Tools and Program Needed:

Your Brain   Comput-   USB Drive   Bridge   PhotoShop

Period: Date:

JPEG, Camera RAW & File Formats

Targets

- Distinguish when different file formats should be used.
- Use JPG and Camera RAW files to create images.
- Create photos using PhotoShop Camera RAW Dialog Interface.
- Know the relative file sizes for the different file formats.

- Edit Camera RAW files to improve overall appearance.
- Edit RAW images with artificial light for better white balance.
- Edit under exposed RAW images to improve overall exposure.

Image File Formats

General Camera Formats & Photo-

JPEG (jpg) — Joint Photographic Experts Group
- Compressed image
- Group started in 1986
- Standard set in 1992
- Some image quality loss due to compression
- Creates small image size
- Most common format,
- Will loose data some every time saved

RAW (file tag varies with make) — image not processed
- Not processed, allows for greater control when editing in imaging program such as PhotoShop
- "Digital Negatives"
- Wider dynamic range
- Recent development
- Creates largest image sizes
- Common File Tags (dependent on camera make)
    - Canon — CR2
    - Fuji — RAF
    - Nikon — NEF
    - Pentax — PEF, DNG (developed by Adobe)
    - Olympus — ORF
    - Sony — SRF, SR2

PSD (psd)— Adobe PhotoShop Document
- May be compressed image
- First released by Adobe in 1990 (Apple Macintosh only)
- Newest version part of Creative Suite 2 (CS3)
- Greatest support for PhotoShop imaging options
- Creates larger image sizes

Web and Print Formats

GIF (gif) — Graphics Interchange Format
- Compressed image
- Released by CompuServe in 1987
- "Standard" for Web
- Color palette limited to 254 colors
- Creates smallest image sizes for use with portable devices or web
- Supports animation

PNG — Portable Network Graphic, (pronounced ping)
- A graphics format initially developed as an alternative to licensing issues with GIF
- PNG was approved for use in 1996 and was came into standard use 2004.
- Primarily used with web images
- Variable transparency through alpha channels
- Gamma correction that helps PNG look better cross-platform than some other images
- Patent-free compression algorithm
- Does not support non-RGB color spaces such as CMYK
- Better compression, 10-30 percent smaller files than GIF
- Interlacing/progressive display
- Supports 48-bit truecolor, grayscale, and 8-bit color
- Lossless compression
- Searchable content

TIFF (tif) — Tagged Image File Format
- May be compressed image
- Aldus (now Adobe) started in mid-80's, current standard set in 1992
- Little image quality loss due to lossless data compression
- Creates medium image size
- Can save in CMYK mode

Go to the class web page

"Image File Formats: Camera RAW and JPG" — http://www.nclack.k12.or.us/Page/20750

Watch the following videos

Video 1: How to Choose an Image File Format
Video 2: Back to Basics EP05: RAW vs. JPEG - by Learning DSLR
Video 3: AdobeTV's Camera RAW Interface
Video 4: AdobeTV's Camera Raw: Why You Should Set PhotoShop to Open JPG in Camera RAW

Read the information in the links

General Information about image file formats
About.com: Which Graphics File Format Is Best To Use When? http://graphicssoft.about.com/od/graphicformats/f/summary.htm

Information about image file formats
PhotoShop Essentials: RAW Vs JPEG For Photo Editing Http://Www.Photoshopessentials.Com/Photo-Editing/Raw-Vs-Jpeg-For-Photo-Editing/
Darren Rowse: RAW Vs JPEG Http://Digital-Photography-School.Com/Raw-Vs-Jpeg
Outdoor Photographer: RAW Vs JPEG Http://Www.Outdoorphotographer.Com/How-To/Shooting/Raw-Vs-Jpg.Html

Name:

Period: Date:

