Innovation & Technology

Digital Photo Editing Project

4-H CANADA

Saskatchewan

4-H MOTTO

Learn to do by doing.

4-H PLEDGE

I pledge
My HEAD to clearer thinking,
My HEART to greater loyalty,
My HANDS to larger service,
My HEALTH to better living,
For my club, my community and my country.

4-H GRACE

(Tune of Auld Lang Syne)

We thank thee, Lord, for blessings great
On this, our own fair land.
Teach us to serve thee joyfully,
With head, heart, health and hand.

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Agriculture and Agri-Food Canada
Agriculture et Agroalimentaire Canada

AGRICULTURE COUNCIL OF SASKATCHEWAN INC.

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Introduction

Objectives

Upon successful completion of this project, members should be able to:

- ✓ Think and plan before editing photos.
- ✓ Have a basic working knowledge of digital photo editing.
- ✓ Edit good photos into great photos.
- ✓ Create visually interesting photos of people, places and things.
- ✓ Feel comfortable experimenting with their editing skills to improve photos.
- ✓ Identify opportunities for creatively editing photos.
- ✓ Use digital photography editing to communicate with people/the world.
- ✓ Tell photo stories in an interesting and engaging way.
- ✓ Challenge themselves with a variety of photo editing techniques.
- ✓ Identify editing techniques that have been applied to photos.
- ✓ Engage with other club members about how to creatively edit photos.
- ✓ Repair slightly damaged prints that you scan into your computer.
- ✓ Look critically at other members' photos and provide polite, constructive and helpful criticism.
- ✓ Use criticism and advice from other members to enhance their projects.
- ✓ Have fun while editing photos!

Getting the Most from this Project

- ✓ Attend club activities regularly.
- ✓ Listen and ask questions. You will learn from other members as well as your leaders.
- ✓ Carry your camera equipment with you and take as many photos as you can. You never know when a great photo opportunity will fall into your lap!
- ✓ Look critically at photos other people have taken, in movies, on TV, in magazines, or at a friend's house. What do you like or dislike about these photos? What would you change? What would you like to try?

- ✓ Practice may not make perfect but it certainly makes better. Try different techniques with different photos. Experiment! Don't forget to "Learn to do by doing"!
- ✓ Use a journal to keep organized notes about techniques you use, what the outcomes were and things you'd like to try. It is also good to write down ideas as they come to you, or when you see something that inspires you to try something new. Inspiration is everywhere!

Achievement Requirements for this Project

- ✓ A completed record book.
- ✓ Show a selection of at least three photos to your fellow club members and your family and friends that you edited during the club project.
- ✓ One example of a photo you repaired that was either over- or underexposed.
- ✓ A photo to which you added colour filters to enhance the mood or feel.
- ✓ At least two photos that you cropped to make more visually interesting.
- ✓ An example of a torn or stained paper photo that you scanned and repaired as well as possible.
- ✓ At least two other special projects from the Activity Section.

Safety and Digital Photography and Photo Editing

Digital photography and photo editing are fun and easy and can be done (almost) anywhere at any time. But before we get to it, there are a few general rules you should always remember. Sometimes you may get so excited about taking the perfect photo that you stop thinking about where you are or what is going on around you. Once you're home and editing your photos, there isn't much danger (other than what we'll discuss later), but when you're out taking the photos you plan on editing, remember that you have to first and foremost keep yourself and anyone helping you safe.

Think of all the things people take photos of and all the hazards associated with them. The following are a few situations that could have been better dealt with. What do you think the best way would have been for preventing them?

- "This is going to be an amazing shot of this canyon. If I can just get a little closer to the edge…"

- "That sign says 'No Trespassing' but the shot of that grain elevator would be awesome to edit. It probably won't matter if I go in just this once."
- "I think I can get a really fun photo of those professional soccer players if I just go further onto the field. I want to make sure I get a good close-up of David Beckham."
- "This snowstorm is really starting to pickup, but the light is so pretty right now. I'll just stay out another half an hour."

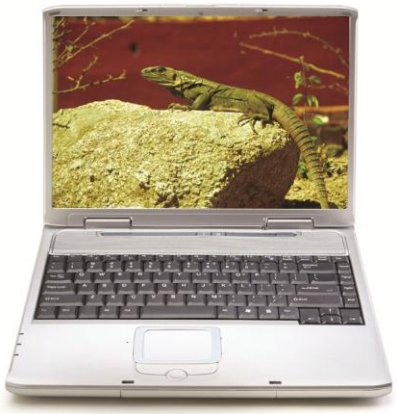
I'm pretty sure you understand where I'm going with this: no photo is worth risking life and limb for! There are a lot of people who care about you and want you to be safe, so make sure you remember that you pledged your "head to clearer thinking" and make smart decisions!

- Think and plan before you head out to take photos, above all else, you need to make sure that you, and anybody with you, are safe.
- Tell someone where you're going, when you're leaving and when you should be back. Better yet, bring a friend with you!
- If you are planning to be out for a while, be sure to have a lot of water and snacks with you. It's easier to be creative and have fun when you're not thirsty or hungry!
- Always think ahead and bring extra clothing in case it gets cold, sunscreen and a hat for those really hot days and a cell phone in case of emergencies.
- Make sure to be aware of your surroundings and ask permission if you want to go on someone else's property. If you don't think you should be going into a given area (because it belongs to someone you don't know), then don't!
- When out taking photos with younger enthusiasts, be sure to set an example and teach them safe and respectful practices.
- Do not endanger yourself, your friends, or property when out taking photos. This is an important responsibility for all photographers.

No photo is more important than the safety of people or property!

Online Safety

One of the great features of digital photography and photo editing is sharing your awesome photos with friends and family through emails and over the Internet. When you post your photos on Internet social networking sites like Facebook or Twitter, those photos become accessible to anyone and everyone who might come across them. Even once you delete the photo there may still be someone else out there who has a copy of it. You have a lot of power when you use the techniques you'll learn in this project to edit photos however you choose. Don't forget that line from Spider-Man, "**With great power comes great responsibility**." You've probably heard a lot about people being bullied online. Would you want people to post hurtful or embarrassing photos of you? Your subjects are counting on YOU to respect them and their image. Treat them with the respect you would want to be treated with! Use the following guidelines when posting your photos on the Internet:



- **Never** post embarrassing photos of yourself or anyone else; you never know who might come across them one day! The Internet is forever. Think before you post.
- **Never** attach any personal information to your photos (names, addresses, phone numbers, birthdays, what school you attend, etc.). ALWAYS REMEMBER the person you are chatting with online may not be the person they claim to be.
- When using social networking sites like Facebook or Twitter, **set your online profile to private**. That way, only people that you approve to see your profile and images can view your work. Don't give out your passwords to anyone but your parent or guardian, and never agree to meet in person with someone that you meet on these sites.
- **Report any inappropriate comments or messages** if they violate the terms of service for that site and tell your parent or guardian if anything happens online that makes you feel scared or uncomfortable.

Courtesies of Digital Photography and Photo Editing:

For a lot of people, photos are a part of everyday. Think about it, how many people do you know who don't have some kind of digital camera, whether it is a small point-and-shoot, a fancy Canon, or a camera phone? Most people are pretty accustomed to having their photo taken, so you probably won't have many problems getting people to be your subjects. HOWEVER, it is always important to respect people, their property and their wishes, especially when they are kind enough to help you out. Here are some basic rules to follow when dealing with other people:

1. **Always ask permission** to go on or use another person's property. If someone is kind enough to allow you to take photos on their property or in their house, make sure you leave it in the same or better condition as you found it.
2. **Always ask permission** to photograph people. Some individuals and social or religious groups have pretty strict rules about having their photo taken. Always respect a person's decision about being photographed. It's their right to refuse to allow you to photograph them.
3. **Do not allow the mistreatment** of people or animals to take place in any of your photos. Ever.
4. **Do not take inappropriate photos** of people or animals. Use your gut instinct. If it seems wrong, it's probably wrong.
5. If you are photographing a big event and you see an "official photographer", such as a wedding or sporting event, be sure **to stay out of their way**. It's their job to get the best shots they can, and if they're at an event, they're working.
6. Sometimes you might photograph someone doing or saying something silly or looking terrible. Imagine how you would feel if someone posted a photo of you that made you look silly or terrible. You have an obligation as a photographer to **respect and protect the people you photograph**.
7. **If an area is posted "NO PHOTOS", obey the sign**.
8. **Do not handle another person's camera** equipment without their permission.

9. **Always treat people with respect and kindness** who offer to help you with your project. It will show in your photos.
10. **Never post a photo without the permission** of the people in the photo.

Be sure to take your best manners with you when you go out to take photos. Remember, you represent your club, community and yourself while you are out there. Don't subscribe to a "shoot first, ask questions later" mentality. When in doubt, ask permission!

Finally, and most importantly, be sure to thank the people who let you photograph them! They'll be much more likely to help you in the future and may even bring their friends along.

Resources for Learning:

People

- Local media photographers/photo editors
- Commercial photographers/photo editors
- Teachers
- Other 4-H members or leaders

Resources

- Your camera manual
- Your editing software Help menu
- Books or magazines about digital photo editing
- Online tutorials on digital photo editing techniques

Places, Events and Organizations

- Photography clubs
- Exhibitions and fairs that have photo exhibits
- Local art galleries that display photographers' work
- Colleges or universities that offer photography or photo editing courses
- Local Artist Cooperatives that support local photographers

Websites

Other than this reference book, the Internet is your single best resource for learning more about digital photo editing. There is a tremendous number of websites dedicated to the art of editing digital photos. Some have excellent tutorials on all kinds of techniques with easy to follow instructions. There is a list of websites you may like to visit at the end of this reference book, but Google is a great tool for locating any and all websites devoted to digital photo editing. Just type "digital photo editing" and you'll be amazed by the sheer number of hits you get. The web is a fantastic resource for additional learning after you have finished this project and are ready to get into more advanced techniques.

UNIT 1:

The Basics of Digital Photo Editing

What *is* a digital photo?

Before talking about digital photos, let's talk about film photography. You may not see many film cameras for sale these days, and digital technology is definitely taking over, but film is still used by professional and amateur photographers, plus many movies are still shot on film. Film photography is created when a strip of gelatine, coated with special chemicals, is exposed to light. The light makes a chemical record on the strip, which can then be exposed to more chemicals to create a "negative" (where the lighter areas appear darker and darker areas appear lighter) image.

This image can then be converted to a positive image and printed to photo paper by processing it with even more chemicals in a dark room. Sound a little complicated? It is! If a photographer then wanted to "edit" these images, he or she did so in this last stage of the process, the printing stage. Their editing options were very limited. Basically, the photographer could expose certain areas of the photo to more or less light if they were over or underexposed (called "dodging" and "burning" respectively). Photos could also be "cropped" (cutting out certain unwanted areas), but that is generally the extent of the "**editing**" that could be performed before the arrival of computers. Thank goodness for the advent of digital photography!

Digital photography differs from traditional film photography in that, rather than being light exposed onto a film strip, image capture takes place via a **CCD** (charge coupled device) or **CMOS** (complementary metal oxide semiconductor) sensor in a digital camera. These sensors emit a charge when they come in contact with light, which is then converted into **binary** (computer language) information, which makes up the image. These images are composed of picture elements called "**pixels**" which are tiny little squares, each with its own value representing colour and intensity. There can be

millions and millions of these pixels in your photos. In fact, the more there are, the better the quality of your image. One million pixels equal a **megapixel** (commonly written as "MP"), which is how cameras make images. The more megapixels a camera is rated for, the higher quality images that camera takes, but the more expensive the camera is. For instance, a 10 megapixel camera takes photos with 10 million pixels, which is twice what a five megapixel camera takes, but a 10 megapixel camera is very likely more expensive. No matter what the megapixel rating, all these pixels come together to make one single image, which is then stored on your digital camera's memory device (whether that be a card, a disc, or a stick). The best part is that digital photos are taken, stored and viewable almost instantly! Digital photography provides an unparalleled ability to easily shoot multiple high-quality photos at a reasonably low cost (compared to film). Importantly, this gives us the flexibility to digitally edit those photos easily, efficiently and with some very cool results.

What is digital photo editing?

Digital photo editing is defined as the enhancement and manipulation of a photograph using **photo editing software**. When you think of software, what do you think of? That's right, digital photo editing is done using a computer. This can be either a small computer, such as the ones that are on-board many digital cameras, or a bigger laptop or desktop computer separate from the camera. Through the use of software, photos can be manipulated in order to fix problems, make colours stand out, isolate sections of the photo and more. Photo editing software is full of powerful tools that we can use to make good photos even better and turn regular photos into works of art!

This may surprise you, but many professional photographers don't get the perfect shot every time they press the shutter button. Thankfully for them, there are amazing digital photo editing software programs out there. Thankfully for us, we can use them too! With digital technology, almost anyone can be photographer, and with the amazing tools we have we can enhance our photos to make them look much more professional. When you start learning all the tools, you will really be amazed at what you can do.

Why edit photos?

There are a lot of reasons to edit your photos. For most people, the biggest reason is to fix a mistake. Let's say you took a great photo but there was some dirt on your lens. Now you have a dark spot on your photo. With your editing software, you can go back and use what's called a "**clone**" tool to cover up that dark spot. Also, your photo may seem kind of dark. You can easily lighten a photo by changing the "**brightness**" level. Now your photo is flawless! Another reason you might edit your photo is to produce artistic effects. For example, maybe your image seems a little "busy". This might mean using what's called a "**blur**" effect to create a point of focus that draws the eye in. For instance, if you have a photo of a bunch of fall leaves on the grass, but they're all in focus and it seems distracting, you can use the blur feature to blur out some of the leaves, which is essentially changing the "**depth-of-field**" of your photo. You are creating a shorter depth-of-field and focusing on just one area of the image, which creates something with an entirely different feel.

With your photo editing software, you can reveal the true potential of your photos. Using the skills you'll learn in this project, you'll be able to manipulate your pictures any way you like, bringing colours to life, making focus that much sharper, and even bringing photos back from the brink of the trash folder. All you need is a digital camera, a computer and some photo editing software. Let's get started!

