Camera Corps Camp

Clark Colby

Arts, Communication, and Design Program Specialist, Cacolby3@iastate.edu

# Program Overview

The summer series one-day programs are designed for county staff or volunteers to utilize to plan and implement a themed day-long event or activity for up to 24 young people. Facilitation is geared towards county staff, project area leaders, club leaders, or other 4-H volunteers and partners.

# Description

Grades 6–12

“See the light, play with the shadows”

Play is key to creative and interesting photographs! Participants will learn about the science and technology related to the history of photography, and technical experimentation. Hands-on photo shoots experimenting with portraits, long exposures, silhouettes, telling creative stories, and wide-view panoramic photographs. Participants will discuss editing, stitching, and dual exposures. Plans will be made for an exhibition, selected location, installation design, and presentation style. Wrap up will look into the future of photography, new tools like 360 cameras, drones, and virtual reality available now as well as letting participants imagine what photography of the future may look like! Keep the educational experience going by having participants apply to be part of Camera Corps today!

# Facilitation Notes

The time for each activity can vary depending on the amount of participants you have and how enthusiastic they are about each activity. It may be helpful to plan ahead for flexibility. None of the activities are reliant on one another, so you may choose to skip or repeat activities, based on the group you’re with.

# Welcome and Introduction Activities

## Welcome

Welcome everyone to the event. Explain who you are, your relationship to the 4-H program, and briefly explain the purpose of your time together. The participants today will be exploring photography. At the end of the day, there will be a showcase for parents or other visitors. They will be asked to be a part of planning this showcase and being a part of it.

## Getting to Know You Game

Start the day by making name tags. This is important for the group dynamics so everyone gets to know someone new. Go around the room having everyone share their name, where they are from, and something that they recently learned with the group; it can be anything that just breaks the ice and usually helps everyone learn something unique about each participant. Leaders are expected to take part in each activity as well! This encourages team learning and positive group dynamics.

## Activity #1

Time: 1 hour

* Dry-erase board and/or easel pad and markers
* Paper and pencils
* Examples of old and new photographs (optional)
* Examples of old and new cameras (optional)

**Have you ever takien a photograph?** Go around.

**What type of camera do you use?** Go around.

**What is a camera?** Turn to your partner and tell them what you think a camera is. Have each two-person group share their definition. Group discussion, ending with a written definition on the board. Does not need to be the dictionary definition; this is a working definition for the group.

**What is a photograph?** Turn to your partner and tell them what you think a photograph is. Have each two-person group share their definition. Group discussion, ending with a written definition on the board. Does not need to be the dictionary definition; this is a working definition for the group.

**Do:** In partners, write the definition of a camera and write the definition of a photograph.

**Reflect:** Group discussion and creation of an agreed upon definition of a camera and of a photograph. Look up the dictionary definition but also allow for youth to suggest their definition.

**Apply:** Now that the team has a current working definition of a camera and a photograph, they are going to learn about the history of the invention and creation of photography.

## Activity #2

Time: 2 hours or more

* Dry-erase board and/or easel pad and markers
* Paper and pencils
* World map
* People Important to Photography sheets

**Some History of Photography:** This activity is meant to give a broad overview of the development and discoveries that led to photography as we know it today. Discussion should be encouraged to make the group excited to invent, design, dream across disciplines, and realize that they make history every day.

**Do:** **Educational Presentations:** Hand out the reference sheets until all are distributed. Youth may have multiple, depending on size of group. Give the youth a few minutes to read and learn about their personas. They will be impersonating these important people and sharing what they have discovered with the group. Each youth needs to share when they were alive in history, can either point on a map where they are from or share the country they are from, and what they are interested in and have discovered. There are many different subjects and locations from this history that can be explored further and any of these discoveries could be a chance for digging deep and learning more.

**Reflect:** Youth will need to engage and listen closely to their peers. The more engaging the presentations, the better! Think theater!

470–391 BCE: **Mo Tzu** — Chinese philosopher. Wrote about the effects and nature of light, and the reflection presented by an inverted image when light, and the image it carried within it, passed through a small hole and landed upon an opposing flat surface.

