# SAMPLE LESSON PLAN 1: Camera Obscura Portraits

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Objectives

- Introduce students to the historical, technical, and artistic aspects of the camera obscura.
- Familiarize students in use of the camera obscura as a drawing aid.
- Develop tracings that can be embellished with mixed media, if desired.

Curriculum Standards (Pennsylvania Dept. of Education's *Academic Standards for the Arts & Humanities*)

- Production -- 9.1 C, H, J, K

Procedure: Following a brief introduction to the history of the camera obscura, students (individually or in groups) build box-style camera obscuras that can be used to draw portraits.

Use a medium-sized box (shoe-box size or bigger). Open both flap ends, insert a cardboard sheet with a pre-made, dime-size hole or bigger (or fitted with a lens or magnifying glass) into one end and a piece of glass or plexi-glass into the opposite end. One student should sit in front of the camera obscura; the other student views the image on the plexi (using a black cloth to enhance viewing), and traces the image onto a sheet of paper affixed to the plexi. Although not necessary, the box can be painted black inside to reduce internal reflections. If adequate sunlight or overhead light is unavailable, use artificial lighting. Experiment with lighting intensity, size of the aperture (the hole admitting light), distance of the paper from the hole, mirrors to re-invert the image, or types and sizes of lenses and magnifying glasses. Draw from still-lifes if desired. Use other media to enhance the camera obscura drawing.

Materials:

- cardboard boxes (easiest if students all use approximately the same size)
- sunlight or bright artificial lights (preferably 100 watts+)
- glass or plexi-glass cut to the size of the box end ( if the glass or plexi is not to size, affix cardboard strips to the sheet such that it fits snugly into the box end)
- sheets of cardboard cut to size of the box end, with a hole cut in the middle to admit light (holes can be of varying sizes—start with a hole at least the size of a quarter)
- piece of black cloth (1 yard sufficient)
- a box cutter, pair of scissors, or tack to make the aperture
- heavy-duty tape to hold parts in place and block out light
- lenses or magnifying glasses to fit into the apertures (optional)
- mirrors to reorient the image (optional)
- historical references (web links, books, slides, etc.)
- white paper, pens, pencils, erasers, bull-dog clips (optional)
- 2-D or low relief media (paint, collage, silk screen, etc.) (optional)

Evaluation: Assess student achievement according to technical proficiency, design, and conceptual understanding. Determine technical proficiency based on camera obscura operation (e.g. Does it work? Were students able to rectify problems?). Evaluate image design and concept in individual and group critiques (consider symbol, icon, patterning, narrative, etc.).

# SAMPLE LESSON PLAN 2: Camera Obscura Construction, with Conceptual Components

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*This lesson plan was prepared by Tina Zavitsanos and is adapted from the Artists-in-Schools Program curriculum at Martin Luther King High School in Philadelphia.*

Objectives

- Introduce students to the concept of parallel through the use of allegory.
- Acquaint students with the basic physics of light through the hands-on construction of a room-sized camera obscura
- Students install work collaboratively for public display.

Curriculum Standards (Pennsylvania Dept. of Education's *Academic Standards for the Arts & Humanities*)

- Production – 9.1 C, D, E, F, G, H, J, K
- Historical & Cultural Context – C, D, E, L
- Aesthetic Response – 9.4 D

Procedure: Students become familiar with allegory by reading Plato's *Republic: The Allegory of the Cave*. Students then view the 1999 film *The Matrix*. Ask students to identify textual and visual similarities between the two works. Use comparisons to realize a visual form for the camera obscura's construction and concept (such as a cave built according to a futuristic aesthetic). If possible, select a public location for the camera obscura. Students work together to block out light, create a sculptural façade, install lenses, measure paper distances, insert photo paper, and build a periscopic viewing lens for passersby. Encourage students to consider how they engage viewers and convey meaning in their installation.

Materials:

- Plato's Republic: *The Allegory of the Cave*
- The Matrix
- Room/space that is closed on three sides and exposed to bright sunlight or artificial light
- Cardboard, foam core, wood, black cloth, trash bags, black tape (to darken selected space)
- Paint and other desired media (for exterior)
- Lenses (from old cameras, copy machines, overhead projectors, etc.)
- Mirrors and PVC pipe (for periscope)
- Paper and pencils
- Photo paper or film
- Camera to document installation (optional)

Evaluation: Evaluate students in terms of their formal and conceptual understandings, using at least the following criteria: three successful textual and three successful visual parallels drawn between *The Allegory of the Cave* and *The Matrix*; and one collaboratively derived camera obscura installation combining elements of the two compared works. Assess the finished installation according to content and on technical as well as aesthetic grounds. Hold a group critique to consider principles of design and function (i.e., shape, color, dimension, and operation). Evaluation can also include the work's public reception during and following display.