

Ideas to Inspire and Invigorate the Art Classroom

Setting Up a Darkroom in a Spare Closet



Kick start your students' creativity with new ideas, approaches, and materials designed to challenge participants and take their work to a new level. Each art activity provides detailed instructions and connections to works of art at the MFAH as well as a list of accessible, affordable supplies and where you can purchase them.

This idea is geared for middle- and high-school instructors wanting to explore pinhole cameras and the photograph printing process without having a dedicated darkroom space.

Connection to the MFAH Collection

A darkroom is a space absent of white light to process film and photographs using light-sensitive paper and chemicals. One simple way of creating a photograph is with a pinhole camera. A pinhole camera can be built using materials easily found at home. The camera will generate a negative of your desired image onto a light-sensitive material, also known as film. Once this negative is developed in the darkroom, you can use it to create a positive print either by scanning and inverting digitally on photo-editing software, or by making a "photo sandwich" in which you place your negative under another sheet of photographic paper and expose it to light. The darkroom is a traditional approach to photography that requires time, patience, and planning. It allows the artist to think critically about the subject matter and make decisions about editing, shooting, and printing.

To create a photographic print with a pinhole camera, careful planning and consideration of surroundings is required. In order to make a successful exposure with a pinhole camera, the photographer must expose the light-sensitive paper anywhere from 30 seconds to minutes, depending on the amount of sunlight or indoor light available. Because of the slow nature of this process, it is important that the camera is stable for the entirety of the exposure and that the light conditions are right.

Carrie Mae Weems is a contemporary artist who uses photography as a storytelling tool to investigate themes such as race, gender, and motherhood. In *The Kitchen Table Series*, she constructs a narrative through staging intimate scenes of a family in a single domestic setting. Each element of the photographs, from the lighting to the body language of the subjects, is carefully planned.

To learn more about the artist's approach to this series, visit <https://youtu.be/pPDInpNoO50>.

A Few Discussion Questions to Start Conversations

1. How would you categorize this artist's work (i.e., documentary, fine art, a personal snapshot, or a combination) and why?
2. What story do you think the artist is trying to tell in this untitled photograph from *The Kitchen Table Series* in the MFAH collection?
3. In *The Kitchen Table Series*, Carrie Mae Weems stages actors around the kitchen table to play the roles of family/community members. What space or objects would you use to explore the various dynamics of your family or community?

(Continued on next page)

Gather These Art Materials

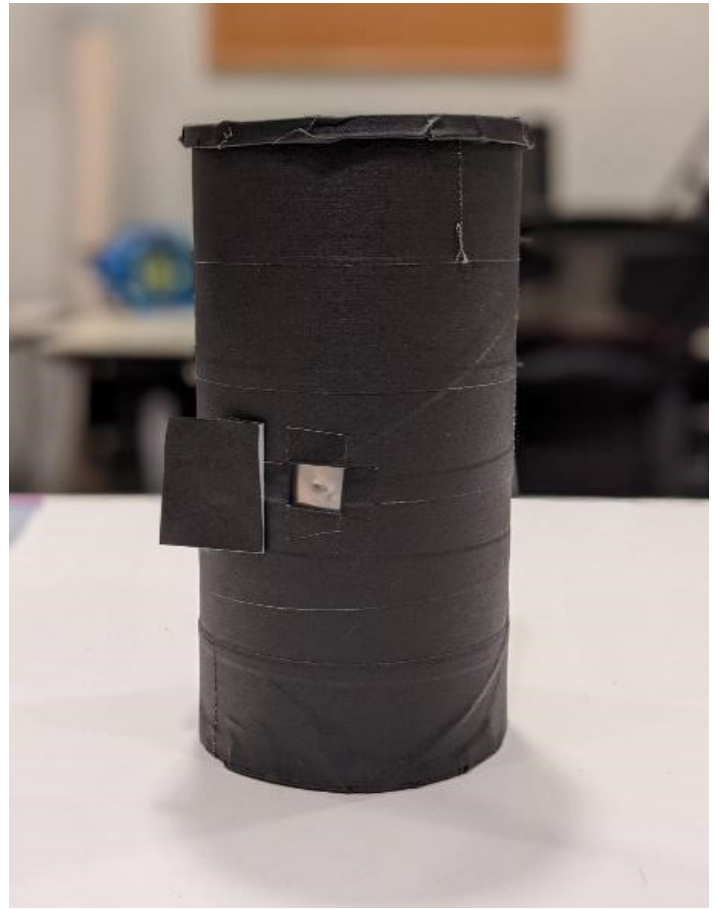
For the camera:

- Oatmeal canister
- Black paint (tempera or spray)
- Soda can
- Sewing needle
- Black electrical or artist tape
- Scissors
- X-Acto knife

For the darkroom:

- 3 plastic trays / tubs
- Scissors
- Ruler
- Tongs (at least 2)
- 1 [safelight bulb](#)
- Any household lamp (for safelight bulb)
- [RC photo paper](#)