Questions

1. Fill out the following table.

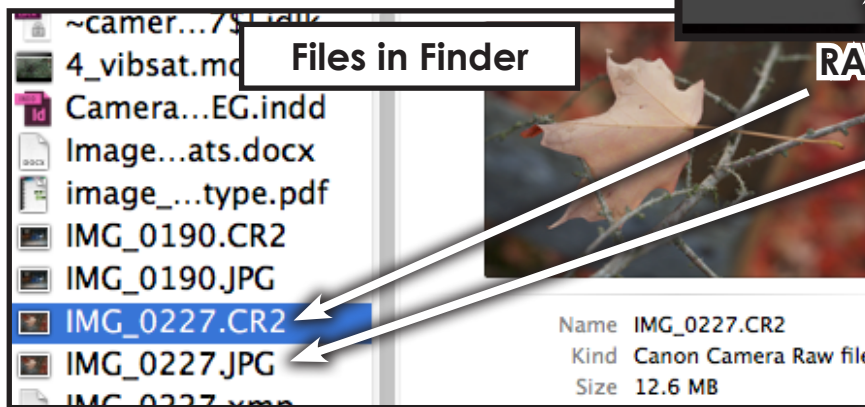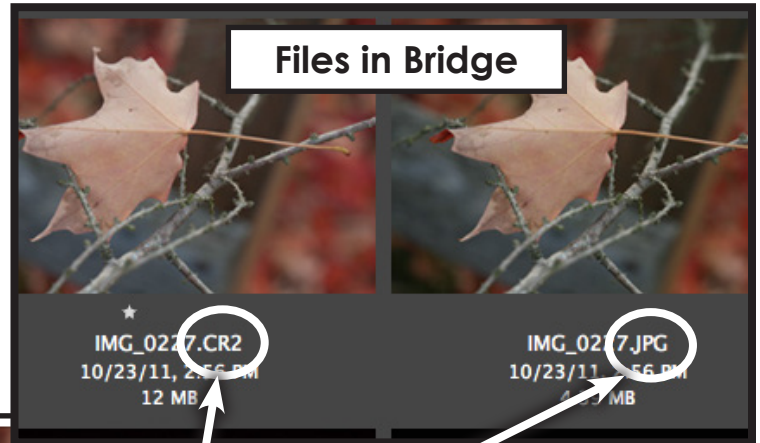|	File Size	Use	Advantages	Disadvantages
JPG				
RAW				
PNG				
GIF				

2. How do RAW files differ from JPG files?

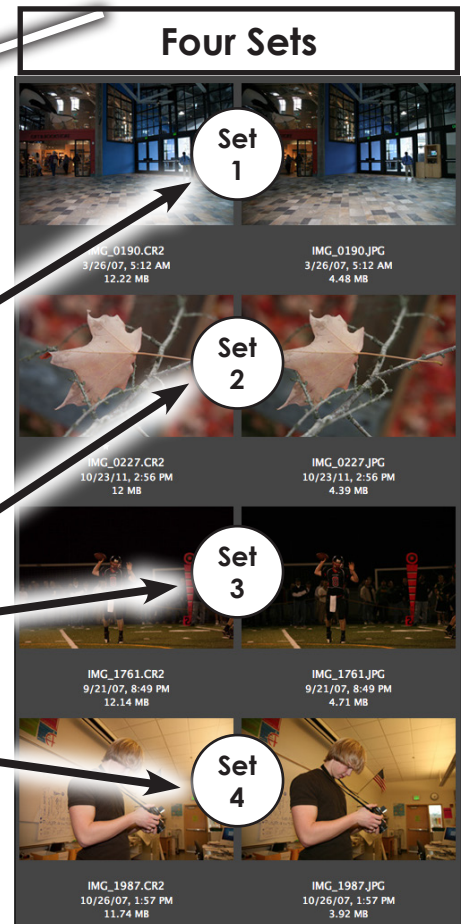3. Which file format(s) do most dSLR camera have available?

