffd800 | School bus yellow |
| Rosy brown             | #bc8f8f | Rosy brown             | Screamin Green    | #76ff7a |                   |
| Royal azure            | #0038a8 |                        | Sea blue          | #006994 | Sea blue          |
| Royal blue             | #4169e1 |                        | Sea green         | #2e8b57 | Sea green         |
| Royal fuchsia          | #ca2c92 | Royal fuchsia          | Seal brown        | #321414 |                   |
| Royal purple           | #7851a9 |                        | Seashell          | #fff5ee | Seashell          |
| Ruby                   | #e0115f |                        | Selective yellow  | #ffba00 |                   |
| Ruddy                  | #ff0028 |                        | Sepia             | #704214 |                   |
| Ruddy brown            | #bb6528 |                        | Shadow            | #8a795d | Shadow            |
| Ruddy pink             | #e18e96 | Ruddy pink             | Shamrock          | #45cea2 |                   |
| Rufous                 | #a81c07 |                        | Shamrock green    | #009e60 | Shamrock green    |
| Russet                 | #80461b |                        | Shocking pink     | #fc0fc0 |                   |
| Rust                   | #b7410e |                        | Sienna            | #882d17 |                   |
| Sacramento State green | #00563f | Sacramento State green | Silver            | #c0c0c0 | Silver            |
| Saddle brown           | #8b4513 |                        | Sinopia           | #cb410b |                   |
| Safety orange          | #ff6700 |                        | Skobeloff         | #007474 | Skobeloff         |
| Saffron                | #f4c430 | Saffron                | Sky blue          | #87ceeb | Sky blue          |
| Saint Patrick Blue     | #23297a |                        | Sky magenta       | #cf71af | Sky magenta       |
| Salmon                 | #ff8c69 | Salmon                 | Slate blue        | #6a5acd |                   |
| Salmon pink            | #ff91a4 | Salmon pink            | Slate gray        | #708090 | Slate gray        |
| Sand                   | #c2b280 | Sand                   | Smalt             | #003399 |                   |
| Sand dune              | #967117 |                        | Smokey topaz      | #933d41 | Smokey topaz      |



# Test Colors

|                        |         |                        |                   |         |                   |
|------------------------|---------|------------------------|-------------------|---------|-------------------|
| Rose gold              | #b76e79 | Rose gold              | Sandstorm         | #ecd540 | Sandstorm         |
| Rose madder            | #e32636 | Rose madder            | Sandy brown       | #f4a460 | Sandy brown       |
| Rose pink              | #ff66cc |                        | Sandy taupe       | #967117 |                   |
| Rose quartz            | #aa98a9 | Rose quartz            | Sap green         | #507d2a |                   |
| Rose taupe             | #905d5d | Rose taupe             | Sapphire          | #0f52ba |                   |
| Rose vale              | #ab4e52 | Rose vale              | Satin sheen gold  | #cba135 | Satin sheen gold  |
| Rosewood               | #65000b |                        | Scarlet           | #ff2400 |                   |
| Rosso corsa            | #d40000 |                        | School bus yellow | #ffd800 | School bus yellow |
| Rosy brown             | #bc8f8f | Rosy brown             | Screamin Green    | #76ff7a |                   |
| Royal azure            | #0038a8 |                        | Sea blue          | #006994 | Sea blue          |
| Royal blue             | #4169e1 |                        | Sea green         | #2e8b57 | Sea green         |
| Royal fuchsia          | #ca2c92 | Royal fuchsia          | Seal brown        | #321414 |                   |
| Royal purple           | #7851a9 |                        | Seashell          | #fff5ee | Seashell          |
| Ruby                   | #e0115f |                        | Selective yellow  | #ffba00 |                   |
| Ruddy                  | #ff0028 |                        | Sepia             | #704214 |                   |
| Ruddy brown            | #bb6528 |                        | Shadow            | #8a795d | Shadow            |
| Ruddy pink             | #e18e96 | Ruddy pink             | Shamrock          | #45cea2 |                   |
| Rufous                 | #a81c07 |                        | Shamrock green    | #009e60 | Shamrock green    |
| Russet                 | #80461b |                        | Shocking pink     | #fc0fc0 |                   |
| Rust                   | #b7410e |                        | Sienna            | #882d17 |                   |
| Sacramento State green | #00563f | Sacramento State green | Silver            | #c0c0c0 | Silver            |
| Saddle brown           | #8b4513 |                        | Sinopia           | #cb410b |                   |
| Safety orange          | #ff6700 |                        | Skobeloff         | #007474 | Skobeloff         |
| Saffron                | #f4c430 | Saffron                | Sky blue          | #87ceeb | Sky blue          |
| Saint Patrick Blue     | #23297a |                        | Sky magenta       | #cf71af | Sky magenta       |
| Salmon                 | #ff8c69 | Salmon                 | Slate blue        | #6a5acd |                   |
| Salmon pink            | #ff91a4 | Salmon pink            | Slate gray        | #708090 | Slate gray        |
| Sand                   | #c2b280 | Sand                   | Smalt             | #003399 |                   |
| Sand dune              | #967117 |                        | Smokey topaz      | #933d41 | Smokey topaz      |

|                      |         |                      |                      |         |                      |
|----------------------|---------|----------------------|----------------------|---------|----------------------|
| Smoky black          | #100c08 |                      | Tiffany Blue         | #0abab5 | Tiffany Blue         |
| Snow                 | #fffafa | Snow                 | Tiger eye            | #e08d3c | Tiger eye            |
| Spiro Disco Ball     | #0fc0fc |                      | Timberwolf           | #dbd7d2 | Timberwolf           |
| Spring bud           | #a7fc00 |                      | Titanium yellow      | #eee600 |                      |
| Spring green         | #00ff7f |                      | Tomato               | #ff6347 |                      |
| Steel blue           | #4682b4 | Steel blue           | Toolbox              | #746cc0 |                      |
| Stil de grain yellow | #fada5e | Stil de grain yellow | Topaz                | #ffc87c | Topaz                |
| Stizza               | #990000 |                      | Tractor red          | #fd0e35 |                      |
| Stormcloud           | #008080 | Stormcloud           | Trolley Grey         | #808080 | Trolley Grey         |
| Straw                | #e4d96f | Straw                | Tropical rain forest | #00755e | Tropical rain forest |
| Sunglow              | #ffcc33 | Sunglow              | True Blue            | #0073cf |                      |
| Sunset               | #fad6a5 | Sunset               | Tufts Blue           | #417dc1 | Tufts Blue           |
| Sunset Orange        | #fd5e53 |                      | Tumbleweed           | #dea888 | Tumbleweed           |
| Tan                  | #d2b48c | Tan                  | Turkish rose         | #b57281 | Turkish rose         |
| Tangelo              | #f94d00 |                      | Turquoise            | #30d5c8 |                      |
| Tangerine            | #f28500 |                      | Turquoise blue       | #00ffef |                      |
| Tangerine yellow     | #ffcc00 |                      | Turquoise green      | #a0d6b4 | Turquoise green      |
| Taupe                | #483c32 | Taupe                | Tuscan red           | #66424d | Tuscan red           |
| Taupe gray           | #8b8589 | Taupe gray           | Twilight lavender    | #8a496b | Twilight lavender    |
| Tawny                | #cd5700 |                      | Tyrian purple        | #66023c |                      |
| Tea green            | #d0f0c0 |                      | UA blue              | #0033aa |                      |
| Tea rose             | #f4c2c2 | Tea rose             | UA red               | #d9004c |                      |
| Teal                 | #008080 | Teal                 | UCLA Blue            | #536895 | UCLA Blue            |
| Teal blue            | #367588 | Teal blue            | UCLA Gold            | #ffb300 |                      |
| Teal green           | #006d5b | Teal green           | UFO Green            | #3cd070 |                      |
| Terra cotta          | #e2725b | Terra cotta          | UP Forest green      | #014421 |                      |
| Thistle              | #d8bfd8 | Thistle              | UP Maroon            | #7b1113 |                      |
| Thulian pink         | #de6fa1 | Thulian pink         | USC Cardinal         | #990000 |                      |
| Tickle Me Pink       | #fc89ac | Tickle Me Pink       | USC Gold             | #ffcc00 |                      |



# Test Colors

|                      |         |                      |                      |         |                      |
|----------------------|---------|----------------------|----------------------|---------|----------------------|
| Smoky black          | #100c08 |                      | Tiffany Blue         | #0abab5 | Tiffany Blue         |
| Snow                 | #fffafa | Snow                 | Tiger eye            | #e08d3c | Tiger eye            |
| Spiro Disco Ball     | #0fc0fc |                      | Timberwolf           | #dbd7d2 | Timberwolf           |
| Spring bud           | #a7fc00 |                      | Titanium yellow      | #eee600 |                      |
| Spring green         | #00ff7f |                      | Tomato               | #ff6347 |                      |
| Steel blue           | #4682b4 | Steel blue           | Toolbox              | #746cc0 |                      |
| Stil de grain yellow | #fada5e | Stil de grain yellow | Topaz                | #ffc87c | Topaz                |
| Stizza               | #990000 |                      | Tractor red          | #fd0e35 |                      |
| Stormcloud           | #008080 | Stormcloud           | Trolley Grey         | #808080 | Trolley Grey         |
| Straw                | #e4d96f | Straw                | Tropical rain forest | #00755e | Tropical rain forest |
| Sunglow              | #ffcc33 | Sunglow              | True Blue            | #0073cf |                      |
| Sunset               | #fad6a5 | Sunset               | Tufts Blue           | #417dc1 | Tufts Blue           |
| Sunset Orange        | #fd5e53 |                      | Tumbleweed           | #deaa88 | Tumbleweed           |
| Tan                  | #d2b48c | Tan                  | Turkish rose         | #b57281 | Turkish rose         |
| Tangelo              | #f94d00 |                      | Turquoise            | #30d5c8 |                      |
| Tangerine            | #f28500 |                      | Turquoise blue       | #00ffef |                      |
| Tangerine yellow     | #ffcc00 |                      | Turquoise green      | #a0d6b4 | Turquoise green      |
| Taupe                | #483c32 | Taupe                | Tuscan red           | #66424d | Tuscan red           |
| Taupe gray           | #8b8589 | Taupe gray           | Twilight lavender    | #8a496b | Twilight lavender    |
| Tawny                | #cd5700 |                      | Tyrian purple        | #66023c |                      |
| Tea green            | #d0f0c0 |                      | UA blue              | #0033aa |                      |
| Tea rose             | #f4c2c2 | Tea rose             | UA red               | #d9004c |                      |
| Teal                 | #008080 | Teal                 | UCLA Blue            | #536895 | UCLA Blue            |
| Teal blue            | #367588 | Teal blue            | UCLA Gold            | #ffb300 |                      |
| Teal green           | #006d5b | Teal green           | UFO Green            | #3cd070 |                      |
| Terra cotta          | #e2725b | Terra cotta          | UP Forest green      | #014421 |                      |
| Thistle              | #d8bfd8 | Thistle              | UP Maroon            | #7b1113 |                      |
| Thulian pink         | #de6fa1 | Thulian pink         | USC Cardinal         | #990000 |                      |
| Tickle Me Pink       | #fc89ac | Tickle Me Pink       | USC Gold             | #ffcc00 |                      |



