



# Photography Guide for Authors



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# Introduction

This manual is a step-by-step guide for photographing two- and three-dimensional artwork. It also contains tips on selecting the right photographic equipment. Please read the entire manual before going into action. Your book will only be as good as the photography in it, so it's worth taking the time to learn how to photograph your work correctly.

F+W currently prefers to accept only digital images. If it's absolutely necessary, we can make a book with either slides or digital images, but the bottom line is image quality. We will work with you to decide which method will yield the best results for your book. Please speak with your editor if you cannot work digitally. This largely depends on what equipment and skills you already have and what ones you can acquire.

Many sections of this manual apply equally to digital photography and traditional slide photography. Pages with information specific to film or digital are divided down the middle, with digital information on one side and film on the other.

Whether you shoot slides or digital, once you have invested in the equipment and have mastered the process, you will be able to take professional-quality photos for your portfolio and for promotional purposes as well as for your book project. In a short time, your newfound skills can save you a lot of time and money.

We welcome your questions and comments about this manual. Contact:

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# Choosing a Camera

When you're shopping for a camera, befriend your dealer and don't hesitate to ask for more information, since camera brands vary. It's worth paying a little extra for the advice and support you will get at your local camera store.

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## *DIGITAL*

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Your digital camera must meet these specifications:

- **SLR** (single-lens reflex).
- **Interchangeable lens.**
- **Manual exposure mode** (ability to override the settings determined by the built-in light meter).
- **Adobe RGB capability.** This refers to how the camera records color information. Most lower-end cameras use the sRGB system for storing color information. Adobe RGB translates better to the CMYK color system used for reproducing color art on a press.
- **Minimum 9 megapixel image size.** A 9-megapixel image will be large enough to completely fill an 8½" × 11" book page. (We often use full-page images for chapter openers, and the final steps of some step-by-step painting demos.)

Note: A 7-megapixel camera could also work, but its images will be printable no larger than 8" × 10". You would need to provide 4 × 5 transparencies for art we need to show larger (such as for the cover and chapter openers). If you do not have access to a photography studio that can make 4 × 5 transparencies for you, then a 7-megapixel camera will not be sufficient.

Be aware that when camera sales literature refers to the image size you can get from the camera, this information generally assumes a coarser image resolution than that used for book printing. Base your choice of camera on the megapixel figure, not on the advertised dimensions of the finished image.

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## *FILM*

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If you're using a traditional film camera, it must have the following characteristics:

- **35mm SLR** (single-lens reflex).
- **Interchangeable lens.**
- **Manual exposure mode** (ability to override the settings determined by the built-in light meter).

Note: The images from a 35mm camera can be reproduced at sizes up to about 7" × 10", assuming the artwork fills the image area. For artwork we need to show larger (such as for the cover or for full-page chapter openers), you will need to have 4 × 5 transparencies made.

# Storage Cards or Slide Film

## *DIGITAL*

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### **Storage Card**

The storage card your camera comes with may not be very high in capacity. Print-worthy digital images file are large, and the less often you have to remove and empty the camera's storage card, the faster you can work. Buy the largest card you can afford.

Some cards are billed as high-speed, which means they store information and let you get on to the next shot faster. For photographing still subjects, it probably isn't necessary to pay extra for a high-speed card, but if your camera will see other uses, you might like a faster card.

Most of the digital cameras we recommend will come with the software and cords to allow you to connect your camera to your computer. If you can do this it is highly recommended, as it will allow you to save your images directly to your hard drive and give you a much better and bigger view of the images you capture.

## *FILM*

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### **Slide Film**

You must buy slide film to match the color temperature of your lights. Buy Kodachrome ISO 64, or Ektachrome ISO 64D Slide Film. It is designed for use with daylight, electronic flash or the type of Photo floodlights recommended on page 6. If you chose to use tungston lighting buy film that is matched the color tempature of the lights, Ektachrome ISO 64T

Do not use faster (i.e., more light-sensitive) slide films such as 200 or 400. The slides will be grainier than those from ISO 64 slide film.

Store film in the refrigerator until you are ready to use it. Remove it from the refrigerator one hour before use to allow it time to return to room temperature.

The only drawback to choosing Kodachrome is that you will have to send your film out for processing and the only lab in North America is :

Dwayne's Photo Service  
415 S. 32nd Street  
Parsons, KS 67357  
US 1-800-522-3940

Ektachrome on the other hand can be processed by any professional color lab.

Also when you buy the film for your book or project be sure to get enough in the same emulsion batch, as the color tends to change slightly from batch to batch as it is manufactured.

### **Please, No Digital Slides**

It is possible to have digital images made into slides. Please do not do this. We would much rather have the digital image than a slide that is one generation away from the original digital file. Digital slides look fine to the naked eye, but graininess becomes evident when the images are enlarged for printing.

# Other Things You'll Need

## 50mm Fixed Macro Lens

The 50mm interchangeable lens often supplied with a camera may be adequate, but you will get better results with a more expensive 50mm macro lens. Macro lenses are designed for photographing close-ups and two-dimensional objects without distortion.

Beware of zoom lenses; inexpensive ones probably have lesser quality optics than a good fixed macro lens. Even high-quality zoom lenses will introduce curvature and distortion into an image. Such distortion may not be noticeable in snapshots, but when you're photographing a rectangular painting, it can become a problem.

## Work Space

The room you photograph in must provide:

**1. Enough electricity.** You will need to be able to plug in two 500-watt bulbs without blowing a fuse or tripping your circuit breakers.

**2. Enough space.** As a rule of thumb, whatever the distance from the camera to the artwork, you need twice that amount of space to the left and right of the artwork in order to set up lights. This may sound excessive, but if the lights are not far enough away from the work, you'll end up with harsh shadows and unevenly lit photos.

**3. The ability to block out unwanted light.** Other than your floodlights (explained below), there can be no other light sources in the room. That includes sunlight from windows as well as light from lamps or overhead fixtures. If you cannot block the windows with thick black curtains, you must wait until it is dark to photograph.

## Tripod

A sturdy tripod is absolutely necessary to avoid blurred photos due to camera movement during the exposure. A good tripod will let you position the camera both horizontally

and vertically, and it will let you tilt the camera up and down and rotate it left and right. When you're shooting flat art, the surface of the camera lens must be parallel to the art surface, so the ability to adjust the tilt the camera is important.

When shopping for a tripod, try it with your camera to make sure it's easy to use. Also be sure that it extends high enough for the work you will be doing.

## Cable Release

A cable release lets you trip the camera's shutter without touching (and thus possibly jiggling) the camera. A cable release can be had for under \$10. If you don't have one, you can use your camera's built-in timer to achieve the same goal of vibration-free exposure.

## Floodlights

Buy a pair of 500-watt photo floodlights with daylight-balanced (approximately 4800°) bulbs. One source for this type of bulb is



*Cable Release*



*Tripod With Center Column*



*Adjustable Tripod Head*

B&H Photo ([www.bhphotovideo.com](http://www.bhphotovideo.com), phone 1-800-952-1815). Ask for product number GEEBW, the General Electric EBW Lamp, 500 watts/115-120 volts).

The specification “4,800°” refers to the color of the light. The color temperature of light is measured in degrees Kelvin; we recommend daylight-balanced lighting, which is approximately 4,800°. Your slide film must also be daylight-balanced, or your images will be off-color. For digital cameras, set the white balance setting to “daylight.”

Keep extra floodlight bulbs handy. When a bulb begins to darken on top, it will quickly lose its correct color temperature. When one bulb goes out, the other will go out soon after, so replace the pair to ensure that your setup remains evenly lit.