384–322 BCE: **Aristotle** — Greek philosopher and scientist. Wrote about the phenomenon seen during an eclipse.­­

965–1040 AD: **Ibn al-Haitam** — Arab scientist, mathematician, astronomer, and philosopher; in *On the Form of an Eclipse*. Wrote about the focusing of light in apertures of varying sizes. Nomadic tribes in the deserts of the Middle East were fully aware of and utilized the light (fotizo) writing (graphi) image. They would rest during the day, travel at night, and would poke tiny holes in their canvas tents to project the outside environment onto the interior walls so they could scan the horizon for approaching danger.

1377–1446: **Filippo Brunelleschi** — Italian designer, architect, engineer, planner, and construction supervisor. Photographically rendered architectural tracings from the camera obscura.

1404–1472: **Leon Battista Alberti** — Italian humanist author, artist, architect, poet, priest, linguist, philosopher, cryptographer, and an all-around Renaissance Man; in *de Pictura*. He described how the perspective idea worked and illustrated it.

1452–1519: **Leonardo da Vinci** — Italian polymath; his areas of interest included, invention, painting, sculpting, architecture, science, math, music, engineering, literature, anatomy, geology, astronomy, botany, writing, history, and cartography; in *Codex Atlanticus* — first recorded drawing of a camera obscura and its operation. It took 300 years for anyone to decipher his writing as he wrote with his less dominant hand backwards.

1501–1570: **Girolamo Cardano** — Italian polymath, mathematician, physician, biologist, physicist, chemist, astrologer, astronomer, philosopher, writer, and gambler. Places the lens on the camera obscura.

1535–1615: **Giambattista della Porta** — Italian scholar, polymath, and playwright. Wrote *Magiae Naturalis*, which he started at age 15. In it, he described the focusing abilities of differently shaped pieces of glass.

1570–1619: **Han Lippershey** — eyeglass maker from Holland. Invents the telescope.

1571–1631: **Jacob Metius** — Dutch instrument maker and specialist at grinding lenses. Files patent for telescope.

1564–1642: **Galileo Galilie** — Italian polymath, astronomer, physicist, engineer, philosopher, and mathematician. Made the first telescope and was placed under arrest for saying the sun was at the center of the solar system.

1571–1630: **Johannes Kepler** — German mathematician, astronomer, and astrologer. Worked out the formal relationship between mirrors, lenses, and vision.

1580–1638: **Hans and Zacharias Jansen** — father and son Dutch spectacle makers who invented the microscope.

1632–1723: **Anton van Leeuwenhoek** — Dutch tradesman and scientist. Developed the microscope.

1635–1703: **Robert Hooke** — English natural philosopher, architect, and polymath. Developed the microscope.

1643–1727: **Isaac Newton** — English mathematician, astronomer, and physicist. Demonstrated with a prism that light was not white but actually an entire spectrum of colors. He was also first to use the term “camera obscura.”

1687–1744: **Johann Heinrich Schulze** — German Professor and polymath who studied, medicine, chemistry, philosophy, and theology. He discovered the darkening of various substances mixed with silver nitrate and exposed to sunlight to capture shadows.

1739–1806: **Robert Barker** — English painter. He coined the word “panorama” and made a fortune building a panorama building, which viewers paid to experience a 360-degree painting.

1742–1786: **Carl Wilhelm Scheele** — Swedish Pomeranian, was a pharmaceutical chemist. Wrote about how the blue-violet end of the light spectrum impacted a compound of silver and chlorine. Think ultraviolet and sunburn.

1754–1811: **Gilles-Louis Chretien** — Frenchman, was a cellist. He created the invention called the physionotrace. It took profile portrait and reduced them to silhouettes.

1750–1820: **Elizabeth Fulhame** — born in Scotland, she was a chemist. Further developed how water and light helped in the catalytic reactions as both the reducing and oxidizing agent. She used heavy metals such as silver and gold to dye fabrics.

1765–1833: **Joseph Nicephore Niepce** — French inventor. Was credited as one of the inventors of photography. He developed the heliography technique which uses a photoengraved printing plate that print could be made from. He also invented the first internal combustion engine.

1792–1871: **Sir John Herschel** — English polymath, mathematician, astronomer, chemist, inventor, photographer, and botanist. He invented the cyanotype process, the precursor to the blueprint process. He also developed the terms “photography,” “positive,” and “negative” as they apply to photography.

