

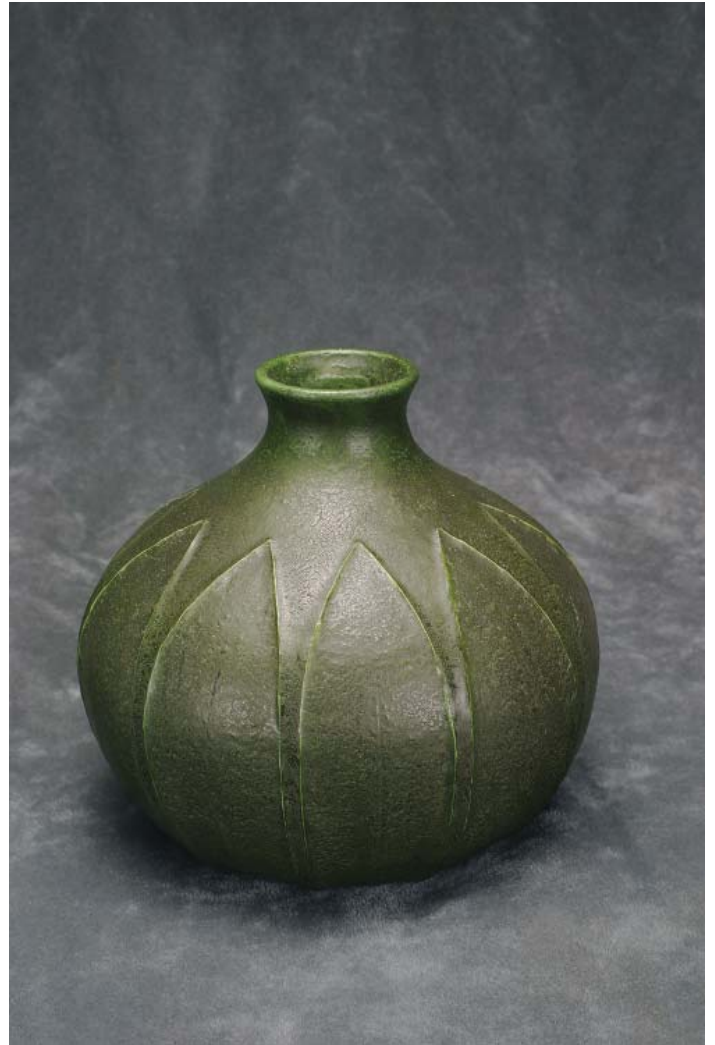
Tips and Tricks for Fast and Easy Digital Documentation

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How to Document Artwork with Digital Cameras

The main concern with documenting any artwork is maintaining an accurate color balance that fairly represents the actual artwork. A specific challenge for photographing 2-D artwork is maintaining square edges. The challenges for 3-D art are lighting and choosing an unobtrusive, yet complimentary background. Controlling the lighting will control the color balance. Carefully picking your camera position and point of view will take care of skewed angles on painting and drawings that shouldn't be there. The following are some ways to avoid problems and produce accurate digital documents that will do your students' work justice and make them proud of their accomplishments.

Here's a professional photographers' secret: Consistent practices create consistent results. In other words, figure out what works and stick with it. It saves a lot of grief in the long run. As they say, work smarter, not harder!



Lighting and Color Balance

White light is made up of all the light in the color spectrum. Black is the absence of light. Gray, if it's truly neutral, is made up of equal amounts of all colors. A red tomato reflects mostly red light to our eyes while it absorbs all the other colors. A green leaf reflects green light and absorbs the others. This is the way it works for most things.

All light has a different color cast, or color temperature, to it depending on its source. Clear direct sunlight has more blue light in it. Indoor tungsten bulbs have more red-orange light in them. Our eyes can adjust automatically to these differences, but film and older cameras can't do that.

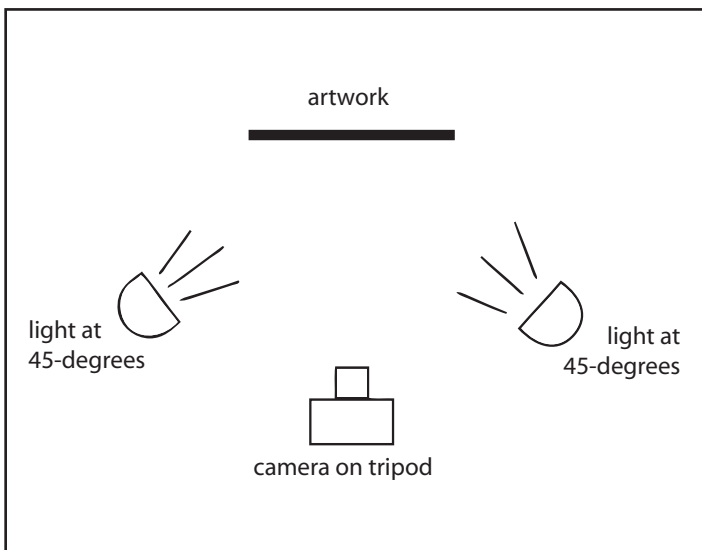
New digital cameras can adjust automatically to these changes, to some degree, but even the latest aren't 100% dependable. Always set the White balance on your camera to the specific light source you are using and don't depend on AWB. Refer to the camera's manual if you are unsure which symbol stands for daylight, tungsten bulbs, or florescent bulbs. Picking the right setting will really help when it comes to maintaining accurate color for your artwork.

