A Brief Introduction to Digital Photography

Presented by **Tom and Mary O'Haver**
emails: **toh@umd.edu**   **ohaverma@verizon.net**

This document is online at **http://tinyurl.com/amreswe**

igital photography has now almost completely replaced film photography for most applications, except for some serious professionals. Digital is cheaper in the long run, can take both still pictures and videos, and is faster and more flexible with respect to automating the camera's settings when taking pictures, correcting photographic flaws after the picture is taken, and displaying and sharing the resulting photos with others. The simple fact is that the average person can usually get better results with digital than with film cameras. (For more on this, go to **http://tinyurl.com/3ppuz**). Moreover, digital photos are easier to organize, annotate, share, and store than film. Many people are busily scanning and digitizing their family's collections of old photos, negatives, and slides for that reason.

In this course we will take a brief look at digital cameras and some of the computer software that allows you to take, save, and use photographs as never before.

A. Features of Digital Cameras

1. **Megapixels (MP).** The first thing mentioned in digital camera ads is usually the *camera's resolution in megapixels*. *Pixels* are the tiny dots that digital pictures are made of; a *megapixel* equals 1 million pixels. The more megapixels, the more dots in the image and the greater the *potential* for capturing image detail. How many pixels you really need depends on what size prints you plan to make. The rule of thumb is that you need 3 megapixels to make a decent 8 x10 print (the largest size that most computer printers can make). For 4x6 or 5x7 prints, email, and Web pages, 2 megapixels is more than enough. *More megapixels won't necessarily make small pictures look any better!* Even a high-definition TV screen has only 2 megapixels. Any camera now being sold has at least 3 mega-pixels and is adequate for basic snapshots. Higher resolution (5 megapixels and over) can give higher quality large prints (8x10 and 11x14), but the main advantage of high-resolution cameras is that they usually have better optics than cheaper cameras, plus you can blow up a small portion of a high-resolution picture and still have enough pixels left. But there are some *disadvantages* of high resolution: you can't take as many pictures on one memory card, the *pictures take up more space* on your hard drive when you import them into your computer, and the larger images are slower to work with. (For these reasons, you can set your camera to a *smaller image size* if you're not planning to make huge blow-ups; refer to your camera's manual for details). *Megapixels is not the only thing that determines photo quality!* For a striking example of this, go to **http://tinyurl.com/bxoxvhw**

2. **Zoom range**. Most digital cameras come with a zoom feature that lets you change the image magni-fication, so you can "zoom in" on distant objects, like using binoculars. For example a "3X" zoom lets you increase the magnification 3 times. Zoom is especially good for outdoor, sports, and nature photography. "Optical zoom" is the only *real* zoom. Sometimes cameras will also specify a "digital zoom" range, but that is unimportant because it is simply equivalent to "cropping" the picture, which you can always do after-the-fact using photo editing software. ("Total zoom" is just the optical zoom times digital zoom). "Superzoom" cameras have an extended optical zoom range of x10 to x24 or more; on such cameras, built-in *image stabilization* is now standard, to help compensate for camera movement when the camera is hand held. See **http://tinyurl.com/ajscz6m** for some examples.

3. **Automatic or manual exposure control**. All digital cameras have automatic exposure control; that is, they change their lens opening and shutter speed automatically in varying light conditions. A good feature on some cameras is the "spot metering" mode, which automatically adjusts the exposure for the center of the frame only; this is good for "backlit" subjects (dark subjects in front of a brightly-lit background) that would otherwise be underexposed. Some cameras detect peoples' *faces* and auto-matically adjust the exposure and focus for those faces, assuming that people are the main subject.