What can we do?
The Tools and Techniques of Digital Photo Editing

There are many problems that can be fixed or elements that can be enhanced with photo editing software. Most editing programs employ the features and tools that we'll encounter in this project listed below. Some examples of photo editing programs

are Adobe Photoshop, iPhoto, Corel Paintshop, Photoscape, Google Picasa and GIMP, to name a few. Don't worry if you're using a different program or your software's features have different names than what I've listed below. It's all basically the same concept. I'll be exploring some of these tools in greater detail in the coming units, so consider this an introduction to all the handy tools you can use to edit your photos. The best way to find the specific tool in your program is to search for the term (for example, "cropping") in the program's "Help" section.

Rotate: When you take a vertical photo, sometimes your computer mistakes it for a horizontal photo when you load it into your editing program. For example, you may have taken a photo of the CN Tower, but when you view it on your computer, it looks like it fell over. No problem! With the handy "rotate" tool, which often looks like a rounded arrow, you can turn the photo at 90-degree increments until you get it perfect.

Straightening: Occasionally, we take photos that we think are straight, and then when we see them in our computer we notice that they're a bit off-kilter. Ever taken a photo of a friend only to see that it looks like they're leaning? No problem! Use your straightening tool. The straightening tool can look like a ruler or a grid. Open the tool and find something in your photo that has a nice straight line (like the horizon or a building). Click on either end of the parallel line (making a straight line) and your straightening tool should automatically adjust your photo to get that perfect 90-degree angle. What if you want your photo to be off-kilter but you actually shot it straight? Just use that straightening tool the same way, but use your mouse to make a line on an angle. This should tilt your photo as much or as little as you want. Does it make your photo more interesting?

Cropping: Cropping allows you to create a new image by isolating a portion of your existing photo and cutting out unwanted areas. The cropping tool usually looks like a box formed by a dotted line. Click this tool and drag your mouse across the photo creating a dotted line box around the area you'd like to keep and then clicking "apply" or "crop". For example, think about a photo of a group of your friends taken from a distance so you can see their legs. Cropping allows you to cut out all but their heads

and shoulders, turning that distance shot into a close-up of their heads and shoulders. Cropping a really small section of your photo may reduce its overall resolution (the size and clarity of the photo when enlarged), so this technique is best used on high-resolution photographs (more about that later). Remember to crop your photo using the "rule of thirds" that you learned in your Digital Photography Project. If you didn't take that project, search "Rule of thirds" on your computer and you'll find a lot of websites that easily explain the concept. You will learn more about cropping in Unit 5.

Selection Tools: These tools are used to do just what you'd think: select parts of the photo. Using selection tools, you can apply changes of colour, focus and exposure to only the area of the photo that you choose. These tools can be the "marquee", which is used to select rectangular or other shapes with straight lines, the "lasso" tool, which allows you to select your area by freehand, and the "magic wand" tool, which selects only a certain colour in your photo (like a uniformly blue sky or the brown colour of someone's hair). These tools often look like a mouse cursor or a pen drawing a line, and you use them by clicking along the whole outer edge of the object you want to select with your mouse.

Layers: The best way to think about layers is to imagine them as many sheets of photo paper stacked one on top of the other on top of your photograph. You can make changes to each of these individual sheets, without having any effect on the sheet below, and they all add up to affect your photo. Layers make it easy to make subtle edits to different sections of your photo without drastically changing your original file. Layers are very powerful tools that have innumerable abilities to fix your photos, but explaining all the amazing things you can do with layers would take a whole reference book in itself. If you want more information on how to work with layers, I'd recommend doing further research online.

Exposure: It happens to all of us, you get that perfect shot – or you think you do – and when you get it home you realize that it's just a little too dark (underexposed) or too light (overexposed). Fret not! As long as it's within a certain range of exposure (not TOO dark or TOO light), it can be fixed in editing. There are a lot of tools to help you fix your

exposure. You can use levels and what's called a "histogram" to help you bring your exposure back from the brink. These tools will be discussed in detail in Unit 2.

Contrast/Brightening: Contrast and brightening tools work hand in hand with the tools listed above to help you repair your exposure. You can use the brightness tool to brighten or darken your overall photo. The contrast tool's addition of colour depth can help define the tones in your photo, making it appear more evenly exposed. In addition, if your photo has very little colour depth (and this is especially noticeable if you decide to make your photo black and white), the contrast tool will also provide more definition and interest. Contrast tools can also be used to soften colour depth, which you might want to use if you've taken a portrait that makes your subject look a little rough around the edges. These tools look like slider bars along a line that can be moved left to right to adjust the overall contrast and brightness of your photo. Contrast and brightening are discussed further in Unit 2.

Colour Control: There are a lot of scenarios where colour control can contribute greatly toward fixing or enhancing a photo. In fact, simply adjusting the colour tone of your photo can do a lot toward making it look much more professional. There are a lot of colour control tools in your photo editing software's arsenal. "**Curves**" help you white-balance the colour in your photo, making it more natural and realistic. **Hue** and **Saturation** tools help to enhance or subdue the amount of colour in your picture. Colour tone filters can be used to give a nostalgic or modern, warm or cold feel to your photos. Colour control tools are usually found under an "adjustments" or "filters" menu, and there are generally A LOT of them. Take your time to really experiment with colour. You would be surprised how much you can change a photo with even a few minor colour changes. Colour control will be discussed in-depth in Unit 3.

Red-Eye: The dreaded red-eye occurs when your camera's flash reflects off the back of your subject's eye. You've seen it. We all have. It's that otherwise perfect photo of your grinning family around the kitchen table with glowing red devil eyes. It's enough to give you nightmares! Thankfully, your editing software is especially well tuned to tackle those scary red-eyed demons and return them to your happy, non-threatening family

members. Most software programs come with a specific red-eye feature. It should be easy to find, and is often represented by a big red circle or eyeball. To use it, click on the tool, adjust for size, and click on the shiny red circle in the middle of your Uncle Steve's eyeball. Poof! Uncle Steve looks like Uncle Steve again. Apply this same process to all the red-eyes in your photo and it will look demon-free in no time!

Noise Reduction: "Noise" refers to the graininess of a digital photo. Back in the days of film, noise was, in fact, referred to as "grain". In the digital world, it's referred to as noise. If your photo looks like it has a lot of digital "dust" on it, which often happens in low-light photographs (like at night), it can be fixed using a noise reduction tool. This tool can usually be found in your "filters" or "adjustments" menu and is often represented by a slider bar that can be dragged back and forth. Of course, there is only so much your editing software can do to repair a noisy photograph. Occasionally a picture has so much noise it's impossible to fix, another reason why it's important to get a good, clean shot to work with. Sometimes photos become noisy when they've had a lot of edits performed on them. This happens a lot if you try to brighten up a really underexposed photo. This can occasionally be repaired with the noise reduction tool.

Removing Unwanted Elements: Just like noise, sometimes you might see dust specks in your photos that you don't want. It's pretty easy to get rid of those using what's called the "clone" or "retouching" tool. The tool works by copying an area of the photo you select and pasting it over the area you want to get rid of. It's pretty straightforward. For instance, if you have a small dust spot on the otherwise pristine blue sky of one of your landscape photos, the clone tool allows you to simply "clone" a small section of the unaffected sky and use that copied section to cover up the dust spot. This tool's icon looks different in nearly every program. If you don't find it right away, search for it in the "Help" section. Often, the software allows you to change the size of the tool to accommodate larger spots. You can also remove objects from your photos with the clone too, but that often takes a fair bit of time and experience. Sometimes, it's just easier to crop out something that you don't like.

Sharpening: Was your focus off just a little bit? Is your subject a tiny bit fuzzy around the edges? You can use the "sharpen" tool to make the edges more crisp or defined. Sharpen tools can usually be found in your "adjustment" or "filters" menu. Like brightness and contrast, this tool looks like a slider bar that can be moved left and right. Sharpening is one of the tools that you should use last; consider it the "finishing touch". It should also be used sparingly, it's one feature where the term "less is more" is especially important. Try it out and you'll see what I mean. Too much sharpening can make your photo look unnatural and "pixelated" (full of those square little boxes that make up a digital image). Sharpening will be explained in greater detail in Unit 4.

Merging Images: We've all seen really beautiful panoramas of nature scenes or bustling urban streets. These images have impact because their almost 360-degree view seems to transport the viewer right into the scene. You too can create amazing and seamless panoramas by "stitching" together ("merging") multiple photos. This effect is created using a variety of tools, most notably the "straighten" tool to line the photos up properly and the "clone" or "retouch" tools to hide their edges. There is a fun activity in the Activity Section where you will learn how to create a panorama from your own photographs.

Special Effects: The sky really is the limit for what you can do to your photographs using your computer. You can cut out elements, paste in elements from other photos, make someone stand on their head, or even make pigs fly! Once you learn all the tools and techniques mentioned above and below in the coming units, there really is no stopping your experimentation.

Framing: A really cool frame might be just what your photo needs. We all know framing can be done after the photo is printed, but did you know you can frame your photo digitally using your editing software? A lot of photo editing software programs have a wide variety of frames to choose from. Some are coloured, some are distressed (they look old or antique) and some are even crazy shapes. You can usually find them in your "adjustments" menu. Try out a few to see which one brings out your subject the best. You will learn more about framing in Unit 5.

Printing: It's a great idea to give your photos as gifts to the people who helped you out throughout the course of this project, or print out your photos to share with your club. It's important to think about where you want to use your photo. How big do you want it to be? Will you be framing it after printing? Is it a high enough resolution that you can enlarge it? You can optimize your photo for whatever your printing needs using your editing software. You can choose your size and photo resolution so you get a perfectly crisp printout every time. See Unit 5 for more information on printing your photos.

Remember: Bad photo In, Bad Photo Out!

It truly is amazing what we can do to our photos using photo editing software, but there is one thing we can't do: make a bad photo perfect. The most important thing to remember as you embark on your photo editing journey is that you can make an "okay" photo better, but you can't make a bad photo good. Take care when photographing your subject: expose properly, get good focus and compose well. If you start with a bad picture, you'll more than likely finish with a bad one. Keep in mind that a bad photo in means a bad photo out, but a good photo in could mean a great photo out!

What You Need to Get Started

You probably guessed the number one thing you need to participate in this project: a digital camera. Of course, this project is about digital photo editing, not digital photography, so you could actually use photos taken by someone else and edit them. However, using someone else's photo without their permission, altering it for your own purposes and calling it your own, is **copyright infringement**. Things do get a bit fuzzy in this area though; there are plenty of artists who manipulate an image so much that they feel they've made it into something completely new and different. For our purposes, since we're just going to be learning the basics of digital photo editing, I want you to use your own photos. That way, there's no confusion at all about whom they belong to, and you'll be the sole recipient of all the praise you're going to receive on your great work!

So yes, you are going to need a digital camera. Don't worry about what kind of camera; it can be that fancy Canon I mentioned earlier or a simple point-and-shoot – you can even use the camera on your phone, if that's all you have. The most important thing is that your camera takes relatively high-resolution images. **Resolution** refers to the amount of detail an image has. The higher the resolution of a photo, the more detail it has, and the bigger the file size. Photo editing requires a fairly large image file to manipulate and end up with something that looks like a photograph when you're finished, not a pixelated or fuzzy mess. Your camera should have at least seven megapixels. If you're unsure how many megapixels at which your camera takes photos, consult your owner's manual. You could even take a picture, upload it to your computer and check what size it is. It should be at least 1GB. Something in the 2-3GB range or higher would be ideal. If you don't have a camera that can take large photos like this, ask your friends or family if you can borrow a camera that takes higher resolution images for the duration of this project. If you do borrow someone's camera REMEMBER to respect it by keeping it safe and in working order. At the end of the project, consider enlarging, printing and framing your favourite photo for them as a thank you gift. I'm sure they'd love it – and they may even be inclined to let you borrow the camera again in the future!

The second – but equally important – piece of equipment you're going to need is a computer with some sort of photo editing software. There are tons of programs that can be downloaded online, either for free or for a fee. Some can be very expensive, but some can do almost as much as the expensive programs for very little money (if any at all). Some programs you can find are Adobe Photoshop, iPhoto, Corel Paintshop, Photoscape, Google Picasa and GIMP, but there are others. Your computer might even come with its own photo editing software. Many of these programs offer very similar features. Some offer more, some fewer, but the basics are generally the same. I'm not going to work with one specific program in this project; instead, I'm going to give you the basic info you need and you can find the features I mention in your own software program. A lot of features have similar names, even if they're not found in the same place, so I'll refer to the tools and techniques by their most common names. If you're unfamiliar with your program, get to know it better by using the "Help" section or try

online tutorials by searching "How to Photoshop" or "How to iPhoto". Once you have a sense of where all the features are, you're ready to get started!

How to Begin

First you need a relatively high-resolution photo you want to fix, change, or get creative with. Upload a photo you've taken with your digital camera to your computer. Import the photo into your photo editing software. This can usually be done by going to the "File" menu and clicking "Open", or going to your "Import" menu and selecting your file. If your program uses a different method of uploading photos, that's fine, as long as you learn how to get your chosen photo loaded, that's all that counts! Now that you're ready to go, you might want to ask yourself a few questions about the photo you've chosen. These questions can help you determine what it is you like and what you'd like to change about the photo.

- Is the photo straight? Do I need to level it?
- Does it need cropping? Is there a section of the photo I like better than the rest, or a section I'd like to remove?
- How are the colours? Are they natural or unnatural? Does the photo seem faded or discoloured? Do the whites seem artificial or too orange or blue?
- Does anyone have red-eye?
- Are their marks on the photo that I want to get rid of?
- Is it blurry? Do I need to fix the focus?

It can help to write down a list of the things you want to work on with your photo. That way, you will stay on track and not get too carried away. Now that you've asked yourself a few of the important questions that help the editing process and you've written your list, you're officially ready to get started with editing. I've listed some important points below to remember as you begin your digital photo editing journey. Keep these points in the back of your mind as you travel down this exciting road and you'll be editing photos like a pro in no time!

1. **The Importance of "Non-destructive" Editing:** "Non-destructive editing" is a form of editing where you never edit with your only copy of your original file. It's a

method of working where you avoid potentially "destroying" or altering your only version of a photo irreversibly. Imagine if you were just trying out a new technique for fun and you ruined your only copy? You would be seriously upset. Don't make that mistake! The best way to prevent this from happening is to keep two folders on your computer of your photos. Name one folder "Original Photos" (or some variation of that) and one folder "Edited Photos". Import files into your software program from your "Original Photos" folder and save the edited versions to your "Edited Photos" folder. This way you never risk losing files and you can even try different kinds of edits on one photo and compare to see which style you like best.