1787–1851: **Louis Jacques Mande Daguerre** — French artist and photographer. Recognized for the invention of the daguerreotype. This process uses a thin silver-plated copper sheet exposed to vapor given off from iodine crystals that make it light sensitive. Many of his early photographs were of curiosity cabinets, or wunderkammern.

1801–1887: **Hippolyte Bayard** — French civil servant and photographer. Invented his own photography process that produced direct positive paper prints in camera.

Over at least the last 2,300 years, there have been many people, some listed here, who were greatly influential in the development of modern photography. Now what will your mark on the history of photography be?

**Apply:** After presenting some of the general history of photography, the youth will be adding themselves into the history.

**Here is an example using my information:**

1988 – Living: **Clark Andrew Colby III** — Iowa born, artist, architect, photographer, teacher, traveler. Designed and built a six-pinhole 360-degree analog camera that takes inverted photographs on 18-inch diameter low-fired porcelain spheres coated with black and white light-sensitive photographic emulsion.

Coolest camera I have seen is the camera obscura in San Francisco.

If you could design any camera, what would it be, and what would it do really well?

Clarks personal goal: to design a portable camera that takes 360-degree photographs on spheres.

If you could design an anti-camera, what would it be, and what would it do really well?

My design for an anti-camera would be a camera that makes you write about what you see before it shows you a photograph. Future viewers of the photographs would have to read the descriptive text out loud before the photograph would appear.

Now it is your turn!

**Worksheet:**

Name, location of birth, subjects, hobbies, and professions you enjoy. Something you have created or done with photography. Taking digital pictures is a perfect answer. For example, taken well over 1,000 digital photographs that add to the collective human conscience stored on the internet and accessible worldwide via Facebook.

**Date of Birth:**

**Name:**

**Location of Birth:**

**Subjects:**

**Hobbies:**

**Job or Profession:**

**Something you have created or done with photography:**

**What is the coolest camera you have ever seen?** Written description.

**If you could design any camera, what would it be, and what would it do really well?** Have each youth draw at least four different camera designs and write a short description next to each one about what the camera does. After they have four designed, have them share with their partners. In their partner groups, they need to select two cameras from each of them to share with the bigger group. They should come up with a name of each camera they share with the group.

**If you could design an anti-camera, what would it be, and what would it do really well?** Have each youth draw at least four different camera designs and write a short description next to each one about what the camera does. After they have four designed, have them share with their partners. In their partner groups, they need to select two cameras from each of them to share with the bigger group. They should come up with a name of each camera they share with the group.

**Draw your camera or anti-camera:** These drawings can be quick sketches but with additional time could be developed further into a real working prototype that could be used and submitted at the county and start fairs for exhibition.

A really important component of these activities is allowing the youth to be creative inventors and designers. They should support one another’s ideas and be excited when similar or completely different ideas are generated. There are no right or wrong answers!

**Take it further:**

Can you research and find, or do you know someone from a different country not already highlighted that has made a contribution to photography? Highlight the country and write the person’s name, date of birth, and contribution and share with the group.

# Activity Section #2 — Camera Obscura

Time: 3 hours of more

* Thick, black plastic, fabric, cardboard, or paper to block light
* Aluminum foil for aperture
* Pin to poke pinhole
* Tape (gaffers or other, to hang material to block light)
* White sheet to hang or hold for image to be projected
* A small-to-medium room with a window or door that leads outside
* A way to turn off all room lights
* Printouts of drawings of historic camera obscuras (optional)
* DSLR camera (optional)
* Tripod (optional)
* Flashlight or light on phone (optional)

## Activity

**Camera Obscura**

In this activity, youth will design and build a camera obscura. By the end of the day, everyone will know more about how a camera works. Have a better understanding of optics and be able to say they have been inside a camera.

Latin for “dark room”

**Camera obscura:** a darkened box/room with a lens or aperture for projecting the image of an external object onto the inside. It is important, historically, in the development of photography.

