DIG3118

Digital Graphic Design

Week 7 – Photoshop Concepts

Objectives

- Understand the differences between vector and pixel based images
- Learn the Color Modes available in Photoshop
- Pixel Depth of bitmapped images

Vector vs Bitmap images

Our study of Illustrator included the understand that the images we created consisted of a dot-to-dot method of constructing images with line segments drawn between.

The difference between vector based artwork and what we refer to as bitmap images is significant. When we are discussing bitmap images we are referring to images comprised of pixels. Think of pixels as small squares which when put together form a images.

If I provided you with a stack of bathroom tiles and asked you to create an images, you would stack these in a grid to form a pattern.

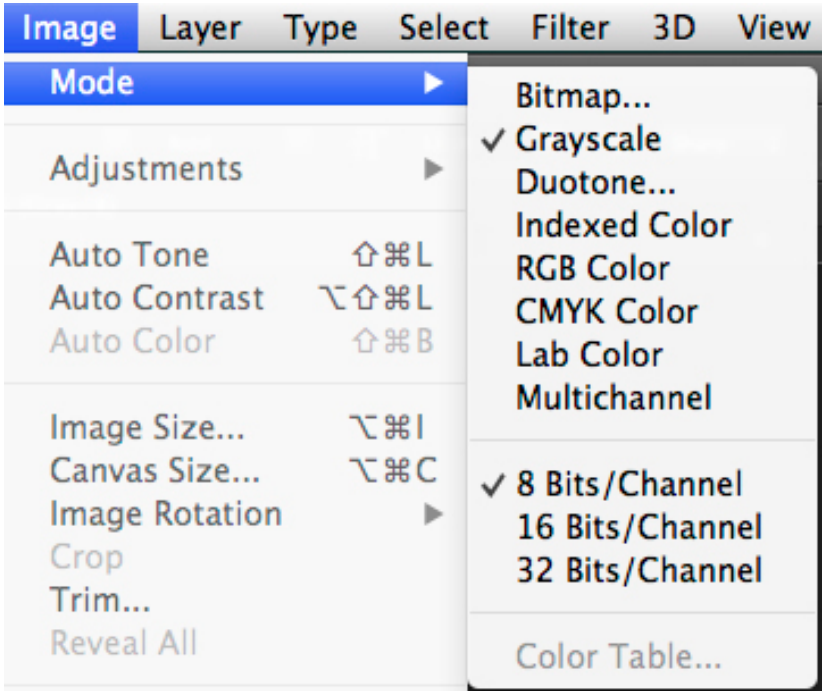
Pixels

- Each pixel is either Black or White, 0 or 1, which relates to 1-bit of data.

Vector vs Bitmap images

Bit Depth

The amount of data found in bitmapped images varies depending on the color mode. We change this under the menu IMAGE>MODE