4. What interface must be used to open RAW files for our class?

Period: Date:

JPG vs. RAW Assignment

You are to find four **sets of identical** photos you already have taken in **both JPG and RAW (CR2) formats** with the camera white balance set to daylight (sun) mode it is under exposed from previous assignments.
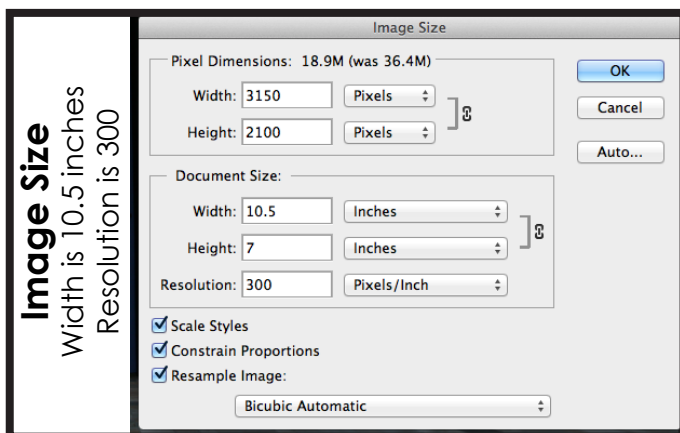
Files in Bridge

★ IMG_0227.CR2
10/23/11, 2:56 PM
12 MB

IMG_0227.JPG
10/23/11, 2:56 PM
4.39 MB

RAW (CR2) & **JPG formats**

Files in Finder

~camer…79.indd
4_vibsat.mo…
Camera…EG.indd
Image…ats.docx
image_…type.pdf
IMG_0190.CR2
IMG_0190.JPG
IMG_0227.CR2
IMG_0227.JPG
IMG_0227.xmp

Name IMG_0227.CR2
Kind Canon Camera Raw file
Size 12.6 MB

Four Sets

IMG_0190.CR2
3/26/07, 5:12 AM
12.22 MB

IMG_0190.JPG
3/26/07, 5:12 AM
4.48 MB

Set 1

IMG_0227.CR2
10/23/11, 2:56 PM
12 MB

IMG_0227.JPG
10/23/11, 2:56 PM
4.39 MB

Set 2

IMG_1761.CR2
9/21/07, 8:49 PM
12.14 MB

IMG_1761.JPG
9/21/07, 8:49 PM
4.71 MB

Set 3

IMG_1987.CR2
10/26/07, 1:57 PM
11.74 MB

IMG_1987.JPG
10/26/07, 1:57 PM
3.92 MB

Set 4

They need to have the following types of lighting

1. A **mix** of daylight and artificial light
2. Outside in **sunlight** (overcast light is okay, but not in heavy shade)
3. **Under** exposed (dark) in artificial light
4. **Artificial** light, classroom light

If you do not have these, then you need to take

Image Size
Width is 10.5 inches
Resolution is 300

Image Size

Pixel Dimensions: 18.9M (was 36.4M)
Width: 3150   Pixels
Height: 2100 Pixels

OK
Cancel
Auto…

Document Size:
Width: 10.5   Inches
Height: 7   Inches
Resolution: 300   Pixels/Inch