2. The All-Important "Undo" Button: Another part of the non-destructive editing strategy includes working in a program that allows you to "undo" your edits. Most – if not all – photo editing programs have this amazing little "undo" button. Trust me, someday this button might save your life – well, it may save your work at least! We've all done it. Swung the brightness bar a little too far to the left, cropped out the 1st prize winner, or clicked on a filter that turned all our cats neon yellow by mistake. Don't worry! The undo button is probably the MOST IMPORTANT feature on all editing software programs. This button is your friend. In fact, it's your best friend. Use it whenever you've gone too far with an edit and need to return to where you were before you made it. Phew! Thank goodness for our friend the undo button!
3. **Your New New Year's "Resolution":** Your New Year's Resolution this year should be to shoot your photos on the highest resolution! Seriously, the higher the resolution, the larger the file size of your photo, the better the quality, and the more you'll be able to fix and enhance in your editing suite. Check your camera settings to make sure you're shooting photos at the best resolution possible. Your manual should be able to explain this more easily, but you should find a "size" option in your menu that allows you to maximize the resolution of your photos. Yes, this means that you may not be able to save as many photos at one time, but it's important if you want to be able to edit the photo flexibly and effectively. Most cameras take photos in JPEG format. This format uses the most compression (squeezing detail so the file is as small as possible, potentially losing file

information in the process) of all formats, but it can be adjusted in your camera to be as lossless as possible. Some high-end cameras shoot on a format called RAW. This format is exactly that, a photo in its most raw form. Think of it like the blueprint of a house. It has the design of the house, and all the elements that are going to go into the house, but it's not actually a house until you build it. RAW format has all the information of a photo, but it's not actually a photo until you bring it into your editing software and edit it. Make sense? Not all software programs can edit RAW, but if you're using a camera that shoots RAW you likely have the right software. RAW is an amazing format to shoot if you want to have ultimate control over your photos later on. If you have this option in your camera, I would recommend you use it. If not, don't worry; just make sure you're shooting photos at the highest resolution your camera allows. You'll thank yourself later! Both JPEG, RAW and a format called TIFF are discussed in greater detail in Unit 5.

4. **E is for Editing, but also Enhancing:** Despite what some people think, photo editing is meant to enhance photos, not correct big problems. No editing software can make up for an out of focus shot or a seriously under- or overexposed shot. That's the main job of the photographer: ensure the photo is in focus, composed and exposed well. You want to use editing to make your photos even better than what you started with. Like the "bad photo in, bad photo out" rule, the photo you're editing should be technically good (in focus, well exposed, well composed, etc.) to start with, so that the end result will be truly spectacular.
5. **Less is More:** Don't get carried away! Editing software is a powerful tool. There is almost no limit to the neat things you can do to your photos. Keep in mind though, that unless you plan on making something truly crazy and out of this world, you want to remember that with photo editing, less really is more. Think of it like a video. The more wacky transitions you insert between shots, the more distracting the video becomes. It's the same with photo editing. You don't want to mess around with the colours so much that your photo no longer looks like it was taken on earth (unless that's the look you're going for!). Just because you have all these amazing tools and techniques at your disposal doesn't mean you have to use every single one of them on every photo. Some photos might only need a little

straightening, a nice colour filter and a good dose of contrast; some photos benefit from a tiny dose of sharpening. Don't feel like you have to use every feature of your editing software. Do what the photo needs, but don't overdo it. You still want people to think they're looking at a photo. Unless you're okay with creating something entirely new, and then, edit away! One more thing: in keeping with this "less is more" idea, you should know that every time you make an edit to a photo, you degrade its quality just a little bit. Keep that in mind. Experiment all you want, but once you make your edits official (save them), you decrease your photo quality bit by bit.

UNIT 2:

Nailing Your Exposure

Exposure

In digital photography, exposure refers to the result of light hitting your camera's sensor. If the sensor is "exposed" to a long period of light, your photo will be brighter than if it's exposed to a shorter period of light. When talking about proper exposure, we refer to three main areas of the photo:

1. **Highlights** – the areas where the photo is brightest/whitest.
2. **Shadows –** the areas where the photo is darkest/blackest.
3. **Mid-tones –** the areas in the between the highlights and the shadows.

When editing exposure, you can choose to adjust the overall exposure of the photo, meaning highlights, shadows and mid-tones all together, or you can isolate and adjust each individually for more control. Exposure is one of those things that is important to get right in-camera (when you take the photo), but don't worry if you didn't get it perfect, these issues are fairly easy to fix using your photo editing software as long as your exposure problems aren't too severe. However, if the problem is too severe, unfortunately your photo may be unfixable. A photo that's overexposed (too bright) is very difficult to fix without losing some detail, and a photo that's underexposed will become much more grainy (noisy) when edited. If your photo simply can't be fixed, I would recommend reshooting the photo with better lighting or by adjusting your camera's settings, or simply choosing another photo to edit.

The photo on the left is slightly overexposed and the one on the right is slightly underexposed.

The photo above is a good balance of exposure, making it well exposed.

All that being said, you are the editor. You can choose to edit technically (for the best photo in a classic photography sense) or you can edit more artistically. Some photographers just prefer photos that are either a little under or overexposed. For you, that might depend on the photo itself. You may have a photo where the exposure looks pretty good, but you want to lower the exposure slightly to maintain detail in

the brightest highlights or increase it to bring out the detail in the shadows. The key word here is "slightly". If you raise your exposure too high, you'll "**blow out**" or "**clip**" all the highlights in your shot. To "blow out" means to lose all definition (or detail) in the light areas. The same thing can happen with your shadows if you lower your exposure too much. This means there isn't any information in the dark areas for your computer to register. You lose the detail in those areas completely and they just become big white or black blobs on your photo.

There are a lot of aspects that go into a well-exposed image. Correcting your exposure doesn't simply mean making it brighter or darker; you need to create a good balance of contrast, brightness and "**luminance**" (the intensity of light coming from a given surface area of the photo) in order to nail your exposure. Don't worry if that seems like a lot to think about; if you get your exposure right in-camera, you won't have to be concerned about it, and all you'll have to do is make minor adjustments. However, if you didn't get it right when you took your shot, you're going to have to learn a little more about how each contributes to exposure and how you can fix minor issues. The main thing is to work toward an end result where your photo looks very bold and the blacks of the photo look true black and the whites look true white. Thankfully, there are A LOT of editing tools to help you fix your exposure.

One of these tools is the exposure tool itself. Some editing programs have a slider bar that moves back and forth and controls the overall exposure of your photo. This slider shifts the values of the entire image either up or down, meaning it makes changes to the entire image, the highlights, shadows and mid-tones. If you have just slight exposure issues and want to edit quickly, this might be your best bet. However, if you want to have a bit more control, you could use your brightness and contrast tools.

Brightness and Contrast

Brightness and contrast are often found in most editing software as two lines with a sliding bar in between. Move the slider bar back and forth to see how they affect your photo. Some editing programs will even have numeric values for the amount of brightness or contrast you use. This is helpful if you want to be very exact or need to

make the same changes to a group of photos. Simply write down the values you changed the tools to and apply it to all your photos.

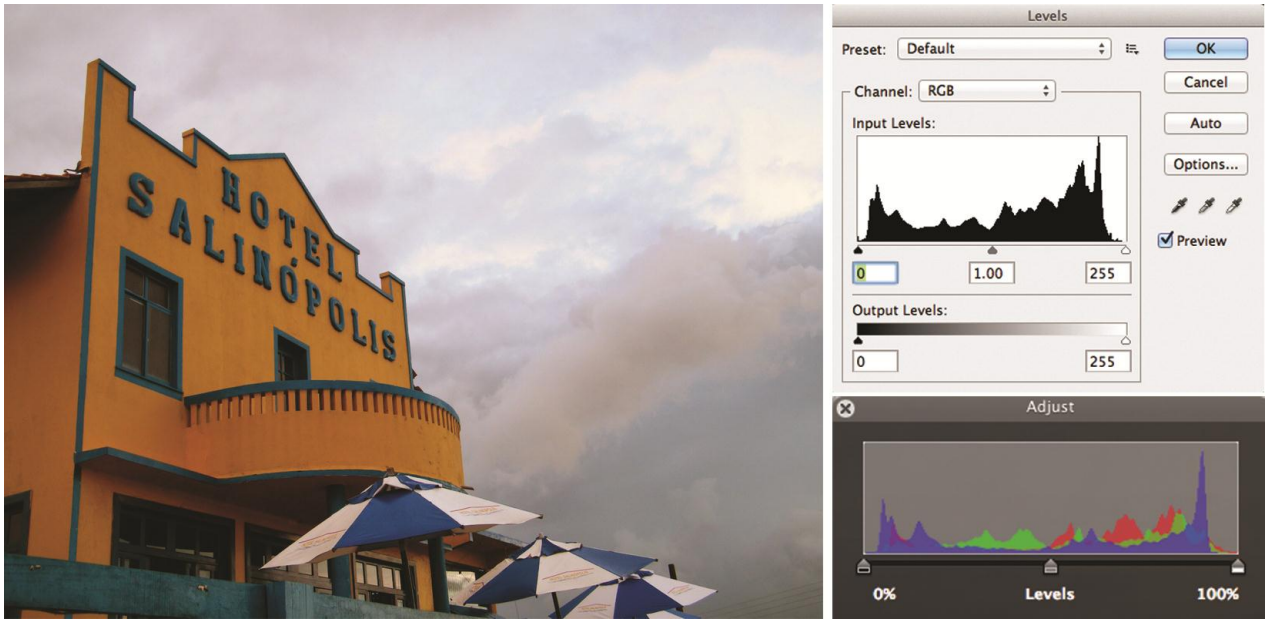
The brightness tool is pretty straightforward and works a lot like the exposure tool. Move the bar to the left and it literally makes your photo darker; move it to the right and it makes it lighter. Now pull the slider all the way to the left and right, and your photo will either go completely black or completely white respectively. You might think that the brightness tool does pretty much the same thing as the exposure tool, but in fact there is a slight difference. While the exposure tool adjusts all three aspects of the photo (highlights, shadows and mid-tones), brightness changes affect predominantly the mid-tones, which means it preserves the detail in the highlights more effectively than exposure. It seems complicated, but as you get used to using these tools more and more you'll get to know which one will give you the effect you're looking for.

Contrast refers to the amount of difference between tones in a photo. Essentially, adjusting the contrast tool gives your photo more colour depth between the shadows and the highlights. You can see this especially clearly in black and white photography. Without the colour depth created by contrast, photos can look very flat and uninteresting. Contrast also plays a big role in exposure. It's a fact that digital cameras can't record the depth of contrast that we see with our eyes. This means that most photos could use a bit of help in the editing department when it comes to contrast. Try moving your contrast slider bar back and forth. Slide it to the right to get more contrast and to the left to get less. Does it add a new dimension to your photo? As with most tools, when you're playing with contrast, a little goes a long way, so keep an eye on both the shadows and highlights of your image. Adding too much contrast can cause them to either lose information or go blurry, especially around the edges.

Brightness and contrast are fairly easy tools to understand and use. You can use them to quickly and easily adjust your photo's exposure. However, if you're looking for a little more control over your image, and your software has the tools available, try some of the following techniques.

Lots of Levels and Helpful Histograms

Your editing software might use "levels" (the amount of highlights, shadows and mid-tones) to help you fix your exposure. Levels work using a reading called a "histogram". A histogram is a graphical representation that displays the distribution of colour tones in a digital photo. "**Tones**" refer to the colour shades found in the photo. The word "**tint**" is often used interchangeably with "tone". The histogram plots the pixels for each tone in the photo. Your digital camera has a built-in histogram and on some cameras you can actually use it to properly expose your photo before you take it. In photo editing, you can also use your software program's histogram to fix your exposure. The histogram shows you the amount of brightness that's distributed throughout the photo, and can be adjusted while you see the results in real time. To see how it works, open up your histogram tool. You should see three sliding boxes or arrows underneath the histogram curve. On the left, the first box represents the black levels (shadows) of your photo; the right box is your white levels (highlights), and the middle box the mid-point (mid-tones).



Here is a photo and two versions of its corresponding histograms. The top histogram is what you will see if you are using Adobe Photoshop. The lower histogram is what you'll see if you're using iPhoto. All photo editing programs will have similar-looking histograms.

To correct the tonal range of your photo, slide the black box to the right until it just touches the edge of the left histogram curve, then slide the white box to the left until it touches the right edge of the curve. Then click "okay" or "apply". What you have just done is remap your photo's pixels so that the darkest pixels become black and the lightest pixels become white. If you pull your boxes too far into the curve, you will blow out or clip your shadows and highlights and lose all the detail in those areas. Play with this to see what I mean. When you move those boxes, you're actually telling your editing program that anything darker than where you place the black box is true black and anything lighter than where you place the white box is true white. When you move the boxes too far into the curve, neither will register any detail and you will lose a lot of your photo. The midpoint box can be used to brighten or call attention to a specific area of the photo you want to highlight. Play with the mid-tones to get the effect you're looking for.

Playing with and adjusting your levels with the levels tool does more than help you with your exposure problems, it is also helpful in fixing any colour temperature issues you have. Colour temperature will be discussed in more detail in Unit 3. Use your knowledge of levels to help when you start adjusting your colour temperature.

High Dynamic Range (HDR) Photos

You've probably seen high dynamic range photos without really knowing what you were looking at. HDR photos are unbelievably vibrant pictures that seem as if they're positively glowing with colour. Traditionally, you create an HDR photo by taking three to seven photos of the same subject (with the same framing) at different exposure settings and then merge them into a single image using photo editing software. It is possible to cheat a bit and create an HDR image from one single photo, but it never has quite the same look as a real HDR photo created from three or more images.

Why do HDR images look so cool? Well, as a start, our eyes are remarkable organs that are capable of seeing great complexity of colours and light in any given scene. Not surprisingly, even the best professional cameras can't capture images quite like our eyes do. HDR photography allows us to layer a multitude of photos, each highlighting

different areas, together to create something that gets closer to what our eyes see than any other kind of photography. You can use this technique to capture amazingly crisp images in almost any lighting conditions. Below is an example of a regular photo next to an HDR photo (created with three photos), taken of the same scene. The second image has far more detail and is much richer looking than the original.

