



ChristmasExpo
Holiday Lighting & Decorating Conference

Video Recording Your Holiday Display

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ChristmasExpo

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Video Recording Your Holiday Display

- In this presentation we will review the basics of video recording your holiday display
- We will cover:
 - Scene composition
 - Depth of field
 - Exposure – aperture and speed
 - White balance
 - Focus
 - Image stabilization
- We will conclude with a presentation of digital videorecording tips



Video Recording – Overview

- Advantages:
 - You can share your display with others
 - A video provides a long term record of your past accomplishments
 - It allows you to observe your display as the public does
 - You can utilize the video as a basis for changes/improvements in your display

Video Recording – An Overview

- Disadvantages:
 - It takes some preparation to make a video you can be proud of
 - There is a requirement for equipment (camera, tripod, sound source, etc.)
 - Those up North will often freeze their fingers in the process of acquiring their video!



Video Recording – The Basics

- You are using a camera – all cameras capture light reflected off objects recording it -
 - Chemically on media (film), or
 - Electronically (analog) on videotape, or
 - Electronically (digitally) on tape, disc, or microchips.



Video Recording – The Basics

- Video cameras essentially record many more pictures (29.97 frames) per second (NTSC standard) than still cameras, but all of the same basic photographic rules apply:
 - Composition of scene
 - Depth of field
 - Exposure – aperture and speed
 - White balance
 - Focus
 - Image stabilization



Video Recording – Scene Composition

- When you point a camera, you frame a specific part of a scene recording some elements, and disregarding others
- Your video record is limited to only the audio and visual senses making it more challenging to convey what you/others felt about the event while trying to capture it
- You therefore need to master the art of visual communication skills to produce effective videos!



Composition – Rule of Thirds

- Using a tic-tac-toe model – line up one of the important parts of the image on one of the four points where the lines intersect - avoid tilted lines!
- This avoids compositions where the scene is perfectly (symmetrically) balanced
- Unbalanced (asymmetrical) composition creates a visual sense of motion, even for inanimate objects
- Good composition encourages viewers to look at your work, even if they have no interest in the subject matter



Composition – Nose Room

- Psychologically viewers are more relaxed when there is empty space (nose room), between your subject, and the edge of the frame
- By framing either left or right (rule of thirds) depending on the subject's position, your final picture will be more visually appealing
- If an object is moving across your frame, leave space in front of the movement to give the object a visual destination