Do not handle the glass shell of the bulb with your fingers. Skin oils can cause the glass to heat unevenly, shortening the bulb’s life. Use a clean cloth to screw and unscrew the bulb. Handle a cool bulb by its threaded socket only.

### Other Lighting Equipment

The following items can be purchased as a set or individually.

- A pair of 10-inch aluminum reflectors (cup-shaped metal shields that surround the bulbs and direct the light)
- A pair of foldable, adjustable (telescoping) floodlight stands
- A pair of clamps containing a socket for screwing in the bulb, a device to attach the clamp to the stand, and an electric cord that plugs into a heavy-duty extension cord

- Two heavy-duty extension cords to connect the lamps to the nearest socket. Don’t use thin extension cords meant for small household lamps; they could overheat and cause a fire. Use the shortest cord you need, and compare the amperage rating of your lamps to that of the cord to make sure the cord can handle the load.
- If you are shooting a painting with a glossy or shiny surface, such as a wet or varnished oil painting, you may need photographic umbrellas (see explanation on page 16) to bounce the light and/or diffusion screens to soften light. A white sheet will do as a diffuser in a pinch, but commercially made diffusion screens are not too expensive, and, being heat resistant, they are safer.
- Thick canvas gardening gloves are helpful for avoiding burns when you have to move hot lights.

### Color Guides

You’ll need one of the following:

- For shooting slides: A Kodak color separation guide (also known as a color bar).
- For shooting digital: Either a Kodak color separation guide or the gray-and-white card.

A color guide is a known reference point for color that helps the printer evaluate your images. It is vital that you include a color guide in EVERY image you shoot, whether it’s indoors or out-of-doors, flat art or a three-dimensional subject.

If you are unable to find a Kodak color separation guide at your local

photo store, you can purchase them from B&H in New York City (1-800-952-1815). Ask for the “color separation guide and gray scale.” The 8.5-inch version costs about \$20.00 plus shipping; the 14-inch version (for work larger than 14" × 18") costs about \$29.00 plus shipping.

### Incident Light Meter

A camera’s built-in light meter measures reflected light. The amount of light reflected from a piece of art can vary greatly depending on the colors in the art. A mostly white canvas at the beginning of a step-by-step demonstration, for example, will reflect a lot more light than the finished painting.

One way to work around this is to use a gray card (see below). But for greater convenience and the most accurate light reading, purchase a handheld incident light meter. An incident light meter reads the light falling on a subject rather than the light bouncing off the subject so that the color of the subject has no effect on the reading.

### Gray Card

If you use your camera’s built-in light meter instead of an incident light meter, you must meter off of a gray card—a letter-sized sheet of smooth, 18-percent gray cardboard. See page 20 for instructions on how to do this. You can buy gray cards in packs for under \$20 at most photography stores.

## Equipment for Reviewing Your Photos

### *DIGITAL*

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To store and process your digital photos, you'll need:

- A computer with enough RAM and processing speed to handle large image files.
- Sufficient hard disk space to store lots of digital images. As an example, if you were to shoot 250 color images for a book, and if you bracket your exposures (see page 20), and if each image file is 15 megs in size, you would need over 11 gigabytes of hard disk space. Every project is different, so this is not a hard-and-fast guideline, just an example.
- The ability to burn CDs or DVDs so that you can send your images to us.
- A monitor in good repair, calibrated to give you a better idea of how your images will look when printed. You can use the monitor calibration options within your computer's display preferences or control panel. See page 22 for more instructions.

### *FILM*

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To develop and evaluate your slides, you'll need:

- A photo lab convenient to you that can process slide film. In some parts of the country, such labs are getting hard to find.
- A light table on which to view your slides. This is a small box with color-correct lights inside and a translucent surface so that you can view slides.
- A magnification loupe. Your slides may look perfect to the naked eye, but remember that they will be enlarged as much as 800% for your book, which will make focus problems and other imperfections more noticeable. A loupe with 8x magnification is sufficient.



*Light Table*



*Loupe*

### **Tip for Choosing a Loupe**

A decent 8x loupe doesn't have to be expensive, but quality varies. As a test, place the loupe on a page of printed text in a book or magazine. If the text is in focus in the center of the eyepiece but becomes out of focus toward the edges, the loupe will be frustrating to use. Look for one in which text appears sharp from edge to edge.

# Equipment Costs

## *DIGITAL*

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9-megapixel camera \$1,500–2,000  
Adjustable tripod \$15–30  
Floodlights and bulbs \$80–100  
Macro lens \$150–300  
Cable release \$10  
Gray card \$20  
Umbrellas \$30 apiece  
Color separation guide and gray scale \$20  
Incident light meter \$100  
Adobe Photoshop \$600

(This list does not include a computer, which is also required. Be sure to consider the hard drive space needed for large image files as noted on page 8.)

### NOTE:

You may want to consider buying a lighting kit, generally speaking this will save you money and set you up with everything you should need to get started out of the box.

Photoflex has recently created several inexpensive beginner kits called the First Studio line of products. These kits include all the items we have listed above and are also available through B&H photo.

We would not recommend the same for your camera purchase, generally the lens included in a camera kit is on the low end of the manufacturer's line and will not produce the quality you will need for your project. You may ask the retailer if they will credit you for an upgrade to the recommended 50mm Macro. The most important thing to remember is that quality of your lens will directly affect the quality of the images you get, and faster is better. What I mean by this is the lower the minimum f number the faster the lens is considered, so f/1.8 lens is better than f/3.5, this speed factor vs. quality is especially true for digital photography, and for the most part a faster lens will cost more.

## *FILM*

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SLR film camera \$150–300  
Adjustable tripod \$15–30  
Floodlights and bulbs \$80–100  
Macro lens \$150–300  
Cable release \$10  
Gray card \$20  
Umbrellas \$30 apiece  
Color separation guide and gray scale \$20  
Incident light meter \$100  
Light table \$30  
Loupe \$10

# Understanding Camera Terminology

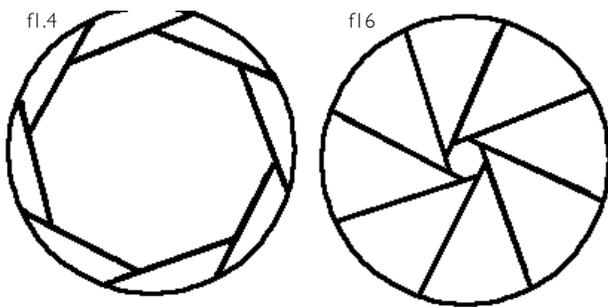
## Aperture and F-stops

The aperture is the opening through which light passes into a camera. Aperture is described with numbers such as 1.4, 2, 2.8, 4, 5.6, 8, 11, 16 and 22. These numbers are called f-stops, and each number represents a halving or doubling of the size of the aperture. For example, f2.8 is twice as wide as f4, and f4 is twice as wide as f5.6. The wider the

aperture, the more light enters the camera. Note that the f-stop numbers are inversely related to the size of the aperture. This means that to increase the amount of light entering the camera, you would choose a smaller aperture number.

When photographing artwork, use an aperture of f8, and bracket your exposures (see page 20) at f5.6 and f11. You may also choose to bracket

You may also choose to bracket your exposure using shutter speed, if your using continuous light sources such as photofloods or quartz lights this would be the recommended procedure. If your normal exposure is 1/30th of a second at f/8, then make your brackets at 1/15th and 1/60th of a second.



## Aperture

One way to control the amount of light entering the camera is to change the size of the aperture. A smaller number means a larger opening, as shown here.

To maximize the sharpness and quality of your photographs set your aperture in the center of the lenses range, for most lenses f/8 will be the proper setting but for those of you that have a faster lens a wider aperture of smaller f/# will produce better images.