**A brief history:**

The first documented writings regarding camera obscuras date back to the fifth century. Mo Tzu studied the effects and nature of light when a reflection of an inverted image and light pass through a small opening and land on a flat surface. Aristotle contemplated the phenomena years later. Finally, over 1,000 years after Mo Tzu and Aristotle, Ibn al-Haitam is credited with discovering how the inverted image is reflected using a camera obscura. Nomadic Tribes in the Middle East used the concept of the camera obscura to their advantage. During the heat of the day, they would rest in their tents. They would create a camera obscura in their tents by poking a small hole in their tents to reflect the inverted image. They did this so they would be able to see any potential problems or other tribes coming their way.

Now camera obscuras are used for entertainment and creating unique photographs.

Start with the above discussion and make sure youth understand what a camera obscura is and how it works.

**Do:** Talk about how a camera obscura works, build a small camera obscura helmet with thick chipboard, paper, or white cardboard.

**Reflect:** What is it like to view the world upside down?

**Apply:** How do our brains flip the world constantly?

## Activity

Build a room size camera obscura so the whole group can be in the camera. Have the youth lead the rest of the activity. Adult leaders’ role is to provide materials and help where needed.

**Do:** Have the youth:

**Step 1**: Identify a room with limited windows, or light shining in.

**Step 2**: Cover all light sources with black plastic or other light-blocking material.

**Step 3**: Cut a small hole near the middle of the window opening and tape a piece of tin foil over the hole. Take a pin and poke a small hole in it.

**Step 4**: Shut off all lights and make sure to cover any light leaking in. It is really important the that space is completely dark.

**Step 5: Let your eyes adjust!** This takes some time. Enjoy the darkness; it is a rare experience these days.

**Step 6:** Hang or hold the white sheet or white foam core about a foot from the pinhole. You will notice the outside environment being projected onto the sheet or white foam core. Slowly move the sheet away from the opening: the greater the distance from the opening, the less light intensity.

**Step 7:** Continue to conversation. Plan on spending at least 30 minutes in the dark.

**Reflect:** Example discussion questions:

**Why was the invention of the camera obscura so significant?**

The camera obscura is the first model of the modern camera.

**How big are camera obscuras?**

They can be as small as a portable box or as large as a room-sized chamber.

**Why is the projection upside down?**

Light travels in a straight line. The image of the sky travels through the pinhole from above and down to the bottom. The ground plain travels from the bottom through the pinhole and up to the top of the room.

**Is this a static image?**

Depending on location, you may see cars driving by, people walking, clouds floating, birds flying. In pairs of two, youth can go outside and perform a silhouette puppet show upside down for the youth still inside the camera obscura.

**Is this a photograph or a video?**

This is a theoretical question. Listen and direct conversation, allowing creative thinking. Camera obscuras are still primary light. The light has not been captured by electrical charge (digital photography and video) or by chemical reaction via film or light-sensitive chemicals.

**Does anyone have a bedroom at home that they could build one of these in?**

Many bedrooms are great for this as they usually only have one or a few windows. In small rooms, there is no need for the sheet as the light will project directly onto the walls and ceiling.

**Can we take video or photographs of this?**

Some cameras and cell phones are able to capture the images from camera obscuras. This is a chance for youth to take pictures and share what they are learning and experiencing with others. With DSLR cameras on a tripod, the whole room can be captured with long exposures. Depending on both the size of the room and how dark you are able to make it, the space will change the length of the exposure. This activity may take some trial and error and is easier with older youth.

**Invite others to see what the youth have made!**

At the end of the workshop, depending on time, invite parents or community members to experience the camera obscura before taking it down.

**Apply:** **Where else could a camera obscura be built?**

Could this be a teamwork activity that could be done temporarily in a storefront on town square? How can the youth share this experience with the bigger community?

# Activity Section #3 — Light Painting

Time: 2 hours or more

* Camera obscura, dark room, or night
* DSLR camera
* Tripod
* Flashlight or any moveable light source

## Activity

Now that you have a dark workspace, have some fun.

Light painting utilizes the long exposure setting on cameras. Much of the time with photography, we try and freeze time and capture a moment. Using longer exposures gives youth a chance to take some creative freedom and create a scene that we can now see with our eyes.

Set up the tripod and camera in a safe space, making sure no one trips over it in the dark.

Show examples beforehand of light painting. Light painting can be used to write and draw with light. It can be used to capture or highlight a specific person or thing while leaving everything else blank.

