Basic definitions...

**Pixels** — Think MONITOR. Pixels are the back-lit squares of color that make up your photo on a monitor.

**Dots** — Think PRINT. Dots are what the pixels become when you print them with inks.

**Resolution** — Pixel density. The number of pixels, or dots, used to display one inch of an image. Also known as “Res”.

**72 ppi (pixels per inch)** — On-screen resolution. Your monitor fits 72 pixels in one inch. Also known as “Low Res”.

**300 dpi (dots per inch)** — Print resolution. A printing press fits 300 dots in one inch. Also known as “High Res”.

**PPI vs. DPI** — Many software programs and scanner interfaces use these two terms interchangeably—but that’s not exactly accurate. The term PPI should be used when referring to image resolution, and the term DPI should be used when referring to printing resolution. How can you remember this? Monitors display pixels, and printers produce dots.

**Image Size** — The number of pixels across the width and height of the image. (Example: the photo is 3000 pixels x 2000 pixels.) The quality of the print, and the size of the print are limited by the number of pixels in the original image. You can’t increase one value without effectively decreasing the other:

### Low Res vs. High Res

![72 ppi](image) ![300 ppi](image)

**Calculating Image Size:**

Pixels ÷ PPI = Inches

A computer monitor displays images at **72 ppi**.

A good-sized photo in email, or on the Internet, might be something near 600x400 pixels at 72 ppi:

600 pixels ÷ 72 ppi = 8.3 inches

by

400 pixels ÷ 72 ppi = 5.5 inches

Therefore an image with 600x400 pixels is a good size for viewing on a monitor. Unfortunately, these dimensions are too small to make a quality photographic print. Here’s why...

Printing is conducted at a higher pixel density: **300 dpi**. In order to produce a “photo quality” print, we must have at least 300 dots for every inch of the print. The number of pixels never changes, only how many you cram in one inch.

Recalculate the same 600x400 image and you have a much smaller image:

600 pixels ÷ 300 dpi = 2 inches

by

400 pixels ÷ 300 dpi = 1.3 inches

Unless you want this small size, an image with 600x400 pixels is a poor size for printing.

### What to send the Art Dept

The Art Dept prefers a file size of about 1200x1800 or higher for optimum 4x6 prints, and 2400x3000 for an 8x10 print.