|                               |         |                 |                   |         |                  |
|-------------------------------|---------|-----------------|-------------------|---------|------------------|
| Ube                           | #8878c3 |                 | Wheat             | #f5deb3 | Wheat            |
| Ultra pink                    | #ff6fff |                 | White             | #ffffff | White            |
| Ultramarine                   | #120a8f |                 | White smoke       | #f5f5f5 | White smoke      |
| Ultramarine blue              | #4166f5 |                 | Wild Strawberry   | #ff43a4 |                  |
| Umber                         | #635147 | Umber           | Wild Watermelon   | #fc6c85 |                  |
| United Nations blue           | #5b92e5 |                 | Wild blue yonder  | #a2add0 | Wild blue yonder |
| University of California Gold | #b78727 |                 | Wine              | #722f37 | Wine             |
| Unmellow Yellow               | #ffff66 |                 | Wisteria          | #c9a0dc |                  |
| Upsdell red                   | #ae2029 |                 | Xanadu            | #738678 | Xanadu           |
| Urobilin                      | #e1ad21 |                 | Yale Blue         | #0f4d92 |                  |
| Utah Crimson                  | #d3003f |                 | Yellow            | #ffff00 |                  |
| Vanilla                       | #f3e5ab | Vanilla         | Yellow Orange     | #ffae42 | Yellow Orange    |
| Vegas gold                    | #c5b358 | Vegas gold      | Yellow green      | #9acd32 |                  |
| Venetian red                  | #c80815 |                 | Zaffre            | #0014a8 |                  |
| Verdigris                     | #43b3ae | Verdigris       | Zinnwaldite brown | #2c1608 |                  |
| Vermilion                     | #e34234 | Vermilion       |                   |         |                  |
| Veronica                      | #a020f0 |                 |                   |         |                  |
| Violet                        | #ee82ee |                 |                   |         |                  |
| Violet Blue                   | #324ab2 |                 |                   |         |                  |
| Violet Red                    | #f75394 |                 |                   |         |                  |
| Viridian                      | #40826d | Viridian        |                   |         |                  |
| Vivid auburn                  | #922724 |                 |                   |         |                  |
| Vivid burgundy                | #9f1d35 |                 |                   |         |                  |
| Vivid cerise                  | #da1d81 | Vivid cerise    |                   |         |                  |
| Vivid tangerine               | #ffa089 | Vivid tangerine |                   |         |                  |
| Vivid violet                  | #9f00ff |                 |                   |         |                  |
| Warm black                    | #004242 |                 |                   |         |                  |
| Waterspout                    | #00ffff |                 |                   |         |                  |
| Wenge                         | #645452 | Wenge           |                   |         |                  |

# Test Colors

|                               |         |                 |                   |         |                  |
|-------------------------------|---------|-----------------|-------------------|---------|------------------|
| Ube                           | #8878c3 |                 | Wheat             | #f5deb3 | Wheat            |
| Ultra pink                    | #ff6fff |                 | White             | #ffffff | White            |
| Ultramarine                   | #120a8f |                 | White smoke       | #f5f5f5 | White smoke      |
| Ultramarine blue              | #4166f5 |                 | Wild Strawberry   | #ff43a4 |                  |
| Umber                         | #635147 | Umber           | Wild Watermelon   | #fc6c85 |                  |
| United Nations blue           | #5b92e5 |                 | Wild blue yonder  | #a2add0 | Wild blue yonder |
| University of California Gold | #b78727 |                 | Wine              | #722f37 | Wine             |
| Unmellow Yellow               | #ffff66 |                 | Wisteria          | #c9a0dc |                  |
| Upsdell red                   | #ae2029 |                 | Xanadu            | #738678 | Xanadu           |
| Urobilin                      | #e1ad21 |                 | Yale Blue         | #0f4d92 |                  |
| Utah Crimson                  | #d3003f |                 | Yellow            | #ffff00 |                  |
| Vanilla                       | #f3e5ab | Vanilla         | Yellow Orange     | #ffae42 | Yellow Orange    |
| Vegas gold                    | #c5b358 | Vegas gold      | Yellow green      | #9acd32 |                  |
| Venetian red                  | #c80815 |                 | Zaffre            | #0014a8 |                  |
| Verdigris                     | #43b3ae | Verdigris       | Zinnwaldite brown | #2c1608 |                  |
| Vermillion                    | #e34234 | Vermillion      |                   |         |                  |
| Veronica                      | #a020f0 |                 |                   |         |                  |
| Violet                        | #ee82ee |                 |                   |         |                  |
| Violet Blue                   | #324ab2 |                 |                   |         |                  |
| Violet Red                    | #f75394 |                 |                   |         |                  |
| Viridian                      | #40826d | Viridian        |                   |         |                  |
| Vivid auburn                  | #922724 |                 |                   |         |                  |
| Vivid burgundy                | #9f1d35 |                 |                   |         |                  |
| Vivid cerise                  | #da1d81 | Vivid cerise    |                   |         |                  |
| Vivid tangerine               | #ffa089 | Vivid tangerine |                   |         |                  |
| Vivid violet                  | #9f00ff |                 |                   |         |                  |
| Warm black                    | #004242 |                 |                   |         |                  |
| Waterspout                    | #00ffff |                 |                   |         |                  |
| Wenge                         | #645452 | Wenge           |                   |         |                  |

## Blacks and Grays

| All Colors       | Hex    | In-gamut         | All Colors         | Hex    | In-gamut           |
|------------------|--------|------------------|--------------------|--------|--------------------|
| Black            | 000000 |                  | Onyx               | 0f0f0f |                    |
| Smoky black      | 100c08 |                  | Dark jungle green  | 1a2421 |                    |
| Cool black       | 002e63 |                  | Charcoal           | 36454f | Charcoal           |
| Rich black       | 004040 |                  | Dark slate gray    | 2f4f4f | Dark slate gray    |
| Warm black       | 004242 |                  | Feldgrau           | 4d5d53 | Feldgrau           |
| Outer Space      | 414a4c | Outer Space      | Davy grey          | 555555 | Davy grey          |
| Dim gray         | 696969 | Dim gray         | Dark electric blue | 536878 | Dark electric blue |
| Cadet            | 536872 | Cadet            | Payne grey         | 536878 | Payne grey         |
| Cinereous        | 98817b | Cinereous        | Taupe gray         | 8b8589 | Taupe gray         |
| Trolley Grey     | 808080 | Trolley Grey     | AuroMetalSaurus    | 6e7f80 | AuroMetalSaurus    |
| Battleship grey  | 848482 | Battleship grey  | Slate gray         | 708090 | Slate gray         |
| Gray             | 808080 |                  | Cool grey          | 8c92ac | Cool grey          |
| Light slate gray | 778899 | Light slate gray | Cadet grey         | 91a3b0 | Cadet grey         |
| Manatee          | 979aaa | Manatee          | Dark gray          | a9a9a9 | Dark gray          |
| Ash grey         | b2beb5 | Ash grey         | Silver             | c0c0c0 | Silver             |
| Lavender gray    | c4c3d0 | Lavender gray    | Pale silver        | c9c0bb | Pale silver        |
| Light gray       | d3d3d3 | Light gray       | Pastel gray        | cfcfc4 | Pastel gray        |
| Gainsboro        | dcdcdc | Gainsboro        | Timberwolf         | dbd7d2 | Timberwolf         |



## Blacks and Grays

| All Colors       | Hex    | In-gamut         | All Colors         | Hex    | In-gamut           |
|------------------|--------|------------------|--------------------|--------|--------------------|
| Black            | 000000 |                  | Onyx               | 0f0f0f |                    |
| Smoky black      | 100c08 |                  | Dark jungle green  | 1a2421 |                    |
| Cool black       | 002e63 |                  | Charcoal           | 36454f | Charcoal           |
| Rich black       | 004040 |                  | Dark slate gray    | 2f4f4f | Dark slate gray    |
| Warm black       | 004242 |                  | Feldgrau           | 4d5d53 | Feldgrau           |
| Outer Space      | 414a4c | Outer Space      | Davy grey          | 555555 | Davy grey          |
| Dim gray         | 696969 | Dim gray         | Dark electric blue | 536878 | Dark electric blue |
| Cadet            | 536872 | Cadet            | Payne grey         | 536878 | Payne grey         |
| Cinereous        | 98817b | Cinereous        | Taupe gray         | 8b8589 | Taupe gray         |
| Trolley Grey     | 808080 | Trolley Grey     | AuroMetalSaurus    | 6e7f80 | AuroMetalSaurus    |
| Battleship grey  | 848482 | Battleship grey  | Slate gray         | 708090 | Slate gray         |
| Gray             | 808080 |                  | Cool grey          | 8c92ac | Cool grey          |
| Light slate gray | 778899 | Light slate gray | Cadet grey         | 91a3b0 | Cadet grey         |
| Manatee          | 979aaa | Manatee          | Dark gray          | a9a9a9 | Dark gray          |
| Ash grey         | b2beb5 | Ash grey         | Silver             | c0c0c0 | Silver             |
| Lavender gray    | c4c3d0 | Lavender gray    | Pale silver        | c9c0bb | Pale silver        |
| Light gray       | d3d3d3 | Light gray       | Pastel gray        | cfcfc4 | Pastel gray        |
| Gainsboro        | dcdcdc | Gainsboro        | Timberwolf         | dbd7d2 | Timberwolf         |

## Blues

| All Colors           | Hex    | In-gamut            | All Colors               | Hex    | In-gamut        |
|----------------------|--------|---------------------|--------------------------|--------|-----------------|
| Prussian blue        | 003153 |                     | Dark midnight blue       | 003366 |                 |
| Oxford Blue          | 002147 |                     | Saint Patrick Blue       | 23297a |                 |
| Midnight blue        | 191970 |                     | Dark blue                | 00008b |                 |
| Navy blue            | 000080 |                     | Phthalo blue             | 000f89 |                 |
| Ultramarine          | 120a8f |                     | Dark powder blue         | 003399 |                 |
| Duke blue            | 00009c |                     | Zaffre                   | 0014a8 |                 |
| Dark cerulean        | 08457e |                     | Smalt                    | 003399 |                 |
| Medium electric blue | 035096 |                     | International Klein Blue | 002fa7 |                 |
| Egyptian blue        | 1034a6 |                     | Royal azure              | 0038a8 |                 |
| UA blue              | 0033aa |                     | Dark slate blue          | 483d8b | Dark slate blue |
| Cobalt               | 0047ab |                     | Yale Blue                | 0f4d92 |                 |
| Medium blue          | 0000cd |                     | Electric ultramarine     | 3f00ff |                 |
| Palatinate blue      | 273be2 |                     | Medium teal blue         | 0054b4 |                 |
| Blue                 | 0000ff |                     | Persian blue             | 1c39bb |                 |
| Cerulean blue        | 2a52be | Cerulean blue       | UCLA Blue                | 536895 | UCLA Blue       |
| Denim                | 1560bd |                     | Slate blue               | 6a5acd |                 |
| True Blue            | 0073cf |                     | Sapphire                 | 0f52ba |                 |
| French blue          | 0072bb | French blue         | Majorelle Blue           | 6050dc |                 |
| Medium Persian blue  | 0067a5 | Medium Persian blue | Lapis lazuli             | 26619c | Lapis lazuli    |
| Cerulean             | 007ba7 | Cerulean            | Han blue                 | 446ccf |                 |
| Cadet blue           | 5f9ea0 | Cadet blue          | Sea blue                 | 006994 | Sea blue        |
| Bright cerulean      | 1dacd6 | Bright cerulean     | Green Blue               | 1164b4 | Green Blue      |
| Ball Blue            | 21abcd | Ball Blue           | CG Blue                  | 007aa5 | CG Blue         |
| Wild blue yonder     | a2add0 | Wild blue yonder    | Teal blue                | 367588 | Teal blue       |
| Blue Bell            | a2a2d0 | Blue Bell           | Bondi blue               | 0095b6 | Bondi blue      |



