

Graphics Info

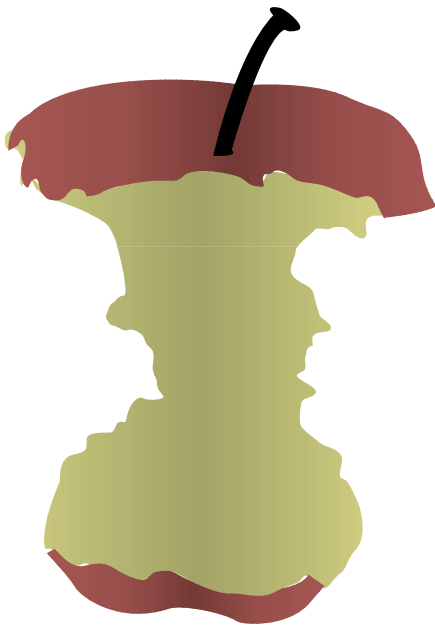
IMAGE CATEGORIES

Raster/Bitmap



- Fixed Resolution
- Limited Scalability
- Larger File Size
- Usually a Scan or Photograph
- Uses a grid or raster of small squares known as pixels to represent images
- When working on bitmap images, you edit groups of pixels rather than objects or shapes.
- Can become pixilated or jaggy when enlarged too much

Vector/Bézier curve



Vector graphics consist of lines and curves defined mathematically. You can create a vector graphic and move it, color it or resize it without losing the quality of the graphic. Vector graphics are resolution-independent.

- Scalable to any dimension
- Smaller File Size
- Colors can be changed quickly
- No automatic trapping!!
- Rasterizes much faster

RESOLUTION FORMULA

Mechanics of Scanners - Garbage In>Garbage Out. The formula below is to be used for all Grayscale, RGB and CMYK images.

2 x Line Screen = Ideal Resolution

1.5 x Line Screen = Minimum acceptable Resolution

Practice

LPI = 85 Ideal = _____ Minimum = _____

LPI = 100 Ideal = _____ Minimum = _____

LPI = 133 Ideal = _____ Minimum = _____

LPI = 150 Ideal = _____ Minimum = _____

LPI = 175 Ideal = _____ Minimum = _____

LPI = 200 Ideal = _____ Minimum = _____

Common Line Screens

Newspaper = 85 - 100 lpi

Magazine = 133 - 175 lpi

Coffee Table Books = 200 lpi

DPI vs PPI

DPI (Dots Per Inch) technically refers to dots in an inch, also called spi. **PPI** (Pixels Per Inch), usually refers to scanned resolution. It is displayed in Photoshop under image size and is also called dpi. When referring to hardware resolution, **SPI** (Spots Per Inch) is more technically accurate. PPI is a better method of differentiating between hardware and software terminology. PPI would mean software, SPI would mean hardware, unfortunately DPI is used commonly to describe both.

LPI, LINES PER INCH

LPI refers to Halftone Screen. When printing on offset presses, gray ink is not actually used. A screen is created of black dots that trick the eye into seeing shades of gray or continuous tone. Fewer lines in an inch create lighter shades of gray. More lines in an inch create darker shades of gray.



60 lpi



133 lpi

Conventional halftone screens are created differently than digital screens. Below is a simulation of a halftone screen. The left side is enlarged.



FORMULA #2

What happened to my photo?

Determining Proper Resolution after an image has been scaled.

Starting PPI ÷ Scaling %

Example: 300 ppi ÷ 200% (2) = 150 ppi • or 300/2 = 150

Practice

PPI = 100 Scaling = 200 % New Printed Resolution = _____ ☐

PPI = 200 Scaling = 150% New Printed Resolution = _____ ☐

PPI = 300 Scaling = 50% New Printed Resolution = _____ ☐

PPI = 400 Scaling = 120% New Printed Resolution = _____ ☐

PPI = 525 Scaling = 25% New Printed Resolution = _____ ☐

PPI = 600 Scaling = 75% New Printed Resolution = _____ ☐

PPI = 800 Scaling = 233% New Printed Resolution = _____ ☐

Now check off the images which have enough resolution for an imagesetter at 150 line screen.

HOW DOES RESOLUTION AFFECT QUALITY?



30 ppi ▪ 12 KB



72 ppi ▪ 28 KB



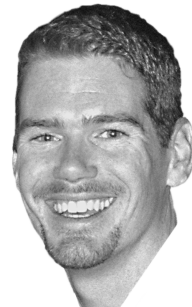
100 ppi ▪ 40 KB



225 ppi ▪ 144 KB



300 ppi ▪ 240 KB



500 ppi ▪ 644 KB



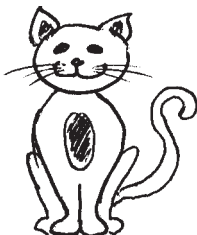
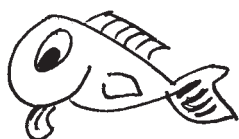
800 ppi ▪ 1.5 MB

EXCEPTION TO THE RULE

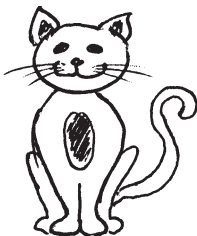
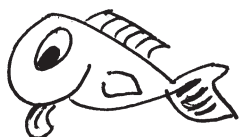
LineArt/Bitmap is the exception to the scanning rule. All LineArt images should be scanned at 600 - 1200 ppi. You may go as high as your imagesetter output resolution, for example 2400 or 2540ppi.



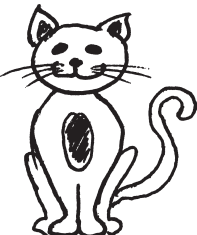
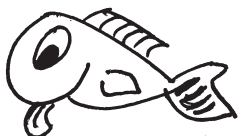
100 PPI • 16 KB



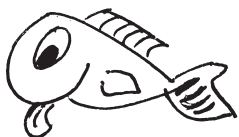
300 PPI • 76 KB



600 PPI • 284 KB



1200 PPI • 1 MB



2400 PPI • 4.2 MB