POWER OF PHOTOGRAPHY

Wierzchosławice 25.03-01.04.2022
ERASMUS+

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THE PHOTOGRAPHER'S GUIDE
A quick guide to basics of photography

1. (A brief) History of photography

Photography came to existence due to the need of painters to be faster and more close to life. They found the magic of camera obscura. The name comes from latin and it translates to a "dark chamber". If you have a dark box/ room and you put a hole in one of the sides, you get a projection of the world on the walls. Painters used it to trace the surroundings on their canvases.
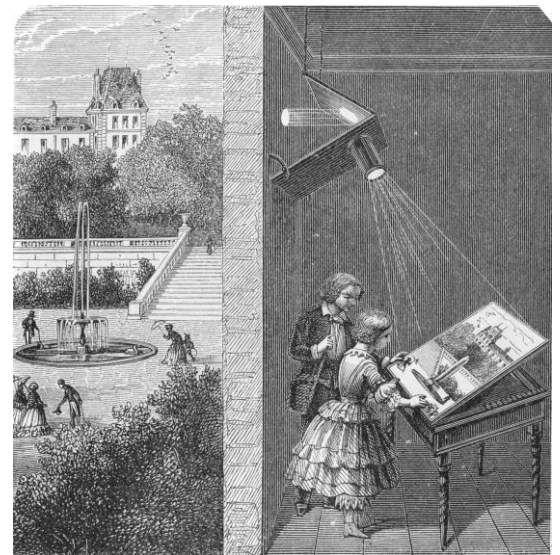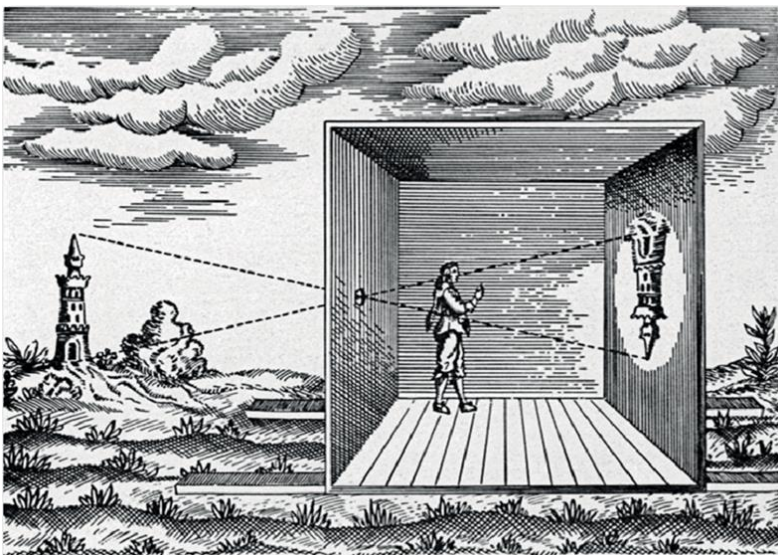
Its said that even Leonardo Davinci used one.
It was not until the 19th century when they discovered a way to "capture" that image. One of the first people to find a way to keep that image on a material is Nicéphore Niépce - the inventor of heliography.

The oldest surviving photograph - Niepce, 1827

But his process was not as successful as that of Louis Daguerre. It was the first commercially wide-spread way of photographing. The French institute of sciences found the discovery of great importance. They struck a deal with Daguerre on the 7th January 1839 to let the method be used freely, in exchange for a life-time stipend for him. This marks it as the birth date of photograp

First photograph of a human - Paris, daguerrotype, 1839

From capturing architecture and different historical monuments, to portraits of people fascinated with this "magic". It wasnt long before photography started getting the attention it deserved. Everyone wanted to get their hands on it. Soon enough people found even more uses and ways to improve it.

Roger Fenton - Crimea, 1853

One of those uses is **WAR PHOTOGRAPHY**With the invention of photography in the 1830s, the possibility of capturing the events of war to enhance public awareness was first explored. Although ideally photographers would have liked to accurately record the rapid action of combat, the technical insufficiency of early photographic equipment in recording movement made this impossible. Roger Fenton was one of the first war photographers. He captured images of the Crimean War (1853–1856).

Roger Fenton - Crimea, 1853

Mass-produced images did have consequences. Besides informing the public, the glut of images in distribution over-saturated the market, allowing viewers to develop the ability to disregard the immediate value and historical importance of certain photographs. Despite this, photojournalists continue to cover conflicts around the world.

Mass-produced photography did have consequences. It informed the public of the horrors of war, making them more wary, and valuing human lives more.
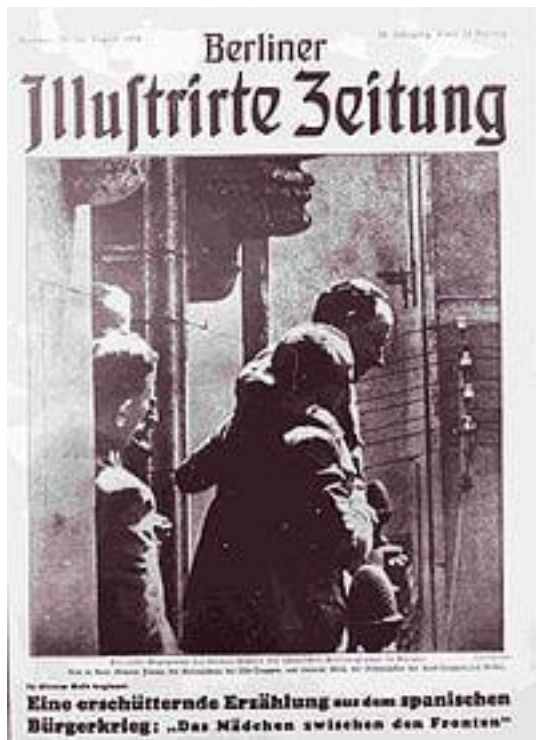
Consumer photography

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 made, much like modern disposable cameras. This was the first camera inexpensive enough for the average person to afford.

The film was still large in comparison to today's 35mm film. It was not until the late 1940s that 35mm film became cheap enough for the majority of consumers to use.

Berliner Illustrirte Zeitung

Eine erschütternde Erzählung aus dem spanischen Bürgerkrieg: „Das Mädchen zwischen den Fronten"

Comercial photography

The photography can be widely classified into a bunch of different photography niches. These are- fashion photography, product photography, food product photography, environmental portraits, headshots, and commercial architectural photography.

Commercial Photography and advertising primarily started in 1850 with Daguerreotype and was the first publicly available photographic process;

Edward Steichen, on the of first photographers to land commercial contacts.

Fashion photography has been in existence since the earliest days of photography.

In the first decade of the 20th century, advances in halftone printing allowed fashion photographs to be used in magazines. It was first published in New York City on November 2, 1867, as the weekly Harper's Bazar.

The "Golden Age of Photojournalism" is often considered to be roughly the 1930s through the 1950s. The Berliner Illustrirte Zeitung pioneered modern photojournalism and was widely copied. Pictured, the cover of issue of 26 August 1936: a meeting between Francisco Franco and Emilio Mola.

Edward Steichen, on the of first photographers to land commercial contacts.

2. Computer Software used for photo editing

Using Windows 10 and in need of a good photo editor? The market is oversaturated and it might take you some time to find the perfect tool to enhance your images. If you are not ready to spend weeks looking for the best photo editors for Windows 10, then our review of some of the finest products on the market will certainly help you.

- PC Software
    - PhotoWorks

Kicking off our list is <u>PhotoWorks</u>, an intelligent photo editor for PC. The software comes equipped with all the essential tools for image editing, but has a number of advanced instruments as well. PhotoWorks allows users to automatically enhance their images - the edits are based on the image's genre and give it the best possible look

    - Luminar AI

<u>Luminar AI</u> is another smart photo editor for Windows 10. If you are after a quick edit, this software has a nifty solution for you called Templates. This is a set of different profiles that transform your picture in a snap. These templates change your image in terms of colour, dynamic range, and exposure. There are also manual tools like colour balance sliders, cropping and perspective instruments, etc.

    - ON1 Photo RAW

ON1 Photo RAW can serve both as a standalone program and a Photoshop plugin. Mostly aimed at RAW manipulation, this image editing software brings its users top-tier tools for quick and efficient enhancement. Apart from basic instruments, it offers niche features like panorama stitching, lens correction, and smart face retouching.

    - CyberLink PhotoDirector
    - ACDSee Gemestone Photo Editor
    - Paint.Net
    - Corel PaintShop Pro
    - Topaz Labs
    - Polarr
    - Fotor
    - Canva
    - PicMonkey
    - BeFunky
    - Inpaint

- Web apps
    - Adobe Photoshop
    - Pixlr E
    - Canva

- Photopea
- Google Photos

- Mobile
  - PhotoDirector

PhotoDirector combines **complete creative control**, a **user-friendly interface** and a royalty-free **stock library** provided by Shutterstock and iStock. Whether you've spent years learning the ins and outs of advanced editing techniques or just begun your creative journey, PhotoDirector's professional-quality tools can transform a quick snap into a stunning image.