☑ Scale Styles
☑ Constrain Proportions
☑ Resample Image:
  Bicubic Automatic

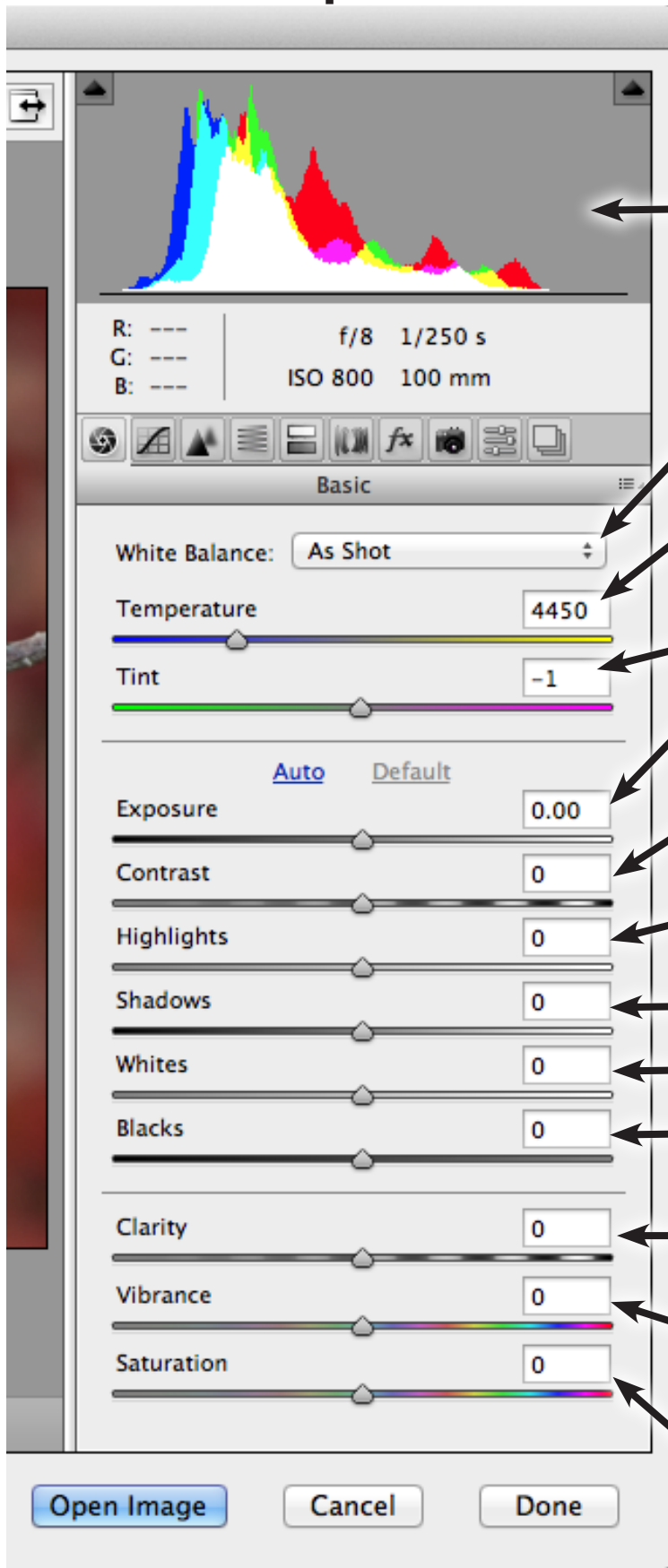**When you are done you will have 4 contact sheets with 4 images**

Name:

Period: Date:

PhotoShop Camera RAW Dialog Interface

Follow these tips
to improve your image

Histogram: A bar graph representation of the pixel values in your picture, there are two small arrows in the top corners of the frame. The image will look better if graph is pushes slightly to right, reducing highlight "blow outs."

Check your white balance settings if image was not in sunlight.

If White Balance setting needs refining use the temperature settings. Sunlight is about 5,500°K. This image temperature is 4450°K.

Sets the white balance to compensate for a green or magenta tint.

Effects overall image brightness of image.

Adjusts the image contrast, with a greater effect in the midtones.

Adjusts the image brightness, with a greater effect in the midtones.

Recovers detail in underexposed shadow areas of an image.

Adjusts white clipping.

