Rules to Remember on Resolution

1. Text should be 400dpi at the final size in the layout.
2. Images should be 300dpi at the final size in the layout.
3. Resolution and size (dimensions) are inversely proportional to each other. So, if you enlarge an image, it will lower it's resolution. If you reduce an image, it will increase its resolution.
4. How an image is originally acquired will determine its resolution, and thus the size it can print at for clear and crisp printing.
5. Low resolution images print with jagged edges and appear fuzzy.

How the original image is acquired will determine its resolution.

Images from the Internet

Jpeg and Gif files are Internet images, saved with a compression process designed to remove color and visual quality to achieve small file sizes. Internet images are usually saved at a resolution of 72 dpi for quick screen loads and will not print clear and crisp on a printing press.

Physical dimensions of an image and resolution are in direct proportion to each other. Shrinking the physical dimensions of an Internet image by 4x will achieve decent printing results. (72dpi x 4 = 288dpi)

How to calculate the size you must reduce (shrink) an Internet image to get it to print well:

Reduce the size to 24% of its original size. (Because 72dpi is 24% of the 300dpi resolution you want)

Example:

Internet Image that is 3 inches x 3 inches, at 72dpi
You want to shrink it enough to get it to 300dpi for crisp printing
72/300 = 0.24
3 inches x 0.24 = 0.72 inches

Zoom into your images to see the quality. Be aware of your design, purpose of your printing, and the needs of your customers before using images from the Internet.

Images from your Scanner

Know the image size required for your layout before you scan. Guess larger if uncertain. If the photo is larger than the layout size, simply scan at 300dpi. If the photo is smaller than the layout size, adjust your scanner settings.

- Adjust the scanner resolution setting
- Adjust the scan percentage size

How to calculate the resolution you must scan a photo:

Increase the scanning resolution above 300dpi by the same percentage you will be enlarging the original photo.

Example:

Photo size = 2 x 3 inches
Image layout size = 5 x 7 inches
5/2 = 2.5 (you will be enlarging the photo 2.5 times, or 250%)
Scan photo at 2.5x 300dpi, or 750dpi

If you need to enlarge anything larger than 300% it is best to contact your local service provider for a professional scan.

Images from your Digital Camera

Before taking a picture, determine the quality of an image and how it can be used in a layout. Use the highest

quality setting available on the camera. The pixel dimensions of an image identify the resolution. Dividing the pixel width and height by 300 determines the dpi. Divide by 400 for images with text.

For example:

Digital Camera Image (with no text) = 1200 pixels x 1600 pixels
1200/300 = 4 inches 1600/300 = 5.33 inches
Layout size for image = 4 inches x 5.33 inches

The image can print at this size or smaller for clear and crisp printing.

Digital cameras use the RGB color space. When RGB is converted to CMYK, images tend to darken. Brighten and sharpen your image for clearer printing. Convert the image to the CMYK color space, if possible. Professionals frequently use Adobe Photoshop for this task.

Images from stock photography companies

Know the image size required for your layout before you purchase stock photography online. Please read their information prior to purchase as it will determine, price, color, file size, copyrights, resolution and quality. Each image should be at a resolution of 300dpi for the final size in your layout. Reminder: get the image in CMYK color mode (rather than RGB) if possible. Here are some guidelines for you to follow:

2 inches x 2 inches @ 300dpi = 600 pixels x 600 pixels = 1.38 MB

4 inches x 4 inches @ 300dpi = 1200 pixels x 1200 pixels = 5.5 MB

8.5 inches x 11 inches @ 300dpi = 2550 pixels x 3300 pixels = 32.2 MB