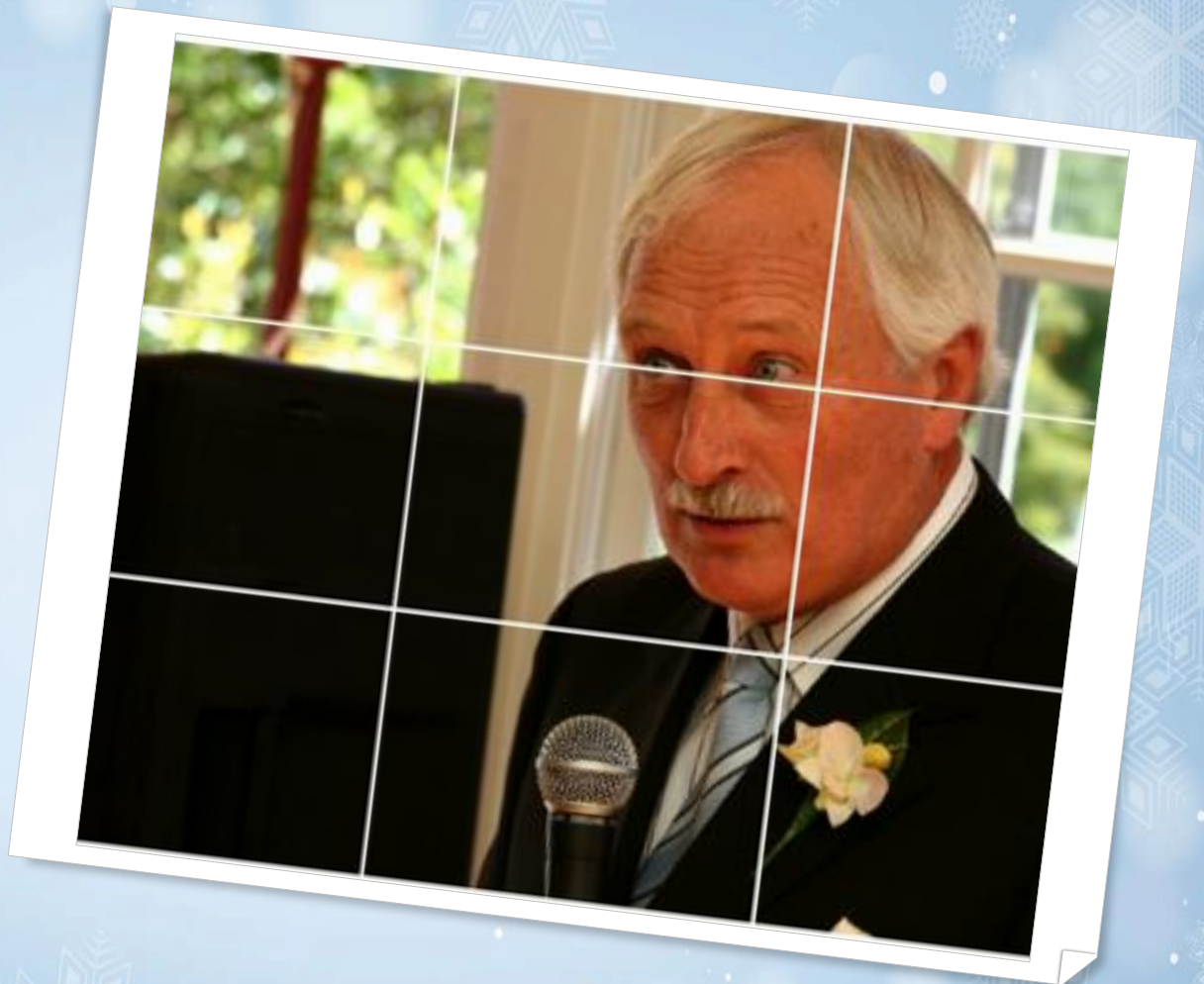
Composition – Rule of Thirds

In this shot I've placed the subject along a whole line which means she is considerably off center and therefore creating an additional point of interest. Placing her right in the center of the frame would have resulted in an uninteresting shot.



Composition – Rule of Thirds

In this image I've purposely placed the head of my subject on one of the intersecting points – especially his eyes which are a natural point of focus for a portrait. His tie and flower also take up a secondary point of interest



Composition – Rule of Thirds

Another example. Note how your eyes start off on the left with the main subject, and then drift towards the right.



Composition – Rule of Thirds

Here there are two focal points of interest. Most will spot the sunflower first. The viewer's eyes will then drift upwards to that of the young girl, who is the second focal point in this picture.



Composition – Rule of Thirds

Another example of a landscape format picture with its center of interest clearly defined. Apply this to photographing areas of your display.



Composition – Rule of Thirds

Can you see the relevance of framing this shot, to that of your display?



Composition – Rule of Thirds

Instead of a row of flowers, think of this as a row of lights/display items. What in a photo/video of your display would you want your viewers' eyes to focus on? What is **the** most important element in the display, the one that you want to be your display's signature piece that viewers will remember?



Composition – Color

- The viewer's attention is always drawn to the most colorful areas of your scene
- Frame your image so that the brightest colors/lights are in the area that you wish to focus your viewer's attention on
- When placing bright objects next to dark areas, your viewers will focus primarily on the brighter area, even if the darker area contains something of interest you wish to draw their attention to



Composition – Depth

- To fool your viewers into seeing depth in the flat image that is projected:
 - Shoot objects/people at an angle to allow at least 2 sides to appear in your frame, creating an illusion of depth which has far more visual impact than shooting the front of a subject which makes a structure look like like a flat rectangle!
 - Having objects in the foreground, midground and background add the illusion of depth to your shot

Composition – Depth (cont'd)

- Every camera/video recording device uses a lens that has a focal length. This length determines:
 - Size of the recorded image
 - Apparent depth of the image
 - The proportion of the image
- The standard/reference lens is 50 mm –
 - Any lens less than 50 mm creates a wide angle image, with a greater sense of depth
 - Any lens over 50 mm creates an image that is narrow in view, and flattened in depth



Composition – Depth (cont'd)

- To change the focal length of a lens, you can:
 - Replace the lens with one of a different value
 - Use a zoom lens, that covers a range of focal lengths
 - Use electronics to produce a change in the size, proportion, and/or apparent depth of the image, mimicking that seen with use of lenses having different focal lengths

Composition – Depth (cont'd)

- *Wide angle:*
- broad view
- smaller image
- use for close shots
- deep depth of field
- increase object speed
- decrease cam. shake

Telephoto:
narrow view
larger image
use for distance
shallow depth
decrease speed
increase shake



Composition – Depth (cont'd)

- Depth of field vs. illusion of depth
 - DOF is defined as the distance in front of, and behind your object that is in sharp focus – which is always less in front of your subject than behind it!
 - Increase DOF by:
 - Using a short focal length lens (wide angle)
 - Shooting in bright light/using a smaller aperture (higher f stop)
 - Shooting the image from a greater distance



Composition – Depth of Field

Here's an example of a shallow depth of field, one designed to focus on the subject and eliminate an otherwise distracting background.