This is one of the drawbacks in digital photography; smaller apertures will give you a greater depth of field but also will reduce the amount of light striking the chip in the camera and result in less sharp images.

## The Lens Aperture

On traditional cameras, you use a ring on the lens barrel to set the aperture; numbers on the ring represent the size of the aperture, called f-stops. In many newer cameras, the lens has no aperture ring; instead, you set the f-stop with dials on the camera body. If your camera fits this description, see its manual for instructions.

## Depth of Field

Depth of field refers to how much of the area immediately in front of and behind your subject will be in focus. The smaller the aperture, the greater the depth of field or the in-focus zone.

Depth of field is especially important when you are photographing a three-dimensional subject, such as art materials on a table or a hand holding a brush over a painting. If the aperture is too large, using the latter example, the canvas surface might be in sharp focus but the hand and the brush handle may be out of focus. Inadequate light forces you to use a larger aperture to get a good exposure, which in turn reduces depth of field. This is one reason why it is so important to use 500-watt floodlights as noted on page 6 rather than attempting to photo-

graph under ordinary room lights or sunlight coming in a window.

## Shutter Speed

Another way besides aperture to control how much light enters the camera is the shutter speed. The shutter opens for a fraction of a second. The shutter speed is usually expressed as numbers such as 8, 15, 30, 60, 125, 500 and 1000. In this system, 60 means one-sixtieth of a second and 1000 means one-one-thousandth of a second.

The faster the shutter speed, the better you will be able to freeze motion. If the camera is not on a tripod, do not use a shutter speed below 1/60th, or the motion of your body will result in blurry photos. Even with a tripod, do not go below 1/30th of a second.

Occasionally an artist needs to freeze motion, such as spreading watercolor, in a photo. The faster the shutter speed, the better you will be able to freeze motion.

## Film Speed (applies to digital cameras too!)

Film speed refers to how sensitive the film is to light. See page 5 for information on the right kind of film to buy. Then be sure to set your camera for the correct film speed, in this case, 64. (If 64 is not an available setting on your camera, use 100.)

Digital cameras often have a setting for film speed which mimics the effects of using different speeds of slide or print film. Set your digital camera to a film speed of 100.



### *The Shutter Speed*

This control is often found on the top of the camera, but on some models it is a ring around the lens mount or a dial or toggle switch on the camera body. Check your owner's manual if you're unsure. Changing shutter speed, the length of time the curtain covering the film is open, is one of the two ways to control the amount of light reaching the film. The traditional shutter speed dial is shown above.

# Set-Up for Shooting Flat Art

## How to Support the Artwork

Here are some ways to position your artwork for photographing:

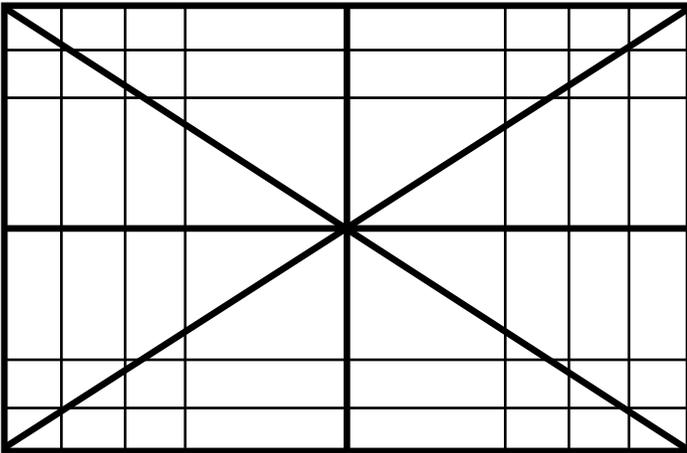
1. On a wall. Hang your art on an empty wall or on a corkboard mounted on the wall. Use tape or tacks (not pushpins; they cast

shadows) to secure your work. For ease in positioning your art, especially if it varies in size, draw lines in the center of your wall or board as shown below. To avoid having to stoop while looking at the camera's viewfinder, center your art at your eye level. **Important:** Tape or pin your **color guide** (see page 7) along the edge of the art.

2. On an easel. Place a board on an easel and lean your art against it. **Important:** Lean your **color guide** (see page 7) along the edge of the art. This works fine as long as you tilt the camera to match the tilt of the easel.

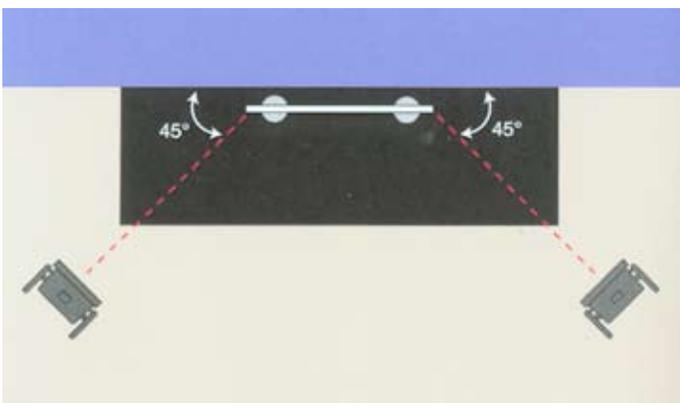
## Setting Up the Lights

For evenly lit shots, position your two 500-watt floodlights on either side of the art as shown below.



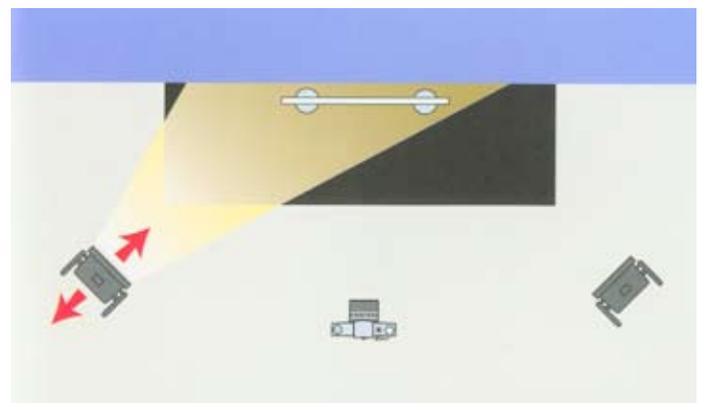
### *Positioning Guide*

To simplify the task of aligning your art for photographing, draw lines like these on your wall or support.



### *Aiming the Lights*

Aim each light at a 45-degree angle to the artwork.



### *Positioning the Lights*

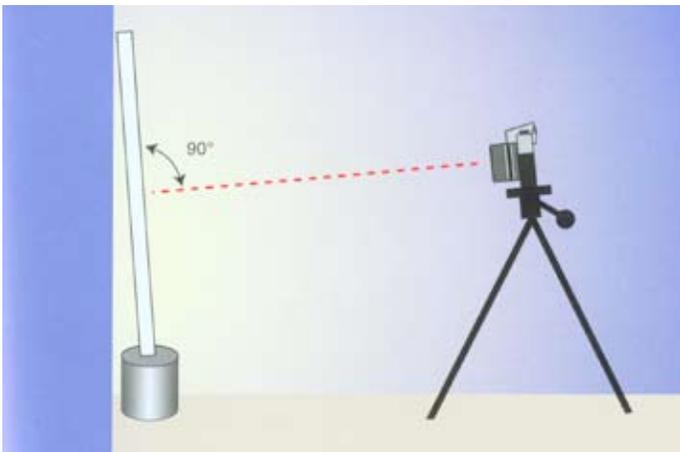
Turn on one light and move it back and forth along the imaginary 45-degree line until its beam covers the entire surface of the art. Then turn off this light, turn on the other light and repeat.