# Test Colors

## Blues

| All Colors           | Hex    | In-gamut            | All Colors               | Hex    | In-gamut        |
|----------------------|--------|---------------------|--------------------------|--------|-----------------|
| Prussian blue        | 003153 |                     | Dark midnight blue       | 003366 |                 |
| Oxford Blue          | 002147 |                     | Saint Patrick Blue       | 23297a |                 |
| Midnight blue        | 191970 |                     | Dark blue                | 00008b |                 |
| Navy blue            | 000080 |                     | Phthalo blue             | 000f89 |                 |
| Ultramarine          | 120a8f |                     | Dark powder blue         | 003399 |                 |
| Duke blue            | 00009c |                     | Zaffre                   | 0014a8 |                 |
| Dark cerulean        | 08457e |                     | Smalt                    | 003399 |                 |
| Medium electric blue | 035096 |                     | International Klein Blue | 002fa7 |                 |
| Egyptian blue        | 1034a6 |                     | Royal azure              | 0038a8 |                 |
| UA blue              | 0033aa |                     | Dark slate blue          | 483d8b | Dark slate blue |
| Cobalt               | 0047ab |                     | Yale Blue                | 0f4d92 |                 |
| Medium blue          | 0000cd |                     | Electric ultramarine     | 3f00ff |                 |
| Palatinate blue      | 273be2 |                     | Medium teal blue         | 0054b4 |                 |
| Blue                 | 0000ff |                     | Persian blue             | 1c39bb |                 |
| Cerulean blue        | 2a52be | Cerulean blue       | UCLA Blue                | 536895 | UCLA Blue       |
| Denim                | 1560bd |                     | Slate blue               | 6a5acd |                 |
| True Blue            | 0073cf |                     | Sapphire                 | 0f52ba |                 |
| French blue          | 0072bb | French blue         | Majorelle Blue           | 6050dc |                 |
| Medium Persian blue  | 0067a5 | Medium Persian blue | Lapis lazuli             | 26619c | Lapis lazuli    |
| Cerulean             | 007ba7 | Cerulean            | Han blue                 | 446ccf |                 |
| Cadet blue           | 5f9ea0 | Cadet blue          | Sea blue                 | 006994 | Sea blue        |
| Bright cerulean      | 1dacd6 | Bright cerulean     | Green Blue               | 1164b4 | Green Blue      |
| Ball Blue            | 21abcd | Ball Blue           | CG Blue                  | 007aa5 | CG Blue         |
| Wild blue yonder     | a2add0 | Wild blue yonder    | Teal blue                | 367588 | Teal blue       |
| Blue Bell            | a2a2d0 | Blue Bell           | Bondi blue               | 0095b6 | Bondi blue      |



| All Colors          | Hex    | In-gamut           |
|---------------------|--------|--------------------|
| Air Force blue      | 5d8aa8 | Air Force blue     |
| Blue Gray           | 6699cc | Blue Gray          |
| Moonstone blue      | 73a9c2 | Moonstone blue     |
| Pacific Blue        | 1ca9c9 | Pacific Blue       |
| Rackley             | 5d8aa8 | Rackley            |
| Ultramarine blue    | 4166f5 |                    |
| Royal blue          | 4169e1 |                    |
| Azure               | 007fff |                    |
| United Nations blue | 5b92e5 |                    |
| Bleu de France      | 318ce7 |                    |
| Rich electric blue  | 0892d0 | Rich electric blue |
| Maya blue           | 73c2fb |                    |
| Light sky blue      | 87cefa |                    |
| Pale cerulean       | 9bc4e2 | Pale cerulean      |
| Baby blue eyes      | a1caf1 | Baby blue eyes     |
| Cornflower          | 9aceeb | Cornflower         |
| Sky blue            | 87ceeb | Sky blue           |
| Beau blue           | bcd4e6 | Beau blue          |
| Pale blue           | afeeee |                    |
| Light blue          | add8e6 | Light blue         |
| Columbia blue       | 9bddff | Columbia blue      |
| Powder blue         | b0e0e6 | Powder blue        |
| Alice blue          | f0f8ff | Alice blue         |
| Bubbles             | e7feff | Bubbles            |

| All Colors            | Hex    | In-gamut              |
|-----------------------|--------|-----------------------|
| Glaucous              | 6082b6 | Glaucous              |
| Dark pastel blue      | 779ecb | Dark pastel blue      |
| Robin's Egg Blue      | 1fceed |                       |
| Pale robin egg blue   | 96ded1 |                       |
| Ocean Boat Blue       | 0077be | Ocean Boat Blue       |
| Steel blue            | 4682b4 | Steel blue            |
| Tufts Blue            | 417dc1 | Tufts Blue            |
| Brandeis blue         | 0070ff |                       |
| Cornflower blue       | 6495ed |                       |
| Spiro Disco Ball      | 0fc0fc |                       |
| Capri                 | 00bfff |                       |
| Deep sky blue         | 00bfff |                       |
| Celestial blue        | 4997d0 | Celestial blue        |
| Dodger blue           | 1e90ff |                       |
| Carolina blue         | 99badd | Carolina blue         |
| Pale cornflower blue  | abcdef | Pale cornflower blue  |
| Pastel blue           | aec6cf | Pastel blue           |
| Light cornflower blue | 93ccea | Light cornflower blue |
| Baby blue             | 89cff0 | Baby blue             |
| Non-photo blue        | a4dded | Non-photo blue        |
| Glitter               | e6e8fa | Glitter               |
| Blizzard Blue         | ace5ee | Blizzard Blue         |
| Azure mist/web        | f0ffff | Azure mist/web        |

# Test Colors

| All Colors          | Hex    | In-gamut           | All Colors            | Hex    | In-gamut              |
|---------------------|--------|--------------------|-----------------------|--------|-----------------------|
| Air Force blue      | 5d8aa8 | Air Force blue     | Glaucous              | 6082b6 | Glaucous              |
| Blue Gray           | 6699cc | Blue Gray          | Dark pastel blue      | 779ecb | Dark pastel blue      |
| Moonstone blue      | 73a9c2 | Moonstone blue     | Robin's Egg Blue      | 1fcec9 |                       |
| Pacific Blue        | 1ca9c9 | Pacific Blue       | Pale robin egg blue   | 96ded1 |                       |
| Rackley             | 5d8aa8 | Rackley            | Ocean Boat Blue       | 0077be | Ocean Boat Blue       |
| Ultramarine blue    | 4166f5 |                    | Steel blue            | 4682b4 | Steel blue            |
| Royal blue          | 4169e1 |                    | Tufts Blue            | 417dc1 | Tufts Blue            |
| Azure               | 007fff |                    | Brandeis blue         | 0070ff |                       |
| United Nations blue | 5b92e5 |                    | Cornflower blue       | 6495ed |                       |
| Bleu de France      | 318ce7 |                    | Spiro Disco Ball      | 0fc0fc |                       |
| Rich electric blue  | 0892d0 | Rich electric blue | Capri                 | 00bfff |                       |
| Maya blue           | 73c2fb |                    | Deep sky blue         | 00bfff |                       |
| Light sky blue      | 87cefa |                    | Celestial blue        | 4997d0 | Celestial blue        |
| Pale cerulean       | 9bc4e2 | Pale cerulean      | Dodger blue           | 1e90ff |                       |
| Baby blue eyes      | a1caf1 | Baby blue eyes     | Carolina blue         | 99badd | Carolina blue         |
| Cornflower          | 9aceeb | Cornflower         | Pale cornflower blue  | abcdef | Pale cornflower blue  |
| Sky blue            | 87ceeb | Sky blue           | Pastel blue           | aec6cf | Pastel blue           |
| Beau blue           | bcd4e6 | Beau blue          | Light cornflower blue | 93ccea | Light cornflower blue |
| Pale blue           | afeeee |                    | Baby blue             | 89cff0 | Baby blue             |
| Light blue          | add8e6 | Light blue         | Non-photo blue        | a4dded | Non-photo blue        |
| Columbia blue       | 9bddff | Columbia blue      | Glitter               | e6e8fa | Glitter               |
| Powder blue         | b0e0e6 | Powder blue        | Blizzard Blue         | ace5ee | Blizzard Blue         |
| Alice blue          | f0f8ff | Alice blue         | Azure mist/web        | f0ffff | Azure mist/web        |
| Bubbles             | e7feff | Bubbles            |                       |        |                       |

## Browns

| All Colors        | Hex    | In-gamut      | All Colors    | Hex    | In-gamut      |
|-------------------|--------|---------------|---------------|--------|---------------|
| Zinnwaldite brown | 2c1608 |               | Seal brown    | 321414 |               |
| Bistre            | 3d2b1f |               | Dark taupe    | 483c32 | Dark taupe    |
| Taupe             | 483c32 | Taupe         | Dark lava     | 483c32 | Dark lava     |
| Café noir         | 4b3621 |               | Liver         | 534b4f | Liver         |
| Wenge             | 645452 | Wenge         | Umber         | 635147 | Umber         |
| Coffee            | 6f4e37 | Coffee        | Rose ebony    | 674846 | Rose ebony    |
| Medium taupe      | 674c47 | Medium taupe  | Deep coffee   | 704241 | Deep coffee   |
| Rose taupe        | 905d5d | Rose taupe    | Dark sienna   | 3c1414 |               |
| Bulgarian rose    | 480607 |               | Rosewood      | 65000b |               |
| Caput mortuum     | 592720 |               | Persian plum  | 701c1c |               |
| Burgundy          | 800020 |               | Red brown     | a52a2a |               |
| Brown             | a52a2a |               | Sienna        | 882d17 |               |
| Burnt umber       | 8a3324 |               | Smokey topaz  | 933d41 | Smokey topaz  |
| Cordovan          | 893f45 | Cordovan      | Deep chestnut | b94e48 | Deep chestnut |
| Chestnut          | cd5c5c | Chestnut      | Burnt sienna  | e97451 | Burnt sienna  |
| Dark brown        | 654321 |               | Field drab    | 6c541e |               |
| Otter brown       | 654321 |               | Sepia         | 704214 |               |
| Saddle brown      | 8b4513 |               | Dark tan      | 918151 | Dark tan      |
| Drab              | 967117 | Drab          | Mode beige    | 967117 |               |
| Sandy taupe       | 967117 |               | Pastel brown  | 836953 | Pastel brown  |
| Pale brown        | 987654 | Pale brown    | Café au lait  | a67b5b | Café au lait  |
| Chamoisee         | a0785a | Chamoisee     | Shadow        | 8a795d | Shadow        |
| Beaver            | 9f8170 | Beaver        | French beige  | a67b5b | French beige  |
| Dark chestnut     | 986960 | Dark chestnut | Copper rose   | 996666 | Copper rose   |



