PolarTREC Online Course For Educators

Capstone Lesson

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Photography I – Lesson Plan

Careers in Photography and Polar Science

**Organizing Questions:**

1) What kinds of careers are available to individuals who master photography?

2) How can photography be helpful to scientific researchers in Antarctica?

3) What are the technical approaches are necessary when documenting measurement information through photos?

**Introduction:**

 This lesson was written for a Photography I course, to be taught in a lab with access to either a darkroom or computers/printers. The class has already spent ample time getting used to the basics of photography, learning to use their cameras as a creative tool, just as a painter might use a brush. (*However, this lesson could easily be modified to work in a non-photography class, by removing the photography aspect and focusing on the Weddell seals, the career of scientific research, and the skill of data collection.*)

 In this lesson students will learn how to use their photography to support scientific research by documenting collected measurement information through their observational photography. By studying the work being done to study the behavior of Weddell seals in Antarctica, students will prepare for their own photographic data collection of students on their campus.

**Objectives:**

 By the end of this lesson, the students will be able to (1) identify characteristic traits of Weddell Seals, (2) describe the research process for collecting measurement data on Weddell Seals, (3) articulate the technical aspects of shooting photographs for scientific observation, and (4) collect measurement data for statistical analysis.

**CA State Standards:**

Visual Arts (9-12 Proficient):

Creative Expression – Creating, Performing, and Participating in the Visual Arts

2.4 Review and refine observational drawing skills.

Careers and Career-Related Skills – Connecting and Applying What is Learned in the Visual Arts to Other Art Forms and Subject Ares and to Careers

5.4 Demonstrate an understanding of the various skills of an artist, art critic, art historian, art collector, art gallery owner, and philosopher of art (aesthetician).

**Materials:**

* camera (1+ per group)
* tailor’s tape measure (1 per group)
* printing materials (darkroom or computer/software/printer)
* tri-fold poster board (1 per group)
* markers

**Technology:**

 Students will need to take and print photographs for this lesson. Thus, students will need at least one camera per student group and a means by which to print their photographs. If students are using analog cameras, they will need access to a darkroom and all of the technology/chemistry that is involved in the development/printing process. If students are using digital cameras, they will need access a computer lab with photo-editing software, and a printer.

**Preparation:**

 This lesson assumes prior instruction in basic-intermediate use of cameras an a printing process. If students do not yet have the ability to use these tools, comfortably, the foundational instruction could potentially be embedded into this lesson; but an instructor should expect such a lesson to take at least twice as long.

The instructor needs to prepare a slideshow of example images to show to the students as examples of the kind of data collection work that photographers can do. These images could come from and kind of scientific research endeavor, or even from criminal investigations, but this lesson will be taught using photographs taken while studying the Weddell seals in Antarctica.

**Timeframe:**

 This lesson was designed to be taught in class periods of 80 minutes over 4-6 days (the number of days would vary, depending on the method of printing photos). Some groups of students will be able to work at this pace, but only if they are comfortable with their cameras and the printing process. If not, allowing for 7-10 days might be more realistic. This lesson could also be built into a larger unit on photography as it is related to polar sciences.