4. **Automatic or manual focus control**. Some very simple cameras are preset to a fixed focus on a specified range, perhaps 6 feet to infinity. But most digital cameras have "autofocus", which usually uses a spot in the center of the scene to automatically focus the camera's lens. This works fine when there is something in the exact center of the scene that you want to be sharply focused. Fancier cameras also have manual focus, which allows you to override the autofocus when it does not do what you want. Autofocus typically does not work well in low-light situations. (Tip: One important factor is the *speed* of the autofocus; if it's too slow it will create a slight delay between pressing the shutter button and the instant when the picture is actually taken. Try before you buy.)

5. **Removable storage**. Different cameras use different systems for storing images. The most common system uses reusable "memory cards", small removable cards that store your pictures electronically. Memory cards come in several different types (e.g. SD, XD, Memory Stick, etc), sizes, and speeds. You *must* use the type that is compatible with your camera. Once your card is filled up with pictures, you have to replace it with an empty one or copy your images to your main computer's hard drive before you can erase and re-use that storage card. The larger the capacity of the card, the more pictures it will hold. For example, an 8 Gbyte card can hold a thousand photographs or more, depending on the resolution setting of your camera. These cards are getting cheaper all the time. (High-speed cards are preferable, especially if shooting videos, but are more expensive).

6. **Essential accessories**. Many digital cameras are sold stripped-down, without accessories that you might eventually need. For example, extra batteries are essential. Some cameras are sold only with non-rechargeable batteries that drain very rapidly, so you may want to buy rechargeable ones and a battery charger. Buy at least two sets of batteries, so one can be charging while you are using the other, and an extra charger. Also, digital cameras are usually sold with only a single memory card, often of small capacity. Buy some extra ones, possibly with larger capacity, to carry with you.

7. **Size and weight.** Digital cameras can be remarkably small and light (4 - 8 oz). The smallest ones are usually simple models without much zoom range; nevertheless, they often take great pictures. "Compact superzoom" cameras combine small size with great zoom range. But if you are an experienced shutterbug who is accustomed to 35 mm film cameras, you may want one of the larger models with a longer zoom lens, because they feel and act more like a 35 mm camera. The ultimate professional model is a big, heavy digital SLR (Single Lens Reflex) with interchangeable lenses, usually with a resolution of 18 MP or greater, which cost $600 or more; that's overkill for most of us. As with any camera, the quality of the optics is paramount. Bigger is not necessarily better.

8. **Flash**. Most cameras have a built-in on-camera flash. These are convenient, but an on-camera flash does not give very good-quality flash pictures. If you take a lot of indoor pictures with flash, look for a camera with a "hot shoe", which is a little mounting bracket on the top of the camera that allows you to attached a "bounce flash" unit, separately available for about $100. This is the type of flash that professional photographers use; it allows the flash head to be tilted up to bounce off the ceiling or a wall, giving a much softer and more flattering look to the pictures - and no "redeye"! See **http://tinyurl.com/a33yeso** for a dramatic photo comparison.

9. **Ease of use**. This is an important but ultimately subjective factor. *Point-and-shoot* cameras are the simplest to operate and are relatively inexpensive; they usually provide 5-12 mega-pixel resolution, fully automatic exposure and focus, and most provide modest optical zoom (x3 - x12). More advanced cameras and professional cameras are much more flexible, but they are heavier and have many more buttons and controls, which may require that you read the manual to learn how to use them - and also *increases the chance that one of the controls may accidentally be set incorrectly* (a common nuisance). If you are in doubt, start out with a point-and-shoot camera at first, and then if you want or need more, migrate to a more advanced camera when you know what features and capabilities are important to you. *Always, always, save your receipt*; if a camera is too much to figure out, *return it* and try another model.

10. **Speed of operation.** You may notice a slight delay between pressing the shutter button and actually capturing the image; it occurs while the camera clears the image sensor, sets white balance to correct for color, sets the exposure, focuses the image, and finally fires the flash (if it's needed) and takes the picture. Another delay occurs *between* pictures, when the captured image is stored on your removable storage card and the flash is recharged; this delay can range from a fraction of a second to as much as 1-2 seconds. These delays can be troublesome when you are taking fast-action pictures

(sports, etc). Newer models of cameras have reduced these delays considerably, but it's still a good idea to *try out a camera before you buy* to see if these delays are bothersome.

