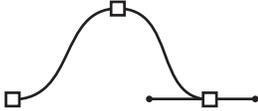


## GRAPHIC TYPES

### Vector

Mathematical formulas that can be sized up infinitely without losing clarity

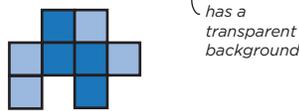
(EPS, PDF, AI, SVG)



### Raster

Uses small squares called pixels. If sized up too much, pixels are visible, and images look blurry.

(JPG, GIF, PSD, PNG)



## COLOR SPACES

### RGB

The RGB color space is for screens. Screens are made of pixels that use combinations of red, green, and blue light to create colors.

### CMYK

The CMYK color space is for print. Printers use cyan, magenta, yellow, and black ink and combine them to create colors.

*Note: for print, sometimes you may also need a spot color, which is either a specialized color like a neon or metallic, or a specifically mixed color to screen print on apparel.*

## PRINT VS. SCREEN RESOLUTION



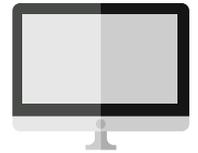
### DPI

DPI stands for Dots Per Inch, and refers to print resolution. Printers use tiny dots of color (cyan, magenta, yellow and black) that combine to create all the colors you see in print.

Print is 300 dpi at full resolution Typically large format printing (posters and larger) can print at 150 dpi.

### PPI

PPI stands for Pixels Per Inch, and refers to screen resolution. This is also called pixel density: how many square pixels fit into one inch of any screen.



Screens are tricky, because they are all different. Typical high-definition computer and TV screens are 72 ppi at full resolution. However, newer retina displays and ultra high-definition screens are 144 ppi or higher.

## PHOTOGRAPHY

It's easy to just Google search images to use on letters, flyers, etc. But that's not legal. Here are some other options:

Google search, but when you're in images, click on "Tools" on the right under the search bar. Then click "usage rights" and select "labeled for reuse." That will ensure the images you're using from Google are legal.

Free photography sites:



pexels.com  
unsplash.com  
freeimages.com

Stock photography sites:



istockphoto.com  
shutterstock.com  
dreamstime.com

But of course, we always recommend you support local photographers. They'll give you unique images no one else has, and you'll get images specific to your needs.

## FONTS

Many fonts you see in designs have to be purchased, if you want a font that stands out from the default fonts included on most computers.

Some free fonts are OK, but a lot of those have issues, so be careful! fonts.google.com is a great place to find free fonts!

## PRINT-READY FILES

Print companies need files a certain way to make sure they print correctly. Here are a few terms you should know.



**Bleed:** refers to the extra 1/8" to 1/4" around all edges of a print piece that gets trimmed after printing. Professional printers print on a larger piece of paper, and then cut the project down to the correct size. The bleen ensures that you don't get any white edges.



**Color Space:** make sure all your images are in the CMYK color space, so they're formatted best for print (see above).



**Image Size:** all your print-ready images should be full resolution (300 dpi) before printing. For example, at 300 dots per inch, an image that prints 4 inches wide should have at least 1,200 pixels in its width to not turn out pixilated or blurry.



**File Size:** make sure that if you save a PDF, images haven't been compressed too far down to print at a high resolution. Some defaults PDF settings will do that to keep your file size small, but this means it won't print correctly.



Web fonts are different than print fonts. When reading in print, serif fonts (like Times New Roman) are easier to read. When reading on web, sans-serif fonts (like Arial) are easier to read.