Composition – Depth of Field

Here's an example of a deep depth of field, drawing the viewer into the picture, which appears much more 3 dimensional than the previous picture.



Composition – Depth of Field

This is an example of a very deep depth of field, one that stretches for miles. The photographer was careful to make sure the nearest object was far enough away to be in focus by the camera. A small aperture (higher f stop) and a slow shutter speed was used in this shot – note the slight blurring of the waves.



Composition – Depth of Field

Here's an example of something in between a shallow and deep depth of field - a moderate depth of field. The row of cans starts off sharply in focus and gradually get slightly out of focus, which is how the background is.



Composition – Depth of Field

Another example of what type of depth of field?



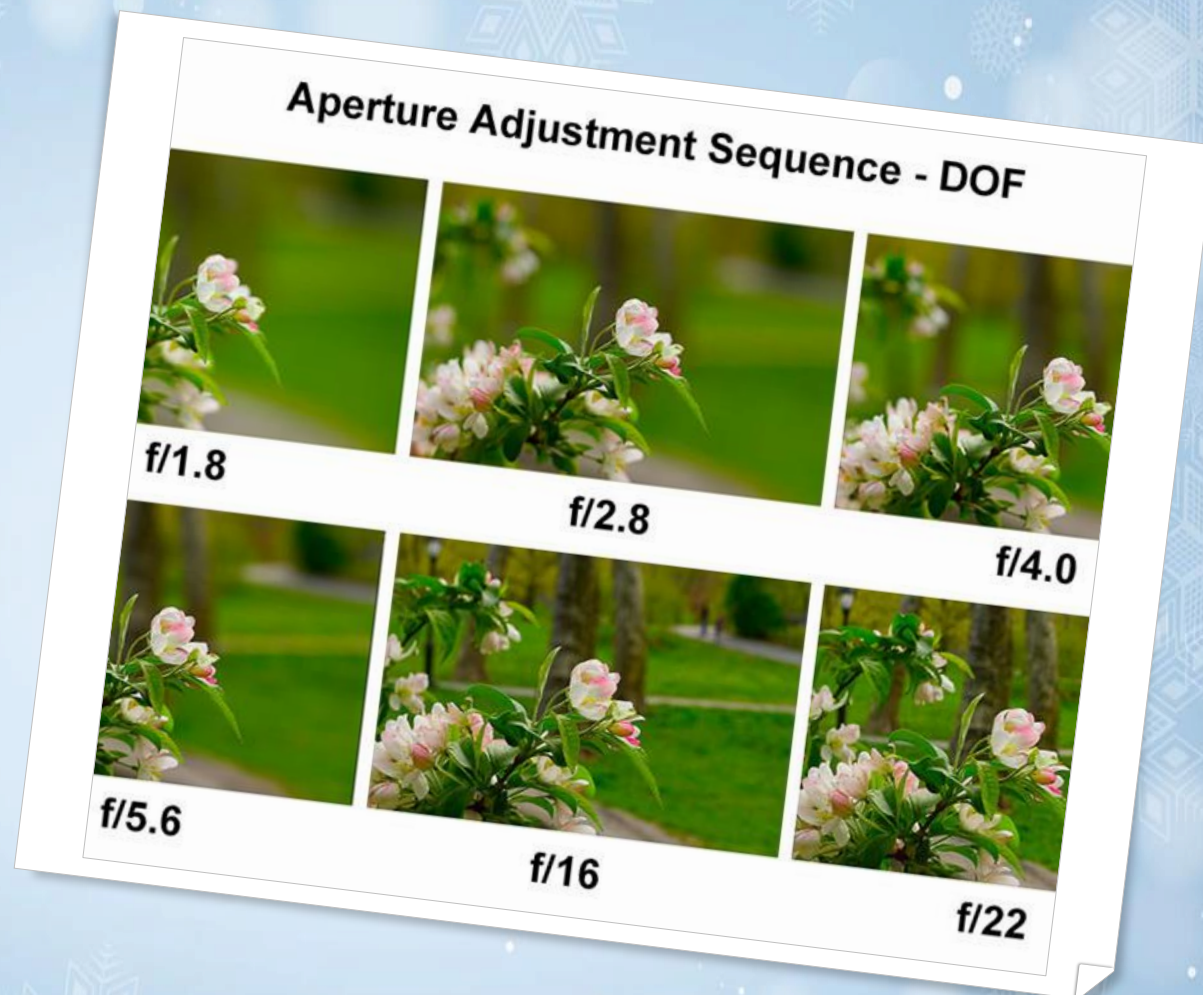
Composition – Depth of Field

Here are 3 examples of DOF – shallow, intermediate and deep.



Composition – Depth of Field

As you can see as you increase the f stops (decreasing the aperture) of the lens, the background comes more and more into focus. In other words you are increasing the DOF. The first picture forces you to view only the item of interest. The last picture still focuses on the item of interest, but then draws your eyes further into the scene.



Composition – Point of View

- This is the height difference between the object and the camera
- If the camera is above the object, it diminishes in importance
- If the camera is below the object, it increases in importance, and becomes stronger, or even overwhelming
- To remain neutral (as you should if people are being filmed) you should film level with the object (at eye level for filming people)



Point of View: Below

Before picturing something always try to view the field as a photograph, which helps you in deciding what to cover and what not to. Getting in line with the subject rather than shooting from an adjacent angle will produce great results. Also trying to photograph from a higher elevation or lower one, as in this case can produce a vision of the scene which a viewer has not seen before.



Point of View: Above

Here's an example of one taken from a higher elevation looking down on the main point of interest.



Point of View: Eye Level

Look how effective this one, taken at eye level is. It could be made even more imposing if the shot was taken from a lower elevation, looking up into the lion's face.



Composition – Background

- A good background is neutral, or it enhances the foreground object of interest