Here's a trick for fast-action photography that will work on most cameras: when you have your subject in the viewfinder, press the shutter button *half-way down* (which locks in the exposure and focus), then wait for the right moment and press the button all the way down to snap the picture instantly. Some cameras also have a "*burst mode*" that can take a quick sequence of several shots when you hold down the shutter button, maybe 5 shots in one second - great for capturing fast action.

11. **GPS locator.** Some new cameras (smartphones; Lumix ZS10) have a "GPS chip" that records the *exact place each picture was taken,* often to an accuracy of a few yards. This is a great feature for travel photography. Picasa's **Places button** will pinpoint the exact location on a world map. Note: This feature does not work well inside buildings, so first snap a picture *outside* to mark the location.

12. **Cell phones.** Most recent cell phones and tablets can take good-quality still photos and videos. Smartphones like the *iPhone* can wirelessly import to your computer, email, upload to the Web, Twitter, or Facebook, or print photos right from the phone with just a couple of clicks. Some have built-in flash, face recognition, panorama, and GPS, but they *do not have built-in optical zoom*.

13. **Resources and recommendations.** For a very nice illustrated introduction to choosing a digital camera, go to http://www.shortcourses.com. Good places to compare features and prices of the best (and worst) digital cameras are http://www.digitalcamera-hq.com and http://www.imaging-resource.com. Consumer Reports magazine regularly tests and reviews cameras and printers and recommends specific models. Ask a friend; try their cameras. Maybe you'll find something you like.

B. *Storing and Using Digital photographs*

You'll probably want to transfer pictures from the camera to a computer or laptop for long-term storage and easy access. Use any software for that purpose: it *can* be the software that came with your computer or with your camera (but it does not *have* to be), or use *Windows Photo Gallery,* or the *Scanner and Camera Wizard,* or any other photo program. Use whatever works for you.

There are two ways to connect the camera to the computer: (a) connect the camera directly to an available USB port with the cable supplied with the camera, or (b) remove the memory card from the camera and insert it into a card reader slot (on the computer, on the printer, or in an add-on card reader). The latter is more reliable. If a pop-up menu of choices appears when the camera or camera card is connected, use any one of these three techniques: (a) click "Copy pictures to a folder on my computer" and follow the on-screen instructions, or (b) click "Open folder to View Files", select the pictures you want to transfer, click "Copy the selected items", select **My Documents > My Pictures** in the pop-up box, and click **Copy**, or (c) click "Copy pictures to your computer and view them using Picasa".

Picasa is a very popular photo organizer from Google. It's free, available for Windows and Macintosh, easy to use, and it automates a lot of things that you might find useful. You probably don't need Picasa if you are already successfully using another program, but if you are not comfortable with the standard Windows operations and programs that came with your computer, give Picasa a try.

Installing Picasa
1. Open your web browser, go to http://picasa.com, and click **Download Picasa**.
2. Click **Run**, **I Agree**, **Install**, then **Finish**. You can then run Picasa by double-clicking the Picasa icon on the desktop or by clicking **Start > Programs > Picasa 3 > Picasa 3**.
3. The first time you run Picasa (and only the first time), it asks you where to look for pictures. Select "Documents, Pictures, and Desktop" rather than "Entire computer". It then searches those locations looking for digital photographs, creating an index of all the photos there. It's important to under-stand that *Picasa* **does *not actually move or duplicate your photos***. It leaves them where they were and simply makes a index of them, like a card catalog in a library. The indexing may take several minutes to complete, depending on how many photos you already have on your computer. You can begin exploring Picasa even as it continues to index your photos. (While it's doing that, I suggest that you pull down the **Tools** menu, select **Options...**, click on the **Name Tags** tab (the last one on the right), un-check the two check boxes, and click **OK**. Then select **View > Thumbnail Caption > Caption**. That will make Picasa a bit easier to use).