Hint: Never mix different sources of light (if you are looking for color accurate images).

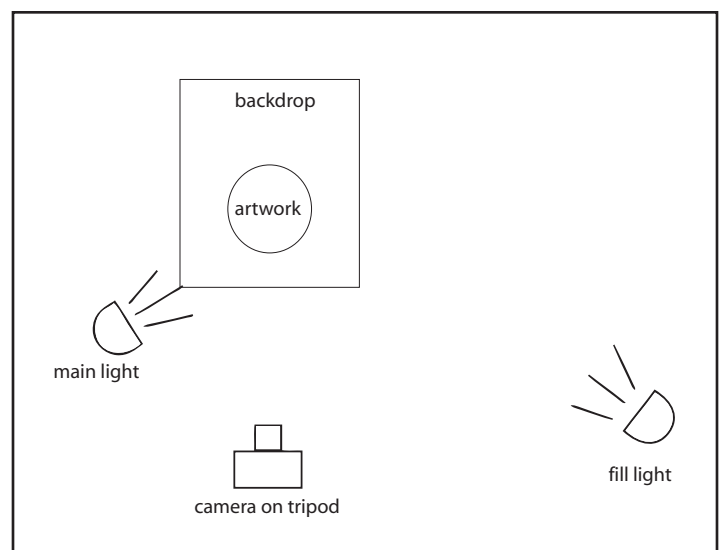
Mixing more than one type of light, like daylight and florescent bulbs, will make it nearly impossible to color correct your artwork images. The resulting mix of light will be inconsistent and unbalanced. If your classroom has mostly florescent lighting, make sure the curtains are drawn when you are photographing. If you have excellent north light windows (this Rembrandt style of lighting is great for 3-D artwork), photograph near the windows with the curtains open and turn off the room lights.

If you have or want to use photofloods, set aside a space for shooting that you can use throughout the year and won't be difficult to clear and use whenever you have work to document. For 2-D artwork, two lights should be placed 45-degrees to either side of the artwork. Two lights can also work for shooting 3-D artwork, with one closer to the object and slightly to the side (left or right doesn't matter) and the other light farther away and on the other side of the artwork. The closer light acts as the main light which creates highlights, shadows and shape in the object, while the farther away light acts as a fill light, lightening the shadows.

Hint: Never shoot artwork that is behind glass. The glass will cause reflections that will be impossible to remove. Likewise, try to avoid paintings with heavily glazed shiny surfaces. They are equally hard to photograph without reflections.



Lighting Diagram for 2-D Artwork

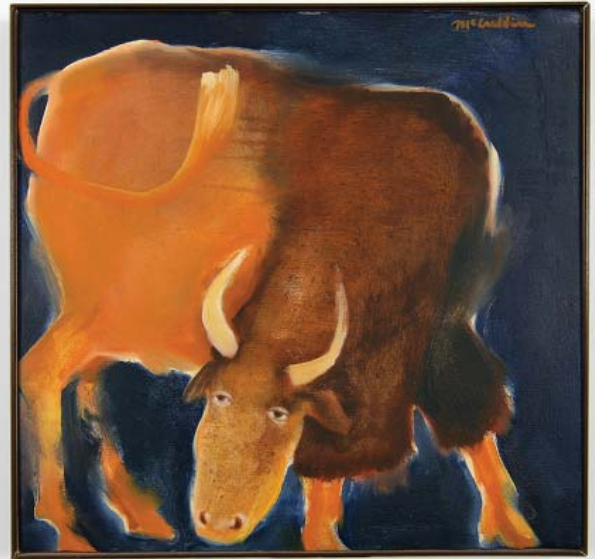


Lighting Diagram for 3-D artwork

Whether documenting 2-D or 3-D artwork, the single most useful tool to have is a gray scale. A very useful one is the QPcard 101. It is a strip that features three patches—black, gray, and white. Each patch is guaranteed to be truly neutral—including equal amounts of all colors for each patch. That’s what makes them actually and truly black, gray and white. Include one of these in the scene when you make the first image. If you don’t change the lighting after that first shot with the gray scale, you can color correct the first image, and then apply all the changes to the following images you make. If you are documenting 2-D artwork, you can easily include one of these outside of the frame or border of the artwork and then crop it out after you have color balanced the shot.

Hint: Be sure that the gray scale is in full light. It will throw the color balance off if it is in a shadow.

Hint: Handle a gray card or scale only by its edges. Dirt and oil from your hands will discolor and may skew the results in color balancing. Keep them away from light, moisture and dirt until you are ready to use them. Put them away after using them. Keep them clean and they will last for a long time, even years.



2-D artwork with gray scale



Examples of Gray Scales



3-D setup with gray scale

Camera Position

Decide on an area in your classroom where you can leave the shooting area in place. It won't really take up any room once you have it set up. For 2-D artwork, print out or draw your art target and place it on a corkboard or bulletin board. The top of the target should be about eye level making the center of the target somewhat lower. Make sure it's level and that there will be room for lights placed to either side of the target.