- A poor background overwhelms the objects you wish to focus on by drawing attention away from the object (esp. if it's a “noisy/cluttered”, distracting background)
- You can solve your background problems by moving the object, the camera, or changing the angle of the shot



Composition – Framing

- Video shoots horizontally composed scenes, as opposed to still cameras that can additionally shoot vertically composed scenes
- To get different frame shapes you must change the alignment of objects in your frame – blocking parts of the frame with posts, windows, doorway's, etc. changes the 3 x 4 rectangle (9 x 12 in high def.) into another geometrical shape, adding interest to the scene. This adds to the illusion of depth!



Composition - Framing

Look for shapes, patterns, symmetries, eye catching geometries, lines & curves. Try to compose the image in accordance with those shapes. Getting those unique symbols inside the frame produces a strong focal point that helps make the viewer more easily relate to the picture.



Composition – Rules

- Always ask who your intended audience is and what they would want to see – this will guide your choice of camera angles, POV, etc.
- Choose compositions which satisfy your viewers' interest – you want them to want to continue to watch your show!
- Avoid the lazy videographers' syndrome – shooting from a convenient POV, which often may be a poor location to create images with visual impact!
- Walk around the location, picking the parts of the display that your audience will find the most interesting



Composition – Rules (cont'd)

- Use your eyes, not your viewfinder, to find your best angles, your best framing possibilities, eliminating annoying backgrounds, clashing colors, etc. as much as possible
- After pre-planning your shots, take another look at your location
- Always remember your brain tunes out distracting backgrounds and visual clutter, but your camera records everything!
- If the background has a problem, it will appear worse to your audience.



Exposure

- Exposure is critical as:
 - Too little produces a dark image full of video noise (which appears as grain with small red, green & blue dots)
 - Too much and the image is washed out and grey
- Exposure is a function of both the aperture of the lens, and the shutter speed

Exposure (cont'd)

- Aperture (exposure) is measured in f stops (ie f1.6, f1.8, f2, f4, f8, etc)
- The smaller the number the larger the aperture (the more light that is let in)
- To make it really easy to understand, think of f stops as fractions, f2 as $\frac{1}{2}$, f4 as $\frac{1}{4}$, etc . $\frac{1}{2}$ is certainly bigger than $\frac{1}{4}$ isn't it?
- Many consumer video recording devices lack manual aperture controls, so what does that mean?....