- The following 3 chemicals:
 - [Developer](#)
 - [Stop bath](#)
 - [Fixer](#)



Instructions for Project Setup

Constructing a pinhole camera

1. Begin with an empty oatmeal canister to use as the body of the camera. Paint the entire surface black, including the inside and the lid. Use black electrical tape to cover any corners or areas where light may escape.
2. Cut a 1 x 1 inch square out of the center of the canister with an X-Acto knife.
3. Cut a 1.5 x 1.5 inch square from an empty aluminum soda can.
4. Pierce the center of the aluminum square with a sewing needle. Simply push through the aluminum once and pull it through the other side. This will serve as the aperture.
5. Center the aluminum square to the hole inside the canister and tape down all 4 sides, making sure no light can enter.
6. Place a double-layered piece of electrical tape on the outside of the canister, over the pinhole. This will operate as the shutter function of the camera.

(Continued on next page)

Setting up a darkroom

1. Find a suitable space for your setup, such as a large closet, bathroom, or room without windows that is spacious enough to fit a small table.
2. Set up 3 trays or tubs on a small table or counter. A fourth tray for regular water is optional, but not necessary if a sink is readily available either inside or near the darkroom.
3. Label each tray and set up in the following order: "Developer," "Stop Bath," and "Fixer."
4. These chemicals will be mixed with water. Follow instructions on the back of each bottle to determine ratios.
5. Once the setup is complete, insert the safelight bulb into a light socket in the room or a lamp and turn off the lights. Make sure to cover any light leaks in the room with a towel. Any light, including phone-screen illumination, can expose and ruin a print.



Loading, shooting, and developing

1. Plan shooting location, subject, and probable lighting conditions ahead of time. It should be noted that only one shot can be taken at a time. Photographic paper can be swapped out for a new sheet either in the darkroom or in a completely dark location near the shooting location.
2. In the darkroom, with the safelight on, cut a sheet of 8 x 10 photo paper into fourths.
3. Tape the now 4 x 5 inch sheet into the inside of the canister, emulsion (glossy) side facing out, toward the pinhole. Tape down all 4 edges of the photo paper.
4. Shooting times will vary depending on light conditions. Remember that trial and error is an important part of this process. The following is a good, general guide of exposure times:

Sunny: 5 seconds
Overcast: 30 seconds–1 minute
Bright indoor light: 3–5 minutes
Dim indoor light: 5–15 minutes
5. Find a stable base to place your pinhole camera. The camera should be at least 3 feet away from your subject.
6. Point the pinhole side toward your subject and open the shutter to begin exposure. Make sure that both you and your subject are still for the entirety of the exposure time. If you would like to achieve a ghost-like or blur effect, however, the subject can move halfway through an exposure.
7. Once you are done shooting, close the shutter and take the canister in the darkroom to begin the development process. An apron and gloves are recommended to protect skin and clothes.



(Continued on next page)

8. Begin with completely submerging paper in the first tray (Developer) for 1–2 minutes, agitating continuously with a pair of tongs.
9. Using your tongs, move the paper from the developer tray to the Stop Bath and agitate for 30 seconds. This step halts the development process.
10. Move your print to the Fixer and agitate intermittently for 5 minutes. This step permanently fixes the image onto the paper. After this step, you may bring your print out into white light.
11. Lastly, run prints under water for about a minute to wash off any remaining chemical residue.
12. Hang prints to dry on a clothesline. For quick drying, use a blow dryer on the cold setting.
13. Remember that the photograph made by your pinhole camera is going to be a negative version of the image. To create a positive, you can scan the negative photo and invert the colors in any photo-editing software. If you want to create a positive physical print, you can place a blank, undeveloped sheet of photo paper on top of your dry, developed negative (emulsion sides facing each other). Shine a flashlight over the sandwiched prints for 10–15 seconds.
14. Repeat the development process for the new, positive version of the print.
15. Read instructions on each chemical bottle to determine replacement of chemicals and proper disposal procedure.



Additional Information and Resources

To view a hi-res image of the work, visit the [MFAH Collection online database](#).

Video resources from YouTube

How to make a photogram in the darkroom:
<https://youtu.be/hJs1L5ONOU0>

Other uses for a pinhole camera:
<https://youtu.be/Y6nBGuzLJDE>

Front: Carrie Mae Weems, *Untitled* from *The Kitchen Table Series*, 1990, printed 2010, gelatin silver print, the Museum of Fine Arts, Houston, gift of Anne Wilkes Tucker in honor of Marianne Stavenhagen, 2017.462. © Carrie Mae Weems

Learning and Interpretation programs receive generous funding from the Jerold B. Katz Foundation; Institute of Museum and Library Services; H-E-B; MD Anderson Cancer Center; Sharon G. Dies; Sterling-Turner Foundation; Houston Junior Woman's Club; Houston Livestock Show and Rodeo; The Brown Foundation, Inc.; Susan Vaughan Foundation; and additional generous donors.