## Aiming the Camera

To ensure that the artwork is not distorted in the photo, the camera's line of sight needs to be perfectly perpendicular to the art. If your art is attached to a vertical wall, the camera should be vertical. If your art is leaning back against a wall or on an easel, the camera must be tilted as well. Adjust the tripod forward and backward until the edges of the art are perfectly square in the viewfinder. This can be frustrating, but it is vital to get it right.

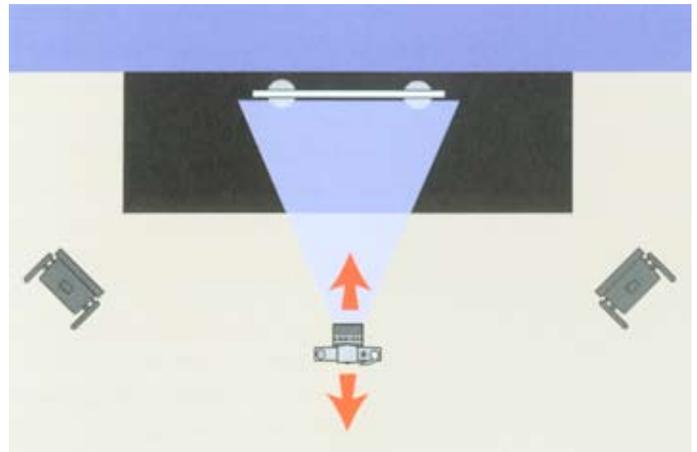
Otherwise, your art will look like a trapezoid in the photo rather than a rectangle. This problem is called parallax. For troubleshooting help, see page 26.

The art should fill the viewfinder as much as possible while still keeping the **color guide** (page 7) visible within the frame. For vertical art, either rotate the tripod head if your tripod provides this adjustment, or simply hang the art vertically on the wall so that it can fill the frame.



### *Aiming the Camera to Avoid Parallax*

The camera's line of sight must be perfectly perpendicular to the artwork. If the art is tilted (as when you lean art against an easel or wall), the tripod head must be tilted as well. See page 26 for troubleshooting help.



### *Positioning the Tripod*

Move the tripod and camera backward or forward until the art fills the frame as much as possible.

For on-line help [photoflexlightschool.com](http://photoflexlightschool.com) is a great free resource with specific lessons geared toward the beginner photographer with plain simple explanations and a lot of how to photos and graphics that make this process much easier to understand. They have also included links to the gear used and where you can find it in your area with the dealer finder feature.

## Plan for Detail Shots

Before you start shooting, decide whether you will need any detail shots (zoomed-in shots showing a small area of a painting or drawing).

For detail shots, move your camera closer to the art (or use a zoom lens) so that the desired area almost fills the viewfinder.

Do not count on being able to crop and enlarge a photo of the entire piece of art in order to create a detail shot. Too much enlargement can result in poor image quality.

## Another Option for Flat Art: The Copy Stand

Copy stands are ideal if your work is small and you expect to be photographing it regularly. A copy stand is a stable platform with a vertical rail attached to the back. You mount your camera lens-down on the end of a horizontal bar connected to the rail. Then you can place your artwork and **color guide** (page 7) on the copy stand's baseboard and move the camera up and down to adjust for art of different sizes. The copy stand greatly simplifies the task of making the lens and the artwork parallel. A well-made copy

stand will always keep them parallel. Use a bubble level to make sure.

### ***Leveling the Camera on the Copy Stand***

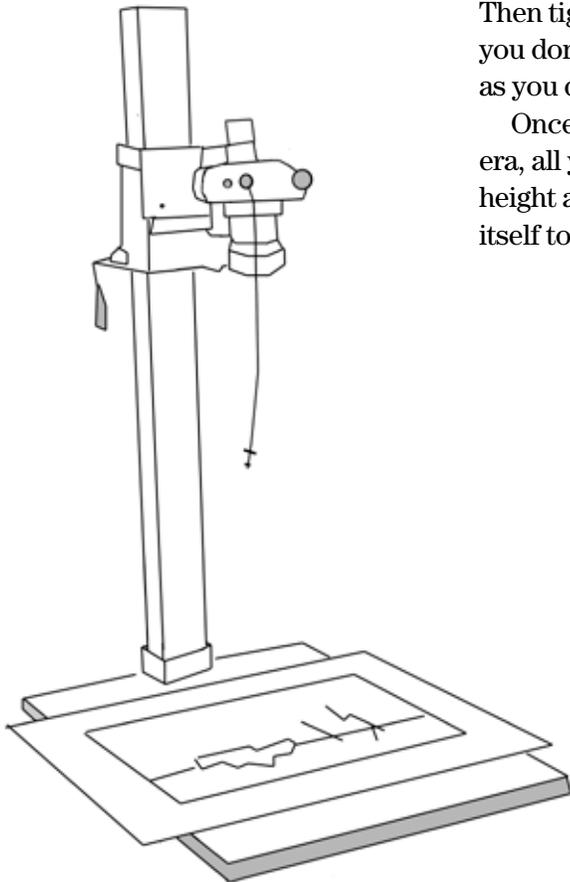
Place a bubble level on the baseboard of the copy stand so that it runs horizontally from side to side. Note the position of the bubble. Then place the level on the back of the camera, making sure no protrusions on the camera prevent the level from being parallel to the back side of the camera. (If this isn't possible, then hold the level against the front rim of the lens instead.) Loosen the camera-mounting screw a little and twist the camera on it until the bubble returns to the same position it held on the baseboard. Then tighten the screw, making sure you don't cause the camera to shift as you do so.

Once you've leveled the camera, all you need to do is adjust its height and focus. Move the artwork itself to center it in the viewfinder.

You can use masking tape to make register marks on the baseboard if you're going to be shooting a number of like-sized pieces. If for some reason (poor construction more than likely) the baseboard and the camera aren't parallel in the front-to-back axis, you can always put the artwork on rigid board and place shims between that board and the copy stand's baseboard to match the camera's orientation.

### ***Lighting a Copy Stand***

The process of lighting artwork on a copy stand is much the same as lighting vertical flat artwork (page 12), except that the lights will be pointed down at the baseboard from either side. Many copy stands have lights already attached, but these lights tend to be rather close to the work, limiting the size of the artwork you can photograph. All the information on pages 12–13 about lighting angles, distances, making light even and getting good exposures is also applicable to shooting work on a copy stand.



### ***A Typical Copy Stand***

A copy stand allows you to photograph large amounts of small artwork with relative ease.

# Set-Up for Shooting 3-D Subjects

You may find you need to photograph three-dimensional subjects for your book, such as art materials or “hand-in” shots in which your hand is shown holding the brush, pencil, etc. on the art.

## Background

When you’re photographing three-dimensional objects, the background becomes a consideration. Cluttered backgrounds make a poor impression. You’ll probably want to place your subjects on a seamless background.

A large sheet of drawing paper, seamless background paper or piece of formica all make good

seamless backgrounds. Seamless background paper is available in various colors from professional photography stores. It comes in rolls of four-, nine- and twelve-foot widths. For smaller objects, you can use other kinds of paper or flexible board. You might even prefer these if they have a less visible texture than seamless background paper. The smaller the object, the closer the camera must be to it, and the more visible the texture of the background paper will be.

## Color and Contrast

Think about the color and the contrast between the background and

the artwork. A light object, made perhaps of silver, marble or clear plastic, will photograph better on a background of deeper tone, such as a medium gray. A darker object will probably look better on a white or medium gray background. A very dark object may require medium gray rather than white because the additional exposure required by a dark object can cause the background to appear too light in the photo.