In both sets of photos above, the image on the left is a regular one-shot image and the one on the right is the HDR version.

HDR photography is best used for landscapes, interiors, wildlife photos and anything shot at night or when you have low light conditions. Feel free to make HDR photos of people, but keep in mind that when people pose they don't tend to hold their facial expressions for very long. Since you're going to be taking multiple shots of them, you don't want them moving or even changing their expressions slightly. If they do, there will be some movement between the frames and it will create a strange aura effect

called “ghosting”. If you want to avoid this, consider creating an HDR image from just one photo, which is a fairly advanced process described in Activity #17 in the Activity Section of this manual.

UNIT 3: Hot and Cold: Working with Colour Temperature

The *Feel* of the Photo

Have you ever looked at a photo that made you feel nostalgic, or happy, or sad? What was it about the photo that set the mood? Often, this has to do with the colour "**temperature**". A photo that has a lot of blue light might seem cold or fresh, like a bright summer day. A photo with a lot of orange light might seem more warm and inviting, perhaps even nostalgic and comforting. You can convey a lot with the colour temperature of your photos. Consider a photo you took recently, do you think you could enhance the mood of the photo if you played with the colours a little bit? Be sure to play a lot with the tint filters in your software program. You might not even know what feel you want for your photo until you try them all.

The Importance of Colour Temperature

Colour temperature is also known as colour balance. Basically, it's determined by how your camera accurately records the colour white. Have you heard the term "white balance"? If you've taken the Digital Photography or Digital Video Projects you likely have. For proper colour "balance", you want to make sure any white in your photo looks like white to your eye (unless you're going for a more stylized look, but there will be more info on that later). A lot of cameras can do this automatically and if you have your camera set on "auto", it will make its best guess on where you are and what your whites should look like. Of course, it's always best to get a clean white balance before you take your photo, but it's fairly easy to make changes afterward with your editing software, so don't worry if you don't get a perfect balance.

This photo on the left was taken without colour balancing. You can see it has an overall blue tone. The photo on the right is the same one after colour balancing. The whites now look true white and the overall blue tone is gone.

To fix your colour balance the simple way, use your "**temperature**" tool. This tool is often represented very similarly to the brightness, contrast and other tools: as a slider bar that can be dragged left and right. The bar that the slider moves on is often coloured from blue on the left to red on the right. As you move the bar along the spectrum, the temperature with your photo will cool down (if you move it left) and warm up (if you move it right). Keep moving the bar back and forth along the spectrum until any whites in your photo start to look like true white and you're happy with the realistic look of your overall photo. Sometimes this tool is enough to get your photo to where you want it but if you're looking for a little more control over your colour balance, there is another handy tool for you.

Getting Curvy

There are a couple more advanced tools to help you perfect the colour balance of your photo. In Unit 2, I mentioned how levels can be used to adjust your balance. Another tool, called "curves", are a more exact method of editing your colour temperature, and can be quite delicate and complex. The curves tool is similar to the levels tool in that it also allows you to adjust shadows, highlights and mid-tones. However, the curves tool uses an entirely different method of adjusting these elements and is far more precise. Curves are often very intimidating for the beginner photo editor, so I won't go into much detail here because this is a beginners' guide to photo

editing. If you would like to learn more about curves and become a master of colour temperature, you can start by experimenting with the curves tool or trying out a few online tutorials. Good luck!

Tinting with Colour Filters

You know when you look through an old family photo album and those old photos from the seventies just look like photos from the seventies? Or you've probably seen photos from the turn of the 20th century, which all look like black and white, but have an orange-brown tone. Do you know why? Well, other than the outdated clothes and haircuts, it has something to do with the overall "tint" of the photo. Just compare a photo shot in the seventies and compare it to one shot today. The colours of the "today" photo look much more realistic and bright, whereas older photos look washed out or feature an overall tint. You can use tools called colour filters to adjust the tint of your photo either on your camera lens or in editing to change the feel of the photo, making it nostalgic or modern, cool or warm, inviting or distancing.

Your tint filters will often be found in your adjustments folder, and if not, your software should have an "add filter" button. If your program has neither of these, you can instead use your other colour tools (the ones listed above and below) to manipulate your image. This method may not be as straightforward or easy, but you will have more control over the tint of the photo. Once you start looking through your filter options, you'll notice one thing: there are A LOT of them. There are so many different kinds of filters at your disposal to experiment with. Experimentation is pretty important here. As always, make sure you can press your undo button to go back to the original image before trying anything really outrageous. Once you know you're not editing destructively, feel free to try a lot of different things. The following are some examples of a photo with multiple filters on it. Look at what each does to the feel of the photo. Which one do you like better?

(From left to right: Original, black and white filter, sepia filter, cooling filter and warming filter)

Below are some examples of the filter families you will find in your software, where they come from, and what they do.

Black and White: In the early days of photography, if you wanted a photo, black and white (also called "**monochrome**" or "**de-saturated**") was your only option. Before we could accurately portray colour, all photos were in black and white. Regular colour photography didn't come about until around the 1860s (photography was invented in the 1820s). Because of this, black and white photos seem to have an added weight to them, a bare bones style that draws the eye in without distracting it with loads of bright colour. Even today, modern black-and-white photographs can really portray a scene with a type of raw emotion that somehow gets lost in colour. Choosing to make your photo black and white can give it a historical or antique-type feel, or can add that emotional feeling of capturing a moment in time. Sometimes, photographers choose to de-saturate their portraits because it removes some of the blemishes or unevenness of skin tones. When done well, with a balance in contrast and brightness, black and white photos can look truly timeless and beautiful. Often, you can mask an otherwise unsalvageable photo by converting it to black and white. Consider this with your photos you just can't seem to fix, it might just be the disguise you need!

Sepia: Sepia was introduced in the 1880s as a pigment added to black and white photographs. This process was called "**Toning**". Toning was used to increase the visible tone range in a photo without reducing contrast. You've probably seen a lot of really old sepia toned photographs; they have an overall orange-brown colour tint. A lot of people choose this filter or tone if they want their photos to have an old feel to them,

like black and white but more of a vintage feel. Have you ever been to those booths at fairs where people dress up in old timey clothing and take photos? Those photos are almost always sepia toned. Experiment with this tone if you want your photo to have that similar feel. (Sepia technically belongs in the "orange filter" family listed below, but I've isolated it because of its history and its mark on our memories!)

Blue Family Filters: The blue family of filters covers any filter in the blue spectrum, including greens and purples. These filters effectively "cool down" an image by adding more blue tones. You may choose to use one of these filters on a photo of a rainy day at the lake, a mountain top, or a person who looks sad. The cool blue tones bring out the blue of a photo, giving the photo a calm, tranquil feel that makes it more evocative and visually appealing.

Orange Family Filters: The orange filter family includes all those in the orange spectrum, including reds and browns. These filters "warm up" an image by adding more orange tones. Add one of these filters to that bright orange sunset photo, or that photo of your friends around a bonfire, and it will intensify its bright golden tones, making your photo even more compelling and inviting. You can use filters to make existing colours "pop" or add more depth or dimension to your image.

If you feel that only a certain part of your photo will benefit by the use of a tint filter, you can isolate that section using your selection tools. It's possible to use multiple filters on different parts of a photo to really make it come alive. A yellow wheat field under a dark blue sky is a good example. The foreground could really benefit from a filter in the orange family to bring out its yellow tones, while a blue family filter would bring out the striking blues of the sky. Most programs will also let you choose the intensity of your colour filter. Sometimes just a little green tint to a rolling sea is all you need, or maybe a small boost of red to your photo of a maple tree in autumn. Remember to keep your colour changes realistic if you want your photo to look like it was still taken on this planet!

Hue and Saturation

There are a couple of other ways to make your colours "pop", and you accomplish these using your **hue** and **saturation** tools.

Hue refers to the overall balance of the colour in your image. A bit of what we discussed earlier in regard to colour temperature is dictated by the hue. If you want to change the colour temperature of your image, you can use hue instead of your temperature tool. If you want to be more exact about your colour changes, use your hue feature. Hue is another one of those tools that looks like a slider bar that can be moved back and forth. Use the slider tool to get the perfect shade of green grass or skin tone. Be sure to practice with your hue slider, the more you understand how it works the faster you'll be able to edit your photos in the future.

Saturation refers to the amount of colour you see. Black and white photos are de-saturated, meaning they've had all of their colour removed. Your software should have a saturation tool that allows you to adjust your photo's colour saturation with a slider. If you move the slider all the way to the right, you will see your colours really pop, almost unnaturally so. When you move the slider to the left, your photo gradually de-saturates to black and white. Get used to the drastic changes you can make by moving the slider back and forth. A lot of professional photographers use some saturation to make the colours in their photos that much more vibrant. Raise your saturation a little bit and see how that affects your photo. Does it look better? Sometimes portrait photographers choose to slightly de-saturate an image to cover up blemishes or give just a little bit of colour to an otherwise black and white photo. Give it a try on your photos. What do you think looks best?

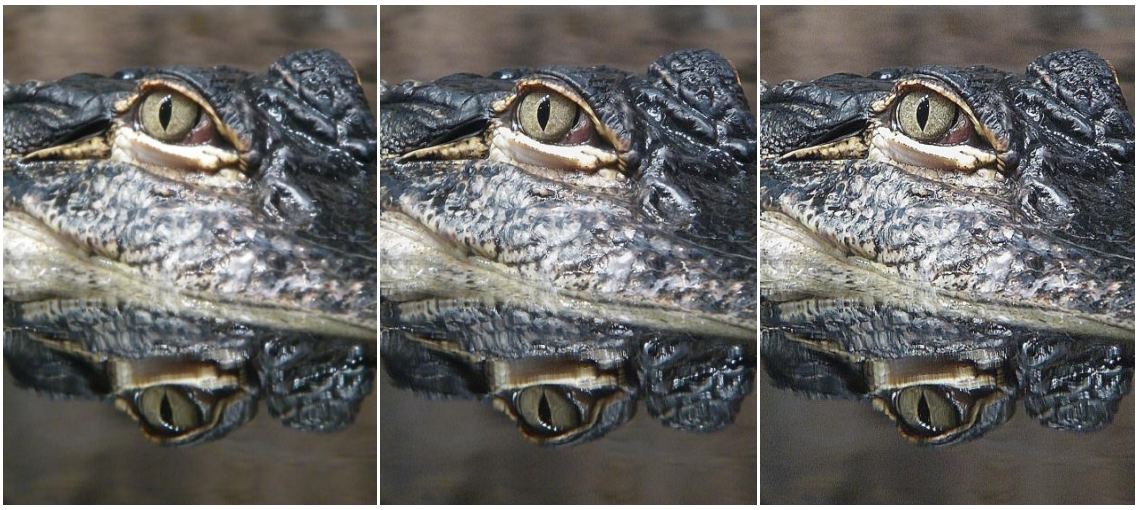
The photo on the top is the original with normal saturation levels and
the one on the bottom is the same photo after boosting the saturation levels in editing.

UNIT 4: Everything is (Almost) Crystal Clear Sharpness and Clarity

Sharpening

There are often times when you look through the viewfinder and your subject looks perfectly in focus, but when you get home and upload your photo, you notice your subject is actually just a little bit fuzzy or soft looking. Don't despair! Digital editing software to the rescue! You can actually repair some of your focus issues when you play with brightness and contrast, the features listed in Unit 2. However, if you've tried that and you think you could use more help, you can turn to your sharpening tool. In fact, most programs' sharpening tools use a combination of contrast adjustment and what is called "pixel enhancement" to work their magic. This means the tools actually increase the contrast between pixels, which make the edges more distinct, and give the illusion that the focus has been "fixed".

You'll soon learn that the sharpening tool is the tool where the term "less is more" is especially apt. Too much sharpening will cause your photo to pixelate and become noisy, and will likely look far worse than your original. If your photo is so out of focus you can hardly tell what it is, it's unlikely that sharpening will help, so selecting a photo that is only slightly out of focus will be the best candidate for sharpening. Sharpening should also be one of the last things you to do your photos (other than resizing, saving, or printing, which will be explained next). Because you want your sharpening to be subtle (hardly noticeable in the finished project), you'll want to have a soft hand; otherwise you could end up drawing attention to the areas you were trying to avoid in the first place! In terms of the end result you're looking for, no one can tell you, you have to decide for yourself. When you're working on an edit, you're really editing for your eye. You can ask for advice from friends or family members if you're unsure of an edit, but you're really editing the photo until you think it looks good. As you become more experienced and edit more and more photos, you'll grow increasingly confident about your own photographic intuition.



From left to right: the original photo, the right amount of sharpening and too much sharpening.

There are two ways for you to sharpen your photos, and whether your software has these features or not will determine which you use.

Sharpness Tool: Your sharpening tool is found in your adjustments folder. Just like the brightness, contrast and many other tools, it is a sliding bar that can be moved left and right. Try moving the slider back and forth slightly. On the extreme right your photo will be so "sharpened" it might look like a weird line drawing. Move the slider back and forth until you get the look you want.

Unsharp Mask: Some software programs have a few more options than just the slider for increasing sharpness. They include an option called an "unsharp mask" ("unsharp" refers to the way in which it sharpens your image – it will, in fact, sharpen your image). This feature allows you more control over how much you sharpen the image. It breaks up the sharpen tool into three parts: amount, radius and threshold. Amount refers to just that, the amount of edge sharpening. This works basically like the slider bar but is represented in percentage points rather than the sliding bar. Increase the amount of sharpening by increasing the percentage. Radius refers to the width of the edges that will be sharpened. This is often represented by number of pixels. The higher the number, the wider the edges become. If your radius is too high, you'll get that weird over-contrast look that you want to avoid. Threshold refers to the difference in brightness that's present between pixels. A low number can sharpen edges with a

smaller amount of contrast, and a high number sharpens edges with higher contrast. I would recommend leaving the threshold at zero unless you have a very noisy image. Once you have played around with the amount and radius options, and you find that this has increased the noise level of your photo, you can use the threshold option to try to decrease the noise.

