

**LEARNING RESOURCE for MEDIA ARTS
PHOTOGRAPHY
INTRODUCTION TO PHOTOGRAPHY**

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FOREWORD

Welcome to this Learning Resource for Media Arts!

This Learning Resource was developed by experts from the National Commission for Culture and the Arts as a reference to aid you in developing rich, meaningful, and empowering learning in the creative fields. Every effort has been exerted to produce a Self-Learning Learning Resource that incorporates the most fundamental elements and principles of each discipline, while providing a spiraled, scaffolded, and multi-sensory approach to allow you to explore your innate creativity while building discipline and rigor in your chosen discipline.

Each lecture, activity, or reflection here is designed to be meaningful. Each one designed to build from the previous one, and each one with the objective of building up for the next skill or competence. We hope that you will find these activities challenging but empowering, and that your potential as a Filipino artist and Creative is further enhanced and inspired.

These Learning Resources take into consideration the various limitations and challenges brought about by the current situation, and provides you with the flexibility to manage content and pace to your individual needs while maintaining standards for creativity, embodying 21st Century skills, and aspiring towards artistic excellence. Beyond compilations of dry information, these Learning Resources seek to develop *Higher Order Thinking Skills* of Analysis, Evaluation, and Creation.

If you are planning to use this Resource as a facilitator or teacher, you are expected to guide and orient your learners in the proper and efficient use of this Learning Resource. Most, if not all activities, will entail exploration, investigation, and experimentation, as such it is imperative that you, as the facilitator, establish the guidelines which will allow your students to be creative but within responsible, safe, and academically-sound limits. Your guidance and mentorship is expected and encouraged throughout the learning process.

We look forward to your journey as an artist, MABUHAY!

INTRODUCTION & OBJECTIVES

In this module, we will explore Photography. How exciting is that? Photography is not just about taking snap shots or wacky pictures. It is about telling stories that enables and empowers you to communicate without using words.

So, It is not just about handling the camera and shooting whatever your heart desires or whatever you thought could be a good material behind the camera. It is about understanding how things work and why, so that your knowledge is built upon foundation of more than just “How to Shoot.” It is about creating stories that you capture, that will make you and the audience connect to your photo.

Now do not get confused, photography is part of Media Arts the way it is a part of Visual Arts. How, you ask? Photography is visual, it captures an image that you want to explore. Remember your Principles and Elements of Art and Design? In this case, photography is capturing the lines, shapes, color, texture, etc. All of which are part of the visual. When you put combinations of the principles and elements together, you do not just form the visual part. You form a story out of it, that contextualizes and illustrates the message you want to be seen, and that is how it is a part of Media as well.

At the end of this module you will be able to:

1. explain the principles, theoretical, historical, and aesthetic aspects of photography.
2. Identify the terminologies, techniques, and processes of photography.
3. Distinguish the different types of cameras (film and digital), its evolution, features, and capabilities.
4. Operate camera, its functions and proper handling.
5. Apply the rules for effective composition and production in taking digital photos
6. Curate a presentation of one’s collection of photographs based on principles and techniques.

This Learning Resource may be used for, and is applicable to, the following DepEd Codes:

1. SPA_MA-BP8-1a-1
2. SPA_MA-BP8-1b-2
3. SPA_MA-BP8-1c-3
4. SPA_MA-BP8-1d-4
5. SPA_MA-BP8-1e-5
6. SPA_MA-BP8-1f-6
7. SPA_MA-BP8-1g-h-7
8. SPA_MA-BP8-1i-j-8

Let's get started!

CONTENT & ACTIVITIES

Prior Knowledge Check

1. Define Photography.
2. When did Photography start in the Philippines?
3. Who is the Father of Philippine Photography?
4. What is Framing?
5. What is Composition?
6. What is the first camera called?
7. What does P.N.S. stand for?
8. What kind of camera is a P.N.S.?
9. First recorded image that was not fading quickly was by?
10. What does S.L.R. stand for?

Defining Photography

Photography, the word was supposedly first coined by the British scientist Sir John Herschel in 1839 from the Greek words phos, (genitive: phōtós) meaning “light”, and graphê meaning “drawing or writing.” It literally means literally means “drawing with light”. Photography essentially relies on light quality to capture an image. Notice how grainy or low quality your mobile photos are? Compared to natural lighting outside your home at 10:00 am?

NOTE: *The two activities below are related to one another. Please make sure to do both activities as this will help you see and compare both of your works.*

Activity 1A

1. Using your mobile phone or whatever camera you have at home.
2. Take a photo of yourself inside a semi-lit or fluorescent-lit room.
3. Tell me what you see? Describe it in a short sentence.
4. How does the photo make you feel about yourself and the quality of light?
5. You may submit these to your teacher on a USB Flash Drive, a PowerPoint slideshow, or a free online photo gallery such as myalbum.com, or even photo albums on Facebook or Google Photos.

Activity 1B

1. Go outside of your house only in your backyard or garden or even by the doorstep of your home at 10:00 am.
2. Be careful! Remember social distancing and practice quarantine rules!
3. Take a photo of yourself.
4. Tell me what you see?
5. How does the photo make you feel about yourself and the quality of light?
6. Which do you like better?
7. You may submit these to your teacher on a USB Flash Drive, a PowerPoint slideshow, or a free online photo gallery such as myalbum.com, or even photo albums on Facebook or Google Photos.



LESSON ONE: HISTORY OF PHOTOGRAPHY

Something to Think About

Say, you had a 12-roll film, this means you had 12 shots – back then, people would make it count because an error would mean “sayang” or a waste of shot. Now a days, a delete and repeat shot can be easily applied to all the shots that you needed or wanted.

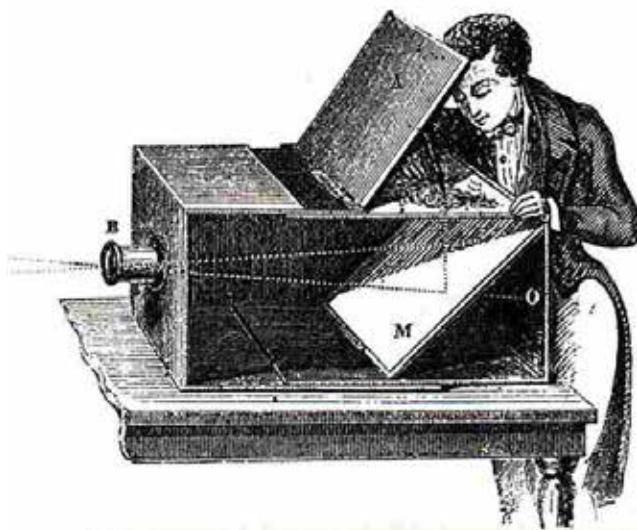
Now you have a better understanding of what Photography means and what it does, time to move on and understand the origins of Photography especially how the West has influenced the use of cameras in the Philippines.

Photography has come a long way in its relatively short history. In almost 200 years, the camera developed from a plain box that projected images only to the high-tech mini computers found in today’s Mirrorless, DSLRs and smartphones.

The First Cameras

The basic concept of photography has been around since about the 5th century b.c.. But it was not until an Iraqi scientist, Abu Ali Al-Hasan Ibn al-Haytham, born in Basra (965-1039 AD), known in the West as Alhacen or Alhazen, who carried out practical

experiments on optics in his Book of Optics. He developed the Camera Obscura in the 11th century that the art was born.



