

A Canon DSLR camera with a lens and a lens cap on a dark background. The camera is black with a red stripe on the lens. The lens cap is black with a red stripe. The background is dark and out of focus.

What is Photography?

Mrs. Bible Digital Photography 2020

A white egret is captured in mid-flight over a body of water. The bird's wings are spread wide, showing the intricate structure of its feathers. The water below is shimmering with golden light, reflecting the low sun. The background is a soft, hazy orange and yellow, suggesting a sunset or sunrise. The overall mood is serene and majestic.

Photography

is the art of capturing light with a camera to create an image.

Ultimately, my hope is to amaze myself.

- Jerry Uselmann

- Photography combines **Science** with **Art**.
- Photography gives us *many ways to view the world*, and glimpses of how other's view it.
- Through photography we are able to freeze time and see the invisible in everyday life.
- Photographs have recorded wars, documented births, and have changed laws and lives.

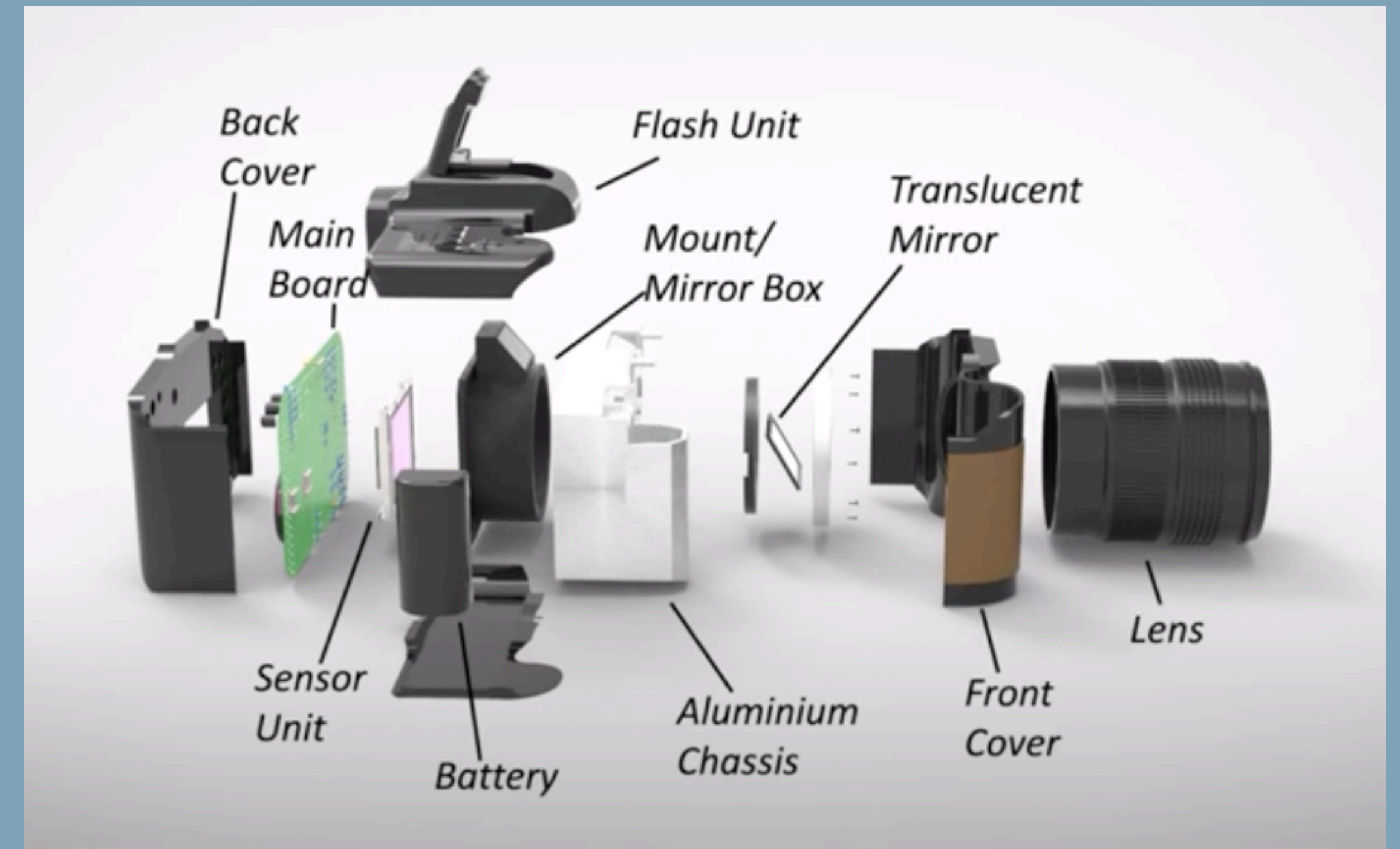


What is a camera and how does it work?