# Test Colors

## Browns

| All Colors        | Hex    | In-gamut      | All Colors    | Hex    | In-gamut      |
|-------------------|--------|---------------|---------------|--------|---------------|
| Zinnwaldite brown | 2c1608 |               | Seal brown    | 321414 |               |
| Bistre            | 3d2b1f |               | Dark taupe    | 483c32 | Dark taupe    |
| Taupe             | 483c32 | Taupe         | Dark lava     | 483c32 | Dark lava     |
| Café noir         | 4b3621 |               | Liver         | 534b4f | Liver         |
| Wenge             | 645452 | Wenge         | Umber         | 635147 | Umber         |
| Coffee            | 6f4e37 | Coffee        | Rose ebony    | 674846 | Rose ebony    |
| Medium taupe      | 674c47 | Medium taupe  | Deep coffee   | 704241 | Deep coffee   |
| Rose taupe        | 905d5d | Rose taupe    | Dark sienna   | 3c1414 |               |
| Bulgarian rose    | 480607 |               | Rosewood      | 65000b |               |
| Caput mortuum     | 592720 |               | Persian plum  | 701c1c |               |
| Burgundy          | 800020 |               | Red brown     | a52a2a |               |
| Brown             | a52a2a |               | Sienna        | 882d17 |               |
| Burnt umber       | 8a3324 |               | Smokey topaz  | 933d41 | Smokey topaz  |
| Cordovan          | 893f45 | Cordovan      | Deep chestnut | b94e48 | Deep chestnut |
| Chestnut          | cd5c5c | Chestnut      | Burnt sienna  | e97451 | Burnt sienna  |
| Dark brown        | 654321 |               | Field drab    | 6c541e |               |
| Otter brown       | 654321 |               | Sepia         | 704214 |               |
| Saddle brown      | 8b4513 |               | Dark tan      | 918151 | Dark tan      |
| Drab              | 967117 | Drab          | Mode beige    | 967117 |               |
| Sandy taupe       | 967117 |               | Pastel brown  | 836953 | Pastel brown  |
| Pale brown        | 987654 | Pale brown    | Café au lait  | a67b5b | Café au lait  |
| Chamoisee         | a0785a | Chamoisee     | Shadow        | 8a795d | Shadow        |
| Beaver            | 9f8170 | Beaver        | French beige  | a67b5b | French beige  |
| Dark chestnut     | 986960 | Dark chestnut | Copper rose   | 996666 | Copper rose   |

| All Colors      | Hex    | In-gamut        | All Colors     | Hex      | In-gamut       |
|-----------------|--------|-----------------|----------------|----------|----------------|
| Rosy brown      | bc8f8f | Rosy brown      | Bazaar         | 98777b   | Bazaar         |
| Pale chestnut   | ddadaf | Pale chestnut   | Russet         | 80461b   |                |
| Sinopia         | db410b |                 | Light brown    | b5651d   |                |
| Ruddy brown     | bb6528 |                 | Cocoa brown    | d2691e   |                |
| Tawny           | cd5700 |                 | Chocolate      | d2691e   |                |
| Sand dune       | 967117 |                 | Copper         | b87333   |                |
| Ochre           | cc7722 |                 | Raw Sienna     | d68a59   | Raw Sienna     |
| Fawn            | e5aa70 | Fawn            | Earth yellow   | e1a95f   | Earth yellow   |
| Sandy brown     | f4a460 | Sandy brown     | Pale copper    | da8a67   | Pale copper    |
| Antique brass   | cd9575 | Antique brass   | Light taupe    | b38b6d   | Light taupe    |
| Pale taupe      | bc987e | Pale taupe      | Lion           | c19a6b   | Lion           |
| Fallow          | c19a6b | Fallow          | Desert         | c19a6b   | Desert         |
| Burlywood       | deb887 | Burlywood       | Camel          | c19a6b   | Camel          |
| Grullo          | a99a86 | Grullo          | Khaki          | c3b091   | Khaki          |
| Ecu             | c2b280 | Ecu             | Sand           | c2b280   | Sand           |
| Tan             | d2b48c | Tan             | Desert sand    | edc9af   | Desert sand    |
| Champagne       | fad6a5 | Champagne       | Buff           | f0dc82   | Buff           |
| Wheat           | f5deb3 | Wheat           | Deep champagne | fad6a5   | Deep champagne |
| Blanched Almond | ffebed | Blanched Almond | Almond         | efdecdec | Almond         |



# Test Colors

| All Colors      | Hex    | In-gamut        | All Colors     | Hex    | In-gamut       |
|-----------------|--------|-----------------|----------------|--------|----------------|
| Rosy brown      | bc8f8f | Rosy brown      | Bazaar         | 98777b | Bazaar         |
| Pale chestnut   | ddadaf | Pale chestnut   | Russet         | 80461b |                |
| Sinopia         | db410b |                 | Light brown    | b5651d |                |
| Ruddy brown     | bb6528 |                 | Cocoa brown    | d2691e |                |
| Tawny           | cd5700 |                 | Chocolate      | d2691e |                |
| Sand dune       | 967117 |                 | Copper         | b87333 |                |
| Ochre           | cc7722 |                 | Raw Sienna     | d68a59 | Raw Sienna     |
| Fawn            | e5aa70 | Fawn            | Earth yellow   | e1a95f | Earth yellow   |
| Sandy brown     | f4a460 | Sandy brown     | Pale copper    | da8a67 | Pale copper    |
| Antique brass   | cd9575 | Antique brass   | Light taupe    | b38b6d | Light taupe    |
| Pale taupe      | bc987e | Pale taupe      | Lion           | c19a6b | Lion           |
| Fallow          | c19a6b | Fallow          | Desert         | c19a6b | Desert         |
| Burlywood       | deb887 | Burlywood       | Camel          | c19a6b | Camel          |
| Grullo          | a99a86 | Grullo          | Khaki          | c3b091 | Khaki          |
| Ecu             | c2b280 | Ecu             | Sand           | c2b280 | Sand           |
| Tan             | d2b48c | Tan             | Desert sand    | edc9af | Desert sand    |
| Champagne       | fad6a5 | Champagne       | Buff           | f0dc82 | Buff           |
| Wheat           | f5deb3 | Wheat           | Deep champagne | fad6a5 | Deep champagne |
| Blanched Almond | ffebed | Blanched Almond | Almond         | efdec8 | Almond         |



## Cyans

| All Colors      | Hex    | In-gamut        |   | All Colors       | Hex    | In-gamut    |
|-----------------|--------|-----------------|---|------------------|--------|-------------|
| Teal            | 008080 | Teal            | # | Stormcloud       | 008080 | Stormcloud  |
| Dark cyan       | 008b8b | Dark cyan       |   | Viridian         | 40826d | Viridian    |
| Xanadu          | 738678 | Xanadu          |   | Blue green       | 0d98ba | Blue green  |
| Light sea green | 20b2aa | Light sea green |   | Verdigris        | 43b3ae | Verdigris   |
| Tiffany Blue    | 0abab5 | Tiffany Blue    |   | Turquoise        | 30d5c8 |             |
| Dark turquoise  | 00ced1 |                 |   | Medium turquoise | 48d1cc |             |
| Waterspout      | 00ffff |                 |   | Cyan             | 00ffff |             |
| Turquoise blue  | 00ffef |                 |   | Electric cyan    | 00ffff |             |
| Aqua            | 00ffff |                 |   | Bright turquoise | 08e8de |             |
| Electric blue   | 7df9ff |                 |   | Magic mint       | aaf0d1 |             |
| Pearl Aqua      | 88d8c0 |                 |   | Powder blue      | b0e0e6 | Powder blue |
| Aquamarine      | 7fffd4 |                 |   | Pale aqua        | bcd4e6 | Pale aqua   |
| Light cyan      | e0ffff |                 |   | Celeste          | b2ffff |             |

# Test Colors

## Cyans

| All Colors      | Hex    | In-gamut        |   | All Colors       | Hex    | In-gamut    |
|-----------------|--------|-----------------|---|------------------|--------|-------------|
| Teal            | 008080 | Teal            | # | Stormcloud       | 008080 | Stormcloud  |
| Dark cyan       | 008b8b | Dark cyan       |   | Viridian         | 40826d | Viridian    |
| Xanadu          | 738678 | Xanadu          |   | Blue green       | 0d98ba | Blue green  |
| Light sea green | 20b2aa | Light sea green |   | Verdigris        | 43b3ae | Verdigris   |
| Tiffany Blue    | 0abab5 | Tiffany Blue    |   | Turquoise        | 30d5c8 |             |
| Dark turquoise  | 00ced1 |                 |   | Medium turquoise | 48d1cc |             |
| Waterspout      | 00ffff |                 |   | Cyan             | 00ffff |             |
| Turquoise blue  | 00ffef |                 |   | Electric cyan    | 00ffff |             |
| Aqua            | 00ffff |                 |   | Bright turquoise | 08e8de |             |
| Electric blue   | 7df9ff |                 |   | Magic mint       | aaf0d1 |             |
| Pearl Aqua      | 88d8c0 |                 |   | Powder blue      | b0e0e6 | Powder blue |
| Aquamarine      | 7fffd4 |                 |   | Pale aqua        | bcd4e6 | Pale aqua   |
| Light cyan      | e0ffff |                 |   | Celeste          | b2ffff |             |

## Greens

| All Colors             | Hex    | In-gamut               | All Colors            | Hex    | In-gamut          |
|------------------------|--------|------------------------|-----------------------|--------|-------------------|
| Phthalo green          | 123524 |                        | Dark green            | 013220 |                   |
| Rifle green            | 414833 | Rifle green            | Gray asparagus        | 465945 | Gray asparagus    |
| MSU Green              | 18453b | MSU Green              | Deep jungle green     | 004b49 | Deep jungle green |
| Myrtle                 | 21421e |                        | UP Forest green       | 014421 |                   |
| British racing green   | 004225 |                        | Cal Poly Pomona green | 1e4d2b |                   |
| Sacramento State green | 00563f | Sacramento State green | Lincoln green         | 195905 |                   |
| Hunter green           | 355e3b | Hunter green           | Pakistan green        | 006600 |                   |
| Dark olive green       | 556b2f |                        | Dartmouth green       | 00693e | Dartmouth green   |
| Hooker green           | 49796b | Hooker green           | Cadmium green         | 006b3e | Cadmium green     |
| Tropical rain forest   | 00755e | Tropical rain forest   | Bottle green          | 006a4e | Bottle green      |
| Dark spring green      | 177245 | Dark spring green      | Teal green            | 006d5b | Teal green        |
| Pine green             | 01796f | Pine green             | Skobeloff             | 007474 | Skobeloff         |
| La Salle Green         | 087830 |                        | Sea green             | 2e8b57 | Sea green         |
| Ao                     | 008000 |                        | Napier green          | 2a8000 |                   |
| India green            | 138808 |                        | Olive                 | 808000 |                   |
| Fern green             | 4f7942 | Fern green             | Sap green             | 507d2a |                   |
| Olive Drab             | 6b8e23 |                        | Office green          | 008000 |                   |
| North Texas Green      | 059033 |                        | Forest green          | 228b22 |                   |
| Shamrock green         | 009e60 | Shamrock green         | Islamic green         | 009000 |                   |
| Jungle green           | 29ab87 | Jungle green           | Medium sea green      | 3cd371 | Medium sea green  |
| Mountain Meadow        | 30ab8f | Mountain Meadow        | Mint                  | 3eb489 | Mint              |
| Caribbean green        | 00cc99 |                        | Shamrock              | 45cea2 |                   |
| Paris Green            | 50c878 |                        | Emerald               | 50c878 |                   |
| Asparagus              | 87a96b | Asparagus              | Fern                  | 71bc78 | Fern              |
| Olivine                | 9ab973 | Olivine                | Olive Green           | bab86c | Olive Green       |
| Mantis                 | 74c365 | Mantis                 | Dollar bill           | 85bb65 | Dollar bill       |