Consult your editor before choosing unusual or vivid background colors, since pleasing photographs are vital to a great-looking book design.

Cloth is another possible background material, but it is hard to shape into a smooth curve. No matter what kind of background you use, make sure it is both wide and long enough to fill the entire viewfinder.

## Setup

Unless you intend to shoot from above against a flat background, you’ll have to attach one edge of your background material to the wall, well above the highest point of your artwork, with strong tape or pushpins. Then roll the material out, allowing it to form a smooth curve on its way down to the table

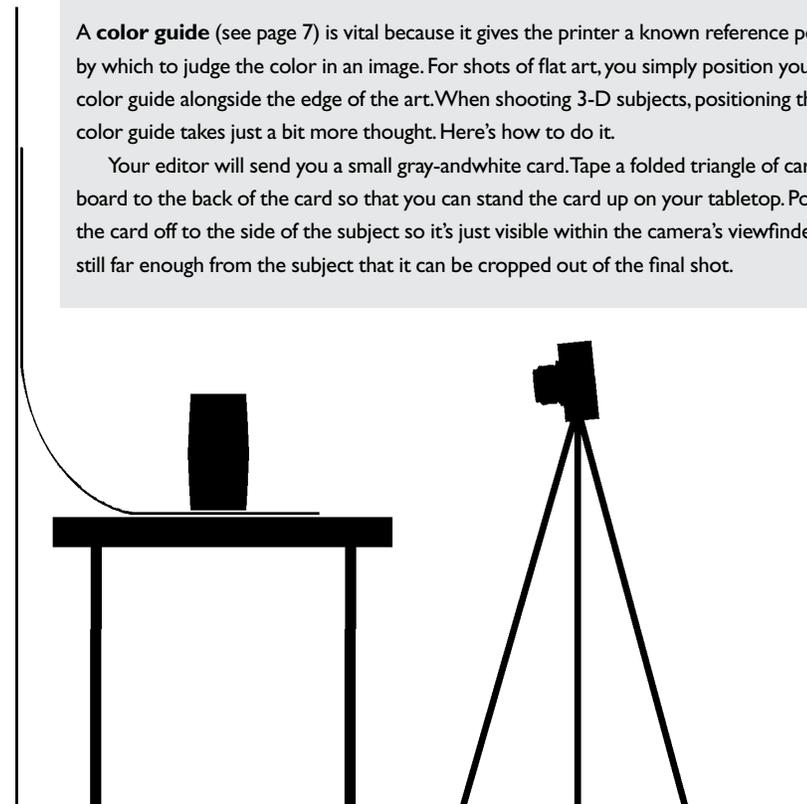
### *Side View, Basic Setup*

Don’t place the artwork too close to the curve of the seamless paper or the shadow it casts may follow the curve of the background. The higher the light source, the shorter the shadow will be.

## Important! Include a Color Guide in Your 3-D Shots

A **color guide** (see page 7) is vital because it gives the printer a known reference point by which to judge the color in an image. For shots of flat art, you simply position your color guide alongside the edge of the art. When shooting 3-D subjects, positioning the color guide takes just a bit more thought. Here’s how to do it.

Your editor will send you a small gray-and-white card. Tape a folded triangle of cardboard to the back of the card so that you can stand the card up on your tabletop. Position the card off to the side of the subject so it’s just visible within the camera’s viewfinder, yet still far enough from the subject that it can be cropped out of the final shot.



or floor. Roll it out generously on the surface on which the subject will rest. You don't want the subject to sit too close to the curve, or its shadow will be curved as well. Also make sure the curve isn't too abrupt. On the other hand, if the vertical portion of the paper is too far from the work, it may appear much darker in the photograph. This can result in a strong bluish cast on a white or gray background.

If your paper is seamless, handle it carefully to avoid creasing or tearing it. Cut the proper length from the roll with a mat knife or scissors.

### Lighting the 3-D Subject

The two-light setup you use for flat artwork is undesirable for 3-D subjects because it causes conflicting, crossing shadows. Instead, use just

one light aimed directly at the artwork (see the illustration below).

To avoid harsh shadows, keep the single light at least five feet away from the subject. If the shadows are still unpleasantly harsh, try bouncing or diffusing the light, as explained below.

### *Bouncing Light*

A photographic umbrella makes it easy to soften the light. It has a white or silver lining which acts as a reflector, bouncing the light from your floodlights onto the subject in a way that softens and lightens the shadows. They cost anywhere from \$30 to \$60, depending on size and style, and they must be secured in the appropriate position. You can buy fixtures for this purpose, but

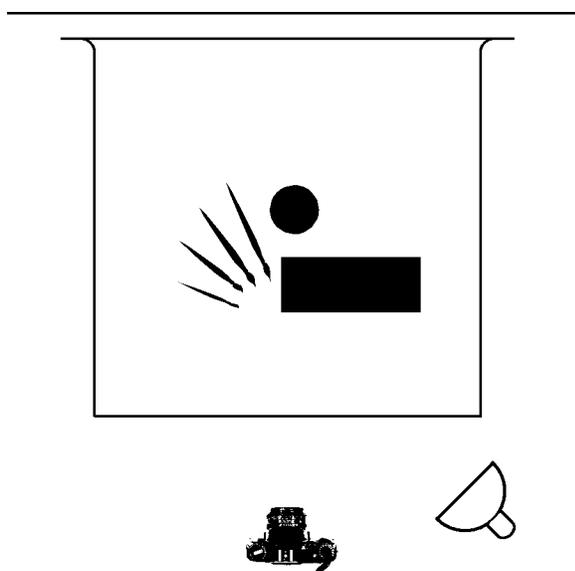
clamps and duct tape can also do the job.

Aim the inside of the umbrella at the work, and point your lights away from the work into the umbrella.

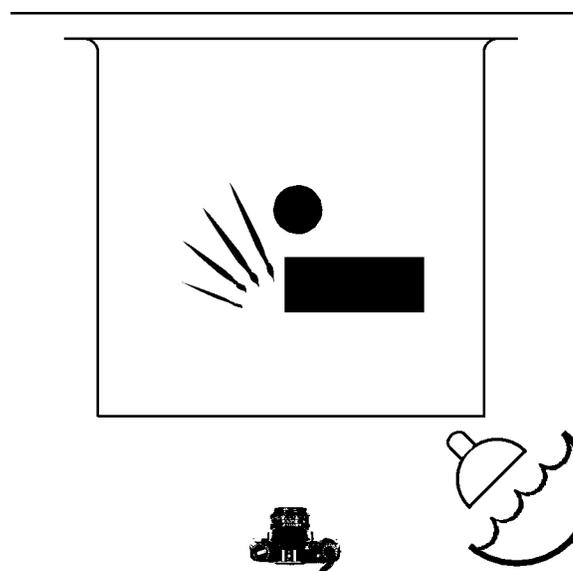
You can also bounce light toward the work with a large white card, board or sheet. If convenient, you can also use an adjacent wall or low ceiling as a bounce surface, but it must be white or neutral in tone.

### *Diffused Light*

Another way to soften the light is by diffusing it. You aim the light directly at the work, but diffuse it with a piece of translucent material in between the light and the work. White plastic garbage bags, colorless shower curtains or white sheets can all work. You can also buy



Direct light on three-dimensional artwork can create unflattering harsh shadows, especially if the light is too close to the art.



You can soften light by shining it away from the subject into a white or silver reflective umbrella, which bounces some of the light back toward the subject.

diffusion film, available in sheets or rolls, at professional photography stores. It comes in different degrees of translucency; get one that is thick enough to soften the light but not so thick that it severely reduces the light level.