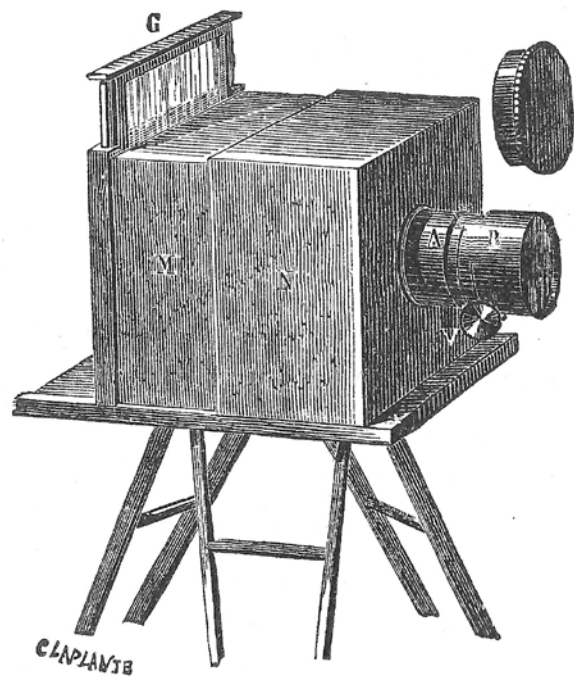
Even then, the camera did not actually record images, it simply projected them onto another surface. The images were also upside down, though they could be traced to create accurate drawings of real objects such as buildings.

Figure a Artist Using Camera Obscura by Unknown Author

The first camera obscura used a pinhole in a tent to project an image from outside the tent into the darkened area. It was in the 17th century that the camera obscura became small enough to be portable. At the same time and era, basic lenses to focus the light were also introduced to improve the quality, but it still had a long way to go.

The First Permanent Images

Photography, as we know it today, began in the late 1830s in France. Joseph Niépce used a portable camera obscura to expose a pewter plate coated with bitumen to light. This is the first recorded image that did not fade quickly.



*Figure b Mounted on a "tripod" Daguerreotype
by Unknown Author*

Niépce's success led to several other experiments and photography progressed very rapidly. Daguerreotypes, emulsion plates, and wet plates were developed almost simultaneously in the mid- to late-1800s. The development of the emulsion or "wet plates". Cheaper than Daguerrotypes and only needed 2-3 seconds of exposure vs. the 15 minutes for a Daguerrotype. 1870's – development of the "dry plate" using a gelatin chemical on a plate. This made photography more portable and cheaper.

Cameras for Everyone

Photography was only for professionals and the very rich until George Eastman started a company called Kodak in the 1880s. Eastman created a flexible roll film that did not require constantly changing the solid plates. This allowed him to develop a self-contained box camera that held 100 film exposures. The camera had a small single lens with no focusing adjustment.

The consumer would take pictures and send the camera back to the factory for the film to be developed and prints were developed in seven (7) days, much like modern disposable cameras. This was the first camera inexpensive enough for the average person to afford. In 1900 the Kodak "Brownie" camera was the first camera targeted towards amateurs. It also gave birth to word and "snapshot."

In the 1950s – Japanese brand Asahi (later Pentax) and Nikon develop the first SLR Camera with interchangeable lenses. The development of technology continued to soar faster by this time. The 1960s Polaroid develops a secret chemical process to develop film in under 1 minute. Late 70's and 80's the development of the “smart” or point-and-shoot compact cameras have already become popular. You could buy films at 12, 24 and 36-rolls - this means the number of rolls is the number of shots available.

By 1991 – Kodak developed first digital camera advanced enough for professionals. This was the Kodak Professional Digital Camera System or DCS, later unofficially named DCS 100. Officially, it was the first commercially available digital single-lens reflex (DSLR) camera.

A look at Philippine Photography takes us back to the 1840s with two preserved daguerreotypes, one of Intramuros, Manila showing a flag and a portrait of the photographer himself named W. W. Wood.



Figure c Indigena de la Clase Rica by Francisco Van Camp

Although known as the oldest preserved photographs of the Philippines, their exact date remains unclear. The first written record of the employ of photography in the Philippines, however, was mentioned in an 1843 book written by a Spaniard traveler, diplomat and poet, Sinibaldo de Mas. It is believed that de Mas used a daguerreotype camera in 1841.

Other pioneers of the photography business in the Philippines – apart from Sinibaldo de Mas and W. W. Wood – were a Dutch photographer named Francisco van Camp. His photo the Indigena de Clase Rica was one of the first portrait photos that was recorded and became known.

The history of photography in the Philippines is as difficult to trace as the history of the country itself. Since the Philippines has been occupied and colonized multiple times, its history has been rewritten a copious number of times.



Figure d Photographer Manuel Arias Rodriguez was able to capture Jose Rizal in a firing squad, upon seeing, made Filipinos revolt against the Spanish.

In 1896, the Filipinos began to rebel against the Spaniards, culminating to the Philippine Revolution. It was in this revolution that photography was utilized in an entirely different approach. Instead of being a one-sided instrument for the Spaniards, the Filipinos began to use photography to fuel their own point of view.

The first Filipino photographer though was Félix Laureano. His pictorial compositions, such as *En el baño* (In the Bathroom) and *Cuadrilleros* (Laborers), focused on human forms, cockfights, and bullfights in the Philippines. He also became the first photographer to publish a book of photographs about the Philippines (*Recuerdos de Filipinas*, or

Memories of the Philippines) in Barcelona in 1895. Laureano was also regarded as “the first Filipino artist to consciously use photography as a medium for art”.



Figure e Title Page of *Recuerdos de Filipinas* by Photographer Felix Laureano. Image from blog.library.villanova.edu

Of course, like all the other arts, the Philippine Photography has its own Father of Photography. Eduardo Masferre (April 18, 1909-June 24, 1995) works were highly regarded and used for Philippine

Anthropology studies. He is of Catalan, Spanish descent as his father was a Spanish soldier that immigrated to the Philippines. But he was born in Sagada, Cordillera. He was a self-taught photographer. His photographs have been exhibited since the late eighties. His most prominent international recognition came from the International Photography Encounters in Arles, France in 1989. His study in the Philippines has become a museum and art center.

After Eduardo Masferre a lot of other Photographer have followed his footsteps and have made names in different fields of Photography.



Figure f The Father of Philippine Photography. Photo by Thomas Murray.



LESSON 2: CONTEMPORARY PHOTOGRAPHERS IN THE PHILIPPINES

Let us look at some of the notable Photographers in the country that are making waves locally and internationally, their expertise and a sample photo of their work:

Wyg Tysman is known for his landscape and infrared photography. His name has been known in the advertising world as he has made countless cinematic shots for magazines, lifestyle, and other ads. He is one of the sought after wedding photographers as well.



Figure g Photographer Wyg Tysman (right). Baguio Cathedral by Wyg Tysman (left). Photos from picuki.com and gmanetwork.com



Scott “Gutsy” Tuason started diving at the age of eight (8) and shooting underwater since he was 16 years old. He spends more time in the water than in land. Known as a conservationist for the aquatic and marine, he has made underwater photography his life passion.



Figure h Photographer Scott “Gutsy” Tuason (left). Untitled Photo by Scott “Gutsy” Tuason (top left). Photos from 35mm.com.ph and esquiremag.ph

Wawi Navarroza is a Filipino contemporary artist using photography, actively exhibiting in the Philippines and Internationally. Her images delve into Self and Surrounding as seen in her works in constructed tableaux, self-portraits, and contemporary landscape.



Figure i Photographer Wawi Navarroza (left). *La Bruja* by Wawi Navarroza (right). Photos from lifestyle.inquirer.net



Noel Guevara is a conservation, underwater and wildlife photographer and filmmaker based in Manila, Philippines. His experience in producing content and creating visual stories spans more than 18 years.