Using Picasa: The main screen (Library)

The main screen of Picasa shows the master index of photos, called the *Library*. The left-hand panel shows all the folders containing photos, and the right-hand panel shows small images (called "thumbnails") of all the photos. The thumbnails are listed by date, with the most recent at the top. You can scroll through the folder list or through the library of thumbnails by using the *mouse wheel* or the *scroll bars*. Click *once* on a folder listed in the left-hand panel to jump directly to those pictures. The slider at bottom right changes the size of the thumbnails. It's very important to understand that, although the pictures may *look* like they are "in Picasa", they are actually on your hard disk where they always were; Picasa just creates an index of them, like a library card catalog. Click once on a thumbnail to select it: The blue bar just below the thumbnails shows the date and time when that photo was taken, the pixel dimensions (height and width), and the file size (disk space used by that photo). Note: Make sure your camera 's clock/calendar is set correctly so that these dates and times will be correct (if not, look up how to set it). *To return to the Library* from other Picasa screens, press the **Esc** key (upper left).

Viewing pictures in a full-screen slide show ▶

To view pictures full-screen, click on the folder or album of photos that you want to see, click the **Play** ▶ button, then either let the slide show run by itself or move the mouse and use the buttons at the bottom of the picture to view the next or previous picture in that folder or album. *Rotate* sideways pictures by clicking on the curved arrow buttons at the bottom. *Zoom in* to pictures by holding the mouse button down, then dragging the photo. To return to the library view, press the **Esc** key (upper left corner of keyboard) *or* click the **Exit** button in the lower left of the screen.

Importing new photos from digital cameras and card readers using Picasa. [📷▶ Import]
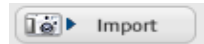
1. Connect the camera or card reader to your computer. If a pop-up window appears, close it.
2. Click the **Import** button [📷▶ Import] in the upper left of the Picasa window.
3. Wait for the thumbnails to load. (Pictures with a red **X** have already been imported via Picasa and will be skipped). If nothing happens, click **Import From** and select the desired device.
4. Click **My Pictures** in the **Import to** menu and type a title for those photos into **Folder title** box.
5. Use the **After Copying** menu to choose whether you want the card erased automatically or not, then click the **Import All** button. **Note:** *It's safer to choose "Leave card alone"*, and then to erase the memory card later, just in case something goes wrong with the import.

Picasa puts all the imported photos initially into one folder. ***To divide one folder of photos into two folders***, right-click on the thumbnail where the second group begins, select **Split Folder Here**, type the name for the second group, and click **OK**. ***To move pictures from one folder to another***, scroll to the desired thumbnails, hold down the **Ctrl** key and click each thumbnail once, then scroll the folder list (without clicking) to the destination folder, and drag any one thumbnail to the left and drop it into that folder. ***To move a group of pictures into a new folder***, hold down the **Ctrl** key and click each thumbnail once, click **File > Move to New Folder....**, type a name for the new folder, and click **OK**.

Warning: Don't Import photos that are *already* on your hard drive. That just creates duplicates.

Organizing and labeling folders 📁

  The first thing you should do after importing new photos into your computer is to organize them by subject or event and label them appropriately to find them more easily later. You can change the folder name or add information at any time: just double-click on the folder name, then edit the name, description, date, or place taken, and click **OK.** If you find that photos in one folder were taken at more than one place and time, it's best to divide them up, as described in the previous paragraph.

To delete a picture from the disc, select it, then press the **Delete** key. *To delete a folder,* select all the pictures in it (**Ctrl-A**) and press the **Delete** key. It's important to understand that if you use Picasa to delete a picture, it's *actually deleted from the hard disk* (and moved to the computer's recycle bin).
 Note: *Do not* right-click and select Delete folder; that's too dangerous. Delete all the pictures instead.
Sorting: To sort the folder list, click ▾ at the top left**.** To sort the *pictures within* a folder, right-click on that folder and select **Sort Folder by > Name**, **Date** or **Size**.