Creating Focus with the Blur Tool

The blur tool can be used to create focus in an otherwise busy looking photo. Let's say you want to draw attention to an object in the foreground of your picture and blur out the background to make it less distracting. This does a great job of emphasizing your subject. But what if your whole photo is in sharp focus? How do you "create focus" to draw the viewer's eye? It's fairly simple to do with the handy blur tool. Rather than directly manipulating the object of interest, we use this tool to de-emphasize other sections of the photo by literally "blurring" the focus. This has the effect of emphasizing the object of interest, which remains in focus, because the rest of the photo is blurry and appears out of focus.

The photo on the left is the unedited original photo and the one on the right has had the blur tool applied to the sand around the feather. It's a very subtle effect, but it works to keep the eye drawn to the water droplets inside the feather, and not distracted by the sand.

This tool can usually be found in the adjustments folder. Sometimes it looks like a blurred raindrop. Click the tool and resize it to the scale you want. Now use your mouse to "paint" over the area of the photo you want to blur. Generally, you should be able to control the strength (in percentage) of blur you use. Start off with a small

amount of blur and work your way up. You can go over the area already blurred more than once to increase the amount. Zoom in to the photo to make sure you don't end up blurring the edges of the subject you want in focus. Keep at it until you get the effect you want. You can also use the blur tool to de-emphasize a distracting object in the photo that you don't like but can't crop out.

UNIT 5:

Cropping, Resizing, Saving and Printing

Cropping with the Crop Tool

Cropping is one of the simplest and easiest ways to edit your photo. A photo with initially poor composition (the layout of the elements in the photo) can often be transformed into something great with a simple crop. You may have a person in the corner of your photo who is staring at the camera and causing a bit of a distraction from your subject. Easy! Just crop that person out. I mentioned the "rule of thirds" earlier, and it's the concept that objects in the photo are more interesting when they're laid out on a 3 x 3 grid. As a general rule, don't "centre" your objects; instead, put them off to one third of the photo. This creates a more visually interesting field. If you weren't thinking of the rule of thirds while you were shooting, try cropping your photo in different ways to achieve this. Remember that unless your photo was shot using a very large file size, you won't be able to crop your photo too small. You will be able to eliminate certain elements but I would avoid zooming in on anything too close or it will become fuzzy and pixelated.

Cropping tools can be found in every editing program. Generally, it looks like a dotted line shaped as a box. With the tool highlighted, use your cursor to select a corner of your photo and drag it across the area you would like to keep. Anything outside the dotted box will be deleted. Now, you should be able to click a button and your newly cropped photo is complete. What do you think? If it doesn't look the way you want, click "back" or "undo" and try again. If you like it, click the "apply" or "save" buttons. If it's too late and you've already saved the cropped photo, but you don't like it, now you see why in Unit 1 I told you that it's important to always leave the original untouched photo in a separate folder!

Starting to get tired of the classic rectangular photo shape? Feel free to crop your photo to whatever shape best suits your subject, like a square or even a circle. If you

use the undo tool correctly, you won't have to worry about experimenting. You can use either your cropping tool or what's called a "shape" tool. That photo of your best friend might look neat if you cropped it into a star shape. Or maybe that shot of your dog would make sense if you cropped it to look like a dog bone. If your program has a shape tool, you can usually find it in your adjustments folder or on your toolbar. If you don't see the shape you're looking for, you can often download new shapes for free on the Internet. A quick search for "free shapes" and your software program name will yield a lot of results. Now you really have a lot of options!

Framing

Once cropping is complete and you're happy with the way your photo looks, you can consider framing it. Most photo editing software programs allow you to choose a stylized digital frame for your photos. You can pick a Polaroid-type frame, a rustic beat-up looking frame, or a fancy swirl frame. A white frame might liven up the colours in your photo, or a dark frame might make it more dramatic. You can even add an effect to your photo called a "vignette" that is a dark, faded circle added to the edges of the photo to draw the eye to the centre. A lot of old photos have a vignette, which was actually due to the lens limitations of old cameras. Using a vignette tool, you can control how dark and how big your circle is. Some vignette tools actually allow you to pick shapes other than a circle. Get creative and try a variety of vignettes until you see the results you want. Experiment with the different options at your disposal and bring out the best in your photo with a cool frame. Check out the following cool examples of all you can do.

Clockwise from top left: vignette, wavy frame, filmstrip frame and stamp edge frame.

Saving

When editing photos, you should regularly be saving your work, especially if you're happy with your changes. In Unit 1, I mentioned the importance of non-destructive editing and saving your original, unedited photos in a folder marked "Originals". That way, you never have to worry about making irreversible edits to a cherished photo. I talk a lot about getting creative and experimenting in this project, and you want to be confident that you can do that without damaging your source files.

No matter how you plan to use your photo, you will want to save a version of it at its highest resolution. All these high-resolution photos will go into your photo "**archive**". This is a place where you will keep all your edited photos before you resize them for whatever purpose you want. Start by going to the "file" menu and click "save as". If need be, create a new folder to hold this photo. This will really help if you're going to

be working with photos from different places or with different subjects. If you're like me and are the type of person who remembers things by date, I recommend creating folders for each of your dates. Let's say in March 2012, you took a bunch of photos of a birthday party, spring grass poking through snow and your new pet hamster, Louie. I would put all these photos in a folder called "March 2012". No matter how you label your folders, using them will keep your photos easily organized so you can go back and find them later on. Now name your photo something that will help you recognize it later. It helps to include a date in your file name so your photos will be organized by date. Something like "March 20 2012 – Sunset in Aberdeen" would work. Now click "okay". If your photo software asks you what type of quality you want, always click "maximum" or whatever will give you the highest resolution. Some programs might ask you what type of file you want your photo saved as. You have a few options. Each option has its own pros and cons. Read below to find out what they are.

Understanding File Types: RAW, TIFF, JPEG

You've probably seen all of the above file formats at some point (I mentioned RAW in Unit 1). Do you know what they are all for or how they perform best? If you're going to be working with digital photo editing software, it helps to have an understanding of when to use each file type. Whether you're shooting or editing, you should be thinking about what you want the end use of your photo to be, and that will determine the file type you want to use. Ultimately, do you want to use your photo on the web and only the web? Then definitely shoot and edit with JPEG. But if you want to be able to print your photos, consider shooting and editing in the larger formats, like RAW and TIFF. These formats use less compression (digitally reducing the file size of an image in order to save space), so there is more information in the file, which makes it better for using in larger file applications. The drawback to formats that don't use a lot of compression is that your file sizes will often be huge. Don't worry if JPEG is the only option you have with your camera. JPEG can still be used to take (and print!) amazing shots. Here is a pretty handy guide (from www.HP.com) for determining what type of file to use and when:

	RAW	TIFF	JPEG
What to use it for	Some photo editing software programs can accommodate the RAW format. The RAW file format is best for archiving because it retains the most digital information.	The TIFF file format is ideal for editing and making large prints because it still retains a large amount of image information (almost as much as RAW).	For most printing jobs and sharing through email and over the Internet, JPEG is the perfect file format.
Pros	No compression has been applied. Every bit of information collected from the camera has been preserved.	TIFF supports layered files, which allows you to edit images in software programs that use layers. TIFFs retain colour information while being much smaller than RAW. TIFF files can be saved with very little compression making it ideal for printing large sized high-resolution photos.	JPEG has the highest compression of the three and therefore offers the smallest file size. It is also the most common file format in use. Just about every photo editing program supports it.
Cons	RAW image files can be very large, easily upwards of 40 to 50MB per photo with a high-megapixel camera. Once a RAW image has been manipulated, a copy has to be saved in another form, such as a TIFF or JPEG.	Though they are smaller than RAW files. TIFF files are not small. Depending on the resolution of your camera, you could easily end up with files in the 5 to 15 MB range. TIFFs are not widely supported by Web browsers, which make them a poor choice for online use.	Unlike RAW and TIFF formats, a JPEG will degrade each time you save it. That's why it's important to save a high-quality original and then edit copies of that file.

Some programs will allow you to easily convert amongst the file types. If you shoot your photo in JPEG format, you should be able to easily save as a TIFF. When you go to save your photo, your program should ask how you would like it to save your file. Most programs give several options for saving photos. You could even consider saving your photo as a PDF (Portable Document Format), which is similar to a TIFF in that it can save at a reasonably high resolution and be easily printed at your local printing shop. Look through the different options your program allows you to save. Play around with them to see what each does for your photo's resolution and file size.

Resizing

So you've made all the edits you want to your photo and you think it's looking really good. Great work! Now that you've saved your archival copy, you're ready to share your photo with the world. First you have to decide how you're going to share it with the world. Are you going to upload it to the Internet? Are you going to print off a small copy to show your club? Are you going to enlarge it as big as you can to give to your parent or guardian as a birthday gift? These are important questions because they help determine how you'll save your "working" version of that photo. Photos that are going on the Internet don't need to be of a very large file size or resolution, because a large file can take ages to upload and it's an overload on your system for no real reason (after a certain resolution, a computer can't tell the difference how crisp an image is). If you want to print a photo at its maximum resolution (enlarged), it can be saved the same way as your archival photo. For any other sizes you will need to use your programs' "resize" tool. Resizing your photo is pretty simple; all you have to do is go to your tools or menu and select "resize" or "adjust size". Under this option, you should be able to choose the size you want your photo to be. For a photo used for web only, aim for a file size around or below 300KB (or around 640 x 480 pixels). For a small print (a 4 x 6, for example), aim for around 500-700KB and for anything larger than that, go for a file size above 1MB. Some programs actually have default options (common photo sizes like 5 x 7, 8 x 10, etc.) so you can save your photo for your exact purpose. Look through your save settings to see what other options you have.

Printing

When you're ready to print your newly edited and saved photos, you have a couple of options. First, if your family has a photo quality printer, you can print your photo right from the comfort of your own home. You will want to invest in some high-quality photo paper, which can be a little expensive, but is well worth it for the end result. Keep in mind, unless you have an industrial-sized printer, your photos will never be bigger than the standard size of a page of paper (8.5" x 11").

If you want to print your photos at a larger size, or if you don't have a photo-quality printer at home, there are plenty of photo printing businesses that will print your photos for you. In fact, many of them have great websites where you can actually upload your photos, select your sizes and finish (matte or glossy), and many other options. You can even pay online and the store will email or call you when your photos are ready to be picked up!

Many of these places also give you the option to print your photos on mugs, placemats, blankets and more. Pretty neat, huh? You don't have to use businesses with a website though. You can support a small business in your area by heading down to the local photo printer with your photos saved to a disc or memory stick and they will happily print them for you.

Printing can sometimes be expensive, but printed photos make great, almost handmade gifts. Who wouldn't love one of the original prints from a photo that you shot and edited yourself?

Wrapping Up

You have come to the end of your photo editing adventures. Or have you? Hopefully you've enjoyed this project so much that you're looking forward to learning more about photo editing. Thankfully, there are thousands of resources out there for you to take your photo editing skills to the next level. In fact, there are even some software programs fully dedicated to many of the individual techniques and tools discussed here.

You can find sharpening software, colour correction software and photo repair software for old, torn, or sun-damaged photos. You can also find hundreds of thousands (millions, even) of tutorials online with detailed instructions on how to do almost anything you can imagine. Don't let the journey end here; keep having fun and experimenting with your photos. Remember, photography and digital photo editing are arts, so there is no "right" or "wrong" – the most important thing is that you have fun and enjoy the process of being creative! You never know, you might just discover a hidden talent!

Glossary

Archive: A place to save all of your photos on your computer's hard drive for easy searching and recovery.

Binary: Binary language is comprised of zeros and ones and is how computers read and transmit information.

Black and White: A digital photo without any colour present, only black, white and grey tones. Can be used interchangeably with De-saturated and Monochrome.

Blue Filters: These filters "cool down" a digital photo, adding more overall blue tones.

Blur: Softening pixels to create an out of focus effect.

Brightening: To use a brightening tool to literally make a photo lighter.

CCD: Stands for Charge Coupled Device. It is a sensor in certain digital cameras for converting light into computer language.

Clipping: Also known as "Blow out", this term means to brighten a digital photo so much you lose all detail in the highlights.

Clone Tool: A tool that copies an area of the photo and pastes it over a problem area. Used interchangeably with the Retouch Tool.

CMOS: Stands for Complementary Metal Oxide Semiconductor. It is a sensor in certain digital cameras for converting light into computer language.

Colour Balance: The measure of the colour quality of a digital photo. "Warm" colour temperature has an overall orange hue, and "cool" colour temperature has an overall blue hue. Used interchangeably with Colour Temperature.

Colour Filters: These filters allow you to adjust the overall tint of a photograph, controlling the colour balance and feel of a digital photo.

Colour Temperature: The measure of the colour quality of a digital photo. "Warm" colour temperature has an overall orange hue, and "cool" colour temperature has an overall blue hue. Used interchangeably with Colour Balance.

Contrast: The amount of difference between tones in a photo. Increasing contrast gives your photo more colour depth between the shadows and the highlights.

Copyright Infringement: A violation of rights secured by copyright, i.e., using someone else's copyrighted work without their prior permission.

Cropping: Cutting out an area of the photo to eliminate an unwanted element or to create a new composition.

Curves: A more exact method of editing colour temperature that allows the editor to adjust shadows, highlights and mid-tones.

Depth of Field: The distance between the nearest and furthest objects in a digital photo.

De-saturated: A digital photo without any colour present, only black, white and grey tones. Can be used interchangeably with Monochrome and Black and White.

Digital Photo Editing: Modifying a digital photo for purposes of fixing mistakes, enhancing the image, or for artistic reasons.

Exposure: The amount of light that falls on the subject of a photograph. A photo that is "overexposed" has an overabundance of light; a photo that is "underexposed" has too little light.

Framing: Either digitally or physically, a decorative feature that surrounds your digital photo, adding interest.

High Dynamic Range (HDR) Photography: A set of techniques that allow a greater dynamic range of luminance between the lightest and darkest areas of an image.

Highlights: The lightest areas of a digital photo.

Histogram: A graphical representation displaying the distribution of colour tones in a digital photo.

Hue: The overall balance of the colours in your digital photo.

JPEG: A very popular digital file type that uses heavy compression but is ideal for sharing photos online or through email.

Layers: Images or effects overlaid on top of one another. Often used to make slight effect adjustment to a digital photo.