Figure j Photographer Noel Guevara (right). *A green sea turtle on a seagrass bed* by Noel Guevarra (left). Photos from noelguevara.com and divephotoguide.com



Figure k Photographer Shaira Luna (left). *Untitled Photo* by Shaira Luna (right). Photos from mega.onemega.com and ucreative.com

Shaira Luna's extensive portfolio is like a step into a colorful, dreamy and playful imaginative works. A self-taught photographer who has been shooting professionally for almost a decade.



Figure l Photographer Xyza Cruz Bacani (left). HK 05 Photo by Xyza Cruz Bacani (right). Photos from commons.wikimedia.org and artsy.net

Xyza Cruz Bacani is a Filipina street photographer and documentary photographer. She is known for her black-and-white photographs of Hong Kong and documentary projects about migration and the intersections of labor and human rights. Xyza is one of the BBC's 100 Women of the World 2015 and a Fujifilm Ambassador.



Figure m Photographer Jason Magbanua (left). Anne and Erwan by Jason Magbanua (right). Photos from purveyor.com and jasonmagbanua.com

Jason Magbanua is an international multi-awarded gamechanger, visual storyteller - wedding photographer. He is one of the country's sought-after wedding photographer and filmmaker. He pioneered storytelling in weddings. His works is best known to "connect people" through his works, capturing not just the imagination but the emotions as well.



Figure n Photographer Mark Nicdao (left). Anne Curtis by Mark Nicdao (right). Photos from preen.ph and charlesegama.weebly.com

Mark Nicdao is one of Manila's top portrait photographer when it comes to magazine covers with countless names of actors and actresses in both Hollywood and local Showbiz in his belt. His work immerses in the power of visual aesthetics that goes beyond the lens as he is also a painter and a sculptor.



Figure o Photographer Gabby Cantero (left). Bao Manila by Gabby Cantero (right). Photos from enderunextension.com and esquiremag.ph

Gabby Cantero is a Food Photographer that makes brilliant use of texture, color that makes her food photos crisp, clean and mouth-watering. She is also known as a lifestyle photographer and prop stylist.



Figure p Photographer Rem Zamora (left). Thousands of families pray at the Quirino Grandstand by Rem Zamora (right). Photos from inquireracademy.com and remzamora.com

Rem Zamora is an award-winning photojournalist. He is known to tell real-life stories that captures both the positive and negative emotions through his photos. He is also a feature and documentary photographer and a professor at De La Salle University.

Having seen and read some of the notable photographers and samples of their works. Being a photographer, like any other profession means choosing your field of expertise and practice.

Activity 2

This activity will allow you to exercise finding things that you thought you could never find in your room. Because being a photographer means having a keen and sharp eye and that's what you need to practice.

Let us practice and exercise your eyes!

1. Look for different objects with texture, color, shape in the room.
2. Answer the following questions.
3. What have you found?
4. How did you find it?
5. Why this object among all the other things inside your room.
6. How does the photo make you feel?
7. You may submit these to your teacher on a USB Flash Drive, a Power-Point slideshow, or a free online photo gallery such as myalbum.com, or even photo albums on Facebook or Google Photos.



LESSON 3: BASIC PHOTOGRAPHY TECHNIQUES

Did You Know?

What makes the mirrorless camera, mirrorless? It is essentially an electronic chip that has replaced the traditional mirror that helps draw from the light, making everything electronic.

Taking photos is just FUN! But knowing how to take proper photos, more than just snapshots, keeps you ahead of everybody! Camera components and parts vary depending on the brand of the camera, but brand and style really is the last factor in taking good photos! All you need is your eyes and some basic skills to get you started!

There's really no other way of explaining a good photo versus a bad photo other than showing it to you directly! So don't forget to look at the appendix for colored print-outs to appreciate the lesson.

Camera parts and components vary so what better way to get to know your camera is by holding and testing every button. Do not be afraid! It will not eat you! If you feel insecure, there's always that manual in the box that you can count on!

Getting to know your camera is as basic as this:

Disclaimer: you may be using other brands, such as Nikon, Pentax, Fujifilm, Panasonic Lumix, Sony etc. The buttons may be in different positions but in general the names and functions are pretty much the same



Figure a The Anatomy of a DSLR Camera (top). SLR Camera Parts and controls (bottom). Diagrams from pinterest.ph and emmmcommtech.wordpress.com

You may notice that DSLR cameras are packed with many parts compared to your regular compact camera; this is because DSLR camera places top priority on shooting. They can interchange lens and they have more functions that you can play around with than a point-n-shoot camera.

What about the Mirrorless Camera? What makes them unique? Mirrorless are also digital camera that accepts different lenses but does not use a mirror to reflect the image into the viewfinder. Also called a “mirrorless interchangeable-lens camera” (MILC), “hybrid camera” and “compact system camera” (CSC), the body is thinner than a digital SLR (DSLR) because there is no mechanical mirror. Mirrorless cameras are also called “mirrorless DSLRs” or “mirrorless SLRs” because they support multiple lenses like a single lens reflex camera and generally offer an optional viewfinder.

Compact camera components and parts:

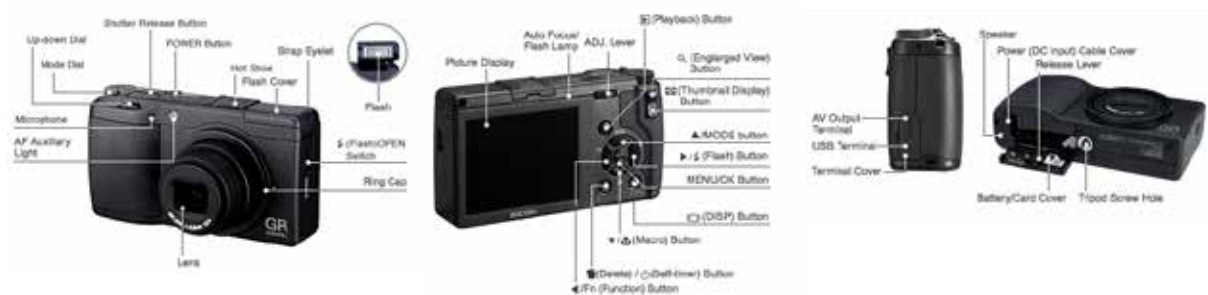


Figure b GR Digital II - Externals and each part name. Diagram from ricoh-imaging.co.jp

Activity 3: Practice Your Photography

1. Explore your mobile phone setting.
2. Take six (6) photos using different settings.
3. Take a photo and describe what kind of result did you end up with? Blurry? Soft image? Crisp? Grainy?
4. You may submit these to your teacher on a USB Flash Drive, a PowerPoint slideshow, or a free online photo gallery such as myalbum.com, or even photo albums on Facebook or Google Photos.

Did You Know?

That your mobile phones can do manual settings as well? These buttons are now integrated into the settings. All it takes is a swipe here and there. See below:



Figure c Manual Mode on the V30+. Image from community.sprint.com



LESSON 4: FRAMING AND COMPOSITION

Now that you know your camera, time to learn how to take pictures properly! Let's start with Framing! Framing is just knowing your subject-putting them in the center and cropping the unimportant stuff! When you frame, you start learning the Rule of Thirds or the Grid! All your cameras have this setting, yes even your mobile phone has this setting.

Beginner photographers, such as yourself, don't need to worry. This module will outline the general meaning of the term "composition" in art. We will also briefly discuss the goal of composition, define what a good composition is and why it is such an important part of any work of art.