Note: If Picasa does not immediately recognize a newly added photo, select **File > Add File to Picasa**, navigate to the folder containing the photo, click on the photo, and click **Open**.
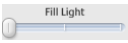
Adding Captions and Text

To add a caption below a photo, double-click on the thumbnail, type a caption in the space below the photo where it says "Make a caption!," and press the **Enter** key. Captions are displayed in Picasa slide shows and in movies. (Note: If the captions don't appear below the thumbnails, select **View > Thumbnail Caption > Caption**). To type *directly onto* the photo, click "**Text"** in the left panel, type anywhere on the photo (or click **Copy Caption** button), adjust the font, size, etc, and click **Apply**.

Searching for photos by keyword, folder name or caption

To search for photos by keyword, type a keyword next to the magnifying glass icon at the upper right of the screen. All the matching photos will be displayed instantly. Picasa searches for matches in the *folder names, descriptions, place taken, file names*, and in any added *captions*. This is why you should label your folders and/or caption your photos appropriately (see previous sections). *Click the green* **Back to View All** *button at the top to return to the full library display.*

Enhancing pictures and correcting photographic flaws

1. Open the picture for editing by double-clicking on its thumbnail. Click the 🔧 tab at the top of the left-hand panel.
2. Click the **I'm Feeling Lucky** button 🏔 to auto-adjust the brightness range. If you don't like the result, click the **Undo...** button to remove the effect.
3. If the dark portions of the photo seem too dark, drag the **Fill Light** slider in the left-hand panel to brighten the dark portions.
4. To crop the picture, click the **Crop** button 🏔 in the left-hand panel, click, hold, and drag over the picture to select the area. (The pop-up menu lets you select several standard formats for prints, TV, photo frames, etc.) Click the **Apply** button to accept, or **Cancel** to exit the crop mode.
5. To fix red-eye, click the **Red-Eye** button 👁 in the left-hand panel, then click the **Apply** button to accept the correction OR click **Reset** to remove the correction. You can also manually click, hold and drag the mouse over each eye. Click **Cancel** to exit the Red-eye mode.
6. To retouch a photo with a blemish, click the **Retouch** button 🏔, adjust the "Brush Size" slider to match the size of the blemish, click on the blemish. If the blemish goes away, click again without moving the mouse, otherwise move the mouse to a nearby area that makes the blemish disappear, then click. Repeat for each blemish. Click **Apply** button to accept, or Cancel to start over..
7. Click the 🔆 tab at the top of the left-hand panel to experiment with **Fill Light** (brightens the dark portions of a photo), **Highlights** (brightens the light portions of a photo), **Shadows** (darkens the dark portions of a photo), or **Color Temperature** - makes the color warmer (more red) or colder (more blue). Click the 🖌 tab for special effects, such as "Sharpen"or "B&W".
8. To undo any of these operations, click on the **Undo** button on the left. Each time you press **Undo**, it removes one operation, all the way back to the original photo.
9. To go to the next photo, click the right arrow button ➡ at the top of the screen. To return to the thumbnails, press the **Esc** key on the keyboard OR click the **Back to Library** button.

Note: There is no need to save after editing each picture; all edits are automatically saved *within* Picasa. However, if you want to use a folder of edited photos with *other* software, click the 💾 button above the thumbnails. **(**To save a copy of the edited photo as a *separate photo*, pull down **File** and click **Save a Copy**. Then you will have *both* the original and the edited version).

Making Picasa albums

In Picasa, *albums* are lists of particular photos selected from different folders and arranged in a specific order. An album contains *only a list of photos*, not duplicates of photos. The photos in an album are not actually duplicated or moved from where they were, so they don't take up extra disk space. Create as many albums as you like, and use the same photo over and over again in different albums, all without wasting disk space. *You can do anything to an album that you can do to a folder of photos*: print, email, order prints, export them to a USB drive, make a Gift CD, slide show, or shared Web album.