- Pixlr

Pixlr specializes in providing just enough variety for users. You won't ever feel overwhelmed by the available options. Still, you can use intuitive brushes as well as preset effects, overlays, and style filters to transform your photos into black-and-white, film, or sepia tones.

- PicsArt
- Snapseed
- Adobe Photoshop Camera
- Werble
- Canva

Accessibility of each software

Photoshop
The Photoshop user has a variety of tools at his disposition, making it the best editing software in the market. It is possible to be paired with other Adobe software to improve the experience, and it can be installed in different platforms, such as Microsoft and MacOS.
However, although it offers an extremely pleasant experience editing your photos, it also requires a paid subscription after a 7-days trial to be used. It offers three different packages from which the user can choose what fits him best, then paying $9.99, $20.99, or $29.99 per month according to his choice.
In addition, the plethora of tools offered make it harder for rookies or non-professionals to use it, requiring a huge investment of personal time to learn how to manage it.

Affinity Photo
Contrary to Photoshop, Affinity Photo offers its service for a one time fee: it does not require paid subscription. However, the desktop version is more expensive than the iPad version, costing $54.99, while the latter costs $21.99.
It can be used in the same platforms as Photoshop (Windows, MacOs, and iOS (iPad only). It allows for the transfer of images between its maker's different packages — Affinity Designer and Affinity Publisher.

Adobe Lightroom

Adobe Lightroom is mostly used by photographers who deal with a large number of photos. Being an Adobe software, it can be paired with Photoshop, offering a platform for organizing everything in one place and to share it easily. This digital method also allows for the upload of photos from a phone right into the software.

It can be accessed through the payment of a monthly fee of $9.99.

Fotor

The best part of using Fotor is the fact that it is an unpaid software. However, there are different in-app purchases that can improve the user's experience.

It aims at a broader audience, being suitable for amateur users and reasonably easy to use. For that reason, it also becomes less suitable for professional use. To make it more accessible, it does not necessarily have to be downloaded; you can use it in a Web browser.

GIMP

Similarly to Fotor, GIMP is also free to use. It is an open source software, and its creators are permanently enhancing its compatibility with different formats, while offering a broad range of tools. Besides Windows and MacOS, it is also compatible with Linux, which is something different compared to the previous softwares.

History, dark room relation

Traditional method of manipulating photographs without the use of computers is with darkroom manipulation. Photo manipulation started in the darkroom in the 1860s. It is used to process photographic film, to make prints and to carry out other tasks. It is a room that can be made completely dark to allow the processing of the light-sensitive photographic materials, including film and photographic paper.

Some of the common techniques for darkroom manipulation are dodging (it makes the picture lighter), burning (it makes the picture darker) and masking (sharpening, density, texture change). Toning changes the color of the photograph, black and white photographs can be changed to sepia, red, orange and blue. Cropping is used to decide what is left out in the final print.

The process in darkrooms is conceptually similar to digital manipulations only with the use of physical techniques.

Why and when to use it?
Photography is widely spread across the fields of art, advertisement, science, journalism and so much more.
Computer software is a key part of the photo creation process. Amateurs use it to fill in gaps in the shooting process. Professionals use software in order to save time, money, to avoid certain limitations like location access, size, electricity or to create fictional scenarios.

What you can or can't do in a software? Limitations

Often people make the mistake of believing everything can be changed after taking a photo. Photo manipulation software is used to add a final touch to a photograph. That could be making the image a bit brighter, adding contrast or removing those dark spots we all have under our eyes after a night out.
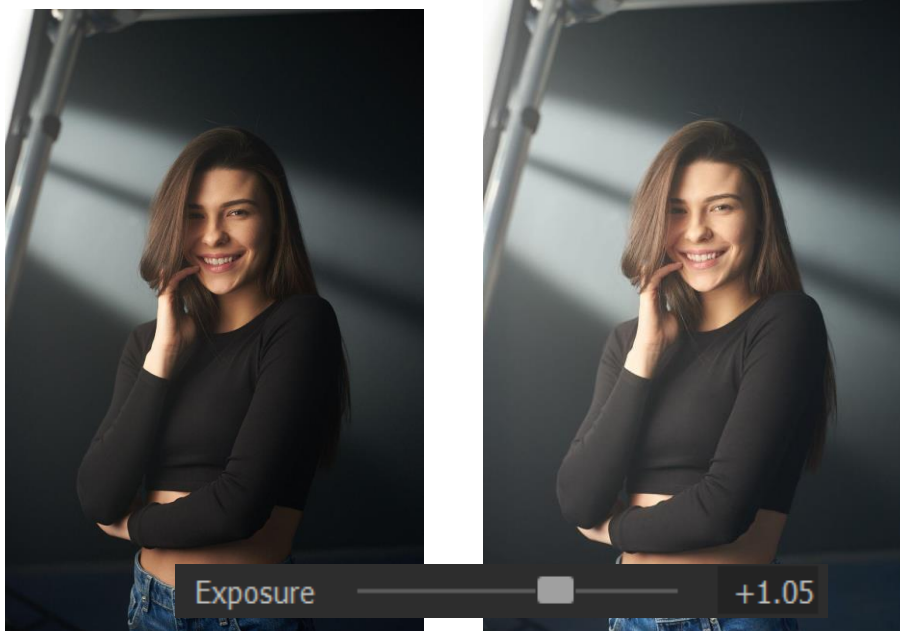

Here are a few examples of what could be accomplished in software:

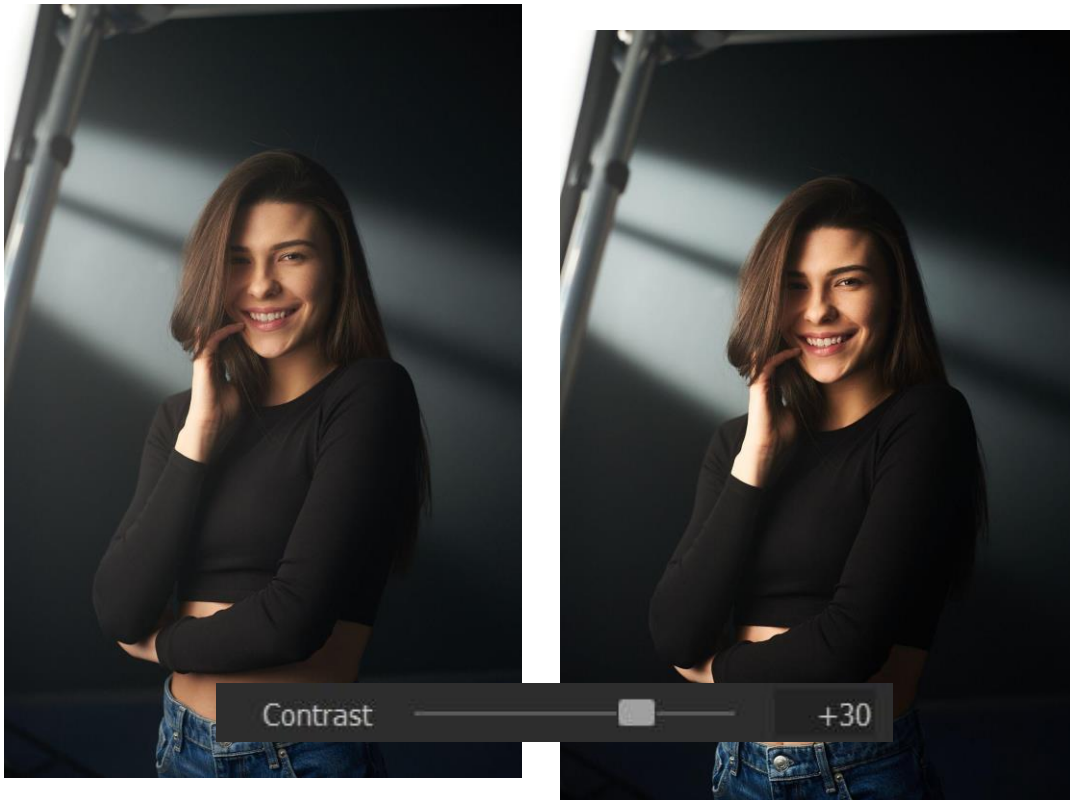We will take this studio portrait as an example.

This is how it looks straight out of the camera.

