

SCANNING AND DIGITAL CAMERAS

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OBJECTIVES:

In this workshop, we will cover the following topics:

- A.... What is a scanner?
- B.... How do I use it?
- C.... What is right resolution?
- D.... I have a digital camera!
- C.... Get out the red eye and color correcting

OBJECTIVE A : WHAT IS A SCANNER?

Easy answer: Scanners are wonderful magic boxes that give the computer eyes.

Long answer: Scanners are constructed around a CCD, or Charged Coupled Device. This CCD measures the intensity of light reflected off of the object to be scanned. A motor moves the CCD along the body of the scanner along with its own light intense light source, called a lamp. The scanner transmits the data it collects to your computer, which in turn assembles it into a picture visible on your screen.

OBJECTIVE B: HOW DO I USE IT?

Easy answer: You open the lid, put in your object to be scanned, and then close the lid. Next click scan on your computer.

Long answer: First place the object you want to scan on the glass on the scanner. Make sure it is straight, and carefully close the lid. All scanners have different software interfaces, but if you use Photoshop, you can go under FILE: ACQUIRE: TWAIN to activate your scanning software. It's best to do a preview scan to see where your object is on the scanner. From there you can usually drag a box around the part of the object you want to scan. Once you have the selection tuned up, click final scan to send the image to your computer.

When I scan pictures out of my magazine, they get a funny pattern on them!

This is a Moire pattern. It happens when you scan an image that already is broken up into a dot pattern, like in a printed image. You can REDUCE the problem by running a one pixel Gaussian Blur and then a Unsharp Mask filter over the image. You should ALWAYS do this when viewing the image at 100% as any other resolution can lead to false positives.

OBJECTIVE C : WHAT IS THE RIGHT RESOLUTION?

Easy answer: Twice the resolution of your output device.

Long answer: You want to scan at twice the resolution of your output device, like a printer (300 dpi) or a web page (72 dpi) as long as you want to keep the image the same size as the original. For example, a 5 x 7 photograph will be 5 x 7 on the computer screen if you scan it at 72 dpi. To make your final image large you will have to scan at a larger dpi or scale the image in the scanner software. So if you want to make the original 5 x 7 image into a 10 x 14 at 72 dpi you will have to scan it in at 150 dpi.

OBJECTIVE D: I HAVE A DIGITAL CAMERA!

Easy answer: Good for you. Plug it in and download the pictures using the software that came with it.

Long answer: Digital cameras like scanners have CCDs in them and produce images based on the amount of light that strikes them. They take this information and store it on some type of internal storage media. Most modern cameras come with an USB connection for transferring photos to the host computer. Older cameras need some sort of reader in order to use the storage media directly.

OBJECTIVE E: COLOR CORRECTION

Red eye removal: Assuming that your subject is not in fact possessed by the spirit of some sort of horrible demon, you need to restore their natural eye color quickly. First use the zoom tool and zoom in on one eye or the other. (Do one eye at a time.) Make an elliptical selection around the iris. Next select the brush tool. Set the color mode to "Color." Next pick a replacement eye color. The trick is to pick a good eye color with a lot of grey. I'll demonstrate the acceptable color range in class. Next paint in the new color over the red. Zoom out and be amazed, the demon has been excised from your loved one. Well, for one eye anyway. Repeat the procedure for the other eye.

Color correction: Most image problems stem from bad tonal range and tints.

Easy answer: Photoshop's auto color tools are pretty good. Image: Adjust: Auto...

Long answer: The Image: Adjust: Levels command will produce a histogram for you to adjust the tonal (contrast) range of your image. Just move the little arrows under the histogram to adjust the images tonal range. It will be pretty clear what happens when you move them so experiment to find the best settings for your individual image.

To remove color casts or tints, use the Image: Adjust: Curves command. Once the dialog box is open, click on the RGB dropdown and select the offending color. Click in the middle of the curve and slowly drag the mouse down to the right. With some experimentation you should be able to be a pretty good result.