- A **Camera** is a lightproof box with a device, either a pinhole or a lens, that focuses light from an object or scene into an image onto light sensitive material, either film or a digital-imaging sensor, to record an image.
- Camera Basics



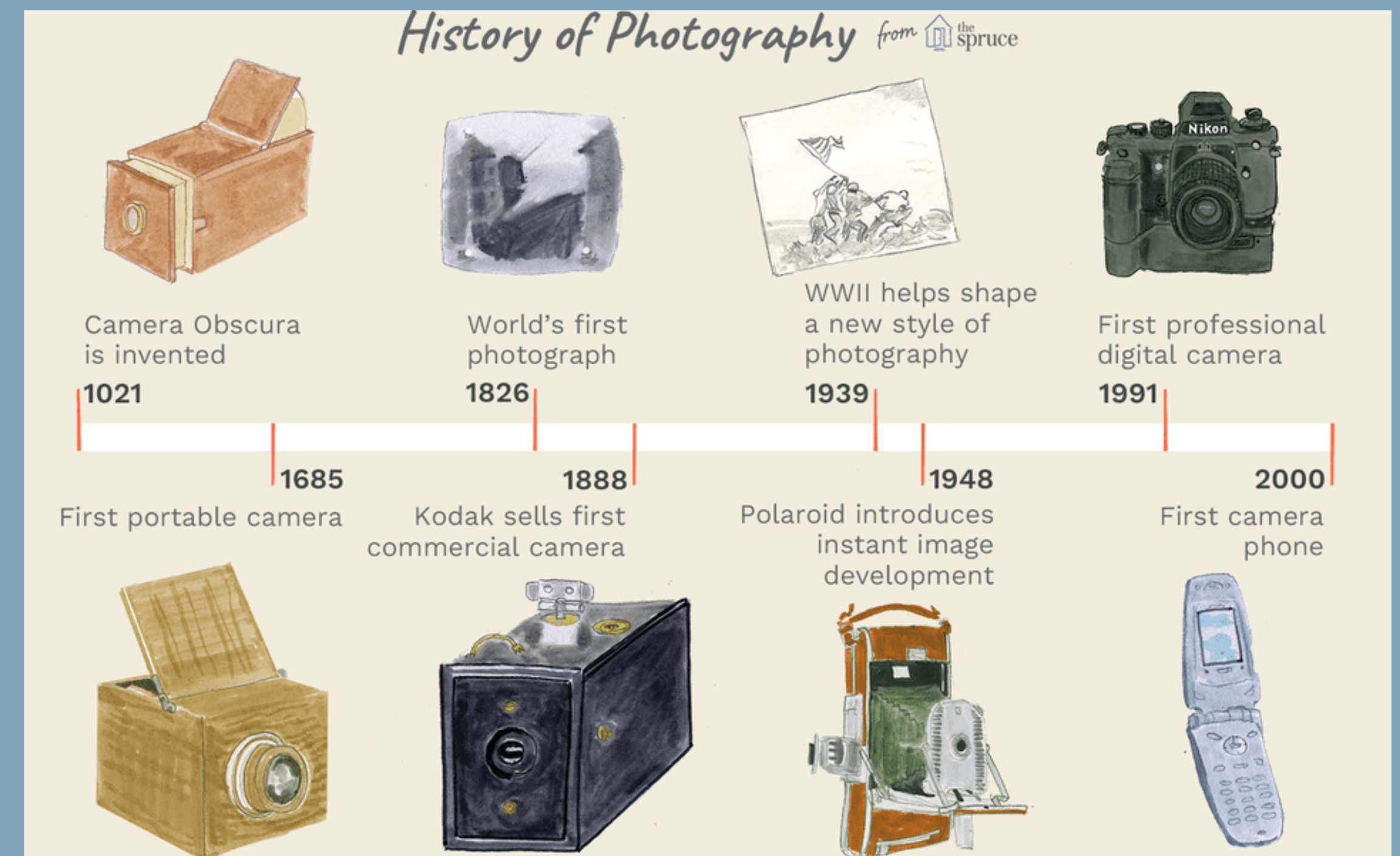
- A camera is a lightproof box with an opening to admit light and a device that focuses the light onto light-sensitive material to record an image.
- The device that focuses light into an image is usually a **lens**, shaped glass held together in a metal or plastic tube.
- The lens projects the light through the box onto light-sensitive material, resulting in a recorded image called an **exposure**.
- There is usually some way to begin and end an exposure, that's the job of a small mechanical door that opens to admit light and then closes, it's called the **shutter**.