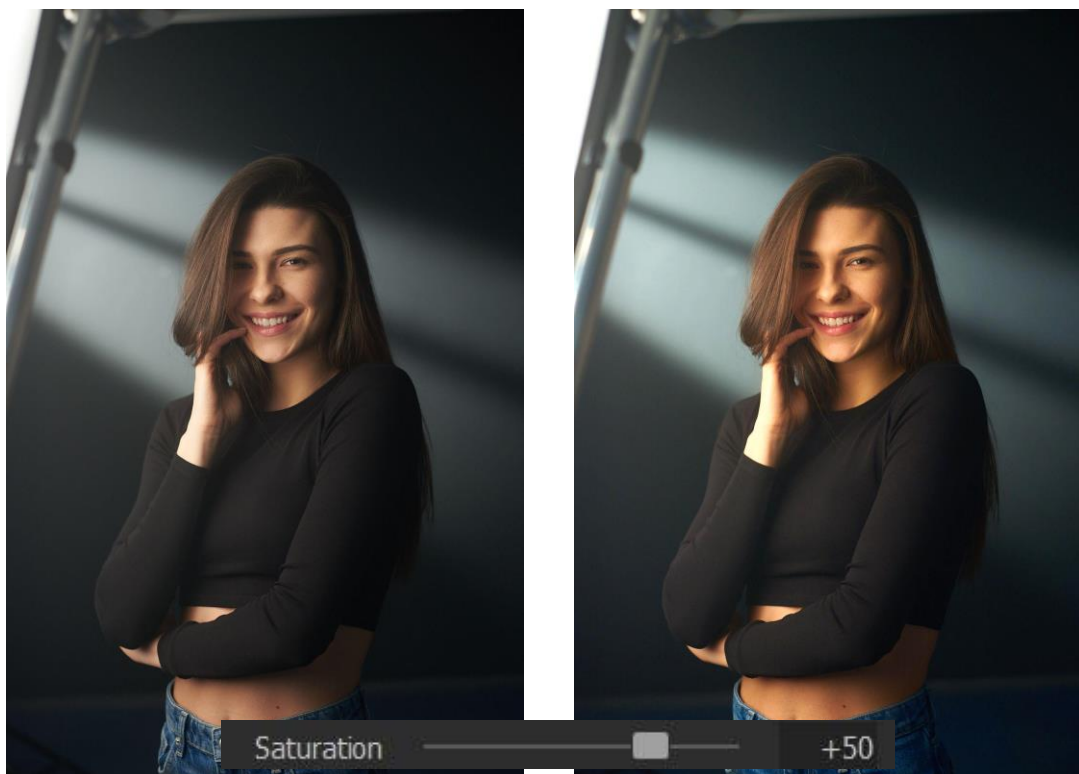In the editing software, we can easily:

1) Brighten it up.

2) Add Contrast.

Contrast   +30

3) Make the colors more vivid.

Saturation   +50

4) Make the image warmer.

5) Make the image colder.

3. Photography Cameras & Photography Equipment

What are the main types of cameras used for photography?

1. **DSLR Cameras** produce high quality looking images. They give you the ability to control your photography at every level. One key characteristic of this type of camera is interchangeable lenses.

2. **Mirrorless Cameras** - as the name suggests, they have no mirror. What you see when you look through the viewfinder is an small electronic screen. This displays what you are pointing your lens at.

In recent years mirrorless cameras have gained popularity. People love them because they are smaller and lighter than many DSLR cameras with no less quality.

3. **Analog Cameras -** A roll of film is loaded into the camera and the magic begins once you start clicking: light interacts with the chemicals in the film and an image is recorded.

4. **Compact Cameras** are small and designed to be easy to use. This type of camera is often called a point-and-shoot camera because they are so quick and easy to take photos with.

5. **Instant Cameras** are like a hybrid of vintage analog and digital photography. The main pro they have is that they print your picture instantly.

6. **Action Cameras** - The small action cameras include 4K video, screens, and high FPS rates. They are perfect for the outdoors. They can withstand rough weather conditions, they're shockproof, lightweight, and highly durable.

7. **360 Cameras** produce amazing photos using a 360-degree camera. In a single click, the camera will capture and entire 360-degree view. This makes it a great choice for travelers, hikers, and interior photographers.

8. **Smartphone Cameras -**The smartphone camera is the most popular choice of camera for everyone, everywhere. The main reasons are because they are so easy to use and they are

always with us. Mobile photography may get a bad rep, but when it's the only camera you have on you, it can get the job done surprisingly well.

Brands of cameras

Canon has been manufacturing and distributing digital cameras since 1984, starting with the RC-701. The RC series was followed by the PowerShot and Digital IXUS series of digital cameras. Canon also developed the EOS series of digital single-lens reflex cameras (DSLR) which includes high-end professional models.

Sony offers a wide range of digital cameras. Its point-and-shoot models adopt the Cyber-shot name, while digital single-lens reflex models are branded using Alpha. It also produces action cameras and camcorders, with the company's cinema-grade products being sold under the CineAlta name.

Other photography accessories

1. Lens Cleaners
2. Camera Strap
3. Camera Bag
4. Rubber Lens Cap
5. Sensor Cleaner
6. SD Memory Card
7. Memory Card Case
8. Memory Card Reader
9. External Hard Drive
10. Tethering Cable
11. Tripod
12. TTL Flash
13. Flash Transmitter
14. Reflectors
15. Shutter Remote
16. Creative Lens Filters
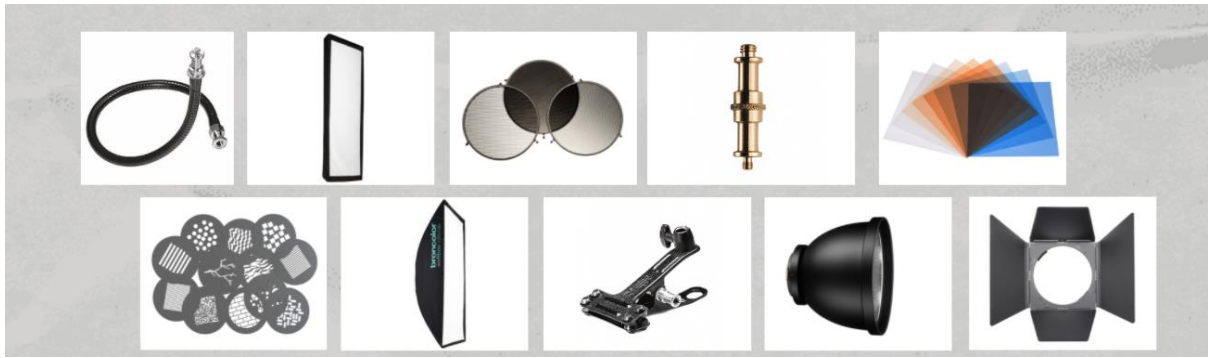
Lenses

A lens is a tool used to bring light to a fixed focal point. In a film camera, the lens sends the light to the film strip, while in a digital camera (like DSLRs or mirrorless cameras), the lens directs light to a digital sensor

Camera lenses can be broken down into two types:

Prime lenses	Zoom lenses

- **Zoom lenses**. Zooms use a series of lenses to allow different focal lengths from a single lens, making them more flexible but not as fast. They contain more glass, which aids in their flexibility, but they also tend to be bigger and heavier than prime lenses.
- **Prime lenses**. Primes have a fixed lens focal length, making them faster and sharper. While prime lenses are less flexible due to the fixed focal length, they are also fast and lightweight, making them easy to travel with
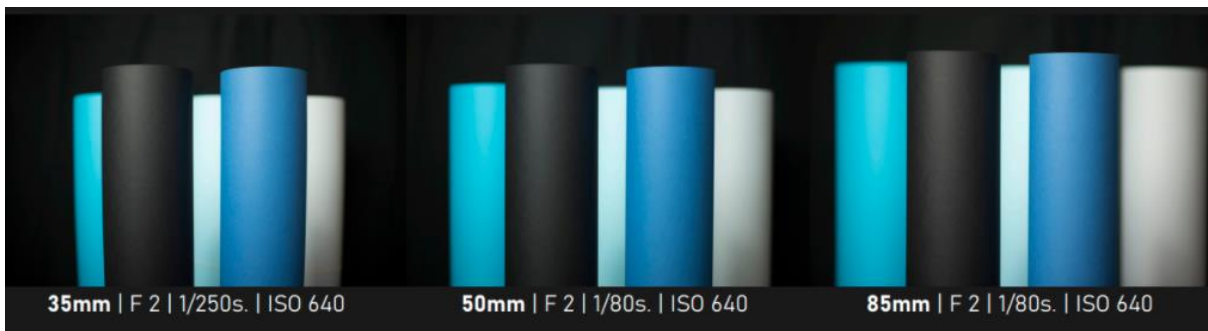
All lenses filter and focus light so that it hits the sensor or film strip correctly. However, there are a variety of other factors that determine how a camera lens affects the look and quality of the final photo.