# Test Colors

## Greens

| All Colors             | Hex    | In-gamut               | All Colors            | Hex    | In-gamut          |
|------------------------|--------|------------------------|-----------------------|--------|-------------------|
| Phthalo green          | 123524 |                        | Dark green            | 013220 |                   |
| Rifle green            | 414833 | Rifle green            | Gray asparagus        | 465945 | Gray asparagus    |
| MSU Green              | 18453b | MSU Green              | Deep jungle green     | 004b49 | Deep jungle green |
| Myrtle                 | 21421e |                        | UP Forest green       | 014421 |                   |
| British racing green   | 004225 |                        | Cal Poly Pomona green | 1e4d2b |                   |
| Sacramento State green | 00563f | Sacramento State green | Lincoln green         | 195905 |                   |
| Hunter green           | 355e3b | Hunter green           | Pakistan green        | 006600 |                   |
| Dark olive green       | 556b2f |                        | Dartmouth green       | 00693e | Dartmouth green   |
| Hooker green           | 49796b | Hooker green           | Cadmium green         | 006b3e | Cadmium green     |
| Tropical rain forest   | 00755e | Tropical rain forest   | Bottle green          | 006a4e | Bottle green      |
| Dark spring green      | 177245 | Dark spring green      | Teal green            | 006d5b | Teal green        |
| Pine green             | 01796f | Pine green             | Skobeloff             | 007474 | Skobeloff         |
| La Salle Green         | 087830 |                        | Sea green             | 2e8b57 | Sea green         |
| Ao                     | 008000 |                        | Napier green          | 2a8000 |                   |
| India green            | 138808 |                        | Olive                 | 808000 |                   |
| Fern green             | 4f7942 | Fern green             | Sap green             | 507d2a |                   |
| Olive Drab             | 6b8e23 |                        | Office green          | 008000 |                   |
| North Texas Green      | 059033 |                        | Forest green          | 228b22 |                   |
| Shamrock green         | 009e60 | Shamrock green         | Islamic green         | 009000 |                   |
| Jungle green           | 29ab87 | Jungle green           | Medium sea green      | 3cd371 | Medium sea green  |
| Mountain Meadow        | 30ab8f | Mountain Meadow        | Mint                  | 3eb489 | Mint              |
| Caribbean green        | 00cc99 |                        | Shamrock              | 45cea2 |                   |
| Paris Green            | 50c878 |                        | Emerald               | 50c878 |                   |
| Asparagus              | 87a96b | Asparagus              | Fern                  | 71bc78 | Fern              |
| Olivine                | 9ab973 | Olivine                | Olive Green           | bab86c | Olive Green       |
| Mantis                 | 74c365 | Mantis                 | Dollar bill           | 85bb65 | Dollar bill       |

| All Colors          | Hex    | In-gamut        | All Colors         | Hex    | In-gamut  |
|---------------------|--------|-----------------|--------------------|--------|-----------|
| Kelly green         | 4cbb17 |                 | UFO Green          | 3cd070 |           |
| Lime green          | 32cd32 |                 | Dark pastel green  | 03c03c |           |
| Malachite           | 0bda51 |                 | Apple green        | 8db600 |           |
| Android Green       | a4c639 | Android Green   | Yellow green       | 013220 |           |
| June bud            | bdda57 | June bud        | Electric green     | 465945 |           |
| Green               | 00ff00 |                 | Neon green         | 004b49 |           |
| Bright green        | 66ff00 |                 | Harlequin          | 014421 |           |
| Chartreuse          | 7fff00 |                 | Spring bud         | 1e4d2b |           |
| Lawn green          | 7cfc00 |                 | Lemon lime         | 195905 |           |
| Pear                | d1e231 |                 | Lime               | 006600 |           |
| Inchworm            | b2ec5d |                 | Screamin Green     | 00693e |           |
| Spring green        | 00ff7f |                 | Guppie green       | 006b3e |           |
| Medium spring green | 00fa9a |                 | Medium aquamarine  | 006a4e |           |
| Pastel green        | 77dd77 |                 | Pistachio          | 006d5b | Pistachio |
| Dark sea green      | 8fbc8f | Dark sea green  | Eton blue          | 007474 | Eton blue |
| Turquoise green     | a0d6b4 | Turquoise green | Celadon            | 2e8b57 |           |
| Moss green          | addfad |                 | Granny Smith Apple | 2a8000 |           |
| Tea green           | d0f0c0 |                 | Light green        | 808000 |           |
| Mint green          | 98ff98 |                 | Pale green         | 507d2a |           |
| Mint cream          | f5ffa  | Mint cream      | Honeydew           | 008000 | Honeydew  |



# Test Colors

| All Colors          | Hex    | In-gamut        | All Colors         | Hex    | In-gamut  |
|---------------------|--------|-----------------|--------------------|--------|-----------|
| Kelly green         | 4cbb17 |                 | UFO Green          | 3cd070 |           |
| Lime green          | 32cd32 |                 | Dark pastel green  | 03c03c |           |
| Malachite           | 0bda51 |                 | Apple green        | 8db600 |           |
| Android Green       | a4c639 | Android Green   | Yellow green       | 013220 |           |
| June bud            | bdda57 | June bud        | Electric green     | 465945 |           |
| Green               | 00ff00 |                 | Neon green         | 004b49 |           |
| Bright green        | 66ff00 |                 | Harlequin          | 014421 |           |
| Chartreuse          | 7fff00 |                 | Spring bud         | 1e4d2b |           |
| Lawn green          | 7cfc00 |                 | Lemon lime         | 195905 |           |
| Pear                | d1e231 |                 | Lime               | 006600 |           |
| Inchworm            | b2ec5d |                 | Screamin Green     | 00693e |           |
| Spring green        | 00ff7f |                 | Guppie green       | 006b3e |           |
| Medium spring green | 00fa9a |                 | Medium aquamarine  | 006a4e |           |
| Pastel green        | 77dd77 |                 | Pistachio          | 006d5b | Pistachio |
| Dark sea green      | 8fbc8f | Dark sea green  | Eton blue          | 007474 | Eton blue |
| Turquoise green     | a0d6b4 | Turquoise green | Celadon            | 2e8b57 |           |
| Moss green          | addfad |                 | Granny Smith Apple | 2a8000 |           |
| Tea green           | d0f0c0 |                 | Light green        | 808000 |           |
| Mint green          | 98ff98 |                 | Pale green         | 507d2a |           |
| Mint cream          | f5fffa | Mint cream      | Honeydew           | 008000 | Honeydew  |



# Oranges

| All Colors         | Hex    | In-gamut         | All Colors           | Hex    | In-gamut            |
|--------------------|--------|------------------|----------------------|--------|---------------------|
| Red Orange         | ff5349 |                  | Rust                 | b7410e |                     |
| Mahogany           | c04000 |                  | Dark coral           | cd5b45 | Dark coral          |
| Flame              | e25822 |                  | Cinnabar             | e34234 | Cinnabar            |
| Portland Orange    | ff5a36 |                  | CG Red               | e03c31 |                     |
| Orange red         | ff4500 |                  | Coquelicot           | ff3800 |                     |
| Outrageous Orange  | ff6e4a |                  | International orange | ff4f00 |                     |
| Deep carrot orange | e9692c |                  | Burnt orange         | cc5500 |                     |
| Mango Tango        | ff8243 | Mango Tango      | Cinnamon             | d2691e |                     |
| Salmon             | ff8c69 | Salmon           | Coral                | ff7f50 | Coral               |
| Atomic tangerine   | ff9966 | Atomic tangerine | Dark salmon          | e9967a | Dark salmon         |
| Ginger             | b06500 |                  | Light salmon         | ffa07a | Light salmon        |
| Fulvous            | e48400 |                  | Bronze               | cd7f32 | Bronze              |
| Persian orange     | d99058 | Persian orange   | Orange               | ffa500 |                     |
| Neon Carrot        | ffa343 | Neon Carrot      | Dark orange          | ff8c00 |                     |
| Pastel orange      | ffb347 | Pastel orange    | Carrot orange        | ed9121 |                     |
| Princeton orange   | ff8f00 |                  | Safety orange        | ff6700 |                     |
| Cadmium orange     | ed872d | Cadmium orange   | Deep saffron         | ff9933 | Deep saffron        |
| Pumpkin            | ff7518 |                  | Dark tangerine       | ffa812 |                     |
| Orange peel        | ff9f00 |                  | Indian yellow        | e3a857 | Indian yellow       |
| Gamboge            | e49b0f |                  | Saffron              | f4c430 | Saffron             |
| Meat brown         | e5b73b | Meat brown       | Orange Yellow        | f8d568 | Orange Yellow       |
| Fluorescent orange | ffb00  |                  | Macaroni and Cheese  | ffbd88 | Macaroni and Cheese |
| Jonquil            | fada5e | Jonquil          | Light apricot        | fdd5b1 | Light apricot       |
| Apricot            | fbceb1 | Apricot          | Pale gold            | e6be8a | Pale gold           |
| Bisque             | ffe4c4 | Bisque           | Peach                | ffe5b4 | Peach               |

# Test Colors

## Oranges

| All Colors         | Hex    | In-gamut         | All Colors           | Hex    | In-gamut            |
|--------------------|--------|------------------|----------------------|--------|---------------------|
| Red Orange         | ff5349 |                  | Rust                 | b7410e |                     |
| Mahogany           | c04000 |                  | Dark coral           | cd5b45 | Dark coral          |
| Flame              | e25822 |                  | Cinnabar             | e34234 | Cinnabar            |
| Portland Orange    | ff5a36 |                  | CG Red               | e03c31 |                     |
| Orange red         | ff4500 |                  | Coquelicot           | ff3800 |                     |
| Outrageous Orange  | ff6e4a |                  | International orange | ff4f00 |                     |
| Deep carrot orange | e9692c |                  | Burnt orange         | cc5500 |                     |
| Mango Tango        | ff8243 | Mango Tango      | Cinnamon             | d2691e |                     |
| Salmon             | ff8c69 | Salmon           | Coral                | ff7f50 | Coral               |
| Atomic tangerine   | ff9966 | Atomic tangerine | Dark salmon          | e9967a | Dark salmon         |
| Ginger             | b06500 |                  | Light salmon         | ffa07a | Light salmon        |
| Fulvous            | e48400 |                  | Bronze               | cd7f32 | Bronze              |
| Persian orange     | d99058 | Persian orange   | Orange               | ffa500 |                     |
| Neon Carrot        | ffa343 | Neon Carrot      | Dark orange          | ff8c00 |                     |
| Pastel orange      | ffb347 | Pastel orange    | Carrot orange        | ed9121 |                     |
| Princeton orange   | ff8f00 |                  | Safety orange        | ff6700 |                     |
| Cadmium orange     | ed872d | Cadmium orange   | Deep saffron         | ff9933 | Deep saffron        |
| Pumpkin            | ff7518 |                  | Dark tangerine       | ffa812 |                     |
| Orange peel        | ff9f00 |                  | Indian yellow        | e3a857 | Indian yellow       |
| Gamboge            | e49b0f |                  | Saffron              | f4c430 | Saffron             |
| Meat brown         | e5b73b | Meat brown       | Orange Yellow        | f8d568 | Orange Yellow       |
| Fluorescent orange | ffbf00 |                  | Macaroni and Cheese  | ffbd88 | Macaroni and Cheese |
| Jonquil            | fada5e | Jonquil          | Light apricot        | fdd5b1 | Light apricot       |
| Apricot            | fbceb1 | Apricot          | Pale gold            | e6be8a | Pale gold           |
| Bisque             | ffe4c4 | Bisque           | Peach                | ffe5b4 | Peach               |

| All Colors | Hex    | In-gamut   | All Colors   | Hex    | In-gamut     |
|------------|--------|------------|--------------|--------|--------------|
| Seashell   | fff5ee | Seashell   | Peach yellow | fadfad | Peach yellow |
| Peach puff | ffdab9 | Peach puff |              |        |              |



# Test Colors

| All Colors | Hex    | In-gamut   | All Colors   | Hex    | In-gamut     |
|------------|--------|------------|--------------|--------|--------------|
| Seashell   | fff5ee | Seashell   | Peach yellow | fadfad | Peach yellow |
| Peach puff | ffdab9 | Peach puff |              |        |              |