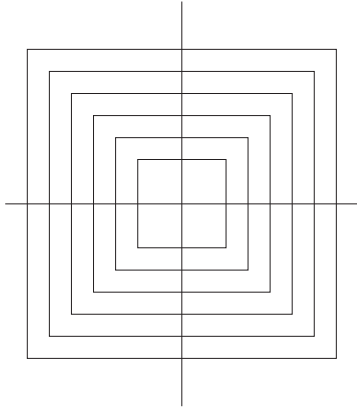
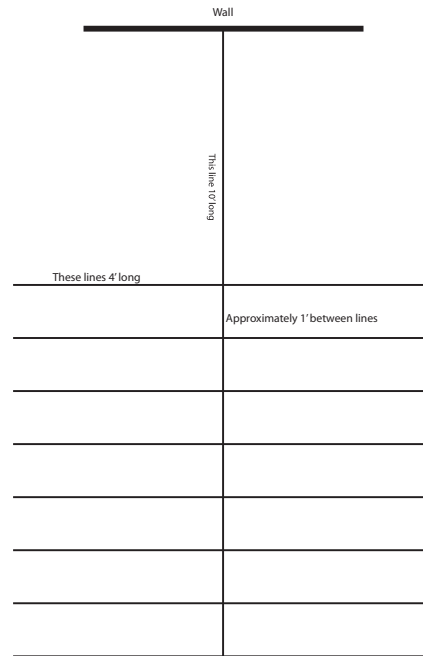


Figure out the exact vertical center of the target and either line it up with a seam in the tile floor or follow the middle of the target down to the carpeted floor. Mark that spot with a bit of tape or with a permanent marker. Extend that spot into a line that extends about 10 feet. Follow the tile seam or be careful to stay centered. This line should be aligned with the center of the target. Use black or colored tape for this. If you have a concrete floor, you could use a permanent marker for this.

At 90-degree angles to the line, place intersecting lines every foot or so. They should be about 3-feet wide. Start at the end of the main line and end about 3-feet from the target. Use these lines to place your tripod.

Place one forward leg on the center line that extends from the wall. Place the other two legs on one of the intersecting lines closer to you. With the camera in place on the tripod, level the camera using the tripod's built-in bubble level(s).

Make sure it is aimed and centered on the artwork target. If the camera's view is too low, raise the camera using the center post. If the camera's view is



too high, lower all three legs by the same amount, and look again. If it is lined up with the center of the target, mark this position on the tripod's legs with a permanent marker. If not, try again.

Hint: Always use a tripod for documenting artwork. Try to get a tripod with a built-in level on the tripod head. With the legs fully extended, but without extending the centerpost, the tripod should be approximately 5 feet tall. Good brands include Bogen, Manfrotto, Cullman, Giottos, Slik, and Velbon.

Always place artwork centered in the artwork target. This way you can zoom in, once you have the camera and tripod in place, and you won't have to reposition the camera. If you have to move the tripod, either to get closer or further away, be sure to keep the forward leg on the center line and the two back legs on the same intersecting line. And make sure you are still centered on the target and the camera is level.

Hint: Shoot all artwork horizontally (even if it's a vertical image), so you can keep the camera in a horizontal position and all its controls will be in the places you expect. You can always turn them right side up when you edit them in the computer.

Hint: If possible, take all artwork out of their frames to photograph, especially if there is glass in the frame. It's almost impossible to photograph through glass without getting reflections of the room and you in the image.

Tips for Good Exposures

Use Manual Exposure mode so you can control both f-stops and shutter speeds. Or use automatic modes like Program, or “P,” on your camera. But if you do, use the exposure compensation mode on your camera. Check your owner’s manual if you are unsure how that works with your own camera.

For both preview and review, have the LCD display mode set to Histogram. This shows you the exposure as a graph.

Most of the exposure should be between either ends of the scale. Too far to the left and your image will be too dark. Too far to the right and your image will be too light. Adjust your exposures—by changing f-stops and shutter speeds or adjusting exposure compensation—so that the exposure in the graph is to the right without touching the end of the graph.

Also, set your camera to record the largest sized JPEG images. This makes it so you capture all the detail possible. You can later convert them to TIFF images in the computer. JPEGs take up less space on your memory cards and hard drives.



Camera display showing Histogram

Backgrounds for 3-D Artwork

For images of 3-D artwork, use photographic seamless paper. They come in 53-inch wide rolls of various colors. Bright colors can distract from the artwork, so stick to white or medium gray. Or, try large sheets of drawing or printmaking paper.

Tape the front of the paper to the top of a table or countertop and the back edge to a nearby wall, so it forms a smooth curve. Place the artwork in the center of the paper, a few inches from the front edge. Make sure the background paper covers all of the background in the camera’s viewfinder. This will focus all the attention on the artwork.

Photoshop Tips

When you work with digital images, there are a few steps to follow. Images fresh from your camera almost always need a little bit of work to make them look their best. Here are some suggestions to make that happen for you.

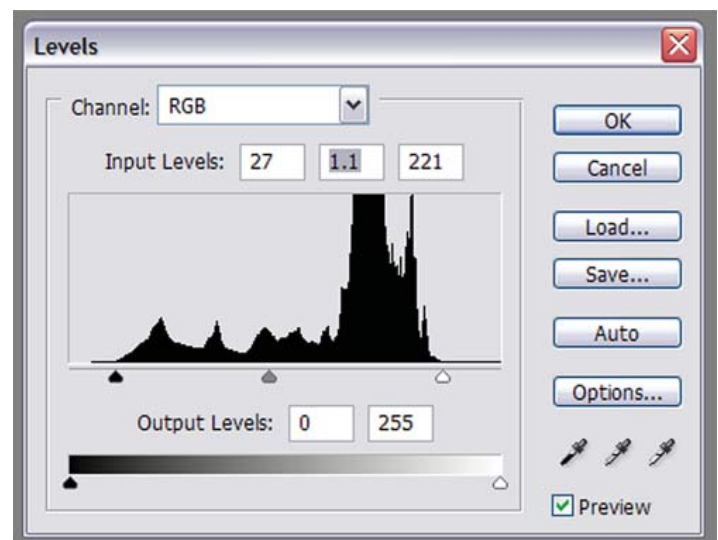
1. Levels and Auto Levels

This is the first step you take when you first open up your image in Photoshop.