- **Focal length** is the measurement of distance (in millimeters) between the point of convergence of your lens and the sensor recording the image. The focal length range of a lens is expressed by a number, and that number tells you how much of the scene your camera will be able to capture. Smaller numbers have a wider angle of view and show more of the scene; larger numbers have a narrower angle of view and show less.
- **Aperture** is how big the opening is that lets light in, expressed in f-stops. F-stops are counterintuitive, because the larger the number, the smaller the opening. For example, f/2.8 allows twice as much light into the camera as f4, and 16 times as much light as f11. Aperture affects the depth of field: larger openings create a shallower depth of field, while smaller openings make more of the image in focus.
- **Depth of Field**. Controlling the amount of the photo that is in focus is one of the photographer's best tools to help draw the viewer's eye where you want it. For example, landscapes are typically shot so that everything is in focus, so photographers will shoot at small apertures (e.g. f11 or f16). The depth of field varies with the type of lens, due to maximum aperture.

Within both prime and zoom types of lenses, there are a variety of lenses, all with different focal lengths.

1. **Macro Lenses** are used to create very close-up, macro photographs. They have a unique design that allows them to produce sharp images at extremely close range. These lenses are great for nature photography, enabling you to capture an enormous amount of detail in one image.
2. **Telephoto Lenses** are a type of zoom lens with multiple focal points. These types of lenses are great for isolating a subject that is far away. A Telephoto lens is used for focusing in on distant objects.
3. **Wide angle lenses** are ideal for fitting a large area into your frame. This is especially useful for landscape photography or street photography. With wide angle lenses, almost everything is in focus, unless your subject is very close to the lens.
4. **Standard lenses** can be used for a variety of different types of photography. Their focal lengths fall somewhere in the middle, usually between 35mm and 85mm. A zoom lens within this range will have a small enough focal length at the bottom end to take a wider angle, full-frame photo, and a large enough focal length at the top end to zoom in on subjects.
5. **Specialty Lenses** can impart a unique look and feel to your photographs.
   A. **Fisheye lens** is an ultra-wide-angle lens that can take in a full 180 degree radius around it. Fisheye lenses are so named because they distort an image's field of view, making even a room in a house look like a bubble.
   B. **Tilt shift lens** distorts perspective, making things look smaller than they really are—almost as if they are toys.
   C. **Infrared lens** play with light rather than perspective, filtering out all light waves except infrared for a unique visual effect.

Focal Length	Type of Lens	What is it used for?
14mm - 35mm	Wide angle	Landscape, architecture
35mm - 85mm	Standard	Street, travel, portrait
85mm - 135mm	Short telephoto	Street photography and portraits
135mm+	Medium telephoto	Sports, wildlife, action

35mm | F 2 | 1/250s. | ISO 640   50mm | F 2 | 1/80s. | ISO 640   85mm | F 2 | 1/80s. | ISO 640

35mm | F 2 | 1/80s. | ISO 640   50mm | F 2 | 1/80s. | ISO 640   85mm | F 2 | 1/80s. | ISO 640

Camera Lens Filters

Filters help minimize glare and reflections, enhance colors, reduce light coming into the lens, and more. Each lens filter serves a specific purpose, as each one is built to deliver a specific effect that can help enhance the final look of an image.

They are used to protect your lens, can correct or enhance colors, help ensure accurate exposure or add impact to your images

Types of camera lens filters:

- Screw-On Filters
- Drop-in Filters
- Square Filters
- Rectangular Filters
- UV and Skylight Filters
- Polarizing Filters
- Neutral Density Filters

Tripod is a portable device used to support, stabilize and elevate a camera, a flash unit, or other videographic or observational/measuring equipment. All photographic tripods have three legs and a mounting head to couple with a camera.

Flash is a device used in photography producing a flash of artificial light (typically 1/1000 to 1/200 of a second) at a color temperature of about 5500 K (kelvins) to help illuminate a scene. A major purpose of a flash is to illuminate a dark scene. Other uses are capturing quickly moving objects or changing the quality of light.

Light Meters can measure the amount of light falling on a subject (incident light), or being reflected by a subject (reflective light). By converting these measurements, it defines what would be the most beneficial shutter speed and f/stop to use for that given subject.

Types of Microphones:

Dynamic Microphones:

- Dynamic mics have a wide, unidirectional pattern of pickup, which means they work almost like a spotlight — point them in a direction to capture sound there, as well as to either side, but not directly behind the mic (which can also work well on interior or action sets). They work for loud sources and they also tend to be some of the cheapest mics specifically for studio work.

Condenser Microphones
- If you're mostly interested in high-quality studio mics for podcasts or voiceover work, you'll want to check out condenser mics, but most condenser mics also offer options for omnidirectional (where no sound is cancelled) or bidirectional (for interviews and conversations) recording.

Lavalier/Lapel Microphones
- Lavalier (or just "lav") mics are small condenser mics that you can attach to on-screen talent during a shoot. And they work wirelessly, so you shouldn't have to worry about proximity when you're working with a lav mic.
- The sound quality won't be perfect, so you'll only want to rely on getting good audio from the person wearing the mic.
- But lav mics are uniquely suited to a very specific job, and that job is something you can use for short films, interviews, or vlogs.

Shotgun Microphones
- Technically this is a "style" of microphone rather than a specific type.
- We've talked a bit about "pickup patterns," or the directions that mics pick up audio. Different shotgun mics will fit into different pickup patterns, but most will qualify as condenser mics. In other words, they should give you some flexibility without having to sacrifice the sound quality.
- Shotgun mics are the things you see on film sets. The most useful quality about them is that they can be mounted in a variety of ways (including on a camera), which is a big reason why these are go-to mics for a lot of people.

SD card

The SD stands for Secure Digital. SD card is a type of memory card typically used in digital cameras and other portable devices. They use flash memory for their data storage.

There are actually two different physical sizes (or form factors) of SD cards: full-size SD cards and microSD cards.

- **SD Cards** refers to a specific kind that was the original kind that was released. It applies to cards up to 2GB in storage capacity. They're formatted with FAT12 and FAT16.
- **SDHC cards** (Secure Digital High Capacity) is a design specification that refers to SD cards that are over 2GB and up to 32GB in capacity and formatted with the FAT32 filesystem.
- **SDXC card** (**Secure Digital eXtended Capacity**) refers to SD cards with a capacity larger than 32GB and up to 2TB.

4. Photography Contest in European Countries

From Poland

Grand Press Photo is the most important competition in Poland intended for people professionally involved in journalistic photography, including press and documentary photography.

From Bulgaria BECA Photo Awary

The contest is aimed at supporting and promoting Bulgaria-based photographers, whose photography is worthy of display in photo galleries not only in the country, but also around the world. Participants will be judged by international photography experts from 5 different countries. Based on their personal experience and competency, the jury will review and judge the participants' photography. The only requirement is to enter the contest with a project (story) of 10-15 photos, regardless of whether it is a documentary, portrait or conceptual photography. There is no entry fee.

From Romania Fotografi-cameramani

The winners from the last year is the same in the last 4 years. There are photos from weddings and the traditional events, this things is because the romanian are so traditional and this events are very important for them.

From Germany EuroNatur

The foundation's nature and species conservation projects help preserve Europe's nature in its beauty and diversity. EuroNatur protects large-scale natural landscapes as well as ecologically valuable cultural landscapes throughout Europe. Nature photographers watch out: In the 29th year EuroNatur has organised this international nature photo competition in conjunction with the magazine "natur",

From Portugal

Founded in 2009, TODOS promotes Lisbon as intercultural city through contemporary arts, inviting its audiences to meet and explore cultures from all around the world within the Portuguese capital city.

Sony world Photography awards

Founded in 2007 by CEO Scott Gray, World Photography Organisation is a leading global platform dedicated to the development and advancement of photographic culture. Our programming and competition initiatives provide valuable opportunities for artists working in photography and help broaden the conversation around their work. Through our fairs we play a key role in driving the growth of the contemporary art market for photo-based art and deepening audience engagement with the medium.