Levels: The amount of highlights, shadows and mid-tones in a digital photo.

Luminance: The intensity of light coming from a given surface area of a digital photo.

Megapixel: One million pixels equals one megapixel.

Memory Stick: A portable file storage device that can hold your photos for transport.

Merging Images: Using digital photo editing software to seamlessly attach images together to make them appear to be one image. Used interchangeably with Stitching.

Mid-Tones: The areas in-between the lightest and darkest areas of a digital photo.

Monochrome: A digital photo without any colour, only black, white and grey tones. Can be used interchangeably with De-saturated and Black and White.

Noise: The occurrence of colour dots or specks on a digital photograph where there should be none.

Noise Reduction Tools: A tool that reduces the amount of noise in a digital photo.

Non-Destructive Editing: The practice of editing in such a way that you never work with (destroy) your source or original file.

Orange Filters: These filters “warm up” a digital photo, adding more overall orange tones.

Photo Editing Software: Computer software that allows you to edit photos. Programs like Adobe Photoshop, iPhoto, Corel Paintshop, Photoscape, Google Picasa and GIMP are all examples of photo editing software.

Pixels: Short form of "picture elements". Tiny squares, each with its own value for colour and intensity that make up a digital photo.

Printing: Using a home printer or a printing business to transfer your digital photographs to paper for framing or gifts.

RAW: A digital file type that uses very little compression and requires editing prior to being a real digital photo. Best for archiving and printing large files.

Red-Eye: The red-eye effect occurs when a flash causes a reflection from the back of the subject's eye. In the subsequent photo, the subject's pupils appear bright red.

Resizing: Changing the file size or aspect ratio of a photo for printing or sharing.

Resolution: The number of pixels that come together to form an image. The higher the number of pixels, the higher the resolution.

Retouch Tool: A tool that copies an area of the photo and pastes it over a problem area. Used interchangeably with the Clone Tool.

Rotate Tool: A tool for turning your photo in 90-degree increments.

Saturation: The amount of colour in a digital photo.

Saving: The practice of recording a copy of your photo on your computer's hard drive for safekeeping.

Selection Tools: Selection tools allow you to select certain areas of, or objects in, a photo. Types of selection tools include the marquee tool, the lasso tool and the magic wand tool.

Sepia: Introduced in the 1880s, it was a pigment added to black and white photos. Now used digitally to simulate a vintage look.

Shadows: The darkest areas of a digital photo.

Sharpening: Sharpening tools increase the contrast between pixels, making the edges more distinct.

Straightening Tool: A tool used to straighten a tilted or off-angle digital photo.

Stitching Images: Using digital photo editing software to seamlessly attach images together to make them appear to be one image. Used interchangeably with Merging.

Temperature Tool: This tool adjusts the overall colour temperature of a digital photo.

TIFF: A digital file type that uses little compression and is ideal for archiving or printing large digital photos.

Tint: The colour shades in a digital photo. Can be used interchangeable with Tone.

Tone: The colour shades in a digital photo. Can be used interchangeably with Tint.

Toning: A process used to increase the visible tone range in a black and white photo without reducing contrast.

Undo Button: The button in every editing program that allows you to "go back" to your photo the way it was before you made an edit.

Unsharp Mask: A sharpening tool that allows the most control over the amount of sharpness that is added to a digital photo.

Vignette: A photo framing effect, often circular, that shades off into the surrounding colour at the edges. A lot of old photos feature this, which was actually due to the lens limitations of old cameras.

Resources

How-to Sites:

Digital Photography School: http://digital-photography-school.com

Cambridge in Colour: www.cambridgeincolour.com/tutorials.htm

PhotoCritic: http://www.pixiq.com/contributors/3673

Digital Photography Tips: www.digital-photography-tips.net

Photoshop News: www.photoshopnews.com

PSD Tuts+: http://psd.tutsplus.com

Free Photo Hosting Sites:

Flickr: http://www.flickr.com

Photobucket: http://beta.photobucket.com

ImageShack: http://imageshack.us

Photo Printing and Book Creation:

Shutterfly: www.shutterfly.com

Snapfish: http://www5.snapfish.com/snapfish/welcome

Activities

Important Note: Some people won't have the editing features necessary for some of these activities. If this is the case with you, just choose a different activity or morph the activity enough so that you can still do it. Or, better yet, partner up with a fellow 4-H member who has the software with the features you don't have and work together!

1. Introduction: Opening, Resizing and Saving

Time: Less than an hour

What you will learn: In this activity, you will learn how to open up a photo in your photo editing software, resize it and save it to your computer.

What you need: Any photo you have saved to your computer and your photo editing software.

Instructions: This activity is meant to get you accustomed to how your editing software uploads and saves files.

1. Open your photo editing software program.
2. Either click on the thumbnail of the image you want to edit, or click File> Open> and find the photo you want to edit.
3. Some programs allow you to click "edit" to access your editing menu. Some have it right in the regular view. If you need to, click Edit to get to your editing menu.
4. Don't make any adjustments to the look of your photo at this point. We just want to familiarize ourselves with how to open, resize and save. Find your resize tool. It should either be in a menu under Tools, Print, or simply Resize. Pick a different size for your photo; any size will do, as long as it is a different size from what it is.

5. Save your photo with a new name. If your photo is called "Beach Day – July 2012", name it "Beach Day – July 2012 – 4x6" or whatever size you've chosen. Save your photo to your "Edited Photos" folder.
6. Now close out of your editing program.

Discussion

- Is your program easy to use and understand?
- Did you find the tools you needed to use easily and quickly? If not, you could consider writing down hints for how you got to them for easy access in the future.
- Was it easy to save your photo? Do you think it will be easy to keep your photos organized throughout this project? How can you make the process easier?
- Do you know how to use your computer's "search" or "find" feature? How could that make finding your photos easier?

2. Get with the Program: Becoming Comfortable with your Software

Time: A couple of hours

What you will learn: In this activity, you will learn where all the key tools are in your editing software and how to quickly and easily find them again. You will also learn which tools your software has and which ones it doesn't, and share that information with your group. This way, your club can plan to take part only in the activities you have the tools for, or match members together who have certain tools that others don't.

What you need: A photo editing journal, any photo and your photo editing software.

Instructions: This activity is meant to introduce you to your software editing program in a more in-depth way. At the end, you should be able to easily repeat the steps necessary to open up a given tool at any time.

1. Open your photo editing software program.
2. Open up a photo file (it's easier to open up tools when you have a photo loaded into your program).
3. With your photo editing journal open beside you, find and open each of the following tools. For each tool, write down the path of how you got there. For instance, the best way to do it is like this: "Brightness: Edit> Adjust> Brightness" In the future, whenever you need to get to the brightness tool, you simply have to open up your journal and find the path. This can save you a lot of time looking for tools until you have your software paths memorized. If you can't find a tool, try searching for it in your software's "Help" menu.
4. If you have extra time, follow your written instructions to find the tools again a second time. Start getting familiar with where to find them.
5. Keep track of which tools you have and which ones you don't. Bring your journal to your next project meeting.

Tools

Crop Tool	Straighten Tool	Rotate Tool
Exposure Tool	Selection Tool	Contrast Tool
Brightening Tool	Hue Tool	Saturation Tool
Red-Eye Tool	Noise Reduction Tool	Clone/Retouch Tool
Sharpening Tools	Frame Options	Print Options
Levels/Histogram Tool	Saving Options	Colour Temperature Tool
Colour Filters	Blur Tool	

Discussion

- Was it difficult to find all of the tools? Did it take you a long time?
- Do you have most of the tools listed? If yes, are you going to offer another group member the option of using your software for some of the activities in this booklet? If no, is there someone in your group who is willing to let you use the tools in their software?
- Did your tools have the same names as the ones above? If not, discuss the different names with your group. Why do you think there are different names for different programs?
- Was it easy to go back and find the tools again a second time?
- Do you think you will use your journal a lot throughout this project to help you quickly and easily find your editing tools?

3. Exposure Fix

Time: Less than an hour

What you will learn: In this activity, you will learn how to repair both an under- and an overexposed photo.

What you need: The two "Overexposed" and "Underexposed" photos provided with this project and your computer editing software.

Instructions: The photo you're going to use in this activity is of the same scene, but has been taken with a longer or shorter exposure. You will see how hard certain fixes can be and just how much you can fix on a wrongly exposed image. Use the tools that your software program has. If you don't have some of the tools listed below, try to do your best with the tools you have.

Underexposed:

1. Start by opening up the "Underexposed" photo in your editing software program.
2. Open up your exposure tool. Move the slider back and forth until you start to see more areas lightening up without becoming too noisy.
3. If you didn't get the effect you wanted, open up your brightness and contrast tools and work with them to try to lighten up the image without losing quality.
4. If you have the option, open up the levels and histogram tool to adjust your exposure. Use the technique described in Unit 2 about how to use the histogram.

5. When you are happy with the way your photo looks, save it to your computer and also a memory stick that you can take to your next project meeting to show your group.

Overexposed:

1. Start by opening up the "Overexposed" photo in your editing software program.
2. Open up your exposure tool. Move the slider back and forth until start to see more areas becoming darker without losing too much detail in the highlights.
3. If you didn't get the effect you wanted, open up your brightness and contrast tools and work with them to try to darken the image without losing quality.
4. If you have the option, open up the levels and histogram tool to adjust your exposure. Use the technique described in Unit 2 about how to use the histogram.
5. When you are happy with the way your photo looks, save it to your computer and also a memory stick that you can take to your next project meeting to show your group.

Discussion:

- Was it easy to use the exposure tools? Did you use all the tools (exposure, brightness, contrast, levels and histogram)? Which tool did you like best? Which had the most impact on your image?
- Are you happy with the way your images turned out? Did you find one of the photos easier to work with? Was it the underexposed image or the overexposed image? Why? Do your fellow club members agree?
- Compare your before and after photos. Do you think the after photos are much improved from the before photos?
- Did you have similar success as the other project members in fixing the exposure? What tools did they use?
- Consider how you can improve your exposure "in-camera" when you take your photo, rather than relying on editing to fix it. Would this help you when you go to edit?

4. "I can't hear you! It's too noisy!" How to Reduce Noise

Time: Less than an hour

What you will learn: In this activity, you will learn how to reduce noise in your photographs.

What you need: The "Noisy" photo provided with this project and your photo editing software.

Instructions: Your photo editing software might have a "noise reduction" feature. With this feature, it's really easy to remove noise from your photographs. Some programs have different ways of accessing these tools. Using Photoshop and iPhoto as examples, here are two ways to use the noise reduction tool:

Photoshop:

1. Open up the "Noisy" photo in your editing software.
2. Open up your noise reduction tool (click Filter> Noise> Reduce Noise).
3. Now use your slider tools if you want to adjust the settings, but otherwise leave the command on default and watch how it magically reduces noise.
4. Once you reach a level you're happy with, save both your before and after images to your computer and to a memory stick to take to your next project meeting.

iPhoto:

1. Open up the provided "Noisy" photo in your editing software.
2. Open up your adjust tool (Edit> Adjust).
3. Move the "Reduce Noise" slider to the right until you see the noise decrease.

4. Once you reach a level you're happy with, save both your before and after images to your computer and to a memory stick to take to your next project meeting.

Discussion:

- Did the noise tool drastically reduce the amount of noise in the photo? If not, why? Do you think too much noise is impossible to remove?
- Compare your before and after photos. Are you happy with how your after photo looks?
- Did you try the technique on any of your other photos? What do you think would happen if you used a noise reduction tool on a photo without noise?
- Did everyone in your group use the same amount of noise reduction on the photo? Did you use more or less than most of your fellow group members? Why do you think that is?

5. Getting Whites their Whitest: Correcting Colour Balance

Time: Less than an hour

What you will learn: In this activity, using a photo we provide, you will learn how to correct your colour balance using the temperature tool. If your program doesn't have a temperature tool, try using the hue tool in the same way to get the effect you want.

What you need: The "Colour Balance" photo provided with this project and your photo editing software.

Instructions:

1. Open the "Colour Balance" photo in your editing software.
2. Open up your temperature tool.
3. Find the white area in the photo.
4. Move the slider back and forth until the white looks as much as pure white as possible.
5. Once your white area looks good, make sure the other colours in the photo look like they should as well. If they don't, you might need to keep moving the slider slightly back and forth until they look right.
6. Once you're happy with your colour balance, save your before and after photos to your computer and a memory stick that you can take to your next project meeting.

Discussion:

- Does your program have a temperature tool? If not, was the hue tool easy to use to correct your colour balance?
- Did it take a long time to get your colour balance looking good? Did the colours change a lot from the original photo to the balanced one?
- Comparing your before and after photos, do you think your after photo looks a lot better?
- What instances might you have to use the temperature tool? What kind of pictures have colour balance problems?
- Did everyone in your group use the same amount of noise reduction on the photo? Did you use more or less than most of your fellow group members? Why do you think that is?

6. Filter Fun

Time: A half hour or more

What you will learn: In this activity, you will learn how different colour filters can change the look of your photo.

What you need: A colour photo of your choosing and your computer editing software.

Instructions: In this activity, we're going to experiment with colour filters. In your manual, I talk at length about how different filters can alter the "feel" of your photos, and now it's time to try them out.

1. Select a photo you would like to work with.
2. Open up your "filters" folder.
3. Pick a filter and try it out on your photo. Try adjusting the intensity of the filter if you can. Once you're happy with that filter, save your photo. Make sure to save your photo with the name of the filter (e.g., "Maggie's backyard – Sepia" or "My first fish – blue tint"). This way, it will be easier to go back and see which filters you like best.
4. Go back to your original photo and try another filter. Save that one too. Save at least 3 different colour filters on the same photo. Save all the photos to your computer and a memory stick to bring to your next project meeting.

Discussion:

- Was it easy working with colour filters? Did you have fun experimenting?
- Which filter did you decide you liked best for your photo? Why? What about that filter do you like? How does it transform the feel of your photo?
- Compare the filters you chose to those your fellow group members chose. Did many of you choose the same filters? Do you agree with the others on which filters look best on which photos?
- How can you use filters in the future to enhance your images?

7. It's a Crop Out!

Time: Less than an hour

What you will learn: In this activity, you will learn how to use your crop tool to create a better-looking photo.