Go to Image > Adjustments > Levels. This brings up the Levels Dialog Box.

Use the cursor to move the shadow marker (it’s the black triangle under the histogram) to the lowest dark tone in the histogram. Now move the highlight marker (it’s the white triangle) to the highest of the highlight tones. If you want to adjust the overall light and dark of the image, you can move the gray marker. It controls all the mid-tones. If it looks good, you can just hit “OK” and you’re done with this step.

Or you could take a shortcut and go to Image > Adjustments > Auto Levels. While most pros avoid this like the plague, because it tends to make changes to things they don’t want, there are a lot of images that do just fine with this shortcut. Try and see if it works for you and your particular image. Sometimes it does, sometimes it doesn’t. But, there’s nothing wrong with a shortcut, if it works.



Levels dialog box with correct placement of Shadow and Highlight markers

2. Color Balance

Since you included a gray scale in your image, it is now fairly easy to color balance the image.

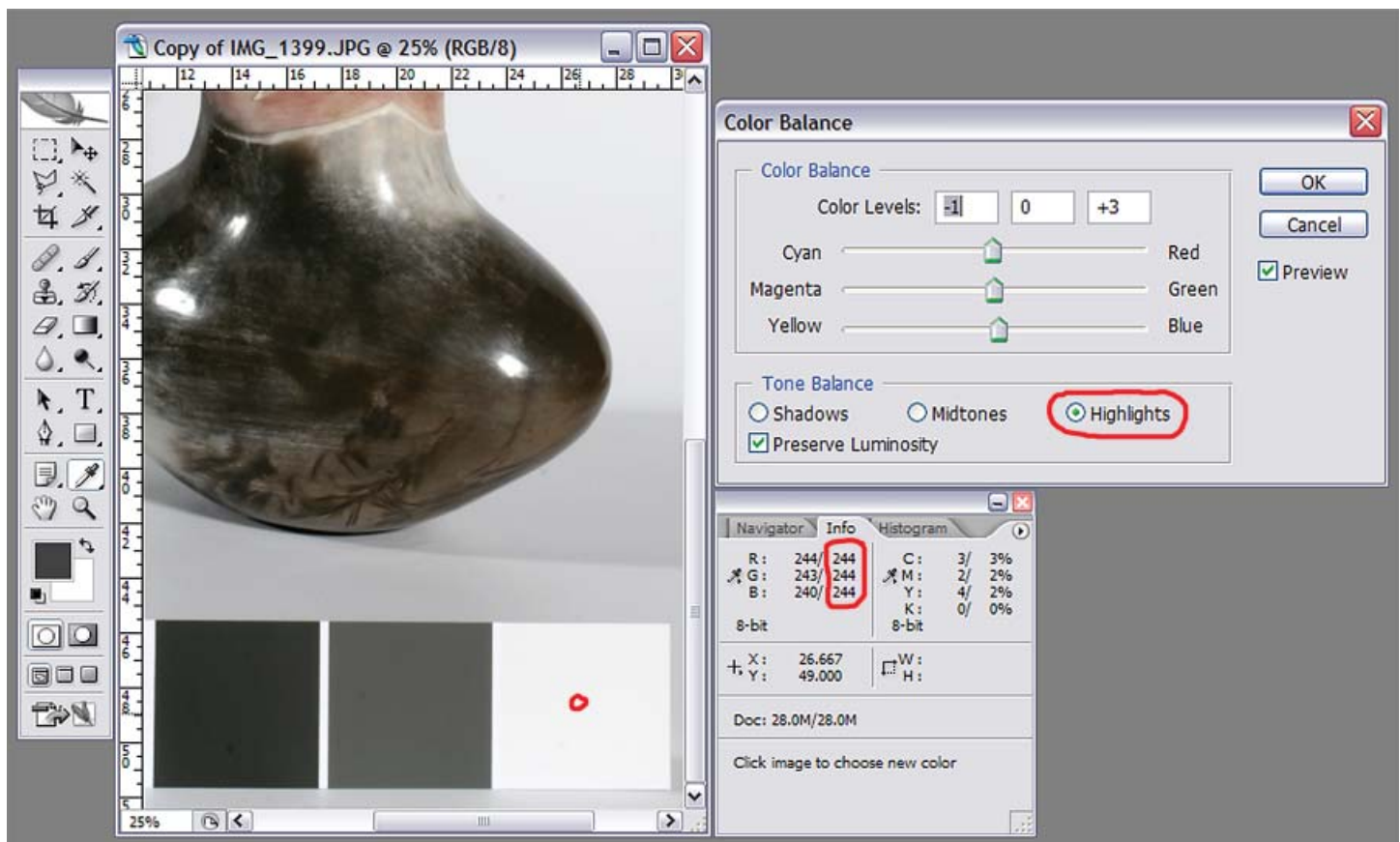
Make sure you have the Info palette selected and visible in Photoshop. Go to Window > Info to select it. Now select the Eyedropper Tool from the tool bar.

Go to Image > Adjustment > Color Balance. This brings up the Color Balance dialog box, which has sliders for Cyan/Red, Magenta/Green, and Yellow/Blue. Plus, you can select Shadows, Midtones, and Highlights separately to color correct those areas of value.