Our value lies in the integrity of our expertise, our years of experience and the strength of our relationships with both individual photographers as well as our industry-leading partners around the world.
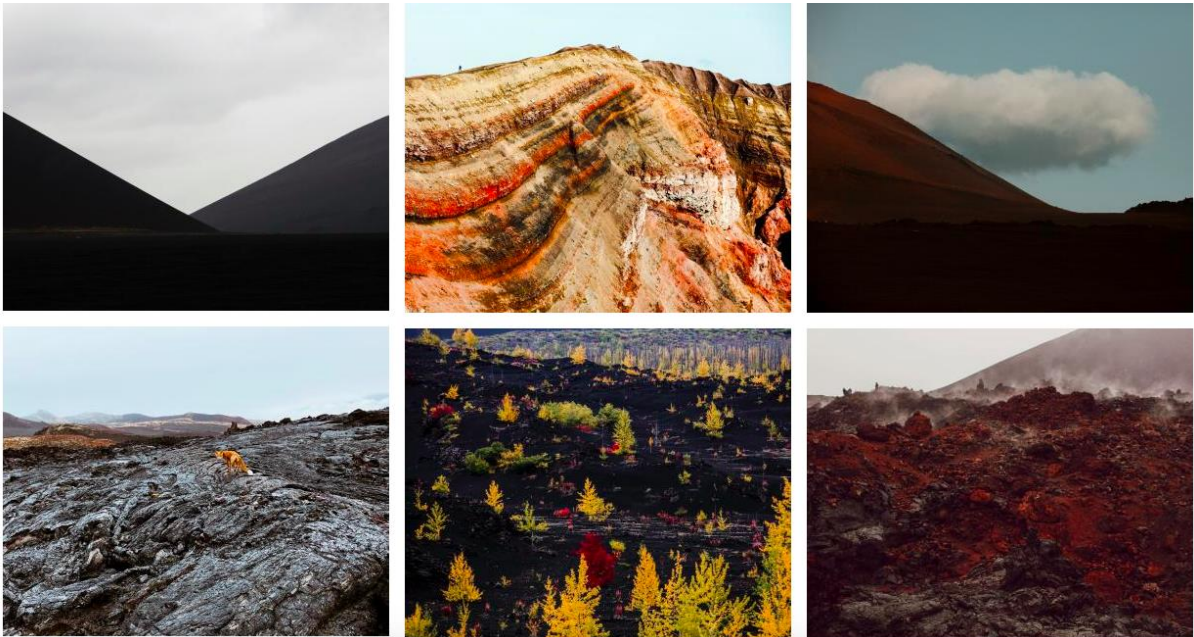
5. Inspirations concerning photos that have gone in history and the most famous authors

Lithuania

A legend of Lithuanian photography and a winner of the National Prize for Culture and Arts, who catches and preserves snapshots of everyday life. Antanas Sutkus is among the most famous of Lithuania's photographers, and someone who breathed the spark of creative inspiration into the stagnant photography of the Soviet past. He is a witness to everyday life who sees regular objects and people from a unique perspective. The artist's photographs are genuine works of humanist, journalistic photography. Antanas Sutkus has immortalised numerous renowned personalities, including President Valdas Adamkus, poet Czesław Miłosz, writer Tomas Venclova, world-famous philosopher and writer duo, Jean-Paul Sartre and Simone de Beauvoir, designer Paul Smith, artist and film-maker Jonas Mekas and many others.

"Antanas Sutkus is characterised by an intuitive creative method, the tendency to record various moments of life based on insight, an ability to build an emotional connection with the people he photographs, to sense the subtle sense of authenticity inherent in the casual moments of our lives and to express it in his photographs." Photography scholar Tomas Pabedinskas

Romania

Antonio Gandore with the image The Scream, in the Landscape category. Although the Romanian landscape illustrated in the picture looks impressive, the lake was, in fact, poisoned by the nearby mining area.
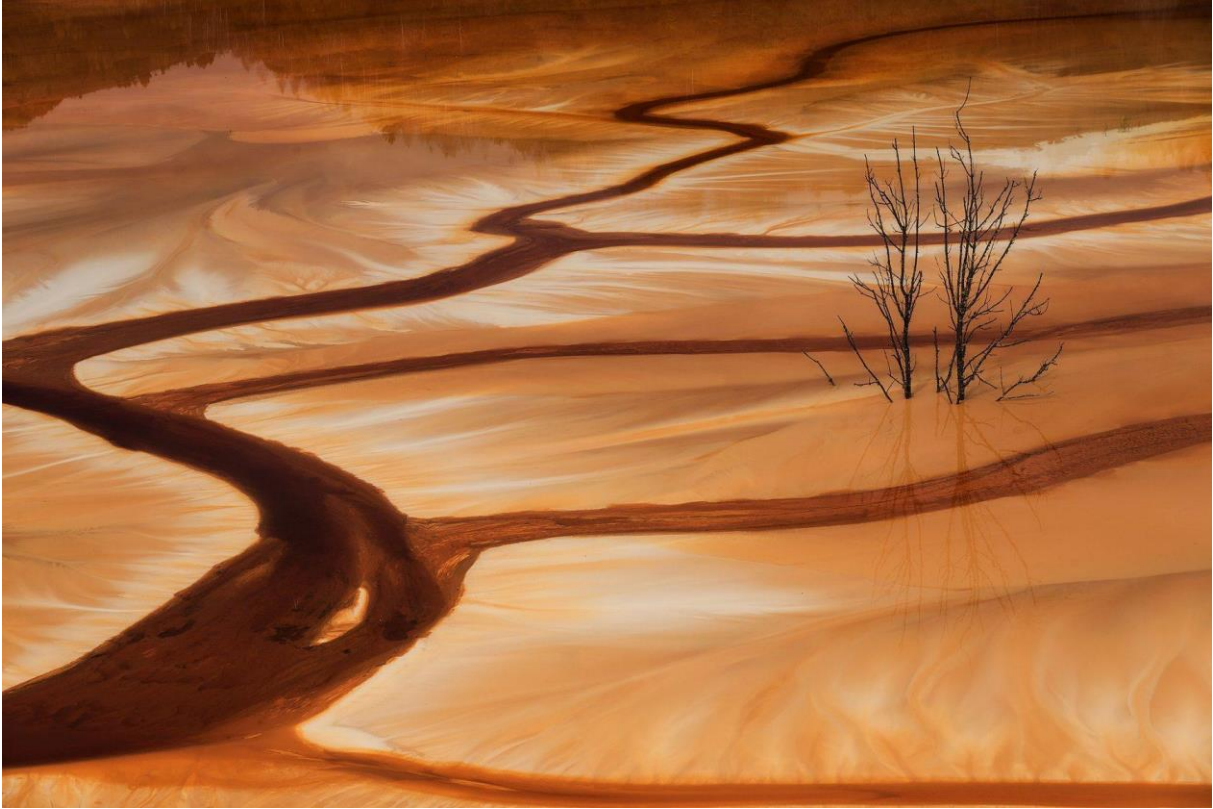
In the Culture category , Alex Robciuc was selected with the work Vasile Oanea. The intimate portrait illustrates Vasile's life and the way in which he combines the lifestyle specific to the Maramureș region with the modern lifestyle.

Mona Lisa by Remus Daescu is also included in the Culture category . The image captures the crowd in the Louvre, Paris, trying to see the most famous painting by Leonardo da Vinci. Daescu said: "From my early years at art school, I most often dreamed of going to the Louvre and admiring the famous Mona Lisa painting. Of course, when I got there, reality hit me and I couldn't even get close to painting. In a way, I was expecting that, but I wasn't. This experience made me think about technology, the power or powerlessness of a single image and what it means to be authentic in the 21st century. "

Slovakia
On August 21, 1968, tanks from Russia and four other Warsaw Pact countries rolled into Czechoslovakia to put down the Prague Spring – a period of political liberalization under Alexander Dubcek. Ladislav Bielik, the photographer who captured the scene, works for the local newspaper Smena. Together with his colleagues, he printed a clandestine edition of the newspaper with this photo on the front page. A copy of the film reached the German Press Agency on the same day, and the photo was published around the world, although often went falsely or non attributed.

Famous photos from around the world

1932: This image of 11 construction workers sitting on a beam of what is now the GE Building 850 feet above New York City began as a publicity stunt but became an iconic early symbol of the building boom at the height of American industrialization

Charles Clyde Ebbets, Tom Kelley, or William Leftwich.

West Berliners crowd in front of the Berlin Wall early November 11, 1989 as they watch East German border guards demolishing a section of the wall

Photographer Jeff Widener captured a protestor blocking tanks in Beijing's Tiananmen Square on June 5 at the height of protests against the Chinese government for freedom of speech. The image of "Tank man," who is still unidentified, symbolized the determination of people's fight against their government and remains banned in China. 1989

2017: The first Women's March saw masses of protesters turn out in cities across the globe, including around 500,000 in Washington, DC, Mario Tama

Portugal

Joao Silva has won numerous awards, including Word Press Photo in 2005. He won the 2nd Prize in the "Contemporary Issues" category.