**Do:** Camera steps:

**Step 1:** Set the camera to manual focus on infinity

**Step 2:** Change the exposure setting to 1–30 seconds long or the bulb setting

**Step 3:** Take a few test shots, moving subjects and lights

**Step 4:** Play, share, repeat!

Youth can write their names with light. They can hold still or move. They can create silhouettes of themselves. Words need to be written backwards. Images can be easier for younger groups — have them all draw hearts or stars. Try ISU 4-H! This is a chance for the leader of the group to be the choreographer and the youth to be captured in a fun group photo. Be sure to share this photo on your social media platforms and with the youth.

**Reflect:** How can we show participants? By facing the light towards themselves during the exposure? Can we create ghosts?

**Apply:** Where could you do this outside in your community? Could you do a collaborative light painting with a large group? Could you paint with light at night time on a playground? Could you turn an empty landscape into a field of light-painted creatures?

## Activity

View, select, and edit your digital photographs, using the light-painting technique.

**Do:** Have youth select photographs they find exciting. Open in any free or paid photography-editing software. Play with saturation, highlights, and shadows. Contrast and edit photographs to emphasize the light painting.

**Reflect:** Share photographs with the group. What is working well? What are some things people learned while editing? What photographs do people want to create again?

**Apply:** Where could you do this next? What settings would you use now that you have edited your photographs?

# Activity Section #4 — Cyanotypes

Time: 3 hours or more

* Dry-erase board and/or easel pad and markers
* Paper and pencils
* Examples of blueprints
* Examples of transparencies

## Activity — Previous Knowledge

**Do:** Have the youth get to know each other and learn about the previous photography experiences of each youth.

**Have you ever worked in or seen a darkroom?** Go around.

**Have you ever seen a photograph or film negatives?** Go around.

**Have you ever made a solar print?** Go around.

**What is a blueprint?** Turn to your partner and tell them what you think a blueprint is. Have each two-person group share their definition. Talk about how blueprints were a way of making copies of drawings for architects and engineers before printers.

**What is a transparency?** Turn to your partner and tell them what you think a transparency is. Have each two-person group share their definition. Talk about how transparencies were used with overhead projectors and are similar to film negatives.

**Reflect:** Why would we want to use a transparency?

**Apply:** Think of the many things we have in our daily lives that let light in and block light. Could these be turned into photographs?

## Activity — Coating Cyanotypes

* Thick paper or white natural fabric (no plastics)
* Brush or foam brush
* Newspaper or paper to protect tables
* 2-part cyanotype ingredients (ferric ammonium citrate [green] and potassium ferricyanide)
* Water for mixing
* A mixing container
* Running water for rinsing
* Sun or UV light for exposing
* Gloves to protect from staining hands
* Contact frame or piece of plexiglass or clear plastic paper sleeve protectors to keep things in place during exposure
* Objects to create photograms
* Timer or stopwatch
* Black and white negative (optional)
* Black and white digital negative (optional)

**CYanotype**

Cyanotype is a simple, almost fail-proof, alternative photography technique.

**Be aware** this process uses chemicals that should not be consumed. If any gets on skin, wash off immediately, or it will stain. Be careful to not get cyanotype solution on clothing, tables, floors as it will stain. Do not do this activity while consuming food or snacks of any kind. Always wash hands after working with chemicals.

**A Brief History**

Cyanotype was developed in 1842 by Sir John Herschel (1792–1871), only three years after the official discovery of photography. Hershel was also the founder of the words “positive,” “negative,” “photograph,” and “snapshot.” As a scientist, he experimented with concepts revolving around light sensitivity of silver salts, metals, and vegetation. He continued to experiment with highly colored dye of flowers from his garden that could potentially be light sensitive.

**It’s a process…**

The following prepares around 50 8x10 photograms.

At least 24 hours before you begin, dissolve each chemical in water to make two different solutions. Add 25 grams ammonium ferric citrate and 100 mL water into a light-tight container with a lid. In a separate container, add 10 grams potassium ferricyanide and 100 mL water. Agitate slowly until the chemicals dissolve. These bottles can last for over a year, stored at room temperature. If storing for a long time, a slime may form on the surface; this can be removed with a paint brush before coating the paper.