How a DSLR Camera Works

History of Photography

- Photography has come a long way in its relatively short history. In almost 200 years, the camera developed from a plain box that took blurry photos to the high-tech mini computers found in today's **DSLRs** and **smartphones**.
- **Influential people:** Joseph Nicéphore Niepce, Louis Daguerre, William Henry Fox Talbot, Heinrich Schulze, George Eastman.
- **Technologies:** Camera Obscura, Daguerreotype, Contact Print, Roll Film.



The First Cameras

The **basic concept of photography** has been around since about the 5th century B.C.E. Concept became a reality when an Iraqi scientist developed something called the **camera obscura** in the 11th century. 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.

The First Permanent Images

Photography, as we know it today, began in the late 1830s in France. Joseph Nicéphore 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. Niépce's success led to a number of other experiments and photography progressed very rapidly. With each type of emulsion created, photographers experimented with different chemicals and techniques. The following are the three technologies that were instrumental in the development of modern photography.

Daguerreotype

Niépce's experiment led to a collaboration with Louis Daguerre. The result was the creation of the daguerreotype, a forerunner of modern film. A copper plate was coated with silver and exposed to iodine vapor before it was exposed to light. To create the image on the plate, the early daguerreotypes had to be exposed to light for up to 15 minutes. The daguerreotype was very popular until it was replaced in the late 1850s by emulsion plates.

Emulsion Plates

Emulsion plates, or *wet plates*, were less expensive than daguerreotypes and required only two or three seconds of exposure time. This made them much more suited to portrait photographs, which was the most common use of photography at the time. Many photographs from the Civil War were produced on wet plates.

Dry Plates

In the 1870s, photography took another huge leap forward. **Richard Maddox** improved on a previous invention to make dry gelatine plates that were nearly equal to wet plates in speed and quality.

These *dry plates could be stored* rather than made as needed. This allowed photographers much more freedom in taking photographs. The process also allowed for smaller cameras that could be hand-held. As exposure times decreased, the first camera with a mechanical shutter was developed.

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 Brownie camera was launched in 1900 to target new hobbyist photographers to children — and with its \$1 price tag, it also became a favorite of servicemen. 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.

Key Terms

- **Lens:** A disc of transparent glass with one or more curved surfaces that focuses an image onto the digital-imaging sensor.
 - **Normal Lens:** The lens that most closely matches the human eye, typically a 50mm.
 - **Wide-angle lens:** Includes more of the scene and makes objects look farther away, typically a 6mm - 35mm.
 - **Telephoto lens:** Includes less of the scene and makes objects look closer, start at 75mm and up.
 - **Zoom lens:** Includes variable focal lengths like a 28mm - 55mm, or a 70mm - 300mm
- **Exposure:** The amount of light and the duration of time that light is allowed to expose a digital-imaging sensor. Exposure is controlled by Aperture, shutter speed and ISO.
- **Aperture:** The hole or opening inside a lens that determines the amount of light passing through the lens, controls the depth of field.
- **Shutter:** A mechanical door that opens to admit light and then closes, controls motion blur.
- **Camera obscura:** Latin for “dark room,” it was the first camera and was used as a drawing aid for artists. It was built around the pinhole phenomenon, and it projected upside-down and reversed images onto a ground glass that artists could then trace.
- **Single-Lens Reflex:** You actually look through the lens that takes the picture, most popular with photojournalists, and have changeable lenses.
- **ISO** (International Standards Organization) A standardized way to measure a camera's imaging sensor's sensitivity to light.



To Do:

- Start a Google Doc of the Key Terms for Class.
- Review the history of Photography.
- Take Google Quiz.
- Historical Image Assignment
(see *class website & google classroom*)