## Pinks

| All Colors        | Hex    | In-gamut          | All Colors          | Hex    | In-gamut            |
|-------------------|--------|-------------------|---------------------|--------|---------------------|
| Cerise            | de3163 | Cerise            | Cerise pink         | ec3b83 | Cerise pink         |
| French rose       | f64a8a | French rose       | Blush               | de5d83 | Blush               |
| Dark pink         | e75480 | Dark pink         | Brink pink          | fb607f |                     |
| Flamingo pink     | fc8eac | Flamingo pink     | Bright pink         | ff007f |                     |
| Fluorescent pink  | ff1493 |                   | Brilliant rose      | ff55a3 |                     |
| Hot pink          | ff69b4 |                   | Light carmine pink  | e66771 | Light carmine pink  |
| Candy pink        | e4717a | Candy pink        | Light coral         | f08080 | Light coral         |
| Coral pink        | f88379 | Coral pink        | Bittersweet         | fe6f5e |                     |
| Light salmon pink | ff9999 | Light salmon pink | Ruddy pink          | e18e96 | Ruddy pink          |
| Mauvelous         | ef98aa | Mauvelous         | Pink Sherbet        | f78fa7 | Pink Sherbet        |
| Tickle Me Pink    | fc89ac | Tickle Me Pink    | Nadeshiko pink      | f6adc6 | Nadeshiko pink      |
| Salmon pink       | ff91a4 | Salmon pink       | Carnation pink      | ffa6c9 | Carnation pink      |
| Lavender pink     | fbaed2 | Lavender pink     | Cherry blossom pink | ffb7c5 | Cherry blossom pink |
| Cotton candy      | ffbcd9 | Cotton candy      | Baby pink           | f4c2c2 | Baby pink           |
| Tea rose          | f4c2c2 | Tea rose          | Light pink          | ffb6c1 | Light pink          |
| Bubble gum        | ffc1cc | Bubble gum        | Classic rose        | fbcece |                     |
| Pastel pink       | ffd1dc | Pastel pink       | Pink                | ffc0cb | Pink                |
| Pale pink         | fadadd | Pale pink         | Piggy pink          | fddde6 | Piggy pink          |
| Lavender blush    | fff0f5 | Lavender blush    | Misty rose          | ffe4e1 | Misty rose          |

## Pinks

| All Colors        | Hex    | In-gamut          | All Colors          | Hex     | In-gamut            |
|-------------------|--------|-------------------|---------------------|---------|---------------------|
| Cerise            | de3163 | Cerise            | Cerise pink         | ec3b83  | Cerise pink         |
| French rose       | f64a8a | French rose       | Blush               | de5d83  | Blush               |
| Dark pink         | e75480 | Dark pink         | Brink pink          | fb607f  |                     |
| Flamingo pink     | fc8eac | Flamingo pink     | Bright pink         | ff007f  |                     |
| Fluorescent pink  | ff1493 |                   | Brilliant rose      | ff55a3  |                     |
| Hot pink          | ff69b4 |                   | Light carmine pink  | e66771  | Light carmine pink  |
| Candy pink        | e4717a | Candy pink        | Light coral         | f08080  | Light coral         |
| Coral pink        | f88379 | Coral pink        | Bittersweet         | fe6f5e  |                     |
| Light salmon pink | ff9999 | Light salmon pink | Ruddy pink          | e18e96  | Ruddy pink          |
| Mauvelous         | ef98aa | Mauvelous         | Pink Sherbet        | f78fa7  | Pink Sherbet        |
| Tickle Me Pink    | fc89ac | Tickle Me Pink    | Nadeshiko pink      | f6adc6  | Nadeshiko pink      |
| Salmon pink       | ff91a4 | Salmon pink       | Carnation pink      | ffa6c9  | Carnation pink      |
| Lavender pink     | fbaed2 | Lavender pink     | Cherry blossom pink | ffb7c5  | Cherry blossom pink |
| Cotton candy      | ffbcd9 | Cotton candy      | Baby pink           | f4c2c2  | Baby pink           |
| Tea rose          | f4c2c2 | Tea rose          | Light pink          | ffb6c1  | Light pink          |
| Bubble gum        | ffc1cc | Bubble gum        | Classic rose        | fbccce7 |                     |
| Pastel pink       | ffd1dc | Pastel pink       | Pink                | ffc0cb  | Pink                |
| Pale pink         | fadadd | Pale pink         | Piggy pink          | fddde6  | Piggy pink          |
| Lavender blush    | fff0f5 | Lavender blush    | Misty rose          | ffe4e1  | Misty rose          |



# Purples

| All Colors        | Hex    | In-gamut          | All Colors        | Hex    | In-gamut        |
|-------------------|--------|-------------------|-------------------|--------|-----------------|
| Purple taupe      | 50404d | Purple taupe      | Dark byzantium    | 5d3954 | Dark byzantium  |
| Eggplant          | 614-51 | Eggplant          | Old mauve         | 673147 | Old mauve       |
| Tyrian purple     | 66023c |                   | Dark raspberry    | 872657 |                 |
| Pansy purple      | 78184a |                   | Boysenberry       | 873260 | Boysenberry     |
| Halayà úbe        | 663854 | Halayà úbe        | Byzantium         | 702963 |                 |
| Palatinate purple | 682860 |                   | Persian indigo    | 32127a |                 |
| Purple Heart      | 69359c |                   | Indigo            | 4b0082 |                 |
| Violet Blue       | 324ab2 |                   | Patriarch         | 800080 |                 |
| Jazzberry jam     | a50b5e |                   | Purple            | 800080 |                 |
| Dark magenta      | 8b008b |                   | Byzantine         | bd33a4 |                 |
| Fandango          | b53389 | Fandango          | Raspberry rose    | b3446c | Raspberry rose  |
| Medium red violet | bb3385 | Medium red violet | Medium violet red | c71585 |                 |
| Mulberry          | c54b8c | Mulberry          | Royal fuchsia     | ca2c92 | Royal fuchsia   |
| Vivid cerise      | da1d81 | Vivid cerise      | Red violet        | c71585 |                 |
| Hollywood cerise  | f400a1 |                   | Raspberry pink    | e25098 | Raspberry pink  |
| Ruby              | e0115f |                   | Deep cerise       | da3287 | Deep cerise     |
| Thulian pink      | de6fa1 | Thulian pink      | Deep pink         | ff1493 |                 |
| Pale violet red   | db7093 | Pale violet red   | Sky magenta       | cf71af | Sky magenta     |
| Twilight lavender | 8a496b | Twilight lavender | Raspberry glaze   | 915f6d | Raspberry glaze |
| Antique fuchsia   | 915c83 | Antique fuchsia   | Rose gold         | b76e79 | Rose gold       |
| Old rose          | c08081 | Old rose          | Turkish rose      | b57281 | Turkish rose    |
| Electric indigo   | 6f00ff |                   | Veronica          | a020f0 |                 |
| Iris              | 5a4fcf |                   | Han purple        | 5218fa |                 |
| Medium slate blue | 7b68ee |                   | Toolbox           | 746cc0 |                 |
| French lilac      | 86608e | French lilac      | Dark lavender     | 734f96 | Dark lavender   |

# Test Colors

## Purples

| All Colors        | Hex    | In-gamut          | All Colors        | Hex    | In-gamut        |
|-------------------|--------|-------------------|-------------------|--------|-----------------|
| Purple taupe      | 50404d | Purple taupe      | Dark byzantium    | 5d3954 | Dark byzantium  |
| Eggplant          | 614-51 | Eggplant          | Old mauve         | 673147 | Old mauve       |
| Tyrian purple     | 66023c |                   | Dark raspberry    | 872657 |                 |
| Pansy purple      | 78184a |                   | Boysenberry       | 873260 | Boysenberry     |
| Halayá úbe        | 663854 | Halayá úbe        | Byzantium         | 702963 |                 |
| Palatinate purple | 682860 |                   | Persian indigo    | 32127a |                 |
| Purple Heart      | 69359c |                   | Indigo            | 4b0082 |                 |
| Violet Blue       | 324ab2 |                   | Patriarch         | 800080 |                 |
| Jazzberry jam     | a50b5e |                   | Purple            | 800080 |                 |
| Dark magenta      | 8b008b |                   | Byzantine         | bd33a4 |                 |
| Fandango          | b53389 | Fandango          | Raspberry rose    | b3446c | Raspberry rose  |
| Medium red violet | bb3385 | Medium red violet | Medium violet red | c71585 |                 |
| Mulberry          | c54b8c | Mulberry          | Royal fuchsia     | ca2c92 | Royal fuchsia   |
| Vivid cerise      | da1d81 | Vivid cerise      | Red violet        | c71585 |                 |
| Hollywood cerise  | f400a1 |                   | Raspberry pink    | e25098 | Raspberry pink  |
| Ruby              | e0115f |                   | Deep cerise       | da3287 | Deep cerise     |
| Thulian pink      | de6fa1 | Thulian pink      | Deep pink         | ff1493 |                 |
| Pale violet red   | db7093 | Pale violet red   | Sky magenta       | cf71af | Sky magenta     |
| Twilight lavender | 8a496b | Twilight lavender | Raspberry glaze   | 915f6d | Raspberry glaze |
| Antique fuchsia   | 915c83 | Antique fuchsia   | Rose gold         | b76e79 | Rose gold       |
| Old rose          | c08081 | Old rose          | Turkish rose      | b57281 | Turkish rose    |
| Electric indigo   | 6f00ff |                   | Veronica          | a020f0 |                 |
| Iris              | 5a4fcf |                   | Han purple        | 5218fa |                 |
| Medium slate blue | 7b68ee |                   | Toolbox           | 746cc0 |                 |
| French lilac      | 86608e | French lilac      | Dark lavender     | 734f96 | Dark lavender   |

| All Colors         | Hex    | In-gamut        |
|--------------------|--------|-----------------|
| Royal purple       | 7851a9 |                 |
| Ube                | 8878c3 |                 |
| Lavender purple    | 967bb6 | Lavender purple |
| Rose quartz        | aa98a9 | Rose quartz     |
| Vivid violet       | 9f00ff |                 |
| Blue purple        | 8a3be2 |                 |
| Electric violet    | 8f00ff |                 |
| Lavender indigo    | 9357eb |                 |
| Wild Watermelon    | fc6c85 |                 |
| Wild Strawberry    | ff43a4 |                 |
| Fashion fuchsia    | f400a1 |                 |
| Razzle dazzle rose | ff33cc |                 |
| Neon fuchsia       | fe59c2 |                 |
| Purple pizzazz     | fe4eda |                 |
| Rich lilac         | b666d2 |                 |
| Medium purple      | 9370db |                 |
| Deep lilac         | 9955bb |                 |
| Medium orchid      | ba55d3 |                 |
| Phlox              | df00ff |                 |
| Psychedelic purple | df00ff |                 |
| Fuchsia            | ff00ff |                 |
| Magenta            | ff00ff |                 |
| Fuchsia pink       | ff77ff |                 |
| Orchid             | da70d6 |                 |
| Lavender magenta   | ee82ee |                 |

| All Colors                | Hex    | In-gamut                  |
|---------------------------|--------|---------------------------|
| Purple mountain majesty   | 9678b6 | Purple mountain majesty   |
| Purple Mountain's Majesty | 9d81ba | Purple Mountain's Majesty |
| Opera mauve               | b784a7 | Opera mauve               |
| Old lavender              | 796878 | Old lavender              |
| Pastel purple             | b39eb5 | Pastel purple             |
| Mountbatten pink          | 997a8d | Mountbatten pink          |
| Blue violet               | 8a2be2 |                           |
| Dark orchid               | 9932cc |                           |
| Dark violet               | 9400d3 |                           |
| Electric purple           | bf00ff |                           |
| Violet Red                | f75394 |                           |
| Persian rose              | fe28a2 |                           |
| Hot magenta               | ff1dce |                           |
| Shocking pink             | fc0fc0 |                           |
| Rose pink                 | ff66cc |                           |
| Deep magenta              | cc00cc |                           |
| Deep fuchsia              | c154c1 |                           |
| Dark pastel purple        | 966fd6 |                           |
| Amethyst                  | 9966cc |                           |
| Famous                    | ff00ff |                           |
| Heliotrope                | df73ff |                           |
| Ultra pink                | ff6fff |                           |
| Violet                    | ee82ee |                           |
| Light fuchsia pink        | f984ef |                           |
| Pale magenta              | f984e5 |                           |