Select Highlights and place the Eyedropper Tool over the white patch on the gray scale. Look at the readout in the Info Palette; it shows you the amounts of Red, Green, and Blue in the image. If it shows too much of any color, go to the Color Balance box and make the change to counteract the imbalance. For instance, when you take a reading of the white patch and it says R: 240, G: 220, B: 115, reduce the amount of Red in the Color Balance box by maybe

20 points (this is a trial and error method—no hard and fast rules) and increase the amount of Blue by a few points. Adjust the sliders until the white patch numbers in the Info Palette match each other. A perfectly neutral reading for a highlight would be R: 245, G: 245, B: 245, although a variation of a couple of points, here and there, won't be a disaster.

Do the same for Midtones and then for Shadows. When you are done, click "OK." Be sure to write down all the changes you made to this image and then you can apply them to all the images you shot. For each new image, as long as it was shot under the same lighting conditions, just open up the Color Balance dialog box, put in the changes, and click "OK."



Color balancing using the Info Palette with a gray scale in the image

3. Making the Artwork Square or Transform Perspective and Distort

With the image open in Photoshop, make sure the rulers are visible. Go to View > Show Rulers. Now you can grab and place a guideline from the Rulers with the cursor. These are helpful in showing if your image is square or not.

Select the entire image by pressing “ctrl” + “A,” or “command” + “A” on a Mac. Now go to Edit > Transform > Distort. Now you can grab any corner and move it independently. If you hold down the “ctrl” or “command” key as you move a corner, you can make small precise changes. You can also deselect the area by pressing “ctrl” + “D” (or “command” + “D” for Macs).

Compare the shape of the artwork to the guidelines you placed. Are they matching and parallel? If not, keep trying. If they do match, double click anywhere inside the image to apply the changes.

4. The Crop Tool

Especially with 2-D artwork, you don't need to show anything except the image. And since you probably have to crop out the gray scale you included in the image anyway, using the crop tool is fast and easy, and often overlooked.

Select the Crop Tool from the Tool Bar.

Click, hold and drag the cursor from one corner to the opposite corner. The area outside the box you created now goes darker.

To rotate the box, hold your cursor outside of the box until you see a curved double arrow—click and drag to rotate. To move one of the four borders, click and drag inside one of the small boxes in the middle of the border. To make small precise changes, hold down the “ctrl” or “command” key as you move a border or rotate a corner.

When you are finished, just double click inside the box to apply the changes.



Adjusting perspective in 2-D artwork



Using the Crop Tool

5. Saving for Print or Web

Print and Web have really different resolution and image format needs. For Printing you need the maximum amount of image information. For Web use, smaller compressed images work much easier. In most cases, it is better to work on an image with the assumption that you will make prints of it. It's always easier and more successful to reduce the resolution than try to increase it at a later point.

A. Printing

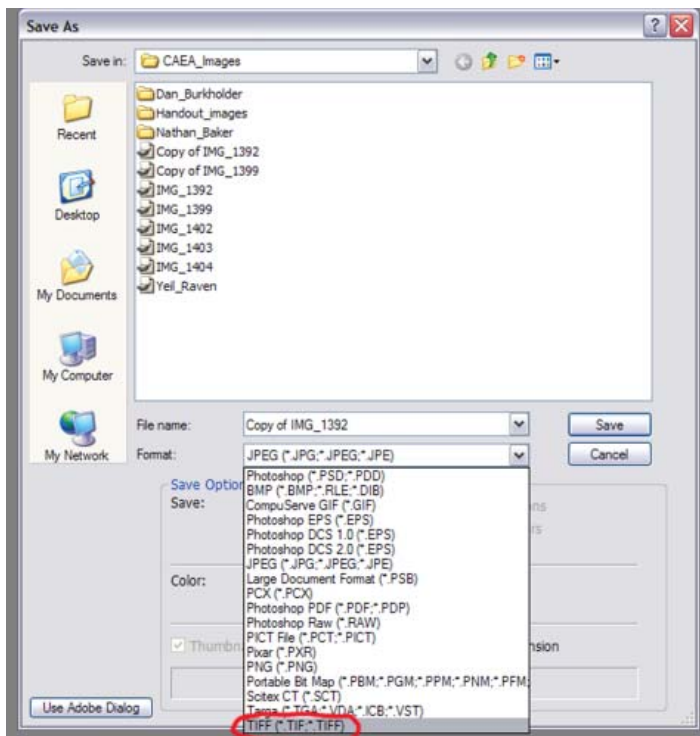
If you are planning to make prints of your images, plan on saving it as a TIFF file. This is an uncompressed image file format, so you never lose any quality. Go to File > Save As. This will bring up the Save As dialog box.

In the drop down menu labeled Format, choose TIFF (*.TIF, *.TIFF). If you haven't named the image yet, now is a good time to do that. Then click Save.

Now go to Image > Image Size, which brings up the Image Size dialog box. Enter the Width and Height dimensions for the print you will make. Then under Resolution, enter 300 pixels/inch. This will be perfectly fine setting for any print you will want to make.



