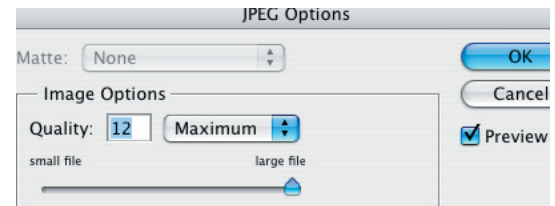


Resolution and image color for posters

Image resolution (dpi, ppi), is one of the most important things to get correct when you design a poster.

If the image resolution is too low it may not look bad on the screen, but when you print at full size the image will look pixelated. The reason that the image looks good on the screen is that screen resolution is 72dpi. For an image to print well it should be at least 300dpi. DPI stands for Dots Per Inch, so for a 72dpi image this, quite literally, means that there are 72 dots per inch displaying that image.

One other factor to keep in mind is that the higher the dpi the larger the file size will be. If you have images larger than 10MB in PowerPoint it will struggle, and can crash. This is one of a few reasons to save all images as JPEGs, this file type has a greater compression facility than a TIF file type. When you save the image as a JPEG set the quality to 12 - Maximum.



You will need to prepare photographs / images for your poster in Photoshop.

All images must be saved as JPEGs before you bring them into PowerPoint, if you are creating your poster in Illustrator you can save as either a JPEG or a TIFF file. Each image must be the correct size before you bring it into PowerPoint/Illustrator. PowerPoint is not an image editing program, if you re-size, and/or alter the brightness / contrast settings in PowerPoint it will print badly. Again on screen it will look OK, but the second biggest cause of images printing badly is that they have been altered in PowerPoint or that the files are the incorrect file type.

In Photoshop you should do three things:

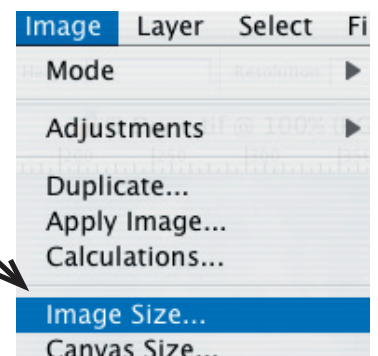
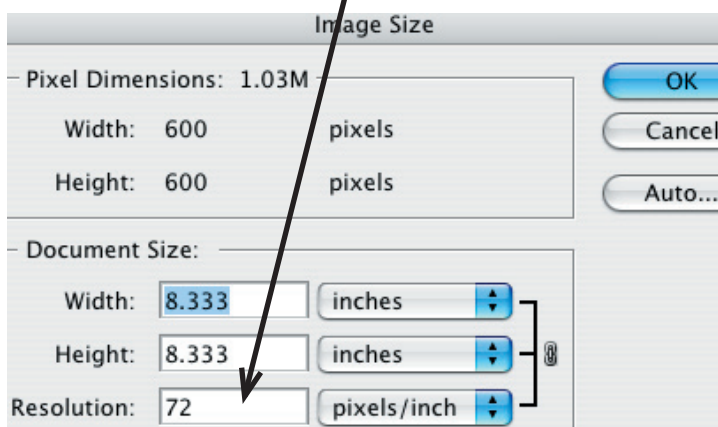
1. Make sure the resolution is correct.
2. Make sure the image size is correct, and proportional.
3. Make sure you have made any brightness/contrast edits you need.

1. Make sure your image is the correct resolution:

a. Open the file in Photoshop

b. Go to Image > Image Size

c. Check the resolution



In the image to the left the resolution is low, & will print poorly - pixelated. 72dpi is only good for screen-based presentations or websites. For a poster the resolution should be 300dpi+. You cannot simply type in a higher number to improve the resolution, please read the next page, to learn how to increase the resolution.

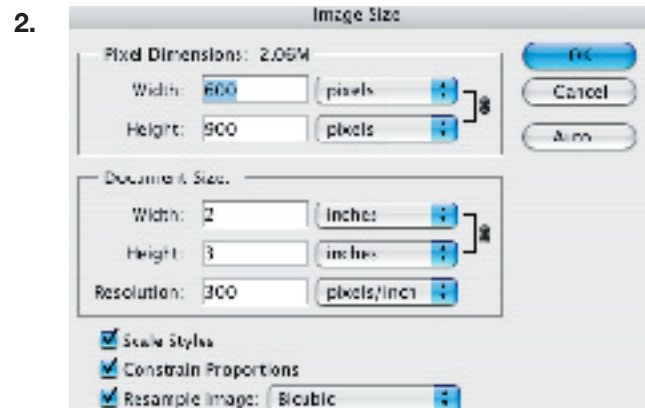
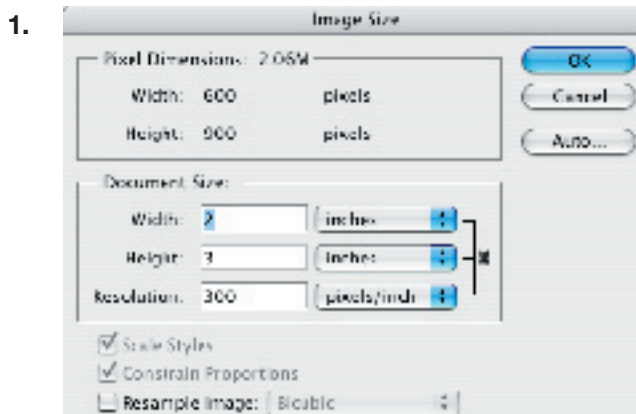


Image 1. -The Width, Height, and Resolution fields are linked. If you make a change to any one of them the other two will change proportionally. If you make your **image larger the resolution will decrease - a printed image would become more pixelated**, if you make the **image smaller the resolution will increase - a printed image would become clearer**. To link these fields make sure that the **Resample Image** box is unchecked. This is the recommended method for resolution changes.