# Test Colors

| All Colors         | Hex    | In-gamut        | All Colors                | Hex    | In-gamut                  |
|--------------------|--------|-----------------|---------------------------|--------|---------------------------|
| Royal purple       | 7851a9 |                 | Purple mountain majesty   | 9678b6 | Purple mountain majesty   |
| Ube                | 8878c3 |                 | Purple Mountain's Majesty | 9d81ba | Purple Mountain's Majesty |
| Lavender purple    | 967bb6 | Lavender purple | Opera mauve               | b784a7 | Opera mauve               |
| Rose quartz        | aa98a9 | Rose quartz     | Old lavender              | 796878 | Old lavender              |
| Vivid violet       | 9f00ff |                 | Pastel purple             | b39eb5 | Pastel purple             |
| Blue purple        | 8a3be2 |                 | Mountbatten pink          | 997a8d | Mountbatten pink          |
| Electric violet    | 8f00ff |                 | Blue violet               | 8a2be2 |                           |
| Lavender indigo    | 9357eb |                 | Dark orchid               | 9932cc |                           |
| Wild Watermelon    | fc6c85 |                 | Dark violet               | 9400d3 |                           |
| Wild Strawberry    | ff43a4 |                 | Electric purple           | bf00ff |                           |
| Fashion fuchsia    | f400a1 |                 | Violet Red                | f75394 |                           |
| Razzle dazzle rose | ff33cc |                 | Persian rose              | fe28a2 |                           |
| Neon fuchsia       | fe59c2 |                 | Hot magenta               | ff1dce |                           |
| Purple pizzazz     | fe4eda |                 | Shocking pink             | fc0fc0 |                           |
| Rich lilac         | b666d2 |                 | Rose pink                 | ff66cc |                           |
| Medium purple      | 9370db |                 | Deep magenta              | cc00cc |                           |
| Deep lilac         | 9955bb |                 | Deep fuchsia              | c154c1 |                           |
| Medium orchid      | ba55d3 |                 | Dark pastel purple        | 966fd6 |                           |
| Phlox              | df00ff |                 | Amethyst                  | 9966cc |                           |
| Psychedelic purple | df00ff |                 | Famous                    | ff00ff |                           |
| Fuchsia            | ff00ff |                 | Heliotrope                | df73ff |                           |
| Magenta            | ff00ff |                 | Ultra pink                | ff6fff |                           |
| Fuchsia pink       | ff77ff |                 | Violet                    | ee82ee |                           |
| Orchid             | da70d6 |                 | Light fuchsia pink        | f984ef |                           |
| Lavender magenta   | ee82ee |                 | Pale magenta              | f984e5 |                           |

| All Colors          | Hex    | In-gamut           | All Colors              | Hex    | In-gamut        |
|---------------------|--------|--------------------|-------------------------|--------|-----------------|
| Bright lavender     | bf94e4 |                    | Bright ube              | d19fe8 |                 |
| Electric lavender   | f4bbff |                    | Pale plum               | dda0dd |                 |
| Plum                | dda0dd |                    | Wisteria                | c9a0dc |                 |
| Mauve               | e0b0ff |                    | Medium lavender magenta | dda0dd |                 |
| Brilliant lavender  | f4bbff |                    | Lavender rose           | fba0e3 |                 |
| Light pastel purple | b19cd9 |                    | Pastel magenta          | f49ac2 | Pastel magenta  |
| Pink pearl          | e7accf | Pink pearl         | Pale red violet         | db7093 | Pale red violet |
| Persian pink        | f77fbe |                    | Puce                    | cc8899 | Puce            |
| Light Thulian pink  | e68fac | Light Thulian pink | Thistle                 | d8bfd8 | Thistle         |
| Lilac               | c8a2c8 | Lilac              | Pastel violet           | cb99c9 | Pastel violet   |
| Languid lavender    | d6cadd | Languid lavender   | Lavender blue           | ccccff |                 |
| Periwinkle          | ccccff |                    | Pale lavender           | dcd0ff |                 |
| Lavender            | e6e6fa | Lavender           | Lavender mist           | e6e6fa | Lavender mist   |

# Test Colors

| All Colors          | Hex    | In-gamut           | All Colors              | Hex    | In-gamut        |
|---------------------|--------|--------------------|-------------------------|--------|-----------------|
| Bright lavender     | bf94e4 |                    | Bright ube              | d19fe8 |                 |
| Electric lavender   | f4bbff |                    | Pale plum               | dda0dd |                 |
| Plum                | dda0dd |                    | Wisteria                | c9a0dc |                 |
| Mauve               | e0b0ff |                    | Medium lavender magenta | dda0dd |                 |
| Brilliant lavender  | f4bbff |                    | Lavender rose           | fba0e3 |                 |
| Light pastel purple | b19cd9 |                    | Pastel magenta          | f49ac2 | Pastel magenta  |
| Pink pearl          | e7accf | Pink pearl         | Pale red violet         | db7093 | Pale red violet |
| Persian pink        | f77fbe |                    | Puce                    | cc8899 | Puce            |
| Light Thulian pink  | e68fac | Light Thulian pink | Thistle                 | d8bfd8 | Thistle         |
| Lilac               | c8a2c8 | Lilac              | Pastel violet           | cb99c9 | Pastel violet   |
| Languid lavender    | d6cadd | Languid lavender   | Lavender blue           | ccccff |                 |
| Periwinkle          | ccccff |                    | Pale lavender           | dcd0ff |                 |
| Lavender            | e6e6fa | Lavender           | Lavender mist           | e6e6fa | Lavender mist   |



## Reds

| All Colors             | Hex    | In-gamut         | All Colors            | Hex    | In-gamut         |
|------------------------|--------|------------------|-----------------------|--------|------------------|
| Dark scarlet           | 560319 |                  | Falu red              | 801818 |                  |
| Maroon                 | 800000 |                  | Dark red              | 8b0000 |                  |
| Carnelian              | b31b1b |                  | Rosso corsa           | d40000 |                  |
| Crimson glory          | be0032 |                  | Lava                  | cf1020 |                  |
| Fire engine red        | ce2029 |                  | Boston University Red | cc0000 |                  |
| Harvard crimson        | c90016 |                  | Cornell Red           | b31b1b |                  |
| Firebrick              | b22222 |                  | Crimson Red           | 990000 |                  |
| Auburn                 | a52a2a |                  | Stizza                | 990000 |                  |
| Dark candy apple red   | a40000 |                  | Mordant red 19        | ae0c00 |                  |
| Rufous                 | a81c07 |                  | Persian red           | cc3333 | Persian red      |
| Dark pastel red        | c23b22 |                  | Jasper                | d73b3e | Jasper           |
| Cardinal               | c41e3a |                  | Alizarin crimson      | e32636 | Alizarin crimson |
| Bright maroon          | c32148 | Bright maroon    | Rich maroon           | b03060 | Rich maroon      |
| Mauve taupe            | 915f6d | Mauve taupe      | Deep carmine          | a9203e |                  |
| Pale carmine           | af4035 | Pale carmine     | Rose vale             | ab4e52 | Rose vale        |
| Medium carmine         | af4035 | Medium carmine   | Brick red             | cb4154 | Brick red        |
| Dark terra cotta       | cc4e5c | Dark terra cotta | Fuzzy Wuzzy           | cc6666 | Fuzzy Wuzzy      |
| Indian red             | cd5c5c | Indian red       | Pastel red            | ff6961 |                  |
| Carmine pink           | eb4c42 | Carmine pink     | Coral red             | ff4040 |                  |
| KU Crimson             | e8000d |                  | American rose         | ff033e |                  |
| Carmine                | ff0040 |                  | Electric crimson      | ff003f |                  |
| Folly                  | ff004f |                  | Radical Red           | ff355e |                  |
| Carmine red            | ff0038 |                  | Candy apple red       | ff0800 |                  |
| Crimson                | dc143c |                  | Cadmium red           | e30022 |                  |
| Medium candy apple red | e2062c |                  | Scarlet               | ff2400 |                  |

# Test Colors

## Reds

| All Colors             | Hex    | In-gamut         | All Colors            | Hex    | In-gamut         |
|------------------------|--------|------------------|-----------------------|--------|------------------|
| Dark scarlet           | 560319 |                  | Falu red              | 801818 |                  |
| Maroon                 | 800000 |                  | Dark red              | 8b0000 |                  |
| Carnelian              | b31b1b |                  | Rosso corsa           | d40000 |                  |
| Crimson glory          | be0032 |                  | Lava                  | cf1020 |                  |
| Fire engine red        | ce2029 |                  | Boston University Red | cc0000 |                  |
| Harvard crimson        | c90016 |                  | Cornell Red           | b31b1b |                  |
| Firebrick              | b22222 |                  | Crimson Red           | 990000 |                  |
| Auburn                 | a52a2a |                  | Stizza                | 990000 |                  |
| Dark candy apple red   | a40000 |                  | Mordant red 19        | ae0c00 |                  |
| Rufous                 | a81c07 |                  | Persian red           | cc3333 | Persian red      |
| Dark pastel red        | c23b22 |                  | Jasper                | d73b3e | Jasper           |
| Cardinal               | c41e3a |                  | Alizarin crimson      | e32636 | Alizarin crimson |
| Bright maroon          | c32148 | Bright maroon    | Rich maroon           | b03060 | Rich maroon      |
| Mauve taupe            | 915f6d | Mauve taupe      | Deep carmine          | a9203e |                  |
| Pale carmine           | af4035 | Pale carmine     | Rose vale             | ab4e52 | Rose vale        |
| Medium carmine         | af4035 | Medium carmine   | Brick red             | cb4154 | Brick red        |
| Dark terra cotta       | cc4e5c | Dark terra cotta | Fuzzy Wuzzy           | cc6666 | Fuzzy Wuzzy      |
| Indian red             | cd5c5c | Indian red       | Pastel red            | ff6961 |                  |
| Carmine pink           | eb4c42 | Carmine pink     | Coral red             | ff4040 |                  |
| KU Crimson             | e8000d |                  | American rose         | ff033e |                  |
| Carmine                | ff0040 |                  | Electric crimson      | ff003f |                  |
| Folly                  | ff004f |                  | Radical Red           | ff355e |                  |
| Carmine red            | ff0038 |                  | Candy apple red       | ff0800 |                  |
| Crimson                | dc143c |                  | Cadmium red           | e30022 |                  |
| Medium candy apple red | e2062c |                  | Scarlet               | ff2400 |                  |

| All Colors        | Hex    | In-gamut          | All Colors    | Hex    | In-gamut      |
|-------------------|--------|-------------------|---------------|--------|---------------|
| Deep carmine pink | ef3038 | Deep carmine pink | Red           | ff0000 |               |
| Ruddy             | ff0028 |                   | Ferrari Red   | ff2800 |               |
| Rich carmine      | d70040 |                   | Rose madder   | e32636 | Rose madder   |
| Awesome           | ff2052 |                   | Debian red    | d70a53 |               |
| Amaranth          | e52b50 | Amaranth          | Lust          | e62020 |               |
| Dogwood rose      | d71868 |                   | Cherry        | de3163 | Cherry        |
| Rose              | ff007f |                   | Razzmatazz    | e3256b | Razzmatazz    |
| Rose bonbon       | f9429e |                   | Raspberry     | e30b5d |               |
| Melon             | fdbcb4 | Melon             | Light Crimson | f56991 | Light Crimson |