Finished 3-D artwork



Save As dialog box

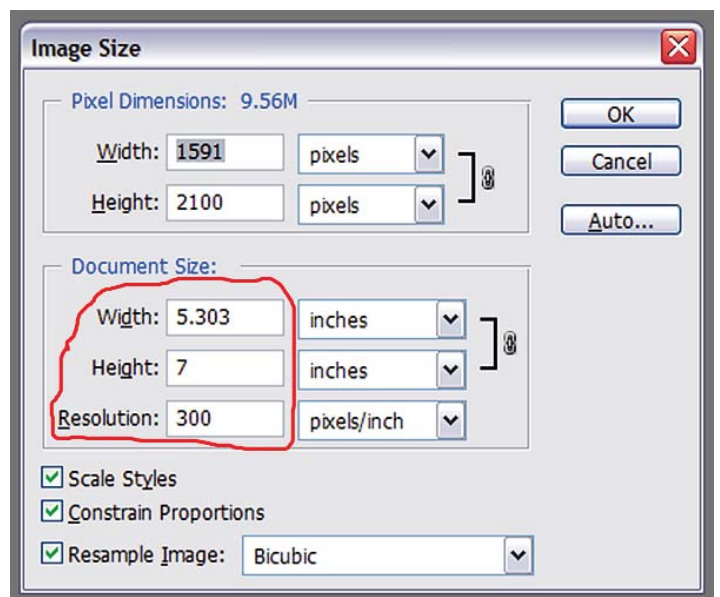


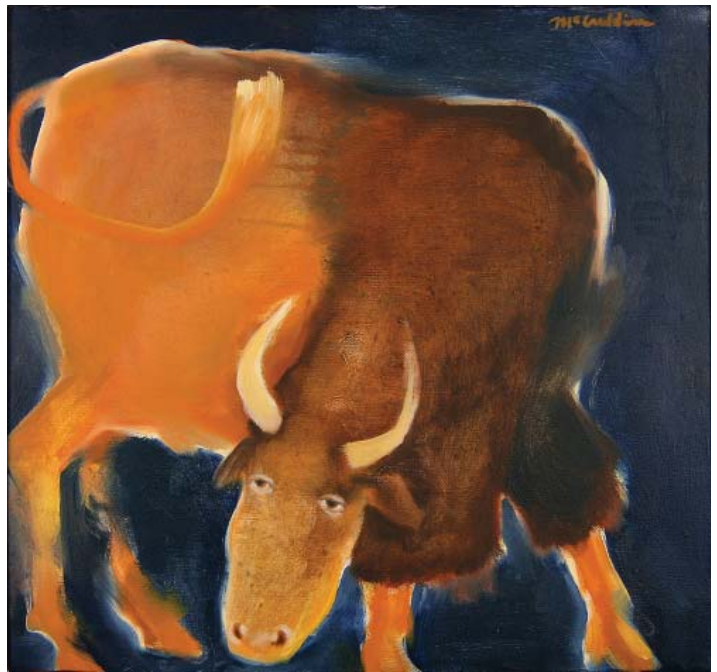
Image Size dialog box

B. Web Use

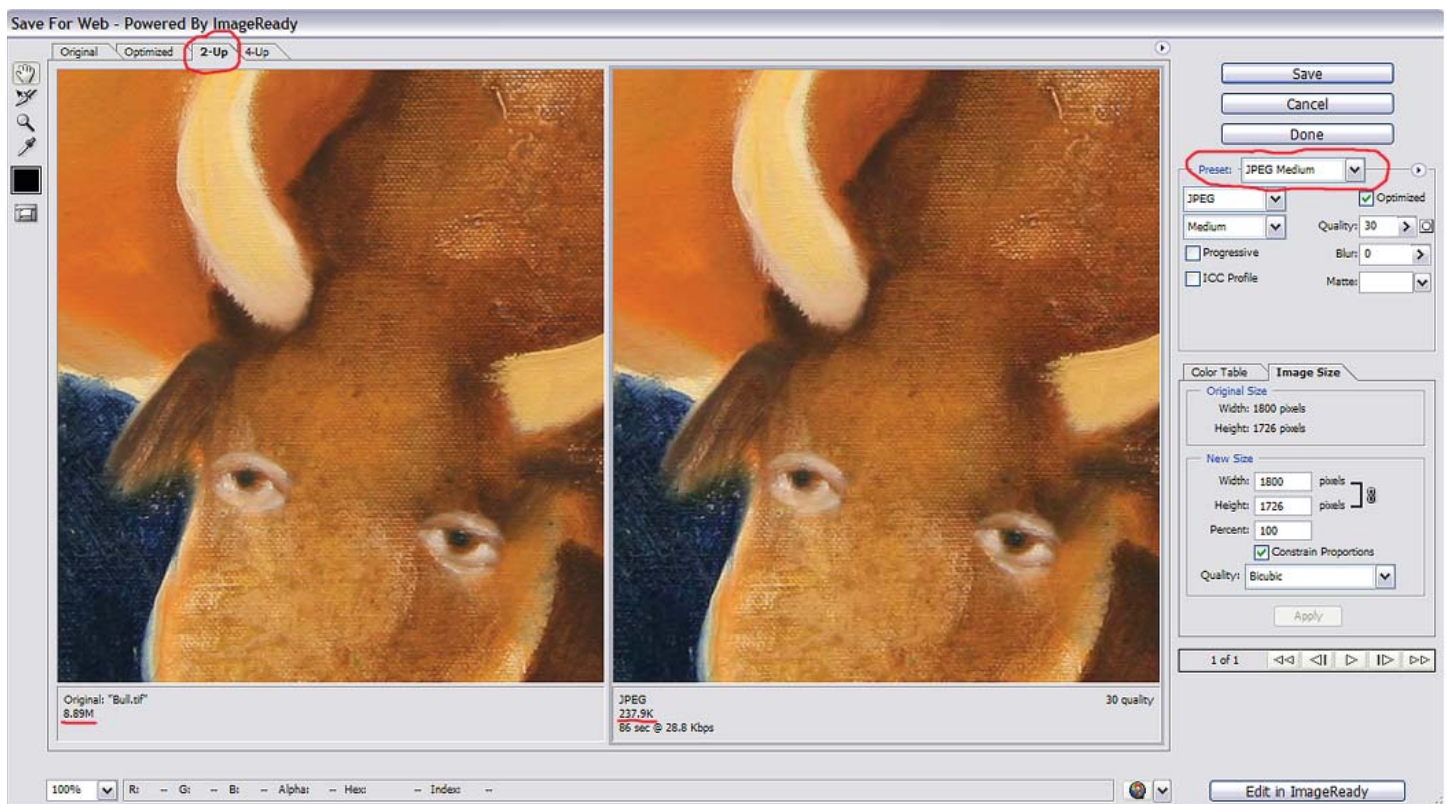
Websites and CD Portfolios will work faster and easier with smaller JPEG images. They load faster and are much easier to email if you need to do that. After you have an image that is completed and finished, you are ready to save it for web.