Composition is a way of guiding the viewer's eye towards the most important elements of your work, sometimes – in a very specific order. A good composition can help make a masterpiece even out of the dullest objects and subjects in the plainest of environments. On the other hand, a bad composition can ruin a photograph completely. Cropping can sometimes save an image, but only when tighter framing and removal of certain portions of the image is the correct solution. That is why giving your choice of composition plenty of thought before capturing an image is a step of utmost importance.

Basic Composition Techniques

Rule of Thirds is a basic way of framing shot. Your mobile phone has this function called "grid or grid shot." Dividing your frame into an imaginary grid, align the subject along an intersection of the vertical and horizontal line. The four intersections becomes your "new center." Because it creates a more interesting and dynamic visualization; gives the illusion of motion by causing the viewer's eyes to "move" away from the "true center."



Figure 4 Rule of Thirds Photo by John R. Daily. Photo from commons.wikimedia.org

Practice Activity: Rule of Thirds

1. Frame and photograph a subject using Rule of Thirds.
2. You may submit these to your teacher on a USB Flash Drive, a PowerPoint slideshow, or a free online photo gallery such as myalbum.com, or even photo albums on Facebook or Google Photos.



Figure b The “empty” area on the left side of the photo is called “neutral space”. Flowers Sprinkled in the Fountain by Jec Catacutan.

When you’re using the Rule of Thirds you may leave a large empty space or neutral space in the frame. **Neutral spaces** can be used to give emphasis to the main subject. The composition can also be balanced by including other objects in the frame.

Practice Activity: Neutral Space

1. Compose and photograph a subject with a neutral space.
2. You may submit these to your teacher on a USB Flash Drive, a PowerPoint slideshow, or a free online photo gallery such as myalbum.com, or even photo albums on Facebook or Google Photos.

Following the Rule of Thirds or using Neutral Space leads to an unbalanced or asymmetrical photo. This is not a bad thing! Unbalanced or asymmetrical photos can be very dynamic and engage the viewer.

Sometimes, though, you want to shoot a **Balanced** or **Symmetrical** photograph. In a balanced photograph, the left and right side, or the top and bottom halves of the photograph look or feel like they have the same amount of content. In a symmetrical photograph, the left and the right side are similar or mirrored.

In this photo you will see the Fullerton Hotel Stairs shot symmetrically. What you see on the left, you should be seeing on your right side too.



Figure a Symmetric view of the staircase at The Fullerton Hotel Singapore by Basile Morin. Photo from commons.wikimedia.org

Practice Activity: Symmetrical Photos

1. Pick a subject from around the area (object/person) and photograph it/ them in a symmetrical composition.
2. You may submit these to your teacher on a USB Flash Drive, a PowerPoint slideshow, or a free online photo gallery such as myalbum.com, or even photo albums on Facebook or Google Photos.

Framing is defining what your viewer will see in the photograph – what is not in the frame, they will not see! Look at the diagram below to understand the different sizes of shots (Close Ups, Medium Shots, Long Shots) with a human figure as the reference. Close Ups are great for showing lots of emotion and detail, Medium Shots are perfect for establishing a relationship between subject and viewer, and Long Shots are your choice for showing size, scale, and space.

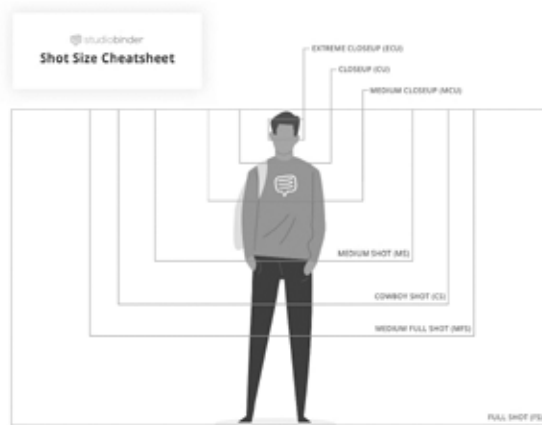


Figure e Camera Shot Size Cheat-Sheet by Author SC Lannom. Diagram from studiobinder.com

When you're doing framing especially for portrait photography, always note of the headroom space and proper cutting of frames without hitting the joints and being aware of your background.

The diagram here gives you a guide as to where to position your frames so that your shots do not look awkward or problematic.

Lastly, remember that your backgrounds are essential to achieve good composition. Sometimes they work with the right framing and composition.

And a lot of times, they become waste. Look at the sample photo, it would have worked if only there were no other tourists.

Figure f How To Crop Your Subject's Body The Right Way by Author Vladimir Gendelman. Diagram from companyfolders.com





Watch out for “growths” as well. Look at the sample photo. It just so happened, the one who took the photo did not consider the background and how it will affect the subject. By practicing details such as this, you are allowing your eyes to be alert and in no time, you’ll be able to capture photographs rather than just a snapshot.

Figure g Tower of Pisa - push by Unknown Author. Photo from commons.wikimedia.org and The Leaning Tower of Pisa and the smartphone of the post-tourist by Jean-Francois Staszak. Photo from journals.openedition.org

Figure h

Keywords to help you understand Composition:

- Composition is how picture is constructed
- There is a subject
- We are concerned how the subject is presented and communicated
- How it relates to the surroundings
- How tone, color and contrast are used in the photograph to add impact



Figure i Pose Like A Pro Chart. Diagram from kirbypartners.com



Figure a Untitled Photo by Sebastian Pena Lambarri.
Photo from unsplash.com

Camera handling, techniques and knowing the fundamentals and the functions of your camera. Understanding manual adjustments to avoid using automatic all the time.

The following topics builds on prior topics, so if you take it step by step the information and skills will flow naturally and in the right order.

The Three Fundamental Camera Settings You Should Know

Most cameras have numerous buttons and menu options. If you pick the wrong camera settings, it is possible that your photo won't turn out the way you want. How do you make sense of all these options? What do these settings mean?

The three most important settings are called shutter speed, aperture, and ISO. All three of them control the brightness of your photo, although they do so in different ways. In other words, each brings its own “side effects” to an image. So, part of the art of photography is to know exactly how to balance all three for a given photo.

Shutter speed: The amount of time your camera sensor is exposed to the world while taking a picture.

Aperture: Represents a “pupil” in your lens that can open and close to let in different amounts of light.

ISO: the “sensitivity” of the film or camera system for taking pictures in different lighting conditions.

Shutter Speed

One of the three most important settings in photography is Shutter Speed. Shutter speed is responsible for two particular things: changing the brightness of your photo, and creating dramatic effects by either freezing action or blurring motion.

Shutter speed exists because of camera shutter – which is a curtain in front of the camera sensor that stays closed until the camera fires. When the camera fires, the shutter opens and fully exposes the camera sensor to the light that has passed through your lens. After the sensor is done collecting the light, the shutter closes immediately, stopping the light from hitting the sensor.

What is Shutter Speed?

Shutter speed is the *length of time* camera shutter is open, exposing light onto the camera sensor. It is how long your camera spends taking a photo. This has a few important effects in how your images will appear.

When you use a long shutter speed, you end up exposing your sensor for a longer period of time. The first big effect of it is motion blur. If your shutter speed is long, moving subjects in your photo will appear blurred along the direction of motion. Slow shutter speeds are used to create a sense of motion on rivers and waterfalls, while keeping everything else completely sharp.

On the other hand, shutter speed can also be used to freeze motion. If you use a fast shutter speed while taking pictures of a water, each droplet will hang in the air completely sharp, which might not even be visible to our own eyes.