# Test Colors

| All Colors        | Hex    | In-gamut          | All Colors    | Hex    | In-gamut      |
|-------------------|--------|-------------------|---------------|--------|---------------|
| Deep carmine pink | ef3038 | Deep carmine pink | Red           | ff0000 |               |
| Ruddy             | ff0028 |                   | Ferrari Red   | ff2800 |               |
| Rich carmine      | d70040 |                   | Rose madder   | e32636 | Rose madder   |
| Awesome           | ff2052 |                   | Debian red    | d70a53 |               |
| Amaranth          | e52b50 | Amaranth          | Lust          | e62020 |               |
| Dogwood rose      | d71868 |                   | Cherry        | de3163 | Cherry        |
| Rose              | ff007f |                   | Razzmatazz    | e3256b | Razzmatazz    |
| Rose bonbon       | f9429e |                   | Raspberry     | e30b5d |               |
| Melon             | fdbcb4 | Melon             | Light Crimson | f56991 | Light Crimson |

## Whites

| All Colors       | Hex    | In-gamut         | All Colors       | Hex    | In-gamut         |
|------------------|--------|------------------|------------------|--------|------------------|
| Vanilla          | f3e5ab | Vanilla          | Medium champagne | f3e5ab | Medium champagne |
| Deep peach       | ffcba4 | Deep peach       | Pearl            | eae0c8 | Pearl            |
| Bone             | e3dac9 | Bone             | Navajo white     | ffdead | Navajo white     |
| Moccasin         | faebd7 | Moccasin         | Eggshell         | f0ead6 | Eggshell         |
| Papaya whip      | ffefd5 | Papaya whip      | Antique white    | faebd7 | Antique white    |
| Linen            | faf0e6 | Linen            | Old lace         | fdf5e6 | Old lace         |
| Cream            | ffdd0  | Cream            | Beige            | f5f5dc | Beige            |
| Cornsilk         | fff8dc | Cornsilk         | Cosmic latte     | fff8e7 | Cosmic latte     |
| Ivory            | fffff0 | Ivory            | Floral white     | fffaf0 | Floral white     |
| Isabelline       | f4f0ec | Isabelline       | Platinum         | e5e4e2 | Platinum         |
| Magnolia         | f8f4ff | Magnolia         | Munsell          | f2f3f4 | Munsell          |
| Anti-flash white | f2f3f4 | Anti-flash white | White smoke      | f5f5f5 | White smoke      |
| Ghost white      | f8f8ff | Ghost white      | Snow             | fffafa | Snow             |
| White            | ffffff | White            |                  |        |                  |

# Test Colors

## Whites

| All Colors       | Hex    | In-gamut         | All Colors       | Hex    | In-gamut         |
|------------------|--------|------------------|------------------|--------|------------------|
| Vanilla          | f3e5ab | Vanilla          | Medium champagne | f3e5ab | Medium champagne |
| Deep peach       | ffcba4 | Deep peach       | Pearl            | eae0c8 | Pearl            |
| Bone             | e3dac9 | Bone             | Navajo white     | ffdead | Navajo white     |
| Moccasin         | faebd7 | Moccasin         | Eggshell         | f0ead6 | Eggshell         |
| Papaya whip      | ffefd5 | Papaya whip      | Antique white    | faebd7 | Antique white    |
| Linen            | faf0e6 | Linen            | Old lace         | fdf5e6 | Old lace         |
| Cream            | ffffd0 | Cream            | Beige            | f5f5dc | Beige            |
| Cornsilk         | fff8dc | Cornsilk         | Cosmic latte     | fff8e7 | Cosmic latte     |
| Ivory            | fffff0 | Ivory            | Floral white     | fffaf0 | Floral white     |
| Isabelline       | f4f0ec | Isabelline       | Platinum         | e5e4e2 | Platinum         |
| Magnolia         | f8f4ff | Magnolia         | Munsell          | f2f3f4 | Munsell          |
| Anti-flash white | f2f3f4 | Anti-flash white | White smoke      | f5f5f5 | White smoke      |
| Ghost white      | f8f8ff | Ghost white      | Snow             | fffafa | Snow             |
| White            | ffffff | White            |                  |        |                  |



## Yellows

| All Colors                    | Hex    | In-gamut         | All Colors        | Hex    | In-gamut          |
|-------------------------------|--------|------------------|-------------------|--------|-------------------|
| Heart Gold                    | 808000 |                  | Dark goldenrod    | b8860b |                   |
| University of California Gold | b78727 |                  | Harvest Gold      | da9100 |                   |
| Satin sheen gold              | cba135 | Satin sheen gold | Brass             | b5a642 | Brass             |
| Dark khaki                    | bdb76b | Dark khaki       | Vegas gold        | c5b358 | Vegas gold        |
| Old gold                      | cfb53b | Old gold         | Goldenrod         | daa520 |                   |
| Chrome yellow                 | ffa700 |                  | UCLA Gold         | ffb300 |                   |
| Tangerine yellow              | ffcc00 |                  | USC Gold          | ffcc00 |                   |
| Selective yellow              | ffba00 |                  | Amber             | ffbf00 |                   |
| Golden poppy                  | fcc200 |                  | Mikado yellow     | ffc40c |                   |
| Naples yellow                 | fada5e | Naples yellow    | Jasmine           | f8de7e | Jasmine           |
| Titanium yellow               | eee600 |                  | Dandelion         | f0e130 | Dandelion         |
| Gold                          | ffd700 | Gold             | Banana yellow     | ffe135 | Banana yellow     |
| Golden yellow                 | ffdf00 | Golden yellow    | Corn              | fbec5d | Corn              |
| Aureolin                      | fdde00 | Aureolin         | Canary yellow     | ffef00 | Canary yellow     |
| Lemon                         | fff700 |                  | Cadmium yellow    | fff600 |                   |
| Laser Lemon                   | fefe22 |                  | Electric yellow   | ffff00 |                   |
| Yellow                        | ffff00 |                  | Daffodil          | ffff31 |                   |
| Lemon Yellow                  | fff44f | Lemon Yellow     | Icterine          | fcf75e |                   |
| Unmellow Yellow               | ffff66 |                  | Canary            | ffff99 |                   |
| Pastel yellow                 | fdfd96 |                  | Light khaki       | f0e68c | Light khaki       |
| Flavescent                    | f7e98e | Flavescent       | Banana Mania      | fae7b5 | Banana Mania      |
| Arylide yellow                | e9d66b | Arylide yellow   | Flax              | eedc82 | Flax              |
| Straw                         | e4d96f | Straw            | Hansa yellow      | e9d66b | Hansa yellow      |
| Pale goldenrod                | eee8aa | Pale goldenrod   | School bus yellow | ffd800 | School bus yellow |
| Mustard                       | ffdb58 | Mustard          | Sandstorm         | ecd540 | Sandstorm         |

# Test Colors

## Yellows

| All Colors                    | Hex    | In-gamut         | All Colors        | Hex    | In-gamut          |
|-------------------------------|--------|------------------|-------------------|--------|-------------------|
| Heart Gold                    | 808000 |                  | Dark goldenrod    | b8860b |                   |
| University of California Gold | b78727 |                  | Harvest Gold      | da9100 |                   |
| Satin sheen gold              | cba135 | Satin sheen gold | Brass             | b5a642 | Brass             |
| Dark khaki                    | bdb76b | Dark khaki       | Vegas gold        | c5b358 | Vegas gold        |
| Old gold                      | cfb53b | Old gold         | Goldenrod         | daa520 |                   |
| Chrome yellow                 | ffa700 |                  | UCLA Gold         | ffb300 |                   |
| Tangerine yellow              | ffcc00 |                  | USC Gold          | ffcc00 |                   |
| Selective yellow              | ffba00 |                  | Amber             | ffbf00 |                   |
| Golden poppy                  | fcc200 |                  | Mikado yellow     | ffc40c |                   |
| Naples yellow                 | fada5e | Naples yellow    | Jasmine           | f8de7e | Jasmine           |
| Titanium yellow               | eee600 |                  | Dandelion         | f0e130 | Dandelion         |
| Gold                          | ffd700 | Gold             | Banana yellow     | ffe135 | Banana yellow     |
| Golden yellow                 | ffd900 | Golden yellow    | Corn              | fbec5d | Corn              |
| Aureolin                      | fdee00 | Aureolin         | Canary yellow     | ffef00 | Canary yellow     |
| Lemon                         | fff700 |                  | Cadmium yellow    | fff600 |                   |
| Laser Lemon                   | fefe22 |                  | Electric yellow   | ffff00 |                   |
| Yellow                        | ffff00 |                  | Daffodil          | ffff31 |                   |
| Lemon Yellow                  | fff44f | Lemon Yellow     | Icterine          | fcf75e |                   |
| Unmellow Yellow               | ffff66 |                  | Canary            | ffff99 |                   |
| Pastel yellow                 | fdfd96 |                  | Light khaki       | f0e68c | Light khaki       |
| Flavescent                    | f7e98e | Flavescent       | Banana Mania      | fae7b5 | Banana Mania      |
| Arylide yellow                | e9d66b | Arylide yellow   | Flax              | eedc82 | Flax              |
| Straw                         | e4d96f | Straw            | Hansa yellow      | e9d66b | Hansa yellow      |
| Pale goldenrod                | eee8aa | Pale goldenrod   | School bus yellow | ffd800 | School bus yellow |
| Mustard                       | ffdb58 | Mustard          | Sandstorm         | ecd540 | Sandstorm         |

| All Colors    | Hex    | In-gamut     |
|---------------|--------|--------------|
| Citrine       | e4d00a |              |
| Peridot       | e6e200 |              |
| Blond         | faf0be | Blond        |
| Light yellow  | ffffed | Light yellow |
| Green yellow  | adff2f |              |
| Electric lime | ccff00 |              |

| All Colors             | Hex    | In-gamut               |
|------------------------|--------|------------------------|
| Stil de grain yellow   | fada5e | Stil de grain yellow   |
| Maize                  | fbec5d | Maize                  |
| Light goldenrod yellow | fafad2 | Light goldenrod yellow |
| Lemon chiffon          | fffacd | Lemon chiffon          |
| Fluorescent yellow     | ccff00 |                        |



# Test Colors

| All Colors    | Hex    | In-gamut     | All Colors             | Hex    | In-gamut               |
|---------------|--------|--------------|------------------------|--------|------------------------|
| Citrine       | e4d00a |              | Stil de grain yellow   | fada5e | Stil de grain yellow   |
| Peridot       | e6e200 |              | Maize                  | fbec5d | Maize                  |
| Blond         | faf0be | Blond        | Light goldenrod yellow | fafad2 | Light goldenrod yellow |
| Light yellow  | ffffed | Light yellow | Lemon chiffon          | fffacd | Lemon chiffon          |
| Green yellow  | adff2f |              | Fluorescent yellow     | ccff00 |                        |
| Electric lime | ccff00 |              |                        |        |                        |