Go to File > Save for Web. This brings up the Save for Web dialog box. With the 2-Up viewing option you can compare the original file to the Web optimized version. Select JPEG High, JPEG Medium, or JPEG Low from the Preset drop-down menu. For most purposes, JPEG Medium works very well. Click Save, and then choose the folder where you want the file saved.

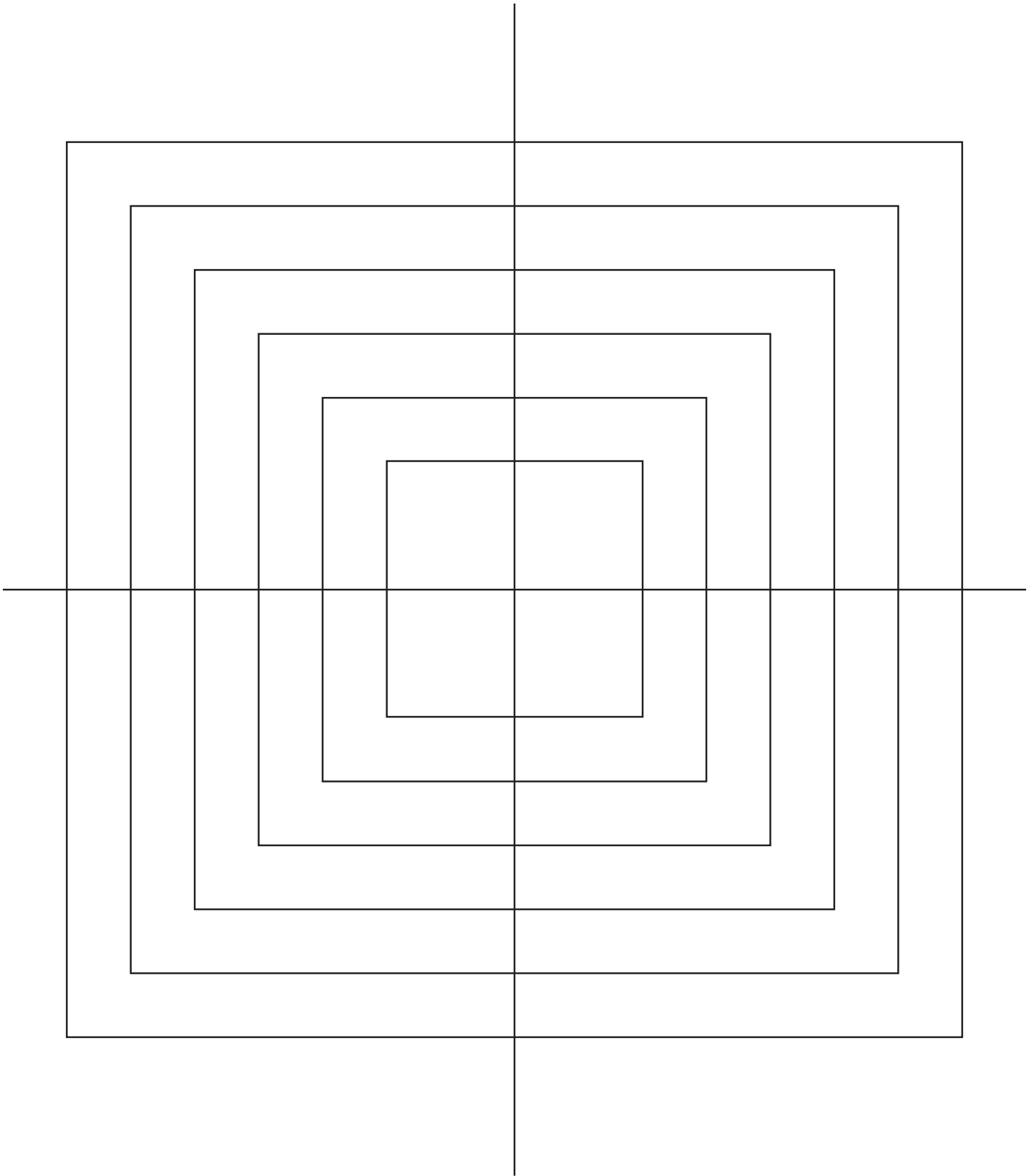
Now it is ready for Web use.