Vector vs Bitmap images

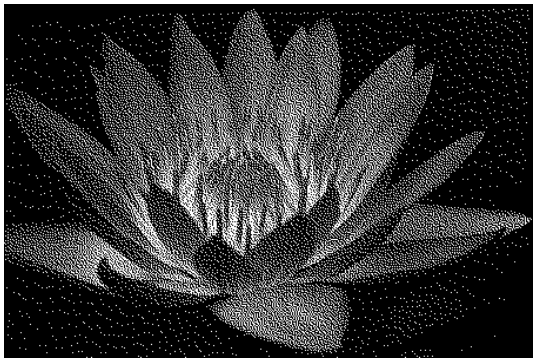
Bitmap – 1-bit images

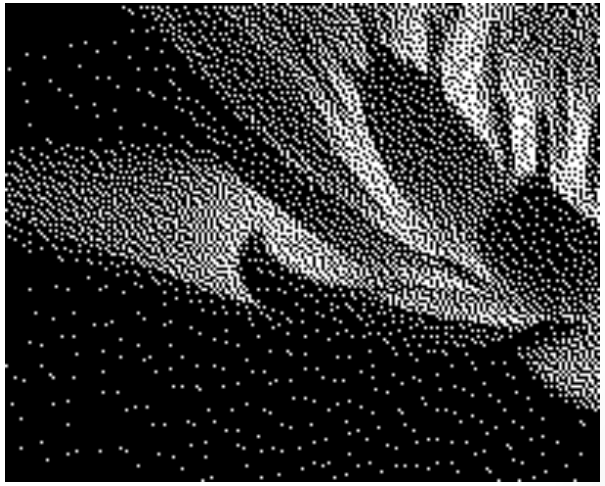
The most basic Photoshop color mode, it pure black and white.

One good use of this file is for scans of signatures.

- No illusion of tone.
- Similar to pointillism or stippling.
- The bathroom tile analogy.

White areas take up memory as well



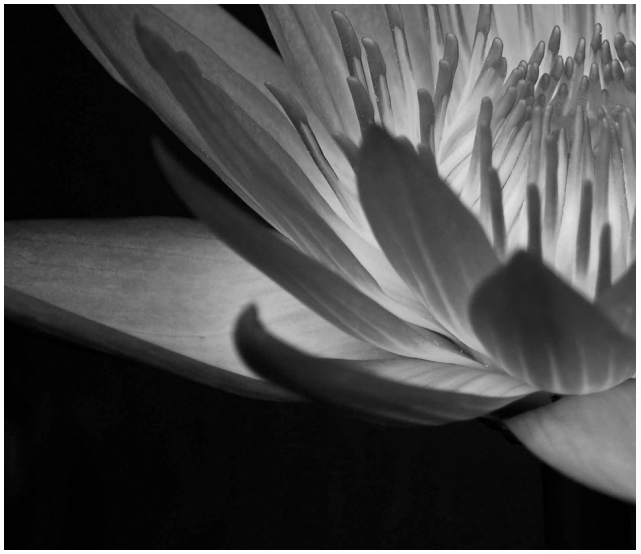


Vector vs Bitmap images

Greyscale – 8-bit images

The pixel is further subdivided into a 16 x 16 grid = 256 shades of grey

- Single channel within Photoshop.
- Contains significantly more data within the file.
- Gives the **illusion** of tonality.
- Gives the look of a continuous tone photograph.



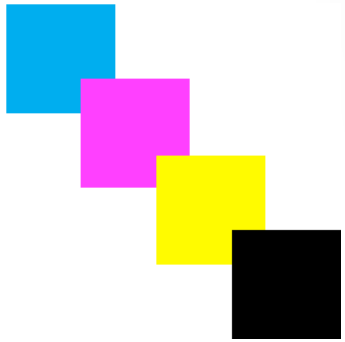
Vector vs Bitmap images

RGB – 24-bit images

- 3, 8-bit channels within Photoshop.
- Each channel contains different color information.
- 256 x 256 x 256 = 16.7 million colors.
- Contains significantly more data within the file.
- Electronic color, rich saturated, white light. Color is created directly from the light source. Also referred to as **Additive** color.
- Digital cameras, computer monitors, and televisions display in RGB.

Vector vs Bitmap images

CMYK – 32-bit images



- 4, 8-bit channels within Photoshop
- Cyan (blue), Magenta (pink), Yellow (yellow) and Black (K)
- Each channel contains different color information
- 256 x 256 x 256 = 16.7 million colors
- Contains significantly more data within the file
- Real world color. Shows less colors than RGB. Typically used for images for high quality commercial print.
- Color is created from reflected light source. Also referred to as **Subtractive** color.

Color Gamut

Comparing the range of visible colors to RGB and CMYK color

Our eyes can distinguish more colors than we can see on a computer monitor or in printed pieces. This is referred to a color gamut.

The image here shows the range of colors comparing the 3. Notice how much more color the human eye can distinguish.