



**SAMPLE LESSON PLAN
PREPARED FOR CONCORD ACADEMY
PHOTOGRAPHY III**

COMPONENT	INFORMATION
TITLE OF LESSON	The Camera Obscura
GENERAL INFORMATION	TEACHER NAME: Healey GRADE: Mix – Photography III LENGTH OF LESSON: 2 weeks
RELATIONSHIP TO UNIT	UNIT: Light Travels in a Straight Line This lesson offers students the opportunity to explore the physics and mechanics of how photography works by using prior knowledge of the pinhole camera to create a camera obscura large enough to fit inside of.
RELATIONSHIP TO PHOTOGRAPHY	INSTRUCTIONAL IMPORTANCE: This lesson serves as a bridge between the skills learned from previous exploration of the pinhole camera and a larger study of light, exposure and composition using more sophisticated cameras. The lesson gives student artists' the ability to see the inner working of the camera from the inside while offering the opportunity for authentic photographic work. The process will offer insights into the students' picture making processes, specifically into how the understanding light behavior and camera design can inform the creative process.
ACTIVITY STATEMENT	Using prior knowledge of pinhole photography and the work of Abelardo Morell as inspiration, students are challenged with creating a large camera obscura in order to explore the inner workings of the camera as well as to create original photographs using either the camera obscura as camera, or as setting. Students may work in groups, pairs, or individually.
GOALS CONNECTED TO ART STANDARDS	BY THE END OF THE LESSON STUDENTS SHOULD BE ABLE TO: Identify ways that a contemporary artwork pushes the boundaries of a genre and discipline. (MCFA; A.V.R.07) Identify, design, and document several ways to address artistic challenges in a work and reflect upon the advantages and disadvantages of each potential resolution. (MCFA; A.V.Cr.03) Present an artwork that causes audience reflection through its use of different artistic styles or viewpoints (MCFA; A.V.P.06) Describe how visual arts influences one's approach to other academic disciplines (e.g., how knowledge of camera mechanics help contextualize the history of portraiture). (MCFA; P.V.Co.10)
OBJECTIVES	BY THE END OF THE LESSON STUDENTS SHOULD BE ABLE TO DEMONSTRATE: Knowledge and mastery of light behavior, including exposure and focal length, through a successful camera obscura and set of original photographs.

	<p>BY THE END OF THE LESSON STUDENTS SHOULD BE ABLE TO ANALYZE: The work of Abelardo Morell and others in order to appreciate the significance of photographic process like camera obscura and camera lucida and understand their place in art history.</p> <p>BY THE END OF THE LESSON STUDENTS SHOULD BE ABLE TO IDENTIFY: Potential issues and challenges in planning and executing a working, large scale, static camera and demonstrate their knowledge through problem solving strategies.</p> <p>BY THE END OF THE LESSON STUDENTS SHOULD BE ABLE TO USE: Knowledge of exposure, focal length, f-stop and lenses learned through experience of creating camera obscura and apply it to the 35mm and medium format cameras.</p>
<p>INSTRUCTIONAL CONCEPTS</p>	<p>FORMAL CONCEPTS:</p> <ul style="list-style-type: none"> • Light travels in a straight line • Exposure is determined after f-stop • F-stop is focal length/ aperture diameter • Reciprocity failure <p>ARTISTIC BEHAVIORS:</p> <ul style="list-style-type: none"> • How does the change in scale effect camera design? • How can you create multiple pictures using a static projection? • What are the visual variables inside your camera? • How can elements on the “film plane” interact with the projection? • Is the “film plane” the ideal projection for your pictures?
<p>RESOURCES AND MATERIALS</p>	<p>MATERIALS:</p> <ul style="list-style-type: none"> • Room, or room alternative • Black plastic, or alternative blackout materials • Tape • DSLR (if applicable) • Tripod (if applicable) • Light-sensitive material (if applicable) <p>EXEMPLARS:</p> <ul style="list-style-type: none"> • Abelardo Morell <ul style="list-style-type: none"> ○ Video introduction: https://www.youtube.com/watch?v=X-CRK0tlceg ○ Gallery of images: https://www.abelardomorell.net/camera-obscura <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 20px;"> <div style="text-align: center;">  <p>(Morell, 2003)</p> </div> <div style="text-align: center;">  <p>(Morell, 1997)</p> </div> </div>

<p>PROCEDURES</p>	<p>DEMONSTRATION:</p> <ul style="list-style-type: none"> • Teacher will review, in depth, the basics of how the camera works using an existing pinhole camera and various (eye, camera, obscura) diagrams. • Through discussion and demonstration, teachers and students will explore the rectilinear light theory and demonstrate understanding through hypothesis of light behavior using simple experiments using flashlights, combs and mirrors. • Teacher continues the discussion of rectilinear light by applying it to the camera obscura, its history and past uses in media other than photography. • Following a real-time teacher demonstration, students will create a quick camera obscura tube using provided materials and toilet paper rolls. • Building on concepts learned through the Camera Obscura tube exercise, teacher and students discuss how they would translate with a larger scale camera. • Through video and projected imagery, teacher introduces the work of Abelardo Morell. In depth analysis of his process and pictures will take place while continuing to make connections back to the practical issues regarding the construction of a working camera obscura on campus. • Teacher will review, as needed, the basics of focal length, aperture diameter and f-stop calculations. If applicable, experiments with a lens/prism will be considered. <p>DISTRIBUTION:</p> <ul style="list-style-type: none"> • Students collect f-stop calculator and camera obscura checklist either electronically or on paper. Black plastic and tape will be provided. • All other materials (DSLRs, tripods, photographic paper, etc. will be distributed as needed. <p>WORK PERIODS:</p> <ul style="list-style-type: none"> • Students have approximately a week to plan, gain permissions, and execute their camera obscuras, either in groups, pairs, or individually. • Cameras must be on campus, and all permissions must be collected by the students. • Students will have an additional week of class time for picture making and documentation. <p>CLEAN-UP:</p> <ul style="list-style-type: none"> • Students will be responsible for the breakdown of the camera obscura and removal of material in appropriate fashion. • “Rooms” must be returned to the state they were found. <p>CLOSURE:</p> <ul style="list-style-type: none"> • Extensive documentation of all camera obscuras will be made by students and teachers, with the goal of presenting both the camera obscura and pictures made with it in a future exhibition or shared with the larger Concord Academy community online.
<p>EVALUATION</p>	<p>CRITERIA:</p> <ul style="list-style-type: none"> • Teacher will observe student progress informally through discussion and check-ins with each student or student group, individually. • Teacher will note student reception and implementation of feedback • Teacher will note student adherence to deadlines
<p>REFERENCES</p>	<p>Massachusetts Department of Education (2019). <i>Massachusetts Curriculum Frameworks for Arts</i>. https://www.doe.mass.edu/frameworks/current.html</p> <p>https://www.abelardomorell.net/camera-obscura</p>