To create an album, click on the blue book button 📘 in the upper left, type a name for the album, and press **OK**. To add photos to that or any other album, select the photos*, then click 📘 at the bottom

left and select the desired album from the pop-up list. Note: putting a photo in an album *does not* remove it from its folder or make a duplicate of that photo. Picasa shows the albums you have created at the very top of the folder list, so they are easy to find. *To delete an album*, right-click on it and select **Delete Album**. Deleting an album does not actually delete the photos; they remain where they always were. *To rearrange the order of the pictures*, just drag and drop a thumbnail into the desired position.

* *To select a photo*, click *once* on its thumbnail in the Library. A blue border indicates that the picture is now selected. To select multiple photos from one folder, hold down the **ctrl** key and click *once* on each thumbnail. To select multiple photos from *more* than one folder, click the green "stick pin" button 🖈 (bottom left) after selecting each picture. Click the red circle to clear the tray.

Printing pictures on your own ink-jet printer 🖨

1. For best results, load your printer with *glossy photo paper* rather than plain paper.
2. Click on a thumbnail in the library, and then click the **Print** button at the bottom of the window. OR if the picture is already open, just click the **Print** button. To print several different pictures, click once on the thumbnail of each picture that you want to print and click the **Hold** button 🖈 (looks like a green stick pin) below the thumbnails. Repeat for each picture. Then click **Print**.
3. Select the desired **Print Layout** on the top left. (If you want multiple prints, click on the + and - buttons near "Copies per picture".) Optionally, click **Review** to check print quality, then **OK**.
4. Click **Shrink to fit** or **Crop to fit** and use whichever looks best.
5. If you want to print the caption or create a custom border, click **Border and Text Options**.
6. Click the **Printer** button on the left panel and select the printer that you wish to use.
7. Click the **Printer Setup** button and select the *paper type* and size that you are using.
8. Click the **Print** button at the bottom right.

It is often cheaper and faster to order prints from an online photo finisher than to print them yourself. See http://terpconnect.umd.edu/~toh/adulted/Intro.pdf, Page 12, for a detailed procedure for Walmart.

Emailing pictures ✉ To email pictures directly from Picasa, open Picasa first, then:

1. Click on a thumbnail in the library, and then click the **Email** button at the bottom of the window. (To email several pictures at once, click once on the first thumbnail, click the green pin button 🖈 and repeat for each picture, then click the **Email** button). The "Select Email" window pops up.
2. Click which email service to use. The one at the top is the default email for that computer. If that's the program you use for email, click it and finish composing the email as usual in the resulting window. If not, choose **Google Mail**, type in your Gmail user name and password[*], and click **Sign in**. (If you're not on your home computer, **do *NOT* click "Remember me on this computer"**).
3. Type in the e-mail address of the recipient and click **Send**. Even better, send it to *your* email address first, then log in to your email as usual and *forward* it to people in your address book.

* If you don't have a Gmail account yet, follow these instructions at to get a free account. So you won't forget, write your Gmail username _____ and password _____ here! Your Gmail account won't effect you regular email, no one needs to know your Gmail address, and you need it only for sharing pictures by sending them to your regular email address to forward.

Note: To change the size of the pictures sent, click **Tools > Options > E-Mail** and choose the size.

Saving pictures received by Email

Pictures received by email must be downloaded and saved into the Pictures folder in order to be viewed in Picasa. The exact details vary with the email service, but most email services display thumbnails of attached pictures with links or buttons or checkboxes to download the photos. For example, using Yahoo, Hotmail, or Gmail with *Internet Explorer*, select a thumbnail, then click **Download > Save > Pictures > Save**. If your email service has no download or save button, right-click the picture in the email and click "**Save Picture As...**" and save as above. If your email displays only icons rather than pictures, right-click and select **Save...**. (If you don't want all your saved pictures mixed up in the Pictures folder, click "**New folder**" after clicking **Pictures**, type a name for the new folder, and press the **Enter** key. The next time you save a picture, Windows will remember the last save location used).