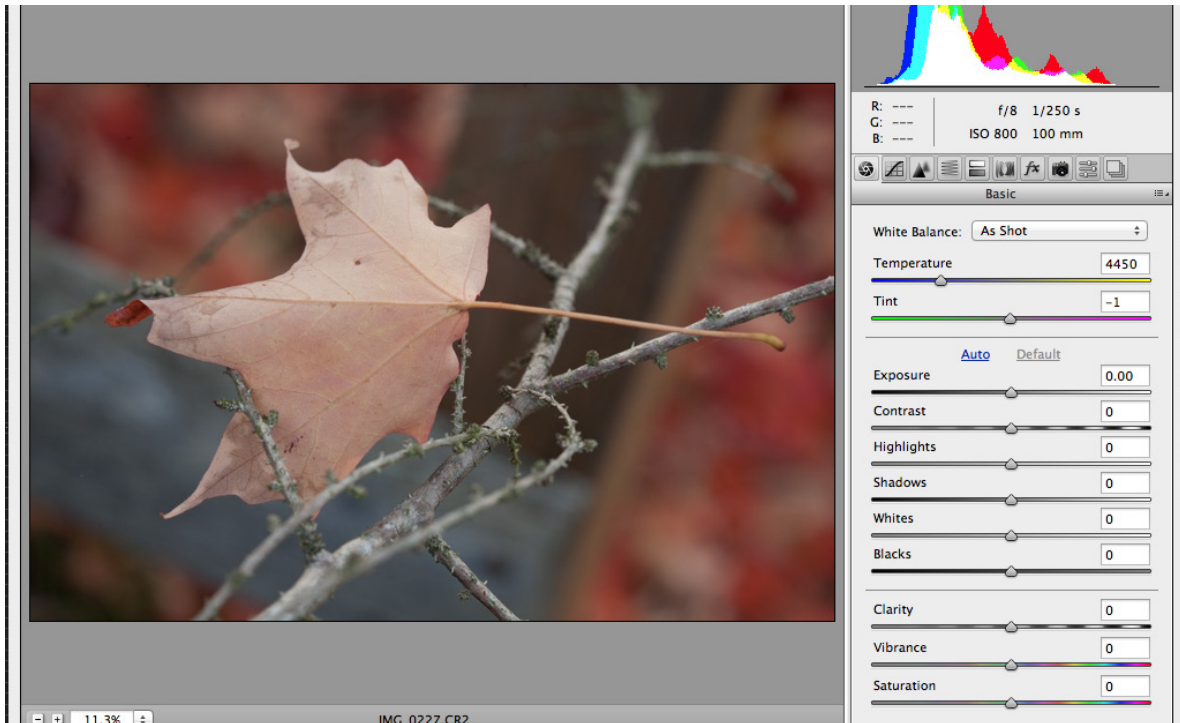The Blacks slider is the black clipping control.

This adjustment subtly increases the midtone contrast without affecting other tones in the image – the result is better clarity, especially in finer detail.