Be sure your bouncing and diffusing materials are several feet away from your lights to avoid fires.

### **Fill Light**

If your shadows are too dark even with bounce light and diffused light, you can use a second light as a *fill light*. Place this light on the opposite side of the room from the main light. Position the second light at least two or three feet away from the wall, near the model. Turn the fill light on, turn off the main light, and adjust the fill light until it

lightens the shadows to the degree you want. (Shadows help define an object's form, so be careful not to flatten them out entirely.)

Whenever the position of the lights has changed, be sure to take a new meter reading.

### **Aperture and Shutter Speed**

Using the correct f-stop is critical when photographing three-dimensional art. The more depth the artwork has, the more depth of field you will need in order to show the entire piece in focus. The higher the f-stop number you use, the more depth of field your image will have. Using an aperture that is too wide for the artwork will make parts of it appear out of focus.

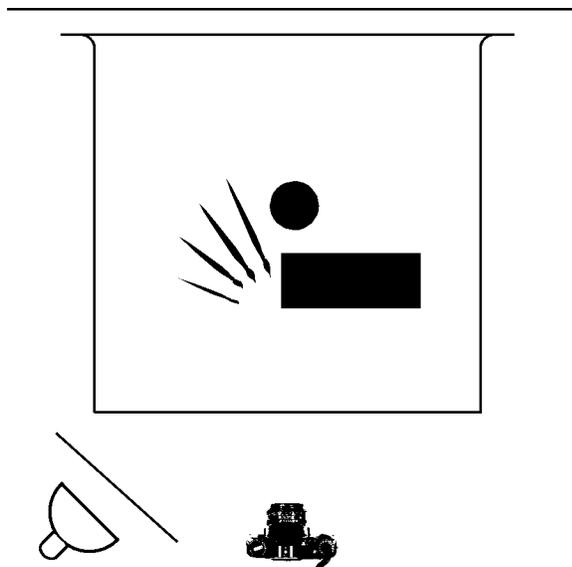
Start with an aperture of f16, then use either your incident light meter

or your built-in light meter and a gray card to determine the appropriate shutter speed. If the recommended shutter speed is slower than 1/30th of a second, try an aperture of f11.

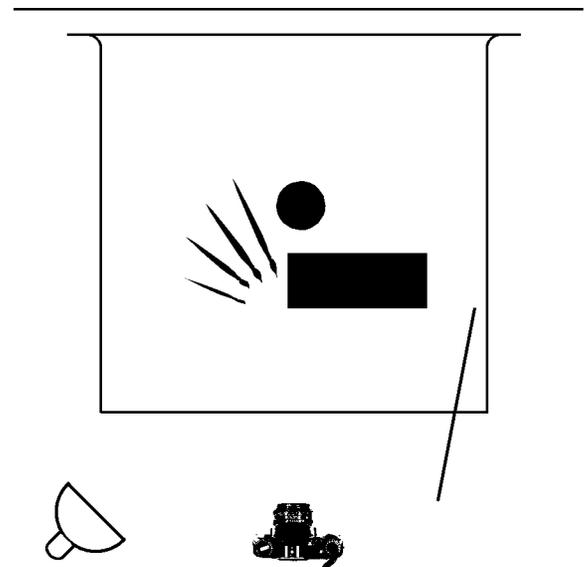
With film cameras, don't be surprised if you use a small f-stop and the model doesn't appear sharply focused through the viewfinder. Only when you press the button to take the picture does the aperture close down to f16 to get the correct depth of field.

### **Reminder: Use a Color Guide**

Be sure to include a color guide in your shot. For instructions, see "Important! Include a Color Guide . . .", page 15.



You can create softer shadows by diffusing the light with a sheet of translucent film or a white plastic bag.



You also can bounce light onto a piece of artwork with a white reflector card. Place the card off-camera, to the side of the artwork opposite the light source to fill shadows.

# Shooting Procedure

## Preparing Your Art to Shoot

Take paintings out of frames and remove any mats before photographing, as the frame and mat can cast a shadow. Do not photograph a picture under glass.

## Shooting Procedure, Step by Step

Take the time to review your camera's manual before you start.

1. Position your artwork on the support you've chosen (see pages 12 and 14). Tape or tack your art

and your **color guide** (page 7) to the wall or board. Don't use pushpins; they can cast shadows on the artwork.

- **Tip:** Position both vertical and horizontal pieces with the longer side oriented horizontally so that you don't have to change the camera's position to fill the viewfinder.

2. Block the windows. Use lined black curtains or good window shades to block sunlight from enter-

ing the room. The only light on your artwork should be your floodlights.

3. Position the color bar along the edge of the artwork with a little bit of space between them. For a flat hand-in shot, place the color bar along any edge of the artwork that is *not* being crossed by your hand.

Proceed to step 4 for either digital or film cameras, below.

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### DIGITAL

4. Choose the following camera settings. Consult your manual if you need to—all of these are important:

- **Color mode:** Adobe RGB (not sRGB).
- **Image size:** Set to the largest size your camera can produce.
- **Image format:** We prefer RAW images, but we can also use TIFF or JPEG. (Please discuss with your editor.)
- **ISO (corresponds to the film speed setting on a film camera):** 100
- **White balance:** Set the white balance to match the type of bulbs you are using in your floodlights. (We recommend daylight-balanced [4800°K] bulbs.)
- **Exposure control:** Manual mode
- **Flash:** Make sure the camera-mounted flash, if any, is disabled.
- Make sure your camera card is inserted and that it has space available on it.

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### FILM

4. Adjust the camera settings as follows. Consult your manual if you need to—all of these are important:

- Deactivate any automatic exposure settings your camera may have. Adjust the camera so that you can set both the aperture (the f-stops on a ring on the lens) and the shutter speed (the dial on top of the camera).
- Make sure the camera-mounted flash, if any, is disabled.
- Make sure your film is loaded.

5. Attach the cable release to the camera, then mount the camera on the tripod securely and place it in front of the artwork. The camera should face the artwork squarely, pointed straight ahead to the center of the art. The face of the camera should be parallel to the art—not tilted up, down or to either side.

6. Aim the camera. Move the entire tripod and camera around until the art and the color bar fill as much of the viewfinder as possible without cropping the image.

- **Tip:** Be sure to photograph the whole surface of the artwork, even if not all of it is filled in yet (as may be the case in early steps of a demonstration). We can always crop into an image if needed, but if the entire image isn't in the picture and you later wish it was, you're out of luck.
- If you want to zoom in on a detailed area of the painting, first take a photo of the entire image, then take an extra detail shot.

Once you have your tripod in the right spot, you might want to mark the position of the legs on the floor with masking tape.

7. To make sure you don't blow a fuse or trip a circuit breaker, turn off all other appliances on the same circuit as your lights.

8. Plug in your floodlights, but don't turn them on yet. Estimate the distance from the camera to the artwork, then place one floodlight twice that distance to the left of the artwork and the other one the same distance to the right. Aim them at a 45-degree angle to the art. The lights should be as far back as your camera. If they are too far forward, light may strike the camera lens and cause flare, a fogging or veiling of the image.

9. Turn on the floodlights and turn off the room lights. Get into the habit of turning off the room lights right away so you don't forget; the extra

light will upset the color balance of your pictures. Make sure no light is coming in from doors or windows.

10. Check the lighting. Adjust the floods (wear heavy gloves when touching the reflectors; they get very hot) until the light is evenly distributed on the art. Look for hot spots, places that are brighter than the rest.