Right before coating the paper or fabric, measure and combine equal quantities of each solution in a separate container. This container will be the one where paint brushes or foam brushes are dipped for coating. Unused mixed solution can be stored for a week or more in a light-tight container, but it does lose its UV sensitivity over time.

Next, brush the liquid solution onto the project area. Make sure to not leave puddles on the paper; a nice even coat is best. Ensure your work area is dimly lit. Once the material is coated, leave it to dry in a dark area. Make sure they are completely dry before exposing, or they will rinse out and not expose properly. If the paper feels cool to the touch, it is probably still drying. Paper can be stored dry for many days as long as it is kept in light-tight containers. To speed up the process, you can coat paper days in advance and have it dry and ready to expose to light.

**Do:** Steps:

1. Lay the objects flat in direct contact with the surface of your project.
2. Cover with a piece of glass or clear plastic to ensure your objects stay in place, making sure things do not move in the wind if exposing outside.
3. Find a sunny space to expose your cyanotypes, making sure not to accidently shade during exposure.
4. After waiting about 8–20 minutes (depending on the strength of the light), you can bring the photograms back to a sink.
5. Rinse the project in room-temperature water until the water runs clear. All the yellow green should wash out, leaving only a nice blue and white. Be careful to not tear the paper while rinsing.
6. Let the project dry. It works best to place the paper on a paper towel, and then place a second paper towel on top and blot the photograph to soak up most of the residual water. Then the project can be hung or laid flat to dry. And voila! You now have a unique masterpiece. If paper curls, you may press the cyanotypes with books or a heat press.

**Reflect:**

**What sort of surfaces are used with cyanotype?**

Paper and fabric are typically used with cyanotype. Almost any paper or fabric can be used, but this can depend on the type of project you are working on. Watercolor paper and rice paper work well but be open to experimenting with other natural-fiber products.

**How long does it need to be washed?**

Rinse your project until the water runs clear. This ensures the chemicals are washed out.

**I thought cyanotypes were all flat objects on a surface, exposed to light. How are actual faces and other objects produced in one?**

A photo can be printed on transparency paper and turned into a negative. This is then set on the surface of the prepared cyanotype paper, etc. and turned into a positive. Thus creating what appears to be a photograph.

**What’s the best light to expose the art to?**

The sun is the best light to expose the art to. With that being said, on dreary or cloudy days, it will not be sufficient. For those working in this type of climate, a UV exposure unit would be a consistent and controllable source to use year round. Any bulb that produces UV light wavelengths will expose cyanotypes. The intensity of the bulbs changes the length of exposure. Make sure to test beforehand!

**Apply:** Could you make thank you cards this way? Or postcards? Or holiday cards?

## Activity — Digital Negatives

* Laser or inkjet transparency film, depending on printer
* Computer
* Digital photographs
* Laser or inkjet printer
* A program that can convert a digital photograph to black and white and inverted
* Paper to safely store transparencies in for future use

**Creating Digital Negatives for Cyanotype Photography**

This activity can be a bit more complicated and requires more technology which always opens opportunities for mistakes and learning moments!

This can be a group or individual activity, depending on access to computers and funding.

The easiest option is to run the workshop as a moderator. Have the youth send you some of their favorite photographs or take photographs as a group during the beginning of the workshop.

**Do:** Be creative and select or create photographs that have strong, contrasting patterns and shapes.

Using a variety of digital programs, convert digital photographs to black and white and invert into a negative.

Connect to the printer, load printer with transparencies, and print each digital photo negative individually.

**Reflect:** What are some interesting qualities of a negative?

**Apply:** When could you use negatives in other projects?

## Activity — Contact Printing

* Cyanotype supplies
* Access to running water

**Contact Printing Your Digital Negative to Create Cyanotype Photographs**

**Follow the same steps as the cyanotype photograms only use the digital negative transparencies.**

**Do:** Steps:

1. Lay the digital negative in direct contact with the surface of your project.
2. Cover with a piece of glass or clear plastic to ensure your negative stays in place, making sure things do not move in the wind if exposing outside.
3. Find a sunny space to expose your cyanotypes, making sure not to accidently shade during exposure.
4. After waiting about 5–20 minutes (depending on the strength of the light), you can bring the cyanotypes back to a sink.
5. Rinse the project in room-temperature water until the water runs clear. All the yellow green should wash out, leaving only a nice blue and white. Be careful to not tear the paper while rinsing.
6. Let the project dry. It works best to place the paper on a paper towel, and then place a second paper towel on top and blot the photograph to soak up most of the residual water. Then the project can be hung or laid flat to dry. And voila! You now have a unique masterpiece. If paper curls, you may press the cyanotypes with books or a heat press.