It increases the saturation of unsaturated colors more than it adjusts already saturated colors. It works well with people as it doesn't effect skin tones.
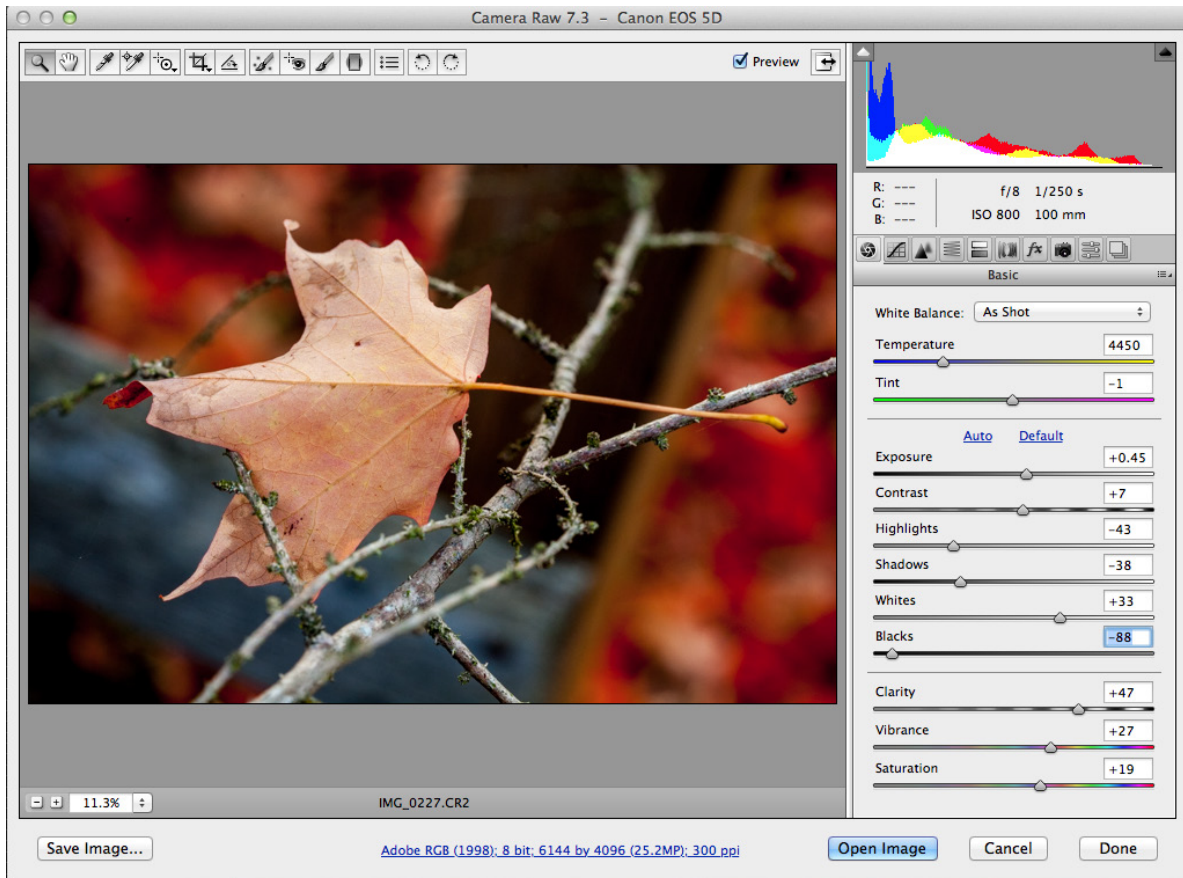
Changes the vividness or purity of the color. Saturation increases or decreases color intensity across all channels.

R: ---
G: ---
B: ---

f/8   1/250 s
ISO 800   100 mm

Basic

White Balance: As Shot

Temperature   4450

Tint   -1

Auto   Default

Exposure   0.00

Contrast   0

Highlights   0

Shadows   0

Whites   0

Blacks   0

Clarity   0

Vibrance   0

Saturation   0

Open Image   Cancel   Done

PhotoShop Camera Raw Dialog Interface

Before Adjustments

After Adjustments

Name:

Period: Date:

Directions for Photos: **The Steps for Each Set**

File Name	JPG File	RAW File
The Before **Original**	1. Open & save w/out editing (JPG file) 2. **Adjust image size** to 10.5 inches wide at a resolution of 300. From PhotoShop menu>Image>Image Size. 3. Save as "**Original_JPG.Set.Name.jpg**" (change to reflect each set) 4. Label image in PhotoShop as **Set Name Original JPG** (change to reflect each set) 5. Save file with text	1. Open & save w/out editing (PSD file) 2. **Adjust image size** to 10.5 inches wide at a resolution of 300. From PhotoShop menu>Image>Image Size. 3. Save as "**Original_RAW.Set.Name.psd**" (change to reflect each set) 4. Label image in PhotoShop as **Set Name Original RAW** (change to reflect each set) 5. Save file with text