Image 2. -Only the Width and Height fields are linked. This means that when you change one the other will change proportionally. The resolution field is independent of the other two, when you change the resolution the W & H remain unaffected. This may seem like an easier fix to get the exact dpi that you want, but the resolution of the image is formed when you make your original scan or take a digital photograph. Even if you change the resolution the stored data will always be the original scan/photo size. Image 1 is the exact way to change the resolution quality of your image.

One good habit to get into when you scan images is to make the resolution much higher than you need it to be, then it will OK to reduce the Resolution, if you need to increase the Width and Height of the image.

If you have a low resolution image, and do not have access to the original file there is something you can try to increase the resolution. Make sure you are in Photoshop.

1. Open the low-res image
2. Open a new document > File > New
3. Set-up the new document so that it is the size you need the image to be in PowerPoint, and make the resolution high - at least 600dpi > Click OK
4. Select your low-res image. GoTo Select > All, Edit > Copy, click on your new document, Edit > Paste.
5. The image you have pasted will be small in the new document. This is because the image was low-res and has been pasted into a high-res document.
6. Select your image (top right tool). GoTo Edit > Transform > Scale. A bounding box will be around your image. Hold down the Shift key, and click and drag a CORNER box, (this will keep the scaling proportional) until your image is the size of the window. Double-Click in the image to fix the scale - until you do this the image will probably look very pixelated, it should smooth out when you double-click to fix the increase in size.

2. Keep images proportional when you re-size.

Click on a corner box and hold down the shift key. If you just drag a corner box your image will be dragged dis-proportionally, and will not be a true example of your image.

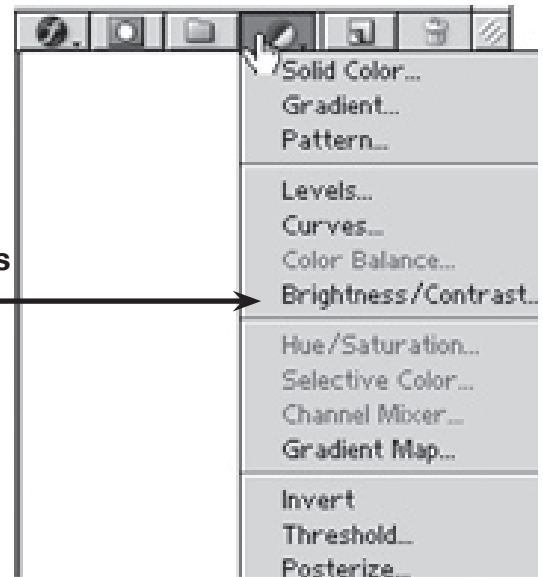
Sometimes an image that has been re-scaled in PowerPoint will not print correctly. If an image is

3. Make sure you have made any brightness/contrast edits you need.

Adjustment layers are an important and powerful tool in Photoshop especially if you need to color correct images that will be used in posters and printed.

Adjustment layers can be found on the Layers palette, click on the button to the left of new layer, (shown below). All your color-correcting changes will be saved in layers separate from the original image. This means that you can re-edit any color adjustments without affecting the original image.

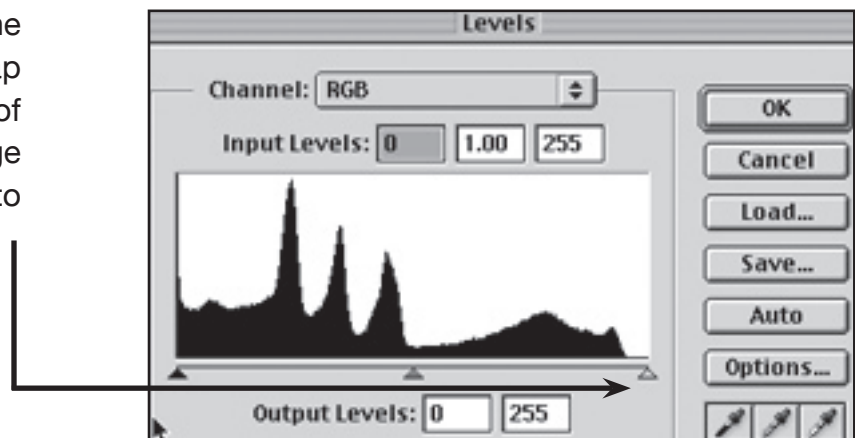
Try to avoid using Brightness/Contrast, **Levels and Curves** are much more effective.