**Procedure:**

|  |  |  |
| --- | --- | --- |
| ***Day/Time:*** | ***Agenda:*** | ***Purpose:*** |
| **Day 1** |  |  |
| 10 min | Photo Of The Day | Paul Nicklen photo of Weddell seal. As part of a daily routine students will analyze the aesthetics of this photograph. Then, during the follow-up discussion they will be asked to speak to the importance of photography in raising awareness about human impact on wildlife. |
| 15 min | Intro to Weddell Seals & Research Endeavor | Students will be introduced to the Weddell seals and the specific characteristics of the species. Additionally, the students will be informed of the research that is currently going on in Antarctica to learn more about these animals. During this time, students will be asked to take a few notes on major characteristics of the Weddell seal. |
| 20 min | Discussion: Careers in Photography | As a lead in to this portion of the lesson, students will be given 1 minute, and asked to write down as many careers as they can think of that would require the profession to take photographs. Then, staying on the topic of careers in photography, the students will be shown a series of images that are taken by photographers to support the work of others, including: criminal investigation, commercial advertising, medical examination, etc. Following these images, will be a series of images taken by researchers while studying the behavior of Weddell seals in Antarctica. |
| 15 min | Data Collection Assignment | The Data Collection Assignment will be explained as a group activity in which students will walk around campus and pull students aside to use as research subjects. These subjects will be asked a short series of questions by one student, while another student takes measurements of the subject’s height, weight, etc, and the third group member takes photographs of the subject for cataloguing. During this time the photo students will be filling out a very similar “Health & Condition Assessment” form to the one used by Dr. Jennifer Burns in her study of the Weddell seals.  |
| 10 min | Group Assignments & Hypothesis Formation | The students will then be assigned to groups of 3 or 4 students, and provided with examples of hypotheses, such as: “the taller students are on campus the more friends they will have,” or “the longer the arms a student has the more likely they are to enjoy swimming,” etc. Students will brainstorm as a group to decide on a hypothesis that they would like to test out in the coming days. |
| **Day 2** |  |  |
| 10 min | Photo Of The Day | Weegee (Arthur Fellig) photo of a crime scene. As part of a daily routine students will analyze the aesthetics of this photograph. Then, during the follow-up discussion they will be asked to speak to the importance of photography in crime investigation as another career opportunity for photographers. |
| 20 min | Photo Techniques | Students will be instructed in the methods of taking photos with labels, rulers, numbered tiles, etc added to the photograph to provide context, scale measurements, and catalogue numerals for reference at a later time when not on the scene. Students will be shown images with these tools in them, and will be shown images of photographers taking photos with these tools. |
| 40 min | Data Collection | Students will spend the majority of the period, on campus pulling other students (or adults) aside and asking them to participate in their study in order to collect data and take photographs. |
| 10 min | Reconvene | Students will return to class and compile their groups data from the day as well as making a plan for the following class period. |
| **Day 3** |  |  |
| 10 min | Photo of the Day | Photo of Weddell seal being weighed (from Alex Eilers PowerPoint slideshow on “Polar Professional Development” As part of a daily routine students will analyze the aesthetics of this photograph. Then, during the follow-up discussion they will be asked to speak to how similar photographs can be helpful to scientists during their research. |
| 15 min | Poster Assignment | Students will be shown an example of what their final product will look like for this lesson. The will be making a poster to showcase their data, including samples of the “Health & Condition Assessment” form, as well as a series of photographs as evidence to support their findings. |
| 55 min | Photo Printing & Poster Design | While some students may take some of this time to collect a little more data, most groups will begin to print their photographs and assemble their poster to display their data. Students should use colorful markers to enhance their poster design to work with the photos for a professional looking presentation. |
| **Day 4 +** |  |  |
| It is likely that many student groups will need more than 3 days to create a professional looking poster that displays good results from a comprehensive sample set. In all likelihood, providing one more day for students to collect data during this lesson would be a good idea to help them feel like they have substantial data to work from. Additionally, some students will run into technical difficulties with their camera or printing, and will require additional time for these reasons as well.  |

Note: If the students will be printing their photographs in a darkroom, this process alone will likely require a minimum of 3 extra days. Thus, this lesson would be better utilized as part of a larger unit of study combining photography and polar sciences.

**Assessment:**

In addition to completion of the group poster, showing data collection and photographic evidence, the students will be asked to write a reflection about their experience. The first portion of this reflection will ask students to recount the details of their data collecting endeavors, and require them to utilize specific photographic vocabulary (provided in a vocab box). The second portion of this reflection will ask students to compare and contrast their experiences with those of the research scientists working in Antarctica to collect data on the Weddell seals. For this task students should recount specific tasks that they learned of researchers performing in Antarctica in order to study the Weddell seals. Again, (with a vocab box provided) students will be asked to write about similarities that they perceive to exist between the two data collection tasks (Mexico vs. Antarctica),x and also to speak to the more obvious differences.