The After
 	
Edited
	1. Open with PhotoShop Camera RAW & save **after editing** (JPG file)
	  • Adjust the temperature
	  • Adjust the shadows, blacks, whites and highlights
	2. Adjust images size in **Camera RAW dialog** to largest file at **300 resolution**
	3. **Open Image into PhotoShop**
	4. **Adjust image size** to 10.5 inches wide at a resolution of 300. From PhotoShop menu>Image>Image Size.
	5. Save as "**Edited_JPG.Set.Name.jpg**"
	6. Label image in PhotoShop as **Set Name Edited JPG**
	7. Save edited and labeled photo
		1. Open with PhotoShop Camera RAW & save **after editing** (PSD file)
		  • Adjust the temperature
		  • Adjust the shadows, blacks, whites and highlights
		2. Adjust images size in **Camera RAW dialog** to largest file at **300 resolution**
		3. **Open Image into PhotoShop**
		4. **Adjust image size** to 10.5 inches wide at a resolution of 300. From PhotoShop menu>Image>Image Size.
		5. Save as "**Edited_RAW.Set.Name.psd**"
		6. Label image in PhotoShop as **Set Name Edited RAW**
		7. Save edited and labeled photo

You should have four images for each set
Two Before Editing (JPG & RAW) • Two After Editing (JPG & RAW)

Make contact sheet for each set of 4 photos

Set 1 • Mix
Pick a photo having **both** JPG and RAW file format
- Original must have been taken in **mixed light (sunlight and artificial)**
- Original must look "normal" or a little yellow in some parts for white balance
- Remember to save file as **"Edited_JPG.Set1.Mix.jpg"**

Set 2 • Sunlight
Pick a photo having **both** JPG and RAW file format
- Original must have been taken in **sunlight**
- Original must look "normal" for white balance
- Remember to save file as **"Edited_JPG.Set2.Sun.jpg"**

Set 3 • Under
Pick a photo having **both** JPG and RAW file format
- Original must have been taken in **under** exposed (dark) in artificial light
- Original must look dark and yellow for white balance
- Remember to save file as **"Edited_JPG.Set3.Under.psd"**

Set 4 • Artificial
Pick a photo having **both** JPG and RAW file format
- Original must have been taken in in artificial light like in a classroom
- Original must look yellow for white balance
- Remember to save file as **"Edited_JPG.Set1.Artificial.psd"**

When you are done
Make sure you have **typed** all question answers and filled in all boxes before **printing pdf out**. Then staple your 4 contact sheets with 4 images each onto the back of this handout and **attach the rubric** to the very back of the packet.

Period: Date:

This is an example what your contact sheet should look like. You should have four contact sheets.

Lorraine Stratton Per. 2
Set 1 Mix Edited JPG
ISO 800 ƒ/4 @ 60

Lorraine Stratton
Set 1 Mix Lighting Original JPG
ISO 800 ƒ/4 @ 60

**Lorraine Stratton
Period 2**

Edited_JPG.Set1.Mix copy.jpg

Original_JPG.Set1.Mix.jpg

Lorraine Stratton Per. 2
Set 1 Mix Edited.a RAW
ISO 800 ƒ/4 @ 60

Lorraine Stratton Per,. 2
Set 1 Mix Original RAW
ISO 800 ƒ/4 @ 60

Edited_RAW.Set1a.Mix.psd

Original_RAW.Set1.Mix.psd

Reflection and Evaluation

1. What happens to images saved repeatedly in JPG file format over time?

2. How are files saved in Camera RAW by your camera different from other file saving methods?

Name:

Period: Date:

Reflection and Evaluation Cont.

3. Looking at your photos which file format consistently gave you the best final results?

4. Which element of the Adobe Camera RAW Dialog Interface did you find most helpful in editing your photos?

Best interface adjustment element:	Why do you feel this worked for you most of the time?

5. How did you adjust your white balance most often? Why do you think this is true?

How did you make your adjustment?	Why do you feel this works most of the time for you?

6. Explain which file format you would use to prepare an image for the Web, print?

Image format for the Web.	Why I would use this image format for the Web.
Image format for print.	Why I would use this image format for print.

7. What was difficult for you to master?

8.   What did you learn that was unexpected or surprised you?