Levels:

This tool helps you to balance the highlights/midtones/shadows in your image. Often a scanned image loses some of the original color quality, and flattens the highlight and shadowed areas. It often helps to zoom into the image (key command > Apple +, to zoom out Apple -). Use the white eyedropper tool, [right-hand tool, bottom of the dialogue box], to click on the whitest pixel, this sets the highlights/whitest area. This works the same way for the midtones and shadows. You will see the image change as well as the histogram in the dialogue box.

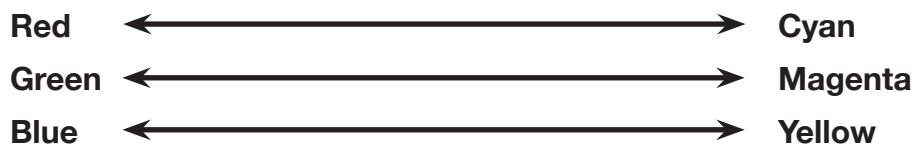
If you look at the histogram to the right you can see that there is a gap from the white arrow to the start of the histogram. To correct this image you could move the white arrow to the start of the histogram.



The next page looks at the **Curves tool**. This tool helps to balance the colors in an image, Levels helps to balance the highlights/midtones/shadows, so together they are very useful tools. Before you use Curves, though it helps to understand channels.

Channels:

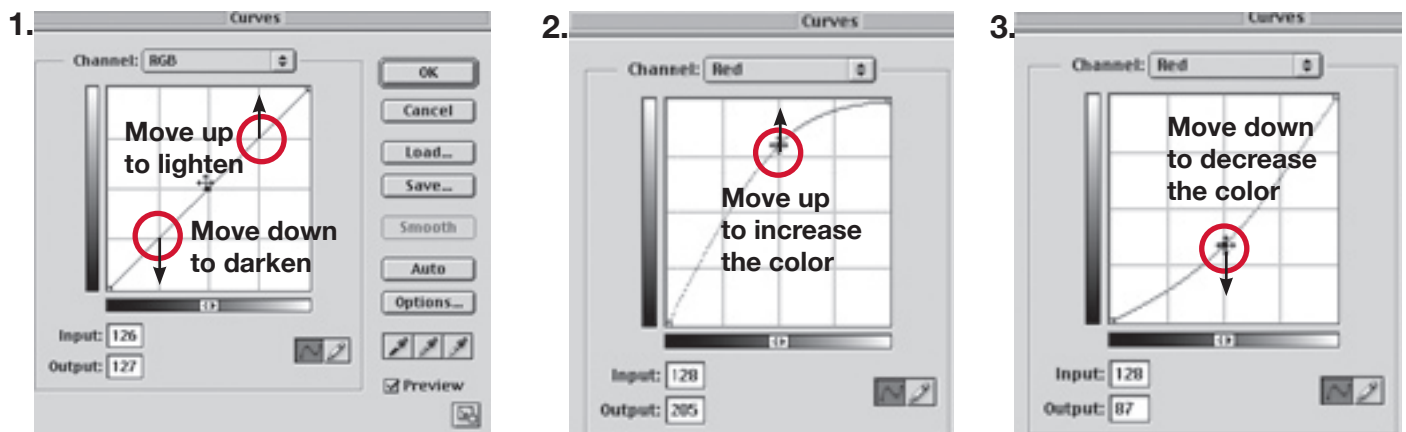
To understand channels it helps to have some understanding of color in computer documents. If you look at the top bar of a Photoshop document you will usually see the letters RGB. These stand for Red, Green, & Blue. Any image that is displayed on a computer screen, T.V., video monitor etc... will be RGB. If you look really closely at any of those screens you can see that they are made up of Red, Green, & Blue squares. Other times you may see CMYK at the top of your computer document, these letters stand for Cyan, Magenta, Yellow, & black. These are the primary colors used by printers. You should use this color format if and when you color print your document. You have the opportunity to set -up the color mode when you create a new document. If you need to change an existing document go to Image > Mode > RGB color or CMYK color.



The diagram above shows RGB and their opposite colors. If you decrease red in a channel you will increase cyan, if you decrease green you will increase magenta, if you decrease blue you will increase yellow.

Curves:

With this tool you can change the tonal values of the color channels. If you are working with a CMYK image the directions below will be opposite. For example image one would read "Move up to darken," Move down to lighten."



The first image shows the curves dialogue window. Make sure the preview box is checked > this means you will be able to see the changes that you make to your image. RGB (or CMYK), will be the first channel. To specifically change to a red, green, or blue channel click on the arrow to the right of RGB, and scroll to your choice.

In image 1 if you move the diagonal line up from the point where it is circled [right], you will brighten the image, if you move the diagonal line down from the second circled point [left], you will darken the image. If you want a realistic image keep the diagonal line touching one of the lines on the grid.

If you want to change the colors on your image > decide which colors you need more/less of. Select the color you need to change > move the diagonal line, move up to increase the color, and decrease the opposite color, like the point shown in image 2, move down to decrease the color and increase the opposite color, like the point shown in image 3