ART

Scientific Illustration

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SCIENTIFIC ILLUSTRATION

Summary:
This lesson will guide students through a two week instruction on how to create a scientific illustration of native plants. As a result of participating in this lesson students will gain not only an appreciation for native flora and be able to differentiate between native vs. non native plants, but the students will also gain awareness of the seasonal effects on the visual character of plants including the colors and other noticeable attributes.
In addition to the scientific characteristics of the plants, the students will broaden their artistic abilities putting to use the elements of art to show value (closer lines/darker, farther apart/lighter), illustrate visual texture of a natural object (native plant) and how to draw contour line to show an outline of an object. Finally the art students will have an opportunity to explore the use of color in regards to the colors found in nature.

In the final week of instruction the students will walk away with a final illustration of a native plant and a written reflection on their lesson experience and the connection they found between Science and Art.

Subject Area(s): Visual Arts

Grade Level(s): 9–12th grades

Lesson Duration/Instructional Sequence: 4 class periods

California Content Standards:
1.0 Artistic Perception
   Students perceive and respond to works of art, objects in nature, events, and the environment. They also use the vocabulary of the visual arts to express their observations.
   Develop Perceptual Skills and Visual Arts Vocabulary
   1.1 Identify and use the principles of design to discuss, analyze, and write about visual aspects in the environment and in works of art, including their own.

2.0 Creative Expression
Creating, Performing, and Participating in the Visual Arts
   Students apply artistic processes and skills, using a variety of media to communicate meaning and intent in original works of art.
   Skills, Processes, Materials, and Tools:
   2.1 Solve a visual arts problem that involves the principles of design.
   2.4 Review and refine observational drawing skills.
Communication and Expression Through Original Works of Art
   2.5 Create and expressive composition, focusing on dominance and subordination.

Assessment:
Teacher will look over the work and decide whether each student's artwork and reflection piece is proficient:
Full representation: includes a common name and scientific name and a detail representation of the plant including a magnified view of the plant
Basic: includes at least one name of the plant a full representation of the plant
Below basic: no plant name indicated, little representation
Far below basic: no name, no representation

Learning Objectives:
Students will:
• Look at their surroundings in a different light and be able to explore the depths of something seen everyday.
• See natural objects that will develop over time (seasonal changes)
• Develop knowledge base around three different facts that act to visually describe a particular native plant (plant identity, common plant name, scientific plant name)
• Optional (learn more about the parts of the plant)

Equipment, Materials, and Resources:
• Specimens of wetland native plant types* or refer to local guide of native plants.
• Sketching supplies (sketching paper, colored pencils, pencils, erasers, clipboards)
• Watercolor paper, watercolor sets, and paint brushes (optional: you can provide some salt for decorating the watercolor paper background using a salt painting technique).
• Observation microscopes: stereo zoom (max. of 30 magnification), plant specimens, books, and photographs of native plants.

Hazards and Safety: it is imperative that the instructor goes over safety issues with the students in regards to handling the plants and any allergies that may occur with the handling of plants. This may be the time to discuss poison oak and educate the students on the dangers of touching this plant and what it looks like.

Lesson Narrative / Procedure:
Day 1: Schedule a visit to the Fitz WERC where a docent or staff member will give an introductory presentation on native and non-native wetland plants. Lead students for a short walk outside and allow them to examine the native plants in the demonstration garden in addition to plants that have been brought in to the classroom. Students will then sketch the plant specimens at their tables.

Day 2: Contact the University of California Extension, Santa Cruz Science Illustration Certificate Program ((831) 427-6655 or www.scienceillustration.org) and schedule a visit from a graduate student who will give a presentation on science illustration and demonstrate techniques.

Allow enough time at the end of the presentation for students to choose which plant they would like to draw and to begin their illustrations. Each student will choose one native plant to illustrate and represent the whole plant as well as a close up of the flower (see example).

Day 3: Students will continue