Putting pictures and slide shows on a CD ("Gift CD") to send by postal mail.

If you have a CD/RW drive, Picasa can burn a slide show CD to send via postal mail:

1. In the left-hand panel of the Library, click *once* on a folder (or album) that you want to include on

the disk. Then pull down the **Create** menu and click **Create a Gift CD...**.

2. If you want to include more that just that one folder or album, click the **Add more...** button at the bottom left, then in the folder list, *click the check boxes to the left of each folder or album that you want to include*. (Each folder or album makes a separate slide show on the disk), up to 5 or 6.

3. Click **Burn Disc**. Insert a blank CD-R (*not* a CD-R/W) and click the **Continue** button. If a pop-up menu appears, close it.

4. When burning is complete, **Eject** the disk. Thereafter, when this disk is inserted into most PCs, a slide show menu will usually display automatically after a several-second delay. (If a pop-up appears, click "Run PicasaCD.exe". If *nothing* happens, click **Start > Computer**, right-click on the CD icon and select **Explore**, then double-click "PicasaCD.exe". Click on a picture to play that slide show. (This disk will also show the pictures on TV in *most* DVD players, without captions).

Sharing your photo albums and slide shows over the Web `Share`

Do this if you are having trouble emailing pictures, or you want to send more pictures and videos than email can handle. Sending photos this way makes it easier to see the captions and to play slide shows.

1. Right-click on the folder or album name and click "Upload to Picasa Web Albums...".

2. Enter your Gmail password and click the **Sign In** button. (The first time you do this, and *only* the first time, you will sign up for Picasa Web Albums; it's free; just follow the screen instructions).

3. Click the **Album visibility** menu and select **Anyone with the link**. That means that *only people you invite* in the next step will be able to see those pictures. No one else can see them.

4. In the "To:" box in the center, type in an email address, add a message if desired, and click the **Send** button. **Hint:** I recommend that you send the invitation to *your* regular email address first, then go to your email in the usual way and *forward* it to people in your address book.

After you click **Send**, the "Upload Manager" will upload the pictures to a private area on the Web and display the upload progress, which may take several minutes. When it finishes, close the Upload Manager window or click on the **View Online** button to see what it will look like to your recipients.

Important: When you are working in a *public place*, click Sign Out in the upper right when you are done, so other people using that computer won't interfere. (At home, it's OK to remain signed in).

Recipients will receive an email from you with the subject line "Invitation to view....". They need only open that email and click on "View Album" or "View Slideshow", and their web browser will open and show them the pictures (complete with any captions you may have added). *Only* the people you invite can see those pictures. They do *not* have to give their name or their email address, etc, and they do *not* need to have Picasa or a Google account to see the photos. They can download the pictures to their hard disk if they wish, by clicking on the "Download" button above the thumbnails.

Note: To *add* a photo to an existing Web Album, right-click it, click "Upload to Picasa Web Albums.", select the desired Web album under the menu at the top, and click the **Upload** button. To view those pictures on the web, click Web Albums in the upper right corner of Picasa.

Backing up photos and albums to CDs, DVDs, or external hard drives `Tools`

This is useful for restoring photos that have been purposefully deleted (to recover disk space), that have been accidentally deleted, or that have been lost because of a computer crash. It can also be useful for transferring photos *and albums* from one computer to another.

1. Click **Tools > Backup pictures.**

2. Click the **New Set** button and type a name for that backup (e.g. "Photos as of April 2012")

3. If you are backing up to CD or DVD, click **CD/DVD backup** and skip to **step 5**.

4. If you are backing up to external hard disk or USB drive, plug in that device to a USB port, click **Disk-to-disk**, click the **Choose** button (top right), double-click **Computer**, and from the list below Computer click on the device that you want to export to. Click **OK**.