What you need: The "Cropping" photo provided with this project and your computer editing software.

Instructions: This activity is fun because it allows you to compare your work with your fellow project members on the same photograph. It's fun to see how different people see photos differently, and how everyone has their own idea of what a good photo looks like.

1. Open up the provided photo ("Cropping") in your editing program.
2. Select your crop tool and crop the photo however you choose. Make sure the cropped photo looks better to your eyes, less busy and more interesting.
3. Save your photo to a memory stick and bring it to your next project meeting.

Discussion:

- Was the crop tool easy to use?
- Did cropping make the photo look better? If so, how?
- Compare your cropped photo to your fellow group members' photo. Did everyone crop the photo differently? Explain why you cropped yours the way you did and compare your reasons to the other group members. Are they similar?
- If you could crop the photo again, would you choose to do it differently?

8. Finding Focus

Time: Less than an hour

What you will learn: In this activity, you will learn how to use the blur and retouch tools to create focus in an overly busy photo.

What you need: The "Finding Focus" photo provided with this project and your computer editing software.

Instructions: The photo you have been given is pretty overwhelming. There is just so much going on in this image and everything is in sharp focus. In this activity, we're going to choose where we want the focus to be and make everything else blur into the background using our blur or adjust tools.

1. Start by opening up the "Finding Focus" photo in your editing software program.
2. Open up either your blur or retouch tool. Adjust the size of the tool for how big of an area you want to blur.
3. Using your mouse, "paint" over the area you want to blur with your tool. If you want to blur the area more, increase the intensity of the tool.
4. Don't worry if you get too overzealous and accidentally blur the area you want to keep in sharp focus. Use the "undo" tool and start over!
5. Zoom in to be more exact in the area you're blurring.
6. When you're happy with the amount of blur, save the photo to your computer and to a memory stick that you can bring to your next project meeting.

Discussion:

- Did you enjoy working with the blur tool? Did you find it easy to use?
- Was it easy to be exact about the areas you wanted to blur? Did you try adjusting the size and intensity of the tool?
- Did you have to start over at any time? How many times?
- Compare your photo to your fellow group members. Did a lot of members pick the same area to focus on or were there a variety of focus points? Why did you choose the area you did? Explain your reasons to the group.

9. "On Your Own" Edit and Share

Time: About an hour

What you will learn: In this activity, you will learn how to edit a photo to look better overall.

What you need: A photo you would like to edit and your computer editing software.

Instructions: This activity focuses on an introduction to photo editing. You're going to do some basic edits to a photo you've taken and bring both the before and the after photos to your project meeting. With your group, discuss how the edits changed your photo for the better (or worse) and what more you could do to help.

1. Select a photo you've taken that you think could use some work.
2. Perform some exposure fixes using either your exposure, brightness and/or contrast tools.
3. Perform some colour fixes using your temperature or hue and saturation tools.
4. How does it look? Save both your before and after images to your computer and to a memory stick to take to your next project meeting.

Discussion:

- How did your edits change your photo? Does it look better? Worse?
- Were the edits easy to perform? Did you find the tools quickly? Were they straightforward to use? Or were they confusing?
- Compare your before and after images. Is your after photo much improved from the before photo?
- Compare your edited photo to your fellow group members' photos. Do the differences between the before and after photos look similar? Were there any photos where the changes were more drastic?

10. Look Deeper: Researching Techniques

Time: a couple of hours to a whole day

What you will learn: In this activity, you will learn all about an editing technique of your choice. Through presentations by your fellow project members, you'll learn more about other techniques as well.

What you need: You need books about digital photo editing, your computer, the Internet and a pad of paper on which to write notes.

Instructions: In this activity, each group member selects one editing technique to do more research on. It can be anything from exposure editing to retouching. Pick a technique you like or want to learn more about. Spend a few hours researching that technique. Prepare a brief presentation to your group about what you learned. In your research, try to answer the questions below:

1. How did this editing technique come about? What did people do to fix these problems in the age of film before digital cameras?
2. Are there programs that exist specifically for this technique? What are they? How do they work?
3. What is the science behind the technique?
4. Are there more advanced tools than what you have to perform this technique?

Discussion:

- Why did you pick the technique that you did? Did you learn a lot about it?
- Was it easy to find information on this technique?
- Is the technique you chose a fairly advanced one?
- Do you have a better understanding of how the technique works?

11. Instant Vintage: Aging a Photo

Time: One to two hours

What you will learn: In this activity, you will learn how to take a regular photo and, using a variety of photo editing tools, give it a vintage or "aged photo" look.

What you need: A colour photo of your choosing and your editing software.

Instructions:

1. First, choose a coloured photo you would like to edit to look older. You might think it makes more sense to start with a black and white photo because it looks older, but when you add effects to a coloured photo they end up looking much richer than if you started with a black and white photo.
2. Open up your colour filter options. Select either the black and white or the sepia filter. Or, if you would like a more "yellowed" look, adjust your saturation by bringing it down until your photo is almost black and white. Now adjust your hue settings until your photo is just slightly yellowed. It looks old already, doesn't it?
3. Open up your contrast tool and increase the contrast quite a bit.
4. If your photo looks really dark once you've increased the contrast, open your exposure tool and move your slider to the right to brighten it up. Remember, you're not going for a "technically good" photo-look, but a vintage one, so you don't want to be shy with the tools. A lot of old photos are slightly over or underexposed. Flaws are what make old photos look old! You always have your undo button, so feel free to experiment.
5. If your editing program has the option, add some noise using a special effects filter. Play with the settings until you get a "film grain" look without losing too much of the quality. If you want to take this one step further, some programs have filters that add grit, stains and rips to your photo. If you have the option, experiment with these features to give your photo a real "distressed" look.

6. Finally, open up your framing options. Choose to add a vignette. Play with the settings to control how large and dark your vignette is.
7. Once you're happy with your vintage photo, save both your before and after images to your computer and to a memory stick to take to your next project meeting.

Discussion:

- Were the tools we used in this activity easy to work with? Did you try out a lot of different settings?
- How far did you go with aging your photo? If you had to pick a decade when the photo might have been taken, what would it be?
- Compare your before and after images. Are you happy with how much older the after photo looks?
- The subject you chose affects the way your vintage photo looks. Think of the other photos you have and what time of vintage effects you could add to them.
- Compare your photo to your fellow group members' photos. Is there a variety of vintage "looks"? Discuss what your favourite photo is and why.

12. Pass It On: Group Photo Edit

Time: Several weeks

What you will learn: In this activity, you will learn how to edit as a group. You will learn to work together as a team to create the best possible photo.

What you need: A photo your group agrees upon to edit together, your computer with your editing software and a memory stick to transport the photo.

Instructions: As a group, choose a photo that you want to edit together. It can be anything, as long as the size of the file and the resolution are appropriate. Now, you have to pick turns. Depending on how many of you there are put numbers in a hat. Everyone gets to pick out a number. The person with number one goes first, the one with number two goes second, etc. If there are just two to four of you, each of you will have to do more to edit the photo, so you'll have to pick two or more edits from the list below. If there are a lot of you, divide the edits up among yourselves.

If you picked out number one from the hat, you get to do the first edit. Take the memory stick home loaded up with the selected photo, and do the first edit listed below. Then, take your memory stick to your next meeting. Show your edits to the group. Discuss your changes and how/why you made them. Now, give the memory stick with the edited photo to the person who picked out number two. They will do the second edit, and so on. Keep going until all the edits are finished and everyone is happy with the final photo.

1. Rotate and/or straighten the photo
2. Fix the exposure
3. Balance the colour
4. Pick a colour filter
5. Use the clone/retouch tool to erase spots
6. Sharpen the photo
7. Crop the photo or use blue to create focus
8. Framing

Make sure everyone saves the photo with his or her edits as a new file name. The memory stick should always have the original photo, the edited photo(s) of the person before you and your edited photo. That way you can see the progression of your group edit as you go. Have fun!

Discussion:

- What do you think of the final result of your group edit? Did it turn out the way you imagined it would?
- Did anyone make any really drastic changes? Did you like those changes?
- Were there any arguments between group members about what looked good and what didn't?
- Was working in a group difficult on this project? Why or why not?
- Would you want to work on a group edit in the future? Why or why not?

13. 180 Degrees: Stitching Together a Panorama

Time: Two to four hours

What you will learn: In this activity, you will learn how to seamlessly "stitch" together multiple photos of the same scene.

What you need: Your digital camera, at least three photos taken of the same scene at different angles and your computer editing software.

Instructions: Go out (or stay in!) and take at least three photos of the same scene. Be sure to change up the angle of the photos, as you're going to be stitching them together to make a really cool panorama. Let's say you're standing on a beach. Move your head slightly to the left, put your camera up to your eye and take a photo of your beach view to your left. Now, without taking the camera away from your eye, move your head so you're looking straight forward, and take a photo of the view in front of you. Now, again, without taking the camera away from your eye, move your head slightly to your right and take a photo of the view to your right. You want to make sure that there are some elements of each photo in the photo taken after it, so that you can line the photos up later on. It might help to find a landmark (like a garbage pail or a lawn chair) so that you can plan to take your photo with the landmark in the extreme right of the frame, and then the extreme left. That landmark will help you put the photos together seamlessly.

When you get back home, upload the photos to your computer and open them up in your editing software. Now, follow the instructions below to start creating your panorama.

1. Choose two of the photos to start working with. Don't worry if the photos have issues like exposure or colour balance, it will be easier to fix them when they're attached together as one.
2. Using your straightening tool, straighten either of the photos so that the landmark you chose is level in each photo. Use your rotate tool if you need to slightly adjust the rotation.

3. If your editing software has the option, lower the opacity on one of the photos. That photo should now look a bit faded.
4. Using your mouse, select each photo and move them around until your landmarks are perfectly on top of one another.
5. Change the opacity back on the photo you lowered it on.
6. Perform steps 1-5 with your third photo.
7. You should now have three photos that line up pretty well, but you need to get rid of the edge lines. For this, select the clone or retouch tool. Adjust for size, and click on a clear section of the photo. Now, using your mouse, click overtop of the photo edges. You should start to see the edges disappear (they are really getting covered up by the clone tool).
8. You should now be looking at a seamless panorama! If your program allows it, select the option to "merge all layers" which makes your layers become one. Now you can edit anything else you want to and your panorama will stay in one piece!

Discussion:

- How many photos did you use? If you used three, was it not enough to convey the scene? How many more would you have used?
- Did you have to make a lot of rotate and straightening adjustments to get your photos to line up? Why do you think that is? How would you photograph a scene differently to make this easier?
- Did you have a hard time using the clone tool? Why? You might need to get more practice. Making panoramas is a great way to do that!
- What other scenes might look good as panoramas?

14. Get the Lomo Look: Faking Lomographic Images

Time: Less than an hour

What you will learn: In this fun activity, you will learn how to use your editing tools to create a Lomography look.

What you need: Any photo you would like to transform to a Lomograph and your computer editing software.

Instructions: Have you ever heard of Lomo Photography? Don't worry if you haven't. The Lomo is a Russian-made camera that is pretty poorly made, yet somehow, it's grown a massive, cult-like following among photographers. The Lomo look is very high contrast with sharp colours and a skewed colour balance. These photos have a really neat effect. In this activity, we're going to use your editing software to make a Lomograph out of a regular old image. Before you start, it might help if you search images of "Lomography" to see the general look of Lomo photos. This will help you when you are deciding how to edit the colours of your photo.

1. Open up the photo you've chosen to work with in your photo editing software.
2. Using your frames option, add a vignette to the image. Your vignette should be fairly opaque (not too dark) and just along the edges.
3. Now we're going to play with our colours and saturation. Because of the way Lomographs are processed, their colour balance is often skewed and the results can vary greatly between shots. There's no right and wrong way to do this step. Open up your Hue/Saturation tools. Adjust your hue until you get a tint you like. Now ramp up your saturation a little until you're happy.
4. Now open up your brightness and contrast tools. Increase your contrast almost all the way until you like the new look of the image.
5. At this point, we actually want to add noise to the image, to give it a film effect. Go to your noise reduction filter and you should be able to use the slider bar to increase noise. If your software doesn't have that option, look for another noise-related tool or filter that will increase the noise on your photo.

You want to be sure you don't add too much noise, or it could distort the image far too much.

6. Once you're happy with your Lomo-look photo, save both your before and after images to your computer and to a memory stick to take to your next project meeting.

Discussion:

- What did you think of the Lomo effect? Do you think you would try this effect again with other photos?
- Compare your before and after photos. Does your after photo look a lot different from the before photo?
- Have you seen this effect on other photos? Where did you see them?
- Does your Lomograph look a lot different from your fellow project members? Why?
- Would you like to try a Lomo camera someday? Do you know anyone that has one?

15. It's a Fixer Upper

Time: About two to four hours

What you will learn: In this activity, you will learn how to use your photo editing skills to fix a multitude of problems to make a photo look better.

What you need: The "Fixer Upper" photo provided with this project and your computer editing software.

Instructions: This activity is the culmination of your photo-editing journey. Using a photo provided ("Fixer Upper"), you will have to use all of the skills you have learned to repair it the best you can. You will be bringing your edited photo to your next project meeting to compare to your fellow group members' photos. This is a fun activity, as you will be able to see how your repairs (and level of repairs) differ from that of your fellow group members. Post your edited photos next to the original and compare.

Remember, you don't have to perform ALL of the edits below, just because you can. This activity puts you in the driver's seat. YOU get to decide what needs to be edited in this photo to make it better. Sometimes subtlety is an editor's best friend.

1. Begin by loading the "Fixer Upper" photo into your editing software.
2. Edit using all the steps discussed in your manual. Start with straightening and rotating. If you think the photo needs it, use your straightening tool to straighten the horizon, or the rotate tool to rotate it into a better position.
3. Now move on to exposure. Use your exposure/brightness/contrast tools if you think the photo's exposure needs to be adjusted.