Look through the camera's viewfinder. If there is harsh glare on the art after you have followed these instructions carefully, try decreasing the angle of the lights to 35 degrees from 45 degrees, then see if the glare is gone. You can continue to reduce the angle if needed, but don't make it any smaller than about 15 degrees. It's not always desirable to eliminate all glare,

## Tips for Hand-In Shots

If you want to show your hand in the painting, holding the brush, pencil or other tool in mid-stroke, note the following:

- Make sure nails are trimmed and clean, but do not wear nail polish.
- Keep rings to a minimum.
- Add fill lighting (page 17) if necessary to reduce or eliminate shadows cast by your hand or by the brush handle or other tool.
- Either skip the color bar or place it along an edge of the painting that is not being crossed by your hand, so that it can easily be cropped out.
- In general, do hand-in shots only when they offer an instructive benefit, such as showing the reader a special way of holding the brush. Having a hand in every step of a demonstration can be distracting.

especially if the work has heavy brushstrokes or other texture.

11. Allow 10 minutes after turning your lights on for the bulbs to warm up fully, then meter as follows:

*Using an incident light meter:* Set your camera's aperture to f8. Set the light meter to f8 also. For artwork 12" × 16" or smaller, hold the light meter at the center of the artwork. If the art is larger than 12" × 16", meter at all four corners and the center and average the results. Take the reading(s), note the recommended shutter speed, and set your camera's shutter speed accordingly.

*Using the camera's built-in meter:* Set your camera's aperture to f8. Place a gray card (page 7) in front of your art. With the camera's exposure control set to Manual, remove the camera from the tripod, look through the viewfinder, and move closer to the gray card until the card fills the viewfinder. Make sure your body isn't blocking any of the light falling on the card. Get the meter reading (on many cameras, you do this by depressing the shutter button part-way). Set the shutter speed indicated by the meter, then return the camera to the tripod.

12. Review your settings. Is the aperture set to f8? If the shutter speed is slower than 1/30 of a second (such as 1/15 or 1/8), make sure both lights are on, pointing in the correct direction, and not too far away.

14. Align the art in the viewfinder. All the edges of the art should be perfectly parallel to the edges of the viewfinder; if they are not, move or adjust the tripod until they are. This may be the most frustrating step in the whole process, but take your time. Remember to keep the color guide (page 7) visible in the viewfinder.

When the camera is in position, focus it on the subject.

14. Press the cable release. You just took your first shot at aperture f8.

15. To ensure that you'll get at least one good shot, *bracket* your shot with two other exposures as follows. Change the aperture to f5.6. Change the aperture only; do not change the shutter speed or anything else. Recheck the alignment and focus, then shoot. Now change the aperture—nothing else—to f11. Recheck the alignment and focus, then shoot. Now you have shot

light, middle and dark versions of the image, improving the chances that at least one of them will be a good exposure.

16. Record the content of the shot, the aperture and the shutter speed on a record sheet.

## Finish

If you are photographing a step-by-step demonstration of the creation of one piece of art, you can now turn off the lights, cover your camera lens and resume work on the art. When you're ready for your next shot, repeat the entire process from step 1. Be sure to recheck the following for each shot:

- position of the camera and lights
- alignment and focus
- light meter reading

# Processing and Organizing Your Photos

You've shot a batch of images—what's next? The steps for digital cameras and film cameras are outlined below.

## DIGITAL

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### Save Images to Your Hard Drive

As your camera card becomes full, you'll need to periodically copy the images from the card to your computer's hard drive. Organize the photos in a logical fashion such as one folder per chapter or per step-by-step demonstration. It's fine to rename the image files to something that makes sense to you, such as "Peony step 1." When you're writing your manuscript, be sure to refer to images by the names you've given them. Each image must have its own name that never changes.

**Reminder: Please do not attempt to color-correct or otherwise manipulate your images in Photoshop.** Color correction requires expert knowledge. It is far better to get your studio setup and camera settings right than to attempt to correct problems after the fact in Photoshop. Send us your shots as they are, even if you don't think they're perfect, so that we can evaluate them.

### Quality Review

Early in the process of creating your book, send your editor a representative sampling of converted images on CD-ROM or DVD-ROM.

The editor, managing photographer, and designer will review your files and let you know if there are any problems. If there are problems with file specifications, lighting, depth of field, etc., we will work with you to correct these issues. Once your files are satisfactory, we will output test proofs to show you what the images should look like on press.

## FILM

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### Have Your Slides Processed

Have your slides developed and mounted in slide mounts by a professional-quality lab. Even at a pro facility, things can occasionally go wrong; as an insurance measure, try not to develop more than two or three rolls of film at once.

When your slides come back, review them with your light table and loupe (see page 8). Check your slides for all of the potential problems listed in the troubleshooting guide on page 23.

To organize your slides, purchase plastic slide sleeves that fit in a three-ring binder. Place the bracketed images of each subject together for easy comparison. Please send all of the bracketed slides to your editor so that he or she can choose the one that will reproduce best.

### Quality Review

Early in the process of creating your book, submit a representative sampling of slides to your editor, who will review them and let you know if there are any problems. If there are problems with lighting, depth of field, etc., we will work with you to correct these issues.

### Prevent Lost Artwork

We urge you not to send irreplaceable or extremely valuable artwork to us. We do our utmost to take good care of your art, but bear in mind that your art will be shipped at least four times during the bookmaking process, and it is possible for packages to be lost or damaged in transit. To minimize your risk, please keep duplicates of digital image files or slides.

# Set-Up for Reviewing Digital Images

Before you start reviewing your digital images, calibrate your monitor so that what you see on your screen is as close as possible to what will be printed.

There are many uncertainties in a digital workflow that can affect how images turn out. Following these steps will minimize those uncertainties, but can never eliminate them entirely. As explained on page 21, you must send us samples of your work for us to review and proof so that we can ensure quality reproduction for your book.

## **Calibrate Your Monitor**

Use the monitor calibration options provided in your computer's display preferences or control panel. Consult your operating system's manual or online help for specific instructions. Note the following:

- Use Mac or PC standard gamma depending on what kind of computer you have.
- Use a standard white point of D65. It may seem dim and yellowish compared to what you are used to, but it will give you a better idea of what your art will look like on a printed page.

# Troubleshooting Your Photos

## Over- or Underexposure

Even if you do everything correctly when setting the exposure on your camera, things can still go wrong. The best insurance is to bracket your shots. Take photos at f-stops on either side of your standard f-stop setting (using the same shutter speed for all three) to get a variety of exposures to choose from.

## Poor Focus

This problem is fairly self-explanatory, but the solution can be elusive. Sometimes the image in your viewfinder may be perfectly in focus, but a wide aperture setting (f-stop of 5.6 or lower) reduces the depth of field, causing parts of the image to be out of focus. Try using a smaller aperture (f8 or f11). A smaller aperture requires a slower shutter speed to get a decent exposure. If the shutter speed recommended by your meter is below 1/60th of a second, you need more light.

## Bad Color

Off-color slides usually mean that your film type or your digital camera's white balance setting does not match the type of light you are using. Make sure you have the proper film (if applicable) and floodlight bulbs as described on pages 5 and 6. Also make sure the lens of your camera is clean. A dirty lens will cut contrast and subdue the colors.

Off-color slides are usually indicative of using the wrong type of light for a given film (or vice versa). Incandescent lighting used with tungsten film produces yellow slides. Daylight film exposed

under tungsten light tends to give yellow-brown results. Fluorescent lighting will give a greenish tint to your slides. If you shoot with Ektachrome film and get a blue cast, the film was underexposed. You must increase your exposure time or open the aperture one f-stop or use f5.6 for your first shot and bracket from there. Purple is usually an indicator of shoddy processing; all you can do is send your film elsewhere.