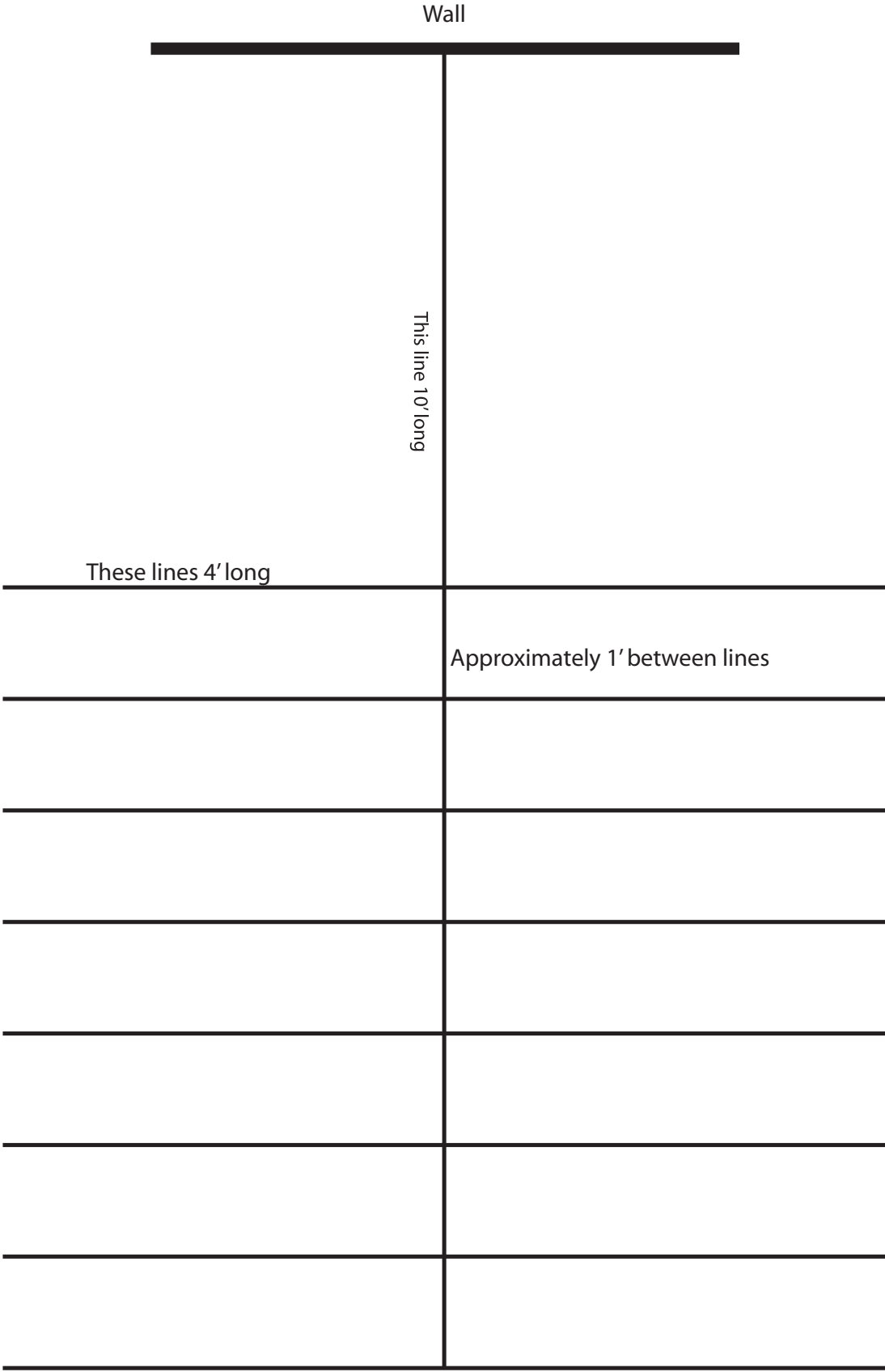
Finished 2-D artwork



Save for Web dialog box



Artwork Placement Grid
Enlarge onto flat surface. Use to align camera and artwork.



Camera and Tripod Placement Guide
Transfer these markings onto the floor, aligned with Artwork Placement Grid
(drawing not to scale)

Buying Guide for Documenting Artwork

Smith-Victor Photoflood Kits – A good basic kit is the KT-500 two light kit with reflectors, stands, bulbs, and simple carrying case, and runs about \$100.00. This is a good place to start.

A good **Tripod** with built-in bubble levels on the tripod head – Good brands include Bogen, Manfrotto, Giottos, Slik, and Velbon. A good rule of thumb for tripods is to get the heaviest one that you will actually want to carry around. Extremely lightweight tripods aren't very durable and most of them will break under normal usage. Expect to pay anywhere from \$50.00 to \$150.00, depending on size, durability, and brand.

Gray Scales – The QPcard 101 is a great little gray scale. Small and simple, and not terrible expensive (around \$13.00 or so for 3 cards). You can buy them from Adorama.com. Another alternative is the WhiBal White Balance Reference cards (www.rawworkflow.com). They come in 3 sizes and are more expensive, ranging from \$30.00 to \$50.00, depending on size. Their advantage is that they are waterproof and extremely tough. Basically permanent.

Background Paper – Seamless paper is hard to beat. Savage Seamless Paper is the industry standard. Stick with the basics, in color choices—white or gray. Expect to pay about \$42.00 for a roll of 53-inch by 12 yards paper. This will last quite a long time.