4. If the photo's white balance is off, adjust the colour temperature. Try out some colour filters; decide if you want to use any of them to enhance the photo. Adjust the hue and saturation tools until you get the look you want.
5. Does the photo have unwanted spots or lens flares that aren't supposed to be there? Use your clone or retouch tools to get rid of them.
6. Now use your sharpen tools to sharpen your focus. Only use your sharpen tool if you think the photo needs it. Remember to be sparing with sharpening tools. Adjust until you're happy.
7. If you think the photo is too "busy" consider creating focus with the blur tool.
8. The photo might benefit from some creative cropping. If you want, try out a few different cropping options. Press the undo button if you want to keep the photo intact.
9. Decide if your edited photo would benefit from a frame.
10. Once you are happy with the way the photo looks, save both your before and after images to your computer and to a memory stick to take to your next project meeting. Be prepared to explain the reasons you chose to make the edits you did!

Discussion:

- Was it easy to edit this photo? Were the problems really obvious to you?
- Did you make a lot of edits to the photo? Did you use all the tools available to you?
- Compare your before and after images. Does your after photo look much improved?
- Compare your photo to your fellow group members' photos. Whose photo looks the most like the original? Whose looks the least? Why?
- Do a lot of the edited photos look similar? Why is that?
- Does everyone agree that one photo looks the best out of all of them? If yes, why? If no, why not?

16. Ruby the Travelling Dog

Time: Two to four hours

What you will learn: In this fun activity, you will learn how to select an object using your selection tools and insert that object into another photo.

What you need: The "Ruby the Dog" photo provided with this project, a high-resolution photo of your choosing and your computer editing software.

Instructions: For this activity, it's all about creativity. In fact, you don't even have to use a photo that you took yourself! We've provided you with a photograph of Ruby the dog. Ruby is a travelling dog. She goes everywhere! Mostly just in pictures though.

In this activity, you are the one who takes Ruby travelling. You're going to use the image of Ruby the Dog, and place her in any photo you want, anywhere you want. Get creative and have fun with this project. You won't even realize you're learning!

1. Start by opening up the photo of "Ruby the Dog" in your photo editing software. Using your selection tools, you want to "cut out" Ruby from the photo. Zoom in to the photo to make sure you get as close to Ruby's fur as possible, so you don't get too much of the area around her. Remember that you're going to be pasting her into a new environment; you want her to look like she belongs there.
2. Once you've selected Ruby completely, choose to either crop or "cut" her out of the photo using your toolbar options. Now you want to save the cut out of Ruby. Save her somewhere where you can find her easily, like on your desktop or your My Photos folder.

3. Now open up the photo that you want to paste Ruby into. Don't worry about being too realistic. A fun example might be a picture of another planet, like Saturn.
4. Depending on your software, you can either "drag and drop" (click on the Ruby file and drag it with your mouse onto your new photo) or copy and paste to get Ruby into your new file. To copy and paste, click on the Ruby file and select "copy" with your right-click mouse options. Now open up your new photo and click "paste" with your right-click mouse options. Ruby should appear in your photo! Now, use your mouse to move Ruby around the scene until you position her right where you want. A neat option for the Saturn example would be right on top of the rings of the planet. Ruby is a space dog!
5. Use the tools you have learned how to use in this project to adjust Ruby's brightness, contrast and colour to make her blend in better with her surroundings. Maybe Ruby's edges are a little too sharp from your cut-out. Consider using your clone/adjust tool to smooth out her edges. Experiment with all your tools to try to incorporate Ruby as naturally as possible.
6. Save your final version to both your computer and a memory stick to bring to your next project meeting to show your fellow group members where YOU took Ruby.

Discussion

- Were the selection tools easy to use? Did your program allow you to choose different varieties of selection tools?
- Did you have trouble using your editing tools to "blend" Ruby into the photo? What would you do differently next time? Would you pick a different photo to paste Ruby into?
- Where did your fellow group members "take" Ruby? Compare your photo to theirs. Who do you think did a good job of blending her in? Why?

17. Fake it 'til you make it! Creating an HDR Photo from One Photo

Time: About an hour

What you will learn: In this activity, you will learn how to use your editing tools to make an HDR photo out of just one photo.

What you need: A photo you would like to turn into an HDR image and your computer editing software.

Instructions: This technique is difficult to do in entry-level programs. It's best with a higher level editing software program that uses layers like Photoshop. That said, read the instructions below and try to pull off the same technique using whatever software you have. You might get pretty close! Some of the techniques and tools below haven't been discussed in this project. Don't worry, they are a little advanced, but with a bit of practice, you should soon fully understand how to use them.

1. Open up your photo in your editing software program.
2. Duplicate the photo to add it as another layer above the original layer. Change the name of this layer to "Black and White".
3. Desaturate this layer using your saturation tool. Now, using your blending tool, make the blending mode of this layer "Overlay".
4. Now you're going to "invert" this layer by clicking Image> Adjustments> Invert.
5. Add a Guassian Blur filter to this layer by clicking Filter> Blur> Gaussian Blur. Make the blur about 40 pixels.
6. Now duplicate your original image again and move it above "Black and White". Change the name of this layer to "Linear Layer".
7. Change the blending mode of "Linear Layer" to "Linear Light".
8. Lower the opacity of "Linear Layer" to about 60% and you're finished!
9. Once you reach a look you're happy with, save both your before and after images to your computer and to a memory stick to take to your next project meeting.

Discussion

- Was it difficult to use the tools for this activity?
- Did you play around with the settings on each of the tools? How would you use them differently?
- Was there a drastic change between the before photo and the after HDR photo? Do you like the HDR effect?
- Would you like to try making "true" HDR photos using three or more images?

18. Be a Photo Pro! Use Your Skills to Give Back

Time: A day to a couple of days

What you will learn: In this activity, you will use all the skills learned in this project to give back to your community while having fun!

What you need: You will need your digital camera, your computer and editing software.

Instructions: Find a local event going on in your community. It can be anything! It can be a craft fair raising money for charity, an event at a seniors' residence or an annual town festival. Contact the organizers and let them know who you are, that you're participating in this 4-H project, and that you want to come out with your camera to take photos of the event, which you can then edit, and return to them to use for marketing or for spreading the word about their cause. It will be a fun and rewarding way to get involved in your community and give back. Be sure you let them know what you plan on doing though, and make sure you're allowed to be taking photos!

On the day of the event, show up with your camera and an empty memory card and start snapping away! Take a lot of photos; you'll be able to weed them out later. Remember to be polite to people and ask permission if you're going to take any close-up shots. When you're out doing activities for your 4-H projects, you are an ambassador for 4-H and it's important you take that responsibility seriously. Be respectful of people and their wishes. Often, the best photos are taken during candid moments, which you can still get if you develop a rapport with your subject. Engage them in conversation; tell them who you are and what you're doing. I bet they'll be super excited to help you out!

When you get home afterwards with your full memory card, load up your photos and delete the ones that are too fuzzy, dark, or of the ground. Select 10-20 photos you really like and edit them using the techniques you learned in this project. When you're finished, save the edited photos to a disc or a memory stick and drop it off to the

organizers of the event. I'm sure they will be so happy you took the time to help out, and BONUS, your photos could be used all over town!

Discussion

- Was it easy to get involved in the event you chose? Did people embrace you as a volunteer photographer?
- This was your first really big "on your own" edit. How did it go? Were you happy with your photos when you finished editing them?
- Is this something you might consider doing again? Giving back to your community is a big part of what 4-H is about. Maybe there are upcoming events that could use your help!

19. Field Trip to Visit a Photographer

Time: Half to a full day

What you will learn: In this activity, you will spend time with a local photographer and find out more about taking and editing photos professionally.

What you need: You will need a local photographer, a few free hours, your photo journal and a pen, your group and your enthusiasm for photography!

Instructions: As a group, find a local photographer in your community who is interested in speaking about what they do. I think you'll find a lot of photographers are passionate people who are pretty excited about their jobs and enjoy sharing their experiences and knowledge with other people. Set up a day to go and learn about what they do. Preferably it will be at their office so they can show you where/how they edit. When you're there, be sure to be respectful and listen carefully to what is being said. You will probably learn a lot! Before going, think of some questions you can ask. Bring your photo journal so you can write down notes to go over later. Maybe they'll even explain some of their favourite techniques!

Discussion

- Did you enjoy your visit?
- Did you learn a lot? What was the coolest thing you learned?
- Do you think you might like to pursue a career in photography? How would you do that? Where would you start?

20. Become a Food Photographer

Time: About half a day

What you will learn: Food photography is everywhere. Think about it, it's a lot more fun to make recipes when they have a delicious looking photo accompanying them! You can see food photos in magazines, TV, online, on restaurant menus and advertising raw ingredients, like pulses, grains or fruits and vegetables. Great looking food photography is vitally important in many industries. Food photographers style dishes and ingredients in attractive ways to entice customers to purchase those dishes or ingredients. This is a pretty important job where the emphasis is on making the food look as appetizing and delicious as possible. Most food photographers employ certain techniques in order to do this. In this activity, *you* get to be the food photographer. You'll learn how to edit a photo you've taken of a delicious dish or raw ingredient to maximize its appeal to your audience.

What you need: You will need your digital camera, a plate of food styled the way you want and your computer and editing software.

Instructions: This is a fun activity because it's all up to you! It's your job to pick a kind of dish (like what you had for lunch: a peanut butter sandwich, a bowl of soup, a piece of chocolate cake, etc.) or a raw ingredient (like a handful of blueberries, a bunch of fresh grown lettuce, some marshmallows, etc.). "Style" the photo by arranging the food in an interesting way using dishes, napkins or any other decorative elements. Be careful not to overdo it. Remember that the food is the star! You want to get people's mouths watering! If you need some inspiration, search "Food Photography" in your browser's search bar.

There are a few rules to adhere to when taking your photo. I won't go into much detail, but remember these tips: Don't use a flash. Shoot your photo during the daytime next to a window. Natural light is a food photographer's best friend! Shoot your food at a flattering angle. Usually this is in between a 90 and 45 degree angle. Try out a few different shots so you can choose your favourite one to edit. Finally, make sure to get your focus right!

Once you've taken a bunch of photos, upload them to your editing software and choose your favourite one to edit. There are a few general rules that food photographers use to make their food look as yummy as possible. Follow the instructions below until you're happy with how delicious your dish looks. Be prepared to show your photo to your group, and since they'll also be showing you their scrumptious photos, I suggest you eat first!

1. Start by adjusting your exposure. A lot of food photos are slightly over-exposed. A lot of light makes food look fresh (this is why a lot of natural light is used), and a fresh look is what you want. Get the exposure to where you want it, and then give the photo a touch more brightness, being careful not to overdo it.
2. Adjust your contrast. A lot of food photographers stay away from heavy contrast. Too much contrast can give your dish unappetizing looking shadows. Remember that light makes food look fresh. Bring down the contrast until you're happy.
3. Fix the colour balance. You definitely don't want your food to have any weird or otherworldly colours that your viewers aren't used to. Remember you want to "sell" your dish. Oranges should look orange not orange with a bluish tone. Use the temperature tool to get your colour balance looking right.
4. Give the saturation a little boost. You'll find that the colours in food photography often "pop" a bit more in the photo than they do in real life. This helps make the food look bright, fresh and delicious. Use the saturation tool to increase your colour levels just a bit. Don't boost them too high or you could risk losing the realistic look of your dish.
5. Find focus if you need to. Most food photos have a really narrow depth of field. That means only on section of the dish is in sharp focus and the rest of the photo has a pleasant blur (called a "bouquet"). If your photo could use some focus help, use the tools you learned how to use in the Finding Focus activity.
6. Crop the photo. Food photographers often take their food shots really close-up so that the dish takes up most of the frame and truly is the star of the photo. If you haven't done this, not to worry. Experiment with different compositions using the crop tool.

7. Finally, sharpen your photo only if necessary. You have to be careful not to sharpen your food photos too much. A little hint of soft focus is good for occasionally offering a nostalgic note to some food shots. Add a little sharpening if you think your photo needs it but remember that less is more.
8. Once you're happy with your food photo, save both your before and after images to your computer and to a memory stick to take to your next project meeting.

Fun suggestion: Why not make this your project wrap-up activity for the end of the 4-H year? Each project member can choose a recipe to make and bring to the final meeting. Make your chosen recipe the one you photograph! That way, when everyone is salivating over all the delicious photos, they get to sample them too!

Discussion

- Was this a fun activity for you? Do you think you'd like to do more food photography?
- Do you think food photography is important? Why?
- Have you ever made a recipe or bought an ingredient because of a delicious looking photo? What was it about the photo?
- Compare your before and after images. Does your after photo look much improved?
- Did everyone in your project have delicious looking food photos? Which one was your favourite? Why?

21. The Power of Food Photography

Time: A few hours.

What you will learn: In this activity, you will do research to learn more about the power of food photography in marketing, specifically how it applies to agriculture.

What you need: You will need your computer and your notebook for taking notes.

Instructions: Now that you know all about the importance of food photography, you're going to learn a little more about how powerful a tool it can be, especially to organizations called marketing boards. Marketing boards are associations created by groups of producers for the purpose of marketing their products to increase consumption (and therefore prices). Marketing boards are very important to the agriculture industry. Most commodity (a marketable item produced to satisfy wants or needs) groups like turkey, beef, eggs, canola, lentils, fruits, veggies and dairy, etc. rely on marketing boards to create appetizing food photography to entice the public to purchase their product. In this activity, you're going to do a little research to learn more about this process, and the important role that food photography plays.

1. Select three different commodity groups. Make sure at least one is grown in your home province (e.g., if you live in Manitoba, consider sunflowers; if you live in BC, consider apples; if you live in Quebec, why not maple syrup?).
2. Go online and search your commodity and "marketing board" (e.g., "pork marketing board") and you should find a lot of websites devoted to your chosen commodities. On the site, search for food photography or a recipe section.
3. Write down your observations based on the photography you see on the site, answering the specific questions in the Discussion section below.
4. Come prepared with notes to your next project meeting to discuss your observations with your group.

Discussion

- What are your observations about food photography based on what you've seen on the pages devoted to your commodity groups?
- What is the message the marketing board is trying to get across?
- What is the purpose of food photography to the marketing board?
- What are important aspects to consider when photographing (and editing photos of) food from a marketing perspective?
- How has the photographer made the food look appetizing either through photographing or editing the photos? Why do you think it's important for the food to look appetizing?
- How has the marketing board strategically used food on the website? How have they positioned their food photography so the food is appetizing or even surprising (e.g., the Saskatchewan Pulse Growers website includes recipes for and photos of desserts. Pulses in desserts?! Awesome!)?