## Background Clutter

Fill the viewfinder with the artwork. The artwork and the color or grayscale bars should be as close to the edges of the image as possible.

If you wish to have an image cropped, please send the full-frame image but indicate your desired crop on a printout of the digital image or with pencil marks on the slide mount. You do not need to indicate cropping for every image—only if there is something that requires explanation.

## Flare

Don't use a camera-mounted flash when photographing art. Its light will bounce from the subject straight back to the lens, creating a large white spot. Disable your camera-mounted flash and use the indirect lighting method described on page 12.

## Glare

With the indirect lighting method described on page 12, you might experience some glare, especially if the surface of the art is shiny or wet. Try setting the lights at an angle of

35 degrees to the art instead of 45 degrees. You can continue to reduce the angle if needed, but make it any smaller than about 15 degrees. It's not always desirable to eliminate all glare, especially if the work has heavy brushstrokes or other texture.

## Out-of-Square Images (Parallax)

Parallax is caused when the camera's line of sight is not perfectly perpendicular to the surface of the artwork. If the painting is propped up at an angle, the camera must be tilted forward to match. Otherwise your painting will look like a trapezoid instead of a rectangle. See the troubleshooting guide on the next page for help with adjusting your tripod.

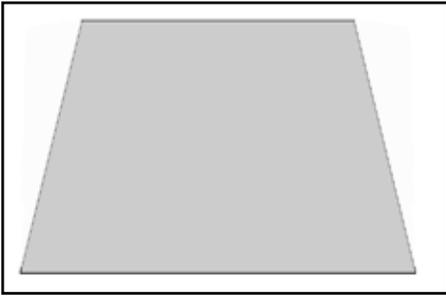
## Shadows

If your shots of three-dimensional images have shadows in them, use only one floodlight instead of two, and consult pages 16 and 17 for ways to diffuse the light and thereby soften the shadows.

## Send Us Samples of Your Work Early

Whether you're shooting digital or slides, be sure to send us a test batch of photos early in your project. If there are problems with your photo setup, we can help you correct them. Do not do a large amount of photography until we have verified the quality of your photos. One bad photo can make an entire step-by-step demonstration unusable.

# Squaring Up: A Visual Guide



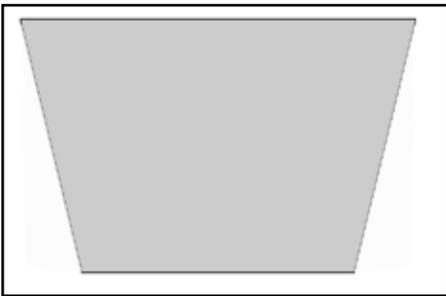
If the artwork converges toward the top,



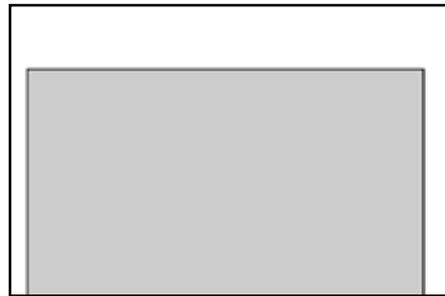
tilt the camera forward until the sides are parallel.



Then raise the column to center the work.



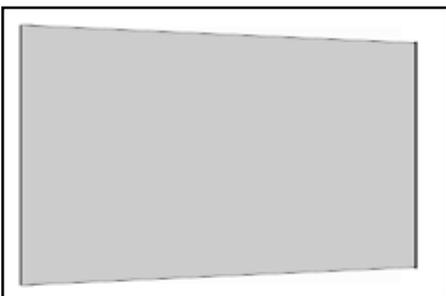
If the artwork converges toward the bottom,



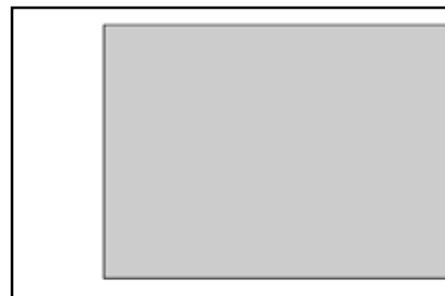
tilt the camera backward until the sides are parallel.



Then lower the column to center the work.



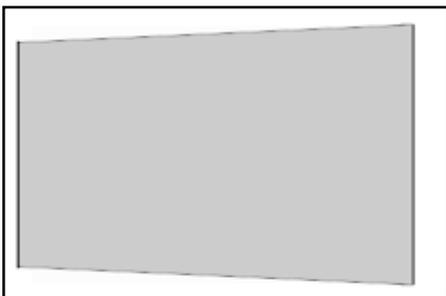
If the artwork converges toward the right,



rotate the camera to the left until the top and bottom are parallel.



Then move the tripod to the right to center the work.



If the artwork converges toward the left,



rotate the camera to the right until the top and bottom are parallel.



Then move the tripod to the left to center the work.

# Glossary

**ASA:** See Film speed.

**Aperture:** The opening through which light is admitted into the camera. Indicated with numbers called “f-stops,” such as f2.0, f5.6, f8, f11, etc. The smaller the f-stop number, the larger the opening.

**Bracketing:** The practice of taking the same shot three times at three different apertures to ensure that at least one of the images turns out well. Highly recommended.

**CMYK:** The color system used to reproduce full-color artwork in books and magazines. Dots of cyan, magenta, yellow and black ink are laid alongside each other. Our eye “blends” these dots to create the perception of a wide range of other colors.

**Depth of field:** The range of distance within a photo that is in focus. Affected by the lens aperture you use. Smaller apertures such as f11 and f22 will create greater depth of field (a larger in-focus zone) than large apertures such as f2.0 or f4.

**F-stop:** See Aperture.

**Film speed:** How sensitive your film is to light. “Slow” films such as ASA/ISO 64 require more light than “fast” films such as 400, but faster films produce grainy images. Use ASA/ISO 64.

**Four-color process printing:** See CMYK.

**ISO:** See Film speed.

**JPEG, JPG:** A digital image file format in which the image is compressed in a way that produces some loss of image quality. Therefore, JPEG is not the best format for reproducing artwork in a book.

**Loupe:** A magnifier used to view slides. 8x magnification is sufficient for slides.

**Megapixel:** One million pixels, or dots. The more pixels a digital camera records, the larger the image will be. If a digital camera produces an image measuring 3,488 × 2,616 pixels, the image contains about 9 million pixels, or 9 megapixels.

**Parallax:** When parallel lines appear to converge. Parallax is undesirable in a flat shot of a piece of artwork. To avoid it, make sure the camera is parallel to the surface of the artwork.

**PPI (pixels per inch):** The way image resolution is measured. In our books, color artwork is reproduced at a resolution of 300 PPI.

**RAW:** A digital image file format containing the image information recorded by the camera’s light sensor before any processing, such as white balance, sharpening, etc., is applied. RAW format requires specialized knowledge to use correctly. Please set your digital camera to use TIFF format if that option is available, otherwise JPEG.

**RGB:** The color system used in television screens and digital cameras. Red, green and blue light combine to create other colors. RGB images from a digital camera must be converted to CMYK for printing purposes (see page 23).

**Shutter speed:** The amount of time the camera’s shutter is open. Measured in fractions of a second: A shutter speed of 250, for example, means the shutter is open for 1/250th of a second.

**TIFF:** A digital image file format. Our preferred file format for digital art submissions.

**Umbrella:** A photographic umbrella lined with silver or white. Used to bounce light onto a three-dimensional subject, thereby softening the shadows.