Shutter speeds are typically measured in fractions of a second, when they are under a second. For example, $1/4$ means a quarter of a second, while $1/250$ means one two-hundred-and-fiftieth of a second.

If you are photographing birds, you may need $1/1000^{\text{th}}$ second or faster. However, for general photography of slower-moving subjects, you might be able to take pictures at $1/200^{\text{th}}$ second, $1/100^{\text{th}}$ second, or even longer without any motion blur.

Please see appendix to see a picture taken with a high shutter speed setting

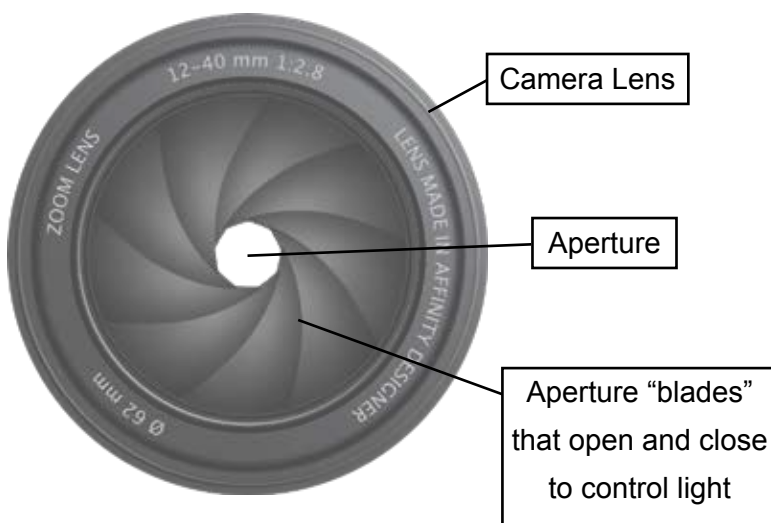
For longer or slower shutter speeds such as $1/25^{\text{th}}$ or $1/4^{\text{th}}$ you will need to use a tripod to get sharp images. You would use long shutter speeds for low-light or night photography, or to capture movement intentionally. If anything in your scene is moving when you use long shutter speeds, it will appear very blurry.

Please see appendix to see a picture taken with a slow shutter speed setting

The other important effect of shutter speed is on exposure, which relates to the brightness of an image. If you use a long shutter speed, your camera sensor gathers a lot of light, and the resulting photo will be quite bright. By using a quick shutter speed, your camera sensor is only exposed to a small fraction of light, resulting in a darker photo.

Review Questions 1:

1. How would you simplify or explain what shutter speed is?
2. How does shutter speed affect a photograph?
3. What kind of effects do different shutter speeds have in a photograph?
4. What would happen if you set your shutter speed to $1/2000$? What result would we see in terms of subject and exposure?
5. You want to take a photo of a rice field during the full moon. What kind of shutter speed would you use or set?



Understanding Aperture in Photography

Aperture is one of the three pillars of photography (the other two being Shutter Speed and ISO), and certainly the most important.

What is Aperture?

Aperture can be defined as the opening in a lens through which light passes to enter the camera. It is very similar to how your eyes work. As you move between bright and dark areas, the iris in your eyes either opens or closes, controlling the size of your pupil and controlling the amount of light we see. Figure b Aperture Parts. Image from pngwing.com In photography, the “pupil” of your lens is called aperture. You can shrink or enlarge the size of the aperture to allow more or less light to reach your camera sensor. Like shutter speed, aperture also alters the exposure of your images by making them brighter or darker.



Figure c Capturing Different Amounts of Light by Author Nasim Mansurov. Diagram from photographylife.com

Aperture has several effects on your photographs. One of the most important is the brightness, or *exposure*, of your images. As aperture changes in size, it alters the overall amount of light that reaches your camera sensor – and therefore the brightness of your image.

A large aperture (a wide opening) will pass a lot of light, resulting in a brighter photograph; a small aperture makes a photo darker. In a darker environment such as indoors, or at night, you will want to select a large aperture to capture as much light as possible.

How Aperture Affects Depth of Field

The other critical effect of aperture is depth of field. Depth of field is the amount of your photograph that appears sharp from front to back. Some images have a “shallow” depth of field, where the background is completely out of focus. Other images have a “large” or “great” depth of field, where both the foreground and background are sharp.

Please see appendix sample photo of Depth of Field

In the image above, you can see that the flower in the foreground is in focus and appears sharp, while the background is completely out of focus. This helped bring the attention of the viewer to the subject, rather than busy or cluttered background. If the photographer had used a smaller aperture, the effect would have been different.

One way to remember this is: **large** aperture = **large** blur.

On the other hand, a **small** aperture results in a **small** blur, which is the best for some types of photography such as landscape and architecture. In the photo of the waterfalls below, a small aperture was used to ensure that both the foreground and background were as sharp as possible.

Please see appendix sample photo on small aperture

This is a quick comparison that shows the difference between using a large vs a small aperture and what it does to the subject relative to the foreground and the background. As you can see, the photograph on the left only has the head of the lizard appearing in focus and sharp, with both foreground and background blurred. On the right the photo has everything from front to back appearing sharp.

Please see appendix sample photo of Large and Small Aperture

This is what using large vs small aperture does to photographs.

What Are F-Stop and F-Number?

So far, we have only discussed aperture in general terms like *large* and *small*. Aperture, though, is usually expressed as a number known as “f-number” or “f-stop”, with the letter “f” appearing before the number, like f/8 or f8.

These numbers confuse beginning photographers a lot! Please remember that when discussing f-stops: Small numbers represent large, whereas large numbers represent small apertures.

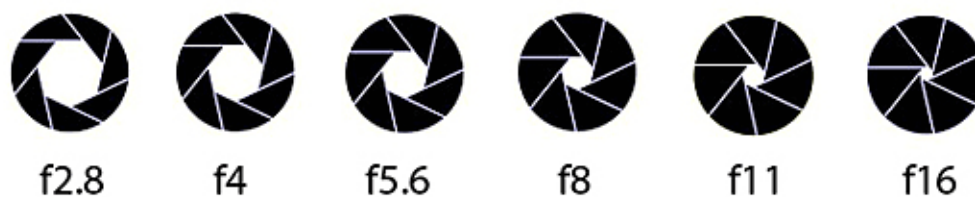


Figure d the larger the aperture (opening) the smaller the number (f-stop). Aperture Diagram by Author Marat Stepanoff from maratstepanoff.com.

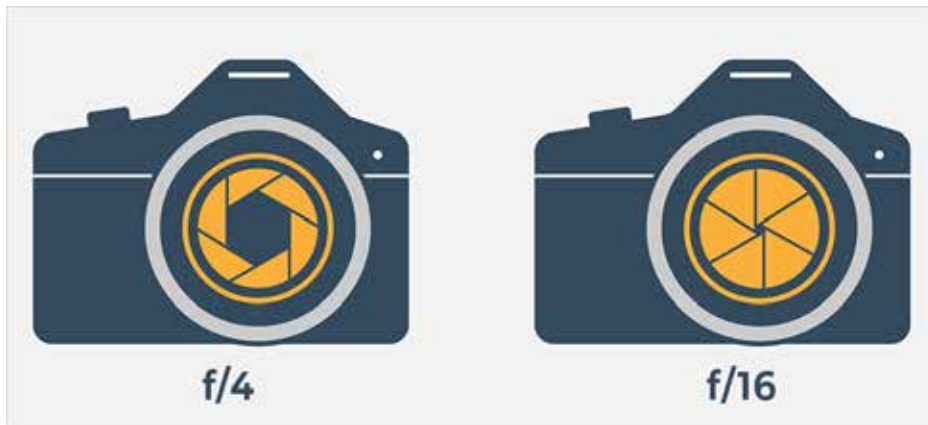


Figure e another way of understanding the effect of an f-stop number on the aperture. Diagram by Author Nasim Mansurov from photographylife.com.