Exposure (cont'd)

- Without a manually adjustable aperture, you often don't get proper exposure when there are large differences between the light and dark areas of your scene (ie shooting holiday lights at night!)
- The differences in contrast ratios fools the video device's exposure controls, forcing the device to choose one extreme or the other, depending on where the light sensor is aimed.
- If you pan the device in this situation, you can see the image change rather drastically, depending on the amount of light the sensor is picking up.



Exposure (cont'd)

- Shutter speed
 - The slower the shutter speed, the more light admitted
 - The slower the speed, the less the need for a large aperture, which allows for more depth of field (adding more dimensionality to your images/video!)
 - The slower the speed the greater the need for image stabilization (i.e. tripod use!)



Shutter Speeds vs F Stops

As you can see, the larger the f stop (smaller the aperture), the faster the shutter speed you can use to get a good exposure.

Remember the DOF decreases with lower f stops (larger apertures).

For a good DOF and reasonable shutter speed consider shooting at f11, with 1/30 sec shutter speed, or f8 at 1/60sec

Shutter Speeds

Shutter speeds are calibrated 1-Stop apart
The exposure doubles from one setting to the next

1/2000	F/1.4
1/1000	F/2.0
1/500	F/2.8
1/250	F/4.0
1/125	F/5.6
1/60	F/8.0
1/30	F/11
1/15	F/16
1/8	F/22
1/4	F/32
1/2	F/45
1	F/64
B	F/90



Exposure (cont'd)

Here's a shot taken without a flash, using existing light. You can tell it's taken with a lower f stop (likely f2.8), as the background is out of focus (short DOF). The white balance was set properly (more on that later), so Mickey appears with the correct colors.



White Balance

- White balance is telling your camera where to start with setting its color renditions.
- To get a good white balance, which is especially important when trying to capture a display that uses mono color LEDs or RGB lighting, you need to have something to aim your camera at which is white, and then tell the camera to use that to set its balance.
- A better way of white balancing that most photographers use is to set the balance using a neutral gray card they carry around to address different lighting backgrounds.
- Auto white balancing works well under sunlit conditions and some forms of incandescent lighting, but it will fail miserably when using fluorescent, CFL, LED and RGB lighting. Colors will be off. The range of R, B, and G may appear blended, with individuals colors not distinct.



Common White Balance Settings

- **Auto:** Good if you don't aren't familiar with setting a WB. It works well in sunlight but in most situations is unsuitable.
Daylight: Auto mode that can be good in daylight but is not perfect. Use this balance in daylight. Many people tend to stick to auto because they're worried about forgetting to change the WB when they go back indoors.
Shade: Auto mode makes photos look a little cold in the shade so using this preset will be a lot more accurate.
Cloudy: Again, this is pretty self explanatory as to when you'd use it.
Tungsten: This light comes from incandescent bulbs found in your home – left on auto, your photos will come out very warm with an almost orange color cast in this environment.
Fluorescent: This comes from tube lighting found in offices and hospitals. It's a very cold light and can make your photos appear blue.
Flash: This compensates for the somewhat cool light of the camera's flash.
Custom: This is used for setting the white balance accurately using a grey card
Temperature: This is for setting the WB based on degrees Kelvin of the light source



Auto

The photo comes out quite cool looking



Cloud

Very good but still a little colder then the environment actually was



Daylight

Not bad, but the camera is trying to compensate for a much brighter environment so it's overcompensating



Flash

Worked surprisingly well,
it's a more accurate than
auto mode for this sort
of lighting



Fluorescent

Far too cold looking, this setting is used for much warmer light and has cooled the photo accordingly



Shade

This is fairly accurate, the best so far. It captures the spring evening nicely, while lending a natural color balance to the skin.



Tungsten

Again, this setting is used for much warmer light resulting in a bluish tinge



Custom White Balance- Grey Cards

- To use grey cards, take a photo of the card so that it fills the whole frame of your camera, then set this as the white balance inside your camera. The camera sees the difference between the result and the neutral hue and determines the balance from that.
- The reason a grey card is used over white is because, if you overexpose any color enough, it'll eventually come out as white; **WB is about color, not brightness**. As the grey photo was taken in the same lighting environment as the rest of your photos will be, the camera knows exactly how much to adjust the balance



Custom

By using a grey card you can get a very accurate white balance. Here it captures the subject and the spring evening perfectly!