5. Click **Create**.

6. Click **Select All** to back up all pictures or click just the check-boxes on the folders and albums you want to back up. (Don't forget to back up the "blue book" albums that you have created).

7. Click the **Burn** or **Backup** button in the lower right.

8. The screen will display the progress of the backup. (If you're making a CD or DVD backup, you

will be prompted to insert one or more blank disks. Label them as prompted and store the disks).

To restore the photos to the hard drive, insert the (first) disk into the computer (or open the external hard disk and double-click **PicasaRestore.exe**), wait until the pop-up box appears, click **Next**, and then click **Restore**. Wait until the restore is complete. For further help, press **F1**, then click "Backing up your Pictures".

To export a single folder or album to a USB drive, select that album or folder, click the **Export** button at the bottom of the library screen, click **Browse** and select the USB drive, check "Add numbers to file names to preserve order", choose the desired image size, then click **Export**.

Face Detection and Recognition

Picasa has the ability to recognize human faces in your photos and to present them to you for naming. *I recommend turning off this function at first if you are new to Picasa.* This function takes a lot of computer power, so if you have a lot of pictures and your computer is an older model, it may run too slowly. Turn it off by going to **Tools > Options > Name tags** and un-checking the two check boxes. Turn it back on later and it will continue where it left off. For more information on how to use the face detection capability, Google the phrase "Picasa name tags".

Place tags

To view and set the location where photos are taken, click the tab in the lower right. Or select photos, then type in a address or place name where that group of pictures was taken (e.g. Naples, FL) into the "Search for an address" box at the bottom of the Places panel. Or click the green "map pin" in the upper left of the panel and then click on a place on the map. Newer cameras with GPS (e.g. iPhone, Panasonic TZ10) *automatically* add exact "place tags" to each photo taken.

Taking Videos

Most digital cameras can take video clips as well as still photos. Picasa can handle the videos, within certain limits. If you want to include videos in your Picasa library, click **Tools > Options > File Types** and click **Movies** and **Quicktime Movies**. You'll need to update *Windows Media Player (*http://windows.microsoft.com/en-US/windows/products/windows-media-player) and *Quicktime* (http://www.apple.com/quicktime/download) to the latest versions. With most (but not all) cameras, Picasa imports the videos along with the photos. If Picasa does not import your videos, try the software that came with your camera or computer instead.

You can view, caption, email, export, backup, and upload videos to Web Albums or YouTube, but *you can't edit, print, download videos from Web Albums, or view them on Gift CD slide shows.* (Note: To email movies, click **Tools > Options > Email** and click "Send movies as: **Full Movie"**).

You can capture still frames from a video by clicking the "**Take Snapshot"** button during play. The frames will be stored in "Captured Videos", on the left of the library screen, above Folders.

Further help.

Click the **Help** menu to access the help texts. *Visual learner?* Go to youtube.com and type "picasa" or "easy picasa" or whatever into the search field to find videos that show you step-by-step.

Links to other related topics on http://tinyurl.com/9znkph

Practice Editing Tasks for Picasa *	How to Order Prints from within Picasa
Importing Images into Documents	Choosing and Using a Scanner *
Loading Pictures onto a Photo Frame	Webcams and Skype
Which Program Should I Use?	Adding External Storage to Your Computer
Collages, Posters, and Movies	Adding music to slide shows from CDs
Finding and removing duplicate photos	Copying and Moving files and folders
Overview of Digital Photography	Screen saver and desktop pictures
Troubleshooting	The Different Kinds of Disks
Stitching several photos together into panoramas *	Programs for making Video Slide Shows

* Photo examples to download are available on https://picasaweb.google.com/Tom.Mary.OHaver/