What you must understand is that aperture is a fraction. So, a fraction-of-4 (or f/4) is larger than a fraction-of-8 (f/8). This chart might make things easier to understand.

Choosing the Right Aperture

Now that you're familiar with some specific examples of f-stops, how do you know what aperture to use for your photos? These diagrams show how aperture affects your photograph's exposure:



Figure f How Aperture Changes Exposure (Left). Using Larger Apertures at Night (Right).

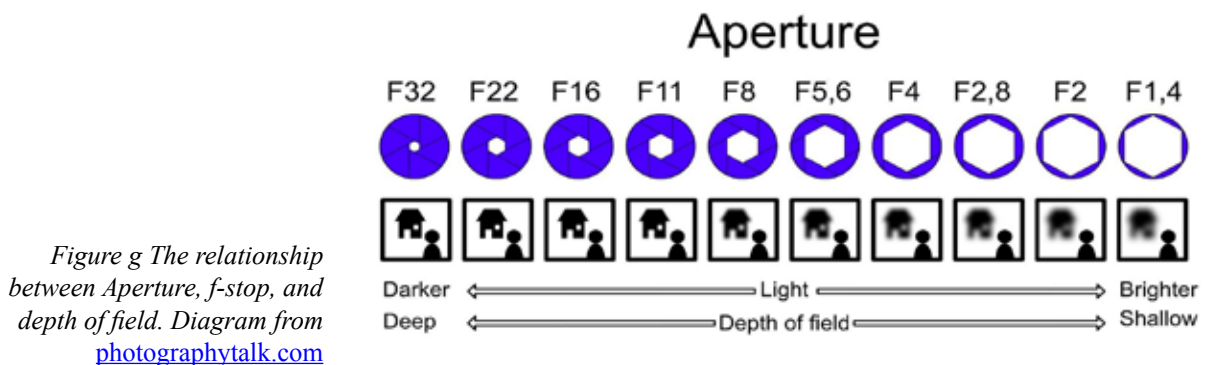


Figure g The relationship between Aperture, f-stop, and depth of field. Diagram from photophytalk.com

Also remember that regarding depth of field, that a large aperture value like f/2.8 (larger aperture) will result in a larger amount of blur, while values like f/8 or f/11 (smaller aperture) will help you capture sharp details in both the foreground and background.

To summarize aperture

Aperture is clearly a crucial setting in photography, and it is possibly the single most important setting of all. Aperture can be a very confusing topic for beginners in photography. As you have seen from this topic, it controls so many variables in your images, which can make it difficult to master.

Lens Aperture Chart for Beginners



Aperture affects several different parts of your photo, but you will understand everything fairly quickly if you take the time to practice and experiment with different settings. A small aperture makes your photos darker, increases depth of field, increases diffraction, decreases most lens aberrations, and increases the intensity of starbursts. A large aperture does the opposite.

Figure h Lens Aperture Chart for Beginners by Author Nasim Mansurov.
Diagram from photographylife.com

Review Questions 2:

1. What does "aperture" refer to? What effect does it have on a photograph?
2. Why is an aperture value called an f-stop or f-number? What is "f"?
3. What does a higher or bigger f-stop value mean? What effect does it have on the photograph?
4. What does a lower or smaller f-stop value mean? What effect does it have on depth of field?
5. How would you use f-stops to create effects or moods in your photographs?

ISO

What is ISO?

The acronym ISO stands for “International Organization for Standardization”. Although ISO initially defined only film sensitivity, it was later adopted by digital camera manufacturers with the purpose of maintaining similar brightness levels as film.

Please see appendix sample photo of ISO

In very basic terms, ISO is simply a camera setting that will brighten or darken a photo. As you increase your ISO number, your camera becomes “more sensitive”, and your photos will grow brighter. For that reason, ISO can help you capture images in darker environments, or be more flexible about your aperture and shutter speed settings.

However, raising your ISO has consequences. A photo taken with ISO too high will show a lot of grain (also known as *noise*) and the photo might not be usable. You should only raise your ISO when adjusting shutter speed or aperture is not possible or does not give you the effect you want.

Common ISO Values

Every camera has a different range of ISO values (sometimes called *ISO speeds*) that you can use. A common set is as follows:

ISO 100 (low ISO), ISO 200, ISO 400, ISO 800, ISO 1600, ISO 3200 (high ISO).

Some cameras have even lower ISO such as ISO 50, while some cameras are able to shoot at very high ISO 6400 or ISO 12800.

Notice the differences between these two images, the one on the left (ISO 200) is smoother and cleaner than the one on the right (ISO 3200) which shows a lot of grain and noise.

What Camera ISO Should You Use?

Many starting photographers understand the basics of ISO, but they are not sure which ISO value to actually choose when in the field. Different situations call for different ISOs. As with the aperture and shutter speed, there is no best ISO to set on your camera, since it will completely depend on the light situation and the motion that you want to capture.

When to Use Low ISO

For most cameras, the lowest ISO settings are the best and give you the best quality photos. If there is plenty of light, you are free to use a low ISO and minimize the appearance of noise as much as possible.

Even in low-light or dark environments, you still might be able to use a low ISO, but you may need have your camera mounted on a tripod or sitting completely still on a table.

Please see appendix sample photo on Low ISO

When to Use High ISO

Even though it is ideal to use low ISOs, there will be plenty of times when a high ISO is necessary. The simple reason is that you are often fighting against *motion blur*, and you will need to pick between a sharp photo at a high ISO, or a blurry photo at a low ISO.

Shooting at very high shutter speeds means that you also decrease the amount of light hitting the sensor, in this case, you may need to use higher ISO speeds to compensate for the loss of light.

Please see appendix sample photo of High ISO

You should increase the ISO when there is not enough light for the camera to capture a sharp, bright photo any other way. In general terms, if you want to limit the amount of noise in a photo, set your maximum ISO to something like ISO 800, 1600, or 3200.

Review Questions 3

1. ISO refers to what function of the camera?
2. What usually happens when ISO is set very high? What becomes visible in the photograph?
3. You are covering a track and field event, why would you want to set your ISO to something like ISO 800?
4. You want to take a dramatic shot using only a candle as a light source, and your aperture is $f/8$ and you have a shutter speed of $1/125$, what ISO would you set to get a good exposure?
5. What is the best advice when it comes to choosing an ISO for a particular shot?

Summarizing Exposure

We know there is a lot to remember, a lot to process, but with practice and attention to detail, you will soon gain a mastery of exposure and exposure settings! Here are some quick tips for you:

- As shutter speed increases, motion blur decreases. If you want to freeze movement, use a faster shutter speed. Conversely, if you want to blur movement, use a slower shutter speed.
- As the aperture size increases, the depth of field decreases. If you want a blurry background for a portrait, use a large aperture like $f/2$. If you want a background that's in focus, like a landscape shot, try a smaller aperture like $f/11$.
- As the ISO increases, the presence of digital noise also increases. Digital noise looks like grain, and can be used artistically, often in black and white images, to give them a bit of grittiness. If you want grain, boost the ISO. If you want a clear image, use the lowest ISO possible.

