

CMA Lesson Plan Format (based on CLIA's 2011 Lesson Plan Format)

Lesson Title & Arts Area	Photograms, Visual Arts and Science
School & Grade Level	Columbia Museum of Art, 6 th – 8 th grade
Arts Educator Lesson Designer	Written by: Kayleigh Vaughn, Education Manager
Short statement about designer & lesson development	<p>Kayleigh Vaughn works at the Columbia Museum of Art, within the Education Department as the Education Manager. She has a Bachelor's in Arts degree in History from Lander University.</p> <p>This lesson has been developed for students in 6th, 7th and 8th grades for the Columbia Museum of Art's solar power and arts initiative. Developed for educators to use in a classroom setting.</p>
Unit Description Big idea? Essential questions?	<p>Lesson Description– In the lesson students will investigate the use of solar power and the effects of solar power on art. Students will create a design using the sun.</p> <p>Big Idea – This lesson will explain the importance of solar energy as it pertains to art.</p> <p>Essential Questions:</p> <ul style="list-style-type: none"> – (6th grade) What is radiant energy? How does it differ from other energy type? – (7th grade) What is a chemical compound? What are the different types of bonds? – (8th grade) What is ultraviolet light? How does it travel? – What does radiant (solar) energy have to do with art? – How can radiant (solar) energy be used in a museum? – What effect does sunlight have on art? – Can a work of art be made with sunlight?
S. C. Standards Addressed	Science 6.S.1A.3, 6.P.3A.1, 7.S.1A.3, 7.P.2A.4, 8.S.1A.3, 8.P.3A.1 VA 6-1.1, 6-1.2, 6-1.3, 6-1.4, 7-1.1, 7-1.2, 7-1.3, 7-1.4, 8-1.1, 8-1.2, 8-1.3, 8-1.4
Instructional Objectives	The student will learn the vocabulary used in the lesson, (Luminosity, Renewable, Solar, Watt, Design, Photogram, Chemical Compound, Ultraviolet Light)
Description of Instruction	Instruction will begin with the teacher reinforcing art and science vocabulary found in the lesson plan. The teacher will then give an overview of the Photogram Project.
Teacher Procedures	<ol style="list-style-type: none"> 1. The teacher will be lead a discussion about the vocabulary and how the terms relate to the students creating their own piece. Teachers will use grade-level appropriate questions to lead discussion. 2. The teacher will have students make a hypothesis about the outcome of the photogram. 3. Then, the teacher will give students a tutorial on how to use materials properly and when to do each section. 4. Next, the teacher will show a finished example of the project. 5. The teacher will provide items for printing or allow students to gather objects to print (rocks, leaves, keys, feathers). 6. Then, the teacher will have students arrange their items on an 5 x 7 piece of NaturePrint paper. 7. Next, the teacher will have students place the piece in the direct sunlight,

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	<p>(window, outside) if need be the objects can be held in place delicately with pins.</p> <p>8. The teacher will have students remove the objects from the pieces after approximately 2–3 minutes in direct sunlight.</p> <p>9. The teacher will have students set the image by emerging the paper in a tray of tap water.</p>
Student Activities	<ol style="list-style-type: none"> 1. Students will be guided into a discussion about the vocabulary they learned and how they will be using those same terms to create their own piece. 2. Students will make a hypothesis about the outcome of the photogram. 3. Then, the students will be given a tutorial on how to use materials properly and when to do each section. 4. Next, the students will see a finished example of the project. 5. Students will be given items for printing or allowed to gather objects to print (rocks, leaves, keys, feathers). 6. Then, students will arrange their items on an 5 x 7 piece of NaturePrint paper. 7. Next, students will place the piece in the direct sunlight, (window, outside) if need be the objects can be held in place delicately with pins. 8. The students will remove the objects from the pieces after approximately 2–3 minutes in direct sunlight. 9. The students will set the image by emerging the paper in a tray of tap water.
Assessment	<p>The students will be assessed on the completion of their projects. It will be short term assessment and based on: following rules, interaction during discussion, as well as creativity and craftsmanship.</p>
Materials Needed	<p>NaturePrint Paper Objects for printing Tray or sink of tap water Pins(for lightweight objects)</p>
Resources	<p>CMA's Collection The Book of Alternative Photographic Processes by Christopher James</p>
Attachments	<p><u>Luminosity</u> – The relative quantity of light</p> <p><u>Renewable</u>- Capable of being replaced by natural ecological cycles or sound environmental management practices</p> <p><u>Solar</u>- Produced or operated by the sun's light or heat</p> <p><u>Watt</u>- A basic unit for measuring electrical power</p> <p><u>Design</u> - A plan, or to plan. The organization or composition of a work; the skilled arrangement of its parts</p> <p><u>Photogram</u> - a picture produced with photographic materials, such as light-sensitive paper, but without a camera</p> <p><u>Hypothesis</u> - educated prediction that can be tested</p> <p><u>Chemical Compound</u> - a substance formed by chemical union of two or more elements or ingredients in definite proportion by weight</p> <p><u>Ultraviolet Light</u> – radiation lying in the ultraviolet range; wave lengths shorter than light but longer than X rays</p>

- The two chemical compounds used to make the NaturePrint Paper are ammonium iron(III) citrate and potassium ferricyanide.