## 6. Analogue Photography' refers to photography using an analogue camera and film, and it works like this:

- A roll of film is loaded into the camera and, When the shutter of the camera is open, the film is exposed to light and an impression is captured;
- The pictures collected in the film roll are revealed when the film is processed in a photo lab;
- To develop the film, you'll need to load the film into the developing tube, mix your chemicals, pour in the developer, wash it, and then dry the negatives;
- When the negatives are dry, you can print the photos. Use an enlarger to project your film negative onto a piece of photo-sensitive paper, and create test strips and prints by turning on the light inside the enlarger for a series of increasing seconds;
- Authenticity & Credibility: Film photography gives you total control over image exposure and shutter speed, and the ability to print and enlarge images can help artists better understand how photos are made;
- Richer Images: There is a certain amount of depth in film images that you don't see on digital photos
- Unmatched Aesthetics:It helps establish a unique style attributed to the photographer leaving her or his signature on every film image created.
- It takes much practice and experience to produce stellar film images that only come with shooting rolls and rolls of films, using different films and cameras. Each film type has its personality
- single-lens reflex (SLR) cameras, twin-lens reflex (TLR) cameras, rangefinder cameras (calculates distance through triangulation for accurate focusing), point-and-shoot cameras, instant camera, stereo cameras (to create images with 3D effect), panoramic cameras, large format cameras (to shoot 102×127 mm or bigger formats)
- color negative film, color negative film, black and white film, infrared film (more sensitive to light spectrum than a human eye)

- When it comes to choosing a camera, it's important to remember that different cameras shoot different kinds of film (35mm, 110mm, 120mm or instant film):
    - The most common is 35mm film, which can be processed in your local photo lab, drugstore or supermarket;
    - 120 film, on the other hand, is larger and delivers square photos;
    - 110 format film is used with pocket cameras and produces small photos.
    - Lastly, Instant photos do not require photo lab processing; they magically develop within a few seconds!
    - single-lens reflex (SLR) cameras, twin-lens reflex (TLR) cameras, rangefinder cameras (calculates distance through triangulation for accurate focusing), point-and-shoot cameras, instant camera, stereo cameras (to create images with 3D effect), panoramic cameras, large format cameras (to shoot 102×127 mm or bigger formats)
    - color negative film, color negative film, black and white film, infrared film (more sensitive to light spectrum than a human eye)

Advantages:

- The time and expense of film photography instills craft and patience;
- Depending on the <u>film sensitivity</u> you can obtain a wider <u>dynamic range</u>;
- A film-printed (non-editable) image can help as a legal evidence of the subject pictured;
- In optimal <u>processing</u> and storage conditions, a film can have a lifetime duration.

Disadvantages:

- Film photography needs more time and skill than digital;
- Film is delicate and needs careful handling, refrigeration, protection from sun;
- Pictures may suffer <u>film grain</u> and visible dust if not removed;
- Film processing is costly, and needs enlarging or scanning.
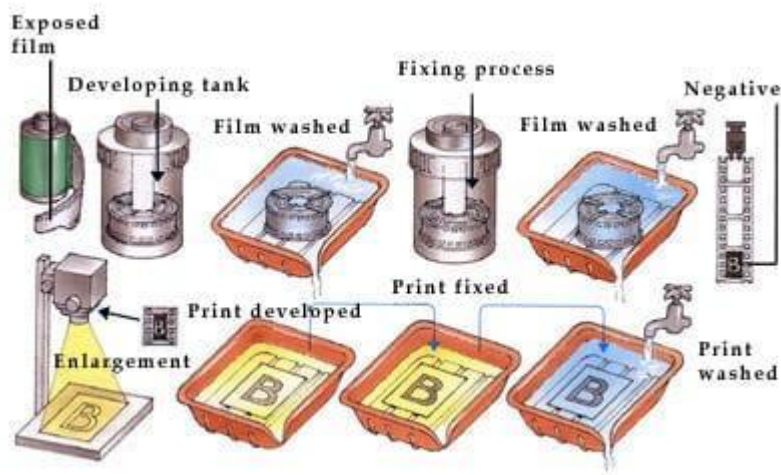
7. Digital photography

What Is Digital Photography?

Digital photography replicates the process of traditional film photography, but it uses an electronic sensor, rather than film, to capture images. These digital photographs are stored on a memory card, and their resolution is measured in megapixels.

HISTORY

While digital photography has only relatively recently become mainstream, the late 20th century saw many small developments leading to its creation. The history of digital photography as we know it began in the 1950s. In 1951, the first digital signals were saved to magnetic tape via the first video tape recorder. Six years later, in 1957, the first digital image was produced through a computer by Russell Kirsch. It was an image of his sonWhile digital photography has only relatively recently become mainstream, the late 20th century saw many small developments leading to its creation. The history of digital photography as we know it began in the 1950s. In 1951, the first digital signals were saved to magnetic tape via the first video tape recorder.] Six years later, in 1957, the first digital image was produced through a computer by Russell Kirsch. It was an image of his son

3 Advantages of Shooting Digital

When you shoot on digital devices, you enjoy a wide array of conveniences that traditional film cannot offer.

- The option to instantly review photos: Thanks to the digital viewfinders on today's digital single-lens reflex camera (DSLRs), you can look at your footage as you shoot. Film photographers have to wait days to confirm that their shots worked. With modern digital cameras, you can instantly review your work.

- Seamless file copying: With a digital camera, you can easily transfer your camera's digital files to a computer hard drive or upload the files into a cloud computing platform. From there, files can be copied for safekeeping and editing.
- Ease of editing: Today's digital editing software lets you alter your images with ease. In the analog film era, editing photographs was difficult and labor-intensive. Software like Photoshop and Lightroom make editing remarkably simple.

3 Disadvantages of Shooting Digital

Digital technology is rapidly taking over all sectors of photography, but it still poses certain disadvantages.

1. Inconsistent quality: Not all digital cameras are created equal. While professional-grade digital cameras can yield impeccable images, consumer-grade digital cameras may suffer from inferior dynamic range, depth of field, and low-light image capture.
2. Higher initial costs: When it comes to startup costs, a good digital camera may be more expensive than its analog cousin. In the long run, though, years of shooting on celluloid film costs more than capturing images on a memory card.
3. Less natural warmth: Digital files may lack the analog texture of 35mm or medium-format film. You can somewhat counterbalance this defect with filters in digital editing software, which can impressively approximate the effect of analog film.

Digital vs. Film Photography

Photo by Eunice Beck on digital.

Photo by Natalie Allen on film.

Overall Findings
Digital

- Most smartphones and cameras have built-in editing features and lighting controls.
- Cheaper than working with film.
- Modification and enhancement options.

Film

- Higher resolution.
- Prints have a higher shelf life.
- Expensive to take and print.

Summary
1.Film media is consumed while digital media isn't.
2.Digital provides instant feedback while film doesn't.
3.Digital cameras cost much more than film cameras.
4.Digital processing costs much less than film processing
5.Digital is much easier to work with than film.

What is a Pixel?

What are pixels? The word "pixel" means a picture element. Every photograph, in digital form, is made up of pixels. They are the smallest unit of information that makes up a picture. Usually round or square, they are typically arranged in a 2-dimensional grid.

In the image below, one portion has been magnified many times over so that you can see its individual composition in pixels. As you can see, the pixels approximate the actual image. The more pixels you have, the more closely the image resembles the original.
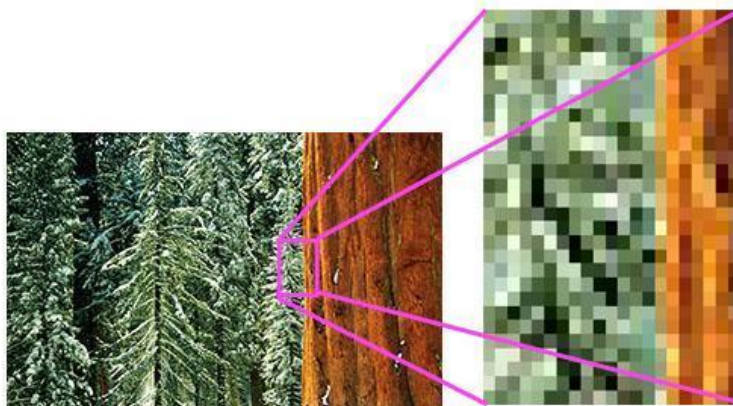
Resolution

The number of pixels in an image is sometimes called the *resolution*, even though this is a bit of a misuse of the term. If we are using the term to describe pixel count, one convention is to express resolution as the width by the height, for example a monitor resolution of 1280×1024. This means there are 1280 pixels from one side to the other, and 1024 from top to bottom.

Another convention is to express the number of pixels as a single number, like a 5 megapixel camera (a megapixel is a million pixels). This means the pixels along the width multiplied by the pixels along the height of the image taken by the camera equals 5 million pixels. In the case of our 1280×1024 monitors, it could also be expressed as 1280 x 1024 = 1,310,720, or 1.31 megapixels.