So what can you do to get good-quality images, here are some tips:

1. Select the aperture setting that will provide your desired depth of field.
2. Set your ISO to its lowest available value and put your shutter speed to whatever setting provides a proper exposure.
3. If your subject is blurry, slowly raise your ISO and use a faster shutter speed until motion blur disappears.
4. If your ISO is getting too high and you still have the ability to use a wider aperture, open it up until the ISO gets to a more manageable level, even if it means sacrificing some of your desired depth of field.
5. That's all it takes! If you follow these steps, you'll capture the maximum image quality each time. You'll find the ideal balance between noise, motion blur, and depth of field.

Learning Task

1. Take a series of photographs around your house and nearby surroundings (practice proper social distancing and follow quarantine rules please!!!)
2. You may use any type of camera you have available. If you are using a mobile phone, we suggest downloading free camera apps with manual settings (shutter speed, aperture, ISO). These include, but not limited to:
 - a. Open Camera (Android)
 - b. Footej (Android)
 - c. Camera Zoom FX (Android/ iOS)
 - d. VSCO (Android/ iOS)
 - e. Camera+ 2 (iOS)
3. Take different photos with different exposures, framings, compositions, and depths of field. Some photos you may want to take would be:
 - a. Still life (plants, household items, decors)
 - b. Architecture (house or building features, carvings/ details on furniture, statues and structures)
 - c. Action shots (animals, children, games, transportation)
 - d. Art or Artistic shots (abstract objects, shapes and patterns, reflections, details)
 - e. Portraits (people, animals, moments in time)
 - f. Landscape (flowers, trees, open areas/ surroundings, sky)
4. Choose 10 of your best photos and put them up on an electronic gallery. You may submit these to your teacher on a USB Flash Drive, a PowerPoint slideshow, or a free online photo gallery such as myalbum.com, or even photo albums on Facebook or Google Photos.

Additional Activities

Read

- Phone Photography 101: How to Take Good Pictures With Your Mobile Device <https://bit.ly/2WAPgfl>
- How To Take Professional Photos: A Beginner's Guide <https://bit.ly/3helOnt>
- Top 10 Digital Photography Tips <https://bit.ly/3fU2ZWk>
- 13 Ways to Make Your Photos Look Professional <https://bit.ly/32wFmzn>
- How to Take Awesome Pictures with Your Phone <https://digitalbrandinginstitute.com/take-awesome-pictures-phone/>

Watch

- Beginner Photography MISTAKES - What to avoid to take better photos <https://bit.ly/2ZFmDQk>
- PHOTOGRAPHY BASICS in 10 MINUTES <https://bit.ly/3heabwR>
- 8 IMPORTANT Composition Tips for Better Photos <https://bit.ly/2OH7bwE>
- APERTURE EASY EXPLAINED <https://bit.ly/3jhVrPj>

Try

- This online interactive exposure tool lets you see the effect of different settings. Go to <http://www.exposuretool.com/>



Figure i Screen Capture of this online interactive exposure tool that lets you see the effect of different settings. Photo by Tim Rone Villanueva, taken from [exposuretool.com](http://www.exposuretool.com/)

This online interactive website let's you see how your settings will affect a photograph of the helicopter. Go to <http://photography-mapped.com>

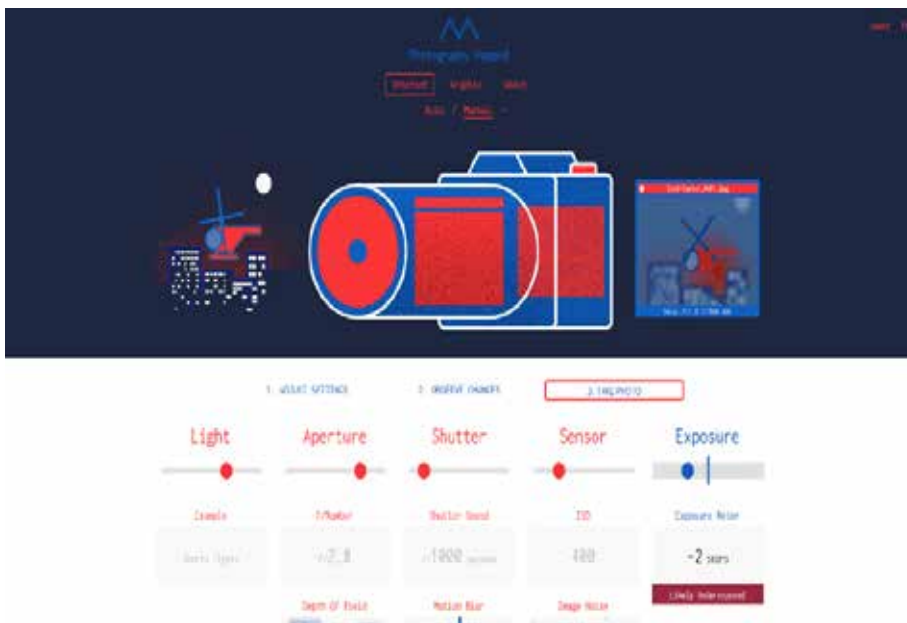


Figure j Screen Capture of this online interactive website that lets you see how your settings will affect a photograph of the helicopter. Photo by Tim Rone Villanueva, taken from photography-mapped.com

BIBLIOGRAPHY

- What is Photography? <https://photographylife.com/what-is-photography>
- History of Photography in the Philippines <http://www.nicholaigo.com/blog/2014/10/29/origins-of-filipino-photography>
- Framing and Composition <https://www.youtube.com/watch?v=fM64ycm7tz4>
- What is Aperture? The Fundamentals for Getting Better Shots <https://www.studiobinder.com/blog/what-is-aperture/>
- It's 2018, It Shouldn't Be This Hard to Take a Good Night Photo <https://vulcanpost.com/638354/low-light-photography-xiaomi-redmi-note-5/>
- Photography Basics: The Complete Beginner's Guide <https://photographylife.com/photography-basics>
- The Exposure Triangle Explained in Plain English <https://www.photographytalk.com/beginner-photography-tips/the-exposure-triangle-explained>
- Photography: A Beginner's Guide <https://expertphotography.com/a-beginners-guide-to-photography/>

DIGITAL PHOTOGRAPHY PROJECT RUBRIC

	Excellent	Very Good	Acceptable	Needs Improvement
Subject Matter	<p>Strong choice of subject matter.</p> <p>Photos/ Project fully meets and exceeds requirements.</p>	<p>Good and interesting choice of subject matter.</p> <p>Photos/ Project fully meets requirements.</p>	<p>Images meet the minimum level of quality and subject matter to satisfy the assignment. Subject matter could be improved; some images seem to be filler material.</p> <p>Shows evidence of some requirements.</p>	<p>Subject matter does not satisfy assignment.</p> <p>Shows minimal to no evidence of requirements or no work submitted.</p>
Composition	<p>Strong composition because of layout and placement of camera to subject as well as effective use of compositional techniques.</p> <p>Demonstrates exceptional visual interest.</p>	<p>Engaging and eye-catching composition because of layout and placement of camera to subject as well as effective use of compositional techniques.</p> <p>Demonstrates engaging visual interest.</p>	<p>Image composition has potential, but other angles, positioning of subject and use of compositional techniques will improve your image.</p> <p>Demonstrates some visual interest.</p>	<p>Little to no consideration of basic photographic composition techniques. Backgrounds may be busy or distract from the focal point.</p> <p>Does not demonstrate visual interest.</p>
Concept/ Content/ Theme	<p>Strong and compelling concept. Idea is communicated exceptionally well. Images thoroughly address the theme/topic or subject.</p> <p>Thorough evidence of imagination, creativity, and thoughtfulness.</p>	<p>Engaging and interesting concept. Idea is communicated well. Images thoroughly address the theme/topic or subject.</p> <p>Strong evidence of imagination, creativity, and thoughtfulness.</p>	<p>Ideas are not fully communicated. Images somewhat address the theme/topic.</p> <p>Some evidence of thoughtfulness.</p>	<p>Weak connection to the theme/ topic. Unclear – photos seem random. Little to no evidence of thought, creativity.</p> <p>Further brainstorming ideas is recommended.</p>