Focus

- Your brain is the best autofocus mechanism ever made. Don't use autofocus because:
 - The drains the battery faster
 - Focus will change if elements in your image move
 - You can't shoot through fences, windows, etc, as focus will shift between foreground image and background action!
 - Highly contrasting surfaces (ie lights at night) can fool the autofocus mechanism into misestimating the distance to the image -> a blurred image



Focus (cont'd)

- Autofocus works well when there is enough contrast (the difference between light tones) on or between subject matter that the *camera* is able to detect.
- There are times when subject matter lacks enough contrast for the autofocus to work properly.
- Low-light situations, such as nighttime landscapes, and our holiday displays come to mind. In these instances using manual focus puts you in full control.



Focus (cont'd)

- To focus a variable focus (zoom) lens:
 - *Always adjust lens to full telephoto setting (zoom in), as this has the smallest depth of field (where focusing is the most critical)*
 - Turn the focus ring until the image is sharp
 - Zoom back out to compose your shot, and create your desired POV (point of view)



Manual Focus – Low Light

Shooting in dimly lit environments can be difficult for cameras to focus properly.

You'll know your camera is struggling in Auto mode because every time you go to take a shot the lens will go from one end of its focusing options to the other and back again before deciding on where to focus.



Manual Focus - Through Glass

Autofocus gets fooled when shooting through glass, and any changing reflections on the glass may change the focus while you are recording your images.

If you do this in conjunction with a large aperture and get in close enough to the glass you can eliminate it completely from being noticeable in your shot.



Manual Focus – Macro Shots

Shooting macro (extreme close-up) photography also benefits greatly from manual focus mode. There is nothing more frustrating to this nature photographer than trying to autofocus on the petals of a flower that is occasionally bumped by a soft breeze.



Manual Focus - Portrait

While an autofocus would work when shooting portraits, you can get much better effects by focusing in on areas of interest, to get very different effects. In this shot an increased aperture (lower f stop) was used to decrease the DOF, allowing for a sharp area of focus to contrast to a subdued background to ensure the viewer is drawn to the part of the face you want them to notice.



Manual Focus - Sports

Although many cameras give options for different focusing modes (automatic, continuous focusing for moving subjects, and manual) which can work well, most serious recording is done by manually focusing on a landmark, and capturing the action when it arrives at that point.

A good compromise may be the use of continuous focusing mode some cameras have, which does however have limitations, and uses a significant amount of battery power.



Image Stabilization

- Jittery images are the most common problem associated with the consumer video world!
- Always use a stabilizing device when shooting with light weight, and smaller camcorders
- Camera shake can be a problem, even for experienced videographers, when they shoot without a tripod!
- You can learn to shoot without a tripod, just as you can learn to drive a manual shift car, but additional skills need to be mastered!



Image Stabilization (cont'd)

- When attempting to shoot without a tripod:
 - Use a lens at its maximum wide angle position
 - Set the lens focus at 5 – 7 feet
- The above gives you maximum DOF, and good focus from 18 inches to infinity in bright light
- The above forces you to move about and shoot from different angles, as well as move closer to the object, avoiding the tendency to zoom in on the image!



Image Stabilization (cont'd)

- If you must shoot “free-hand”:
 - Lean against an object to steady your body, arm and camcorder
 - Breathe shallowly to limit respiration associated chest and upper extremity motion
- If you see any background movement in your viewfinder, it will be magnified multiple times, when your image is viewed on a television, especially one that has a large screen!



Specific Video Recording Tips

- Avoid “hose pipe” filming. That is when individuals film continuously, often swaying around (which we can “pan-a-mania”) and not settling on any specific display item. You should always:
 - Film separate, distinct individual scenes
 - Spend about eight to ten seconds on each scene
 - Take the individual scenes you captured and edit them together to form a pictorial story of your display.



Specific Video Tips (cont'd)

- Do not over use your zoom!!!!
- If you want close up shots, zoom in first, then start shooting, avoiding use of your zoom altogether
- Zooming in and out will give your audience motion sickness, and it looks very unprofessional



Specific Video Tips (cont'd)

- When shopping for a camera, get one containing 3 CCDs (charge coupled devices) if at all possible
 - One capture device is used for each primary color
 - Color and resultant detail is much sharper than single capture device cameras/video recorders offer
 - The more the resolution of the capture device (usually measured in number of pixels), the higher the resolution (the sharper the detail of the finished video)



Capturing Your Display with Photos and Videos

- We started off reviewing the basics of photographing and video recording your holiday display
- We covered:
 - Scene composition
 - Depth of field
 - Exposure – aperture and shutter speed
 - White balance
 - Focus
 - Image stabilization
- We concluded with a presentation of videorecording tips



Any Questions?