So, How Many Pixels Do I Need?

Image resolution describes the amount of detail that an image contains. The term can be applied to digital images, film images, and prints. The bottom line is that higher resolution means more image detail.

Camera manufacturers are always trying to sell you on the number of megapixels. The fact is, from a strictly megapixel point of view, most camera phones have "enough" for the average home user.

The answer to how many pixels are "enough" depends on what you want to do with the image, and how big you want to enlarge it. As you see from the image above, which is a fairly low resolution image, when I blow it up too much, I start to see the individual pixels. That effect is called "*pixelation.*"

Make sure you're maximizing your megapixels!

Digital cameras have a "quality" setting that changes how many pixels they actually record. Unless you have your quality setting on the highest level, you are not taking full advantage of your camera's recording capabilities.

If you're not sure where your camera's setting is, look in your user manual. (Sorry! there are just too many cameras out there to provide instructions for each one here!). It will be called something like "quality" or "size" and will be expressed in pixels. For example:

1. Large (3072 x 2304 pixels) — 7 megapixels
2. Medium (2048 x 1536 pixels) — about 3 megapixels
3. Small (640 x 480 pixels) — .3 megapixels — really low resolution!

Colour Information

Each pixel stores color information for your image. It will usually store it in either 3 components, known as RGB (Red, Green, Blue), or 4 components, known as CMYK (Cyan, Magenta, Yellow, blacK).

The number of distinct colors that can be represented by a pixel depends on the amount of information stored for each pixel. Information is stored as *bits*. the more bits per pixel (bpp) that are stored, the more colors a pixel can represent. For example, in the simplest case, if only a single bit of information is stored for a pixel, then it can be "on" or "off" — black or white. The actual number of bits used to represent the color of a single pixel is known as *color depth*, or *bit depth.*

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 is the *length of time* the camera shutter is open, exposing light onto the camera sensor. Essentially, it's how long your camera spends taking a photo. This has a few important effects on how your images will appear.

Motion blur - if your shutter speed is long, moving subjects in your photo will appear blurred along the direction of motion.

Freeze motion - if you use an especially fast shutter speed, you can eliminate motion even from fast-moving objects, like birds in flight, or cars driving past. If you use a fast shutter speed while taking pictures of water, each droplet will hang in the air completely sharp, which might not even be visible to our own eyes.

How to Set Shutter Speed

Most cameras handle shutter speeds automatically by default. When the camera is set to "Auto" mode, the shutter speed is selected by the camera without your input (and so are aperture and ISO). However, you can still set the shutter speed manually if necessary:

1. By setting the camera to "Shutter Priority" mode, you choose the shutter speed, and the camera automatically selects the aperture.
2. By setting the camera to "Manual" mode, you choose both shutter speed and aperture manually.

Within both of these modes, you can choose to set ISO manually or automatically.

For more information about shutter speed use this link :
https://photographylife.com/what-is-shutter-speed-in-photography

Aperture

Aparture can be defined as the opening in a lens through which light passes to enter the camera. It is an easy concept to understand if you just think about how your eyes work. As you move between bright and dark environments, the iris in your eyes either expands or shrinks, controlling the size of your pupil.


Aperture is like the "pupil" for your camera system, which can open and close to change the amount of light that passes through. Note the nine blades in this lens, which form a diaphragm to block any light that tries to pass, except through the center.

Aperture Explained in Video

How Aperture Affects Exposure

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.
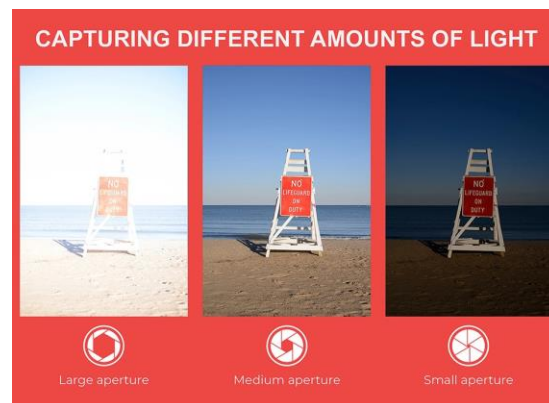
How Aperture Affects Depth of Field

The other critical effect of aperture is depth of field. Depth of field is the amount of your

This photograph has a thin depth of field – a "shallow focus" effect.

photograph that appears sharp from front to back.

In the image above, you can see that the girl is in focus and appears sharp, while the background is completely out of focus.

Large aperture results in a large amount of both foreground and background blur. This is often desirable for portraits, or general photos of objects where you want to isolate the subject. Sometimes you can frame your subject with foreground objects, which will also look blurred relative to the subject, as shown in the example below:

On the other hand, a small aperture results in a small amount of background blur, which is typically ideal for some types of photography such as landscape and architecture.

Large aperture   Small aperture
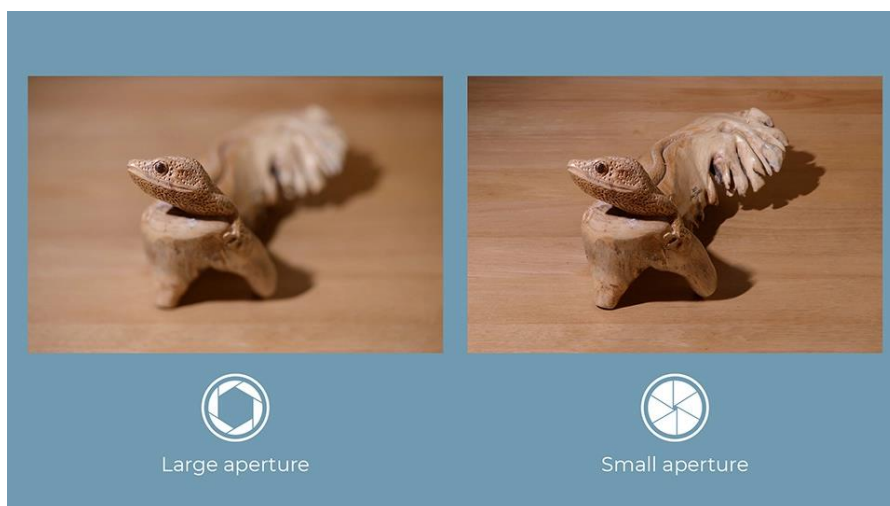
F-Stop and F-Number

So far, we have only discussed aperture in general terms like *large* and *small*. However, it can also be expressed as a number known as "f-number" or "f-stop", with the letter "f"
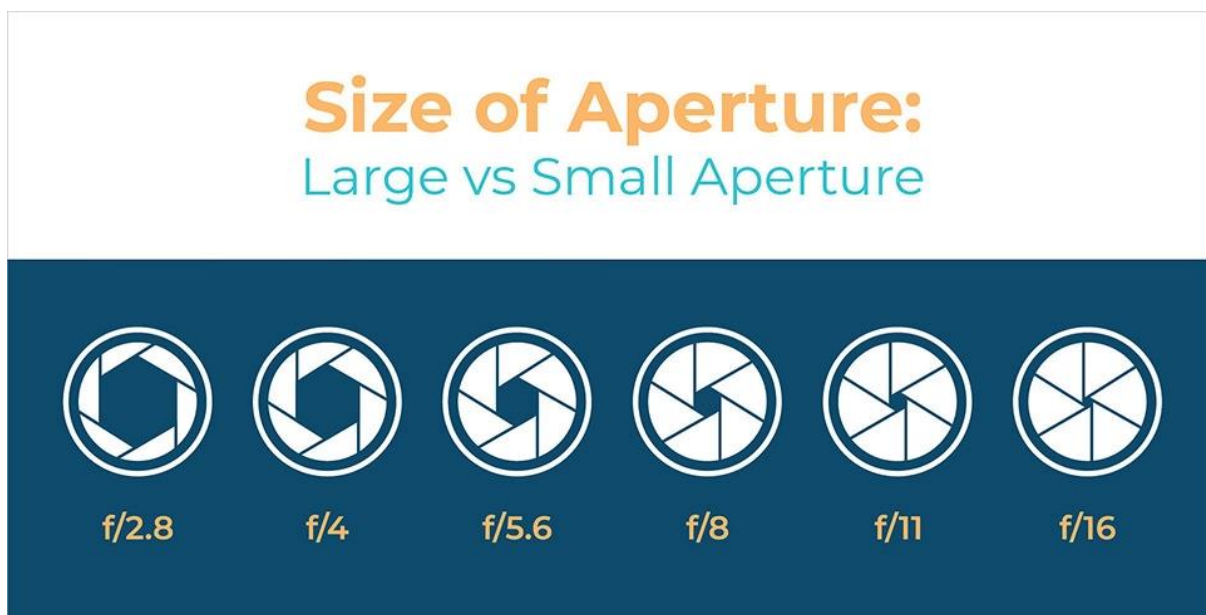