	Excellent	Very Good	Acceptable	Needs Improvement
Use of Technique (Exposure, focus, color, depth of field)	<p>Correct exposure for the setting. Use of color (and/or grayscale) greatly enhances the subject and the mood of the image.</p> <p>Focus and depth of field effectively contribute to making a powerful image.</p>	<p>Correct exposure for the setting. Use of color (and/or grayscale) coincides with the subject and the mood of the image.</p> <p>Focus and depth of field contribute to the image.</p>	<p>Photo taken at appropriate exposure. Use of color (and/or grayscale) is okay but not exceptional.</p> <p>Focus and depth of field somewhat adequate.</p>	<p>Images are poorly exposed and/or focused.</p> <p>Focus and depth of field do not follow guidelines, image out of focus, poor depth of field.</p>
Creativity/Originality	<p>Amazing photograph/project. Well organized, with a unified meaning. Interesting, different, effective, unique approach to assignment.</p>	<p>Very good photograph/project. Well organized, with a unified meaning. Interesting, different, effective, with a fresh or brave approach to assignment.</p>	<p>Good approach showing some creativity but could have been planned, executed and enhanced to achieve a more powerful image.</p>	<p>Photo shows little to no creativity. Dull, lacks impact.</p>

Rubric for Analytical Activities

	Excellent 94-100	Very Good 87-93	Acceptable 79-86	For Improvement 70-78
<p>Choice of Subject</p> <p>Degree to which the learner chooses the quality and complexity of the work/s he/she will study and evaluate</p>	The choice is unexpected for a learner of this age; the artworks are complex and carry multiple deep meanings. The work may also be by an obscure or little-known artist	The choice has a degree of complexity and carries deeper meanings. The work may also be from a less popular or independent artist.	The choice is typical and something that is part of the general or "mainstream" consciousness and has deeper meaning. The work is something done by a mainstream or currently "in" artist	The choice was not given much thought; the work was something that is easily visible in the mainstream and currently "in" and does not have much in terms of deeper or complex meaning.
<p>Insight</p> <p>Degree to which the learner sees, extracts, or perceives deeper and complex meanings in an artwork</p>	The learner makes surprising insights. He/she sees or perceives meanings that indicate his/ her deeper reading and appreciation of the works analyzed	The learner makes very good insights as far as meanings and messages in the artwork. He/she shows an ability to perceive more than what is physically visible in an artwork	The learner can interpret art and make inferences on possible meanings from the work. He/she can perceive some deeper meanings, but most insights are shallow and superficial.	The learner makes shallow, superficial, or silly interpretations. There is no significant evidence of an attempt to derive or perceive meanings from the artworks analyzed
<p>Reflexivity</p> <p>Degree to which the learner is able to reflect within his or her experience and to articulate this in the context of analyzing artworks</p>	The learner makes perceptive or wise inferences about his or herself in the context of the artwork. The learner expands his or her reflection beyond the context of the artwork to make a statement on the human condition.	The learner makes perceptive or wise inferences about his or herself in the context of the artwork. The learner attempts to expand his or her reflection beyond the context of the artwork to make a statement on the human condition.	The learner makes shallow or expected inferences about his or herself in the context of the artwork. There is no statement or comment made about these inferences in the context of the human condition.	The learner makes shallow inferences about how a work affects him or her. No attempt is made to reflect beyond the self.

APPENDIX

Symmetrical Photo

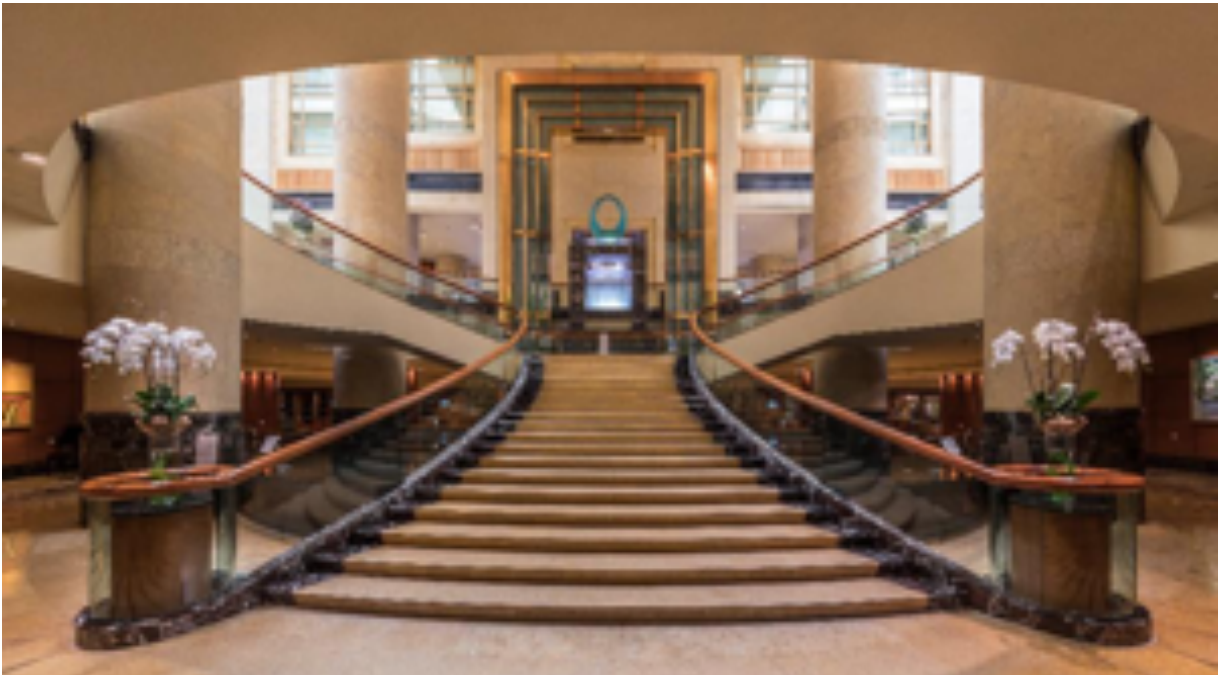


Figure a Symmetric view of the staircase at The Fullerton Hotel Singapore by Basile Morin. Photo from commons.wikimedia.org

Neutral Space Photo



Figure b Flowers Sprinkled in the Fountain by Jec Catacutan.

High Shutter Speed Photo



*Figure c Brown and Grey Hummingbird Hovering over Orange Fruit by Pixabay.
Photo from [pexels.com](https://www.pexels.com)*

Slow Shutter Speed Photo



Figure d Man Sitting on Red Ground by Nizam Abdul Latheef. Photo from [pexels.com](https://www.pexels.com)

Depth of Field



Figure e (left) The “shallow” depth of field brings emphasis to the flower in the foreground by blurring the other flowers in the background; this image was shot with an aperture of $f/2.2$. Photo by Jag Garcia.



Figure f (below) A smaller aperture was used in this shot to capture the greenery in the foreground and also the waterfalls and rainbow in the background. Photo by Jag Garcia.