**Tips:**

* To get the clearest photographs, really make sure that the transparency does not move on the paper during the exposure. A contact frame is the best solution to keep things from moving, but any picture frames, plexiglass, or plastic can be used to create successful prints.
* Some professional photographers also make sure to place the ink side of the transparency in contact with the coated cyanotype paper. This makes sure that no light is traveling around the ink within the thickness of the transparency.
* Use printers with matte black ink if possible. The darker the ink, the better the final print.
* Make sure to keep water away from the digital negative transparency film — it will smudge and ruin the negatives.
* Store negative between paper and in plastic sleeve protectors to keep for future photograph making.

**Reflect:** Do you like the photograms or the photographs better? Which allows for more creativity?

**Apply:** How long do physical photographs last? How long do digital photographs last? Create and share photographs with family and friends.

# Activity Section #5 — Showcase (Curation)

Time: 2 hours or more

* Evaluations
* Additional resources (optional dig deeper information)
* Supplies from the activities the youth plan to share
* 4-H brochures or flyers for upcoming events or club membership
* Professional business cards for Extension staff

## Activity

Welcome the parents and friends, introduce yourself and your role with Extension, and introduce any additional adult volunteers. Introduce 4-H and give a brief overview of the main topics you covered that day. Allow the youth to take over the showcase that they prepared in their showcase-preparation time. When the showcase ends, thank everyone for your time together, give next-step information on 4-H activities that are coming up or how to become more involved.

Wrap up for the day!

**Do:** Again, take some time to have the youth share what they have learned with their parents or community members.

**Reflect:** What were the youths’ favorite parts?

**Apply:** Take pictures of the final drawings, camera obscura, and youth sharing and learning. Send the youth home with opportunities to dig deeper and continue learning. If a youth was really excited about designing a camera, enable them — providing suggestions, support, and encouragement to keep going! If a youth really like the camera obscura, remind them that they can do this same activity at home!

While the day is fresh, have the youth fill out evaluations. Find out what they liked, what worked well, and what did not work well. Please share this information so we can make each activity more educational, engaging, and successful!

References

James, Christopher P. *The Book of Alternative Photographic Processes*. Cengage Learning, 2016.

More to come in the future…

1. Photography History (1 Day)
   1. History Map and Worksheet (1 hour)
   2. Camera Obscura (3 hours)
      1. Make It at Home worksheet
   3. Cyanotype (3 hours)
      1. Make It at Home worksheet
2. Tools and Techniques (1 day)
   1. Digital Cameras Types (30 minutes)
   2. Technical (30 minutes)
   3. Manual Settings Play Time (5 hours)
      1. Aperture priority (1 hour)
      2. Time Priority (1 hour)
      3. ISO Sensitivity (30 minutes)
      4. White Balance (1 hour)
      5. Focal Point (1 hour)
      6. Flash (1 hour)
3. Photo shoot, Get Out There! (3 days)
   1. Get Out There! intro (20 minutes)
   2. Portraits (3 hours)
   3. Long Exposures (2 hours)
   4. Silhouettes (2 hours)
   5. Creative Story (3 hours)
   6. Panoramic Photography (3 hours)
   7. Macro/Textures (2 hours)
   8. Lighting (3 hours)
4. Editing — Post Processing (1 day)
   1. Photoshop (2 hours)
   2. Stitching (2 hours)
   3. Dual Exposures (2 hours)
5. Exhibition — Community Engagement (1 day)
   1. Brainstorm Locations (1 hour)
   2. Design Installation (2 hours)
   3. Choose Presentation Style (30 minutes)
   4. Printing, Matting, Framing (2 hours 30 minutes)
6. Future Photography
   1. Drones (3 hours)
   2. 360 Cameras (3 hours)
   3. Virtual Reality (3 hours)
   4. Design Your Future Camera (1 hour 30 minutes)
   5. Design a Future Anti-camera (1 hour 30 minutes)