Aperture is labeled in f-numbers and in this case, I'm using f/8.
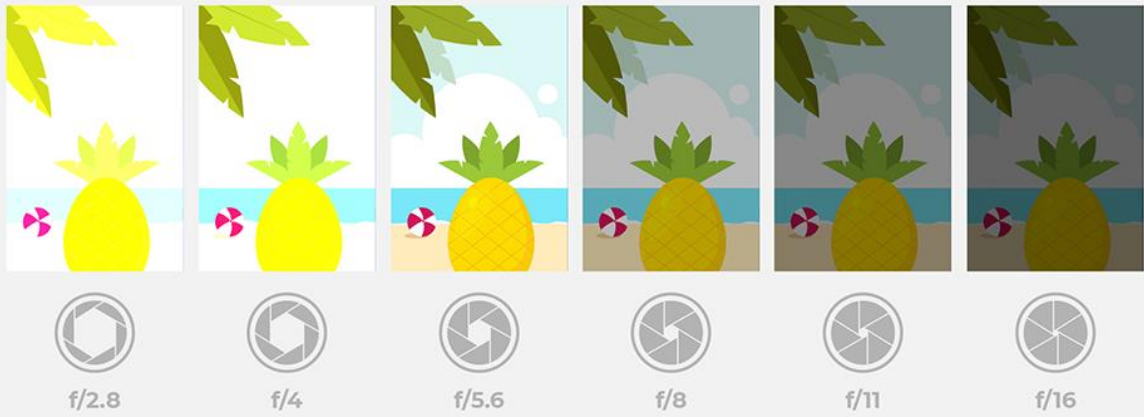
appearing before the number, like f/8.

So, f-stops are a way of describing the size of the aperture for a particular photo. If you want to find out more about this subject, here is a link for a much more comprehensive article on f-stop that is worth checking out.
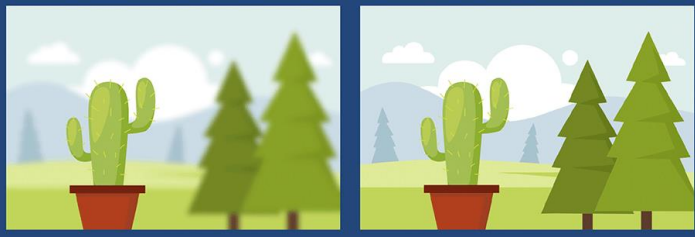
Large vs Small Aperture

How to Pick the Right Aperture

HOW APERTURE CHANGES EXPOSURE

f/2.8   f/4   f/5.6   f/8   f/11   f/16
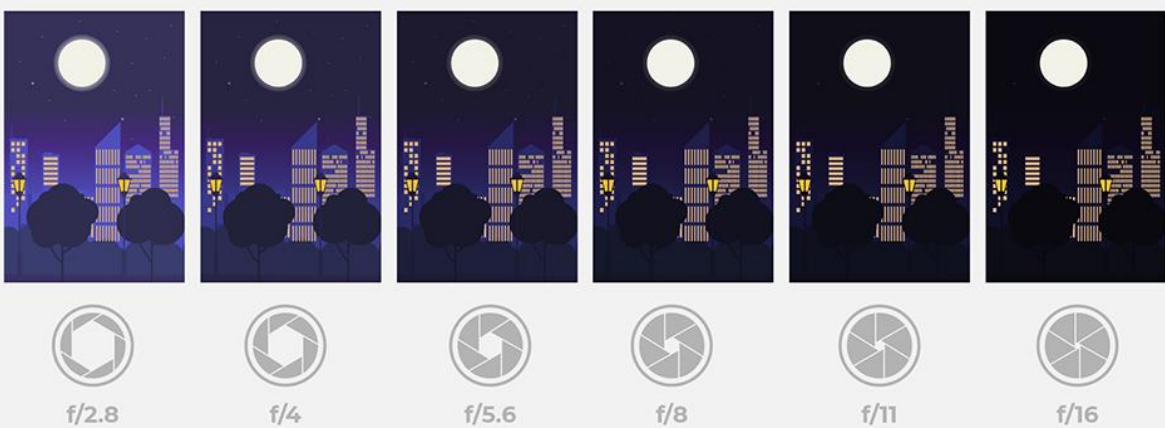

DEPTH OF FIELD AT DIFFERENT APERTURES

f/2.8
Shallow depth of field

f/16
Large depth of field

USING LARGER APERTURES AT NIGHT

f/2.8   f/4   f/5.6   f/8   f/11   f/16

	Aperture Size	Exposure	Depth of Field
f/1.4	Very large	Lets in a lot of light	Very thin
f/2.0	Large	Half as much light as f/1.4	Thin
f/2.8	Large	Half as much light as f/2	Thin
f/4.0	Moderate	Half as much light as f/2.8	Moderately thin
f/5.6	Moderate	Half as much light as f/4	Moderate
f/8.0	Moderate	Half as much light as f/5.6	Moderately large
f/11.0	Small	Half as much light as f/8	Large
f/16.0	Small	Half as much light as f/11	Large
f/22.0	Very small	Half as much light as f/16	Very large

A landscape image captured at f/16 to bring everything from foreground to background into focus. Diffraction can be a problem at such small apertures, as explained below.

Portrait taken at a wide aperture of f/1.4

Landscape taken at a small aperture of f/16

8.Historical photography techniques

Collodial type

The collodion process is an early photographic process. The collodion process, mostly synonymous with the "collodion wet plate process", requires the photographic material to be coated, sensitized, exposed and developed within the span of about fifteen minutes, necessitating a portable darkroom for use in the field. Collodion is normally used in its wet form, but can also be used in dry form, at the cost of greatly increased exposure time. The latter made the dry form unsuitable for the usual portraiture work of most professional photographers of the 19th century. The use of the dry form was therefore mostly confined to landscape photography and other special applications where minutes-long exposure times were tolerable.

Cyanotype

Cyanotype is a photographic printing process that produces a cyan-blue print. Engineers used the process well into the 20th century as a simple and low-cost process to produce copies of drawings, referred to as blueprints. The process uses two chemicals: ferric ammonium citrate and potassium ferricyanide. The sensitising solution contains iron ammonium citrate and potassium hexacyanoferrate(III). Developing is done in water. Depending on the method used, the image is created in Turnbull or Prussian (Berlin) blue. The image is produced directly during exposure; this is therefore a contact process. It was in use from 1842 onwards. Cyanotype is, relatively speaking, a very simple, quick and inexpensive process. For this reason, it is one of the first processes tried by many of the people who are now turning to historical photographic techniques. If the picture is toned, there are many options. It can be toned with tea, coffee or tannin after previous bleaching with alkali. Salts of lead or copper are also used. Depending on the toning used, it is possible to obtain various shades of grey, black, brown, red or yellow.

Bromoil type

In the bromoil process, a silver image is bleached, and simultaneously the gelatin is tanned proportionnally to the amount of silver contained. Finally the print is fixed, washed and dried. After this, the print is soaked in tepid water, which causes a swelling of the gelatin. After removal of the excess water, an oily ink can be deposited on the print with a brush or a brayer. The tanned gelatin (the parts that contained lots of silver – the shadows) didn't absorb water and will not repel the ink. Less silver in an area of the image means less tanning, more water absorption and more repelling of the oily ink. This way, an image can be formed, where silver content is progressively replaced by ink. Using several layers of ink of different stiffness, and working selectively on specific areas of the print, the artist has full

controll over the image that is built up progressively. This was one the favorite processes of the pictorialists during the first half of the twentieth century. Today, there undoubtely is a revival of the process.

Daguerro type

The daguerreotype was the first commercially successful photographic process (1839-1860) in the history of photography. Named after the inventor, Louis Jacques Mandé Daguerre, each daguerreotype is a unique image on a silvered copper plate.The daguerreotype process produces a highly detailed, unique object. It is a direct-positive process, meaning no negative is made. To make a daguerreotype, a sheet of copper is plated with a thin coat of silver. This plate is then cleaned and polished to a mirror finish. Next, it is sensitized in a lighttight box with iodine and bromine vapors until its surface turns yellow. The reaction between the iodine vapor and the silver coating produces light-sensitive silver iodide.Once sensitized, the plate is kept in a lightproof container and inserted directly into a camera, where the exposure is made. Development is then accomplished by placing the exposed plate face down over a source of heated mercury fumes until the image appears. Chemically, the mercury merges, or amalgamates, with the silver creating a milky white image. The image is fixed in a solution of sodium chloride, or table salt. Later, sodium thiosulfate filled this role. The plate is treated or "toned" with gold chloride, which intensifies the image. Finally, the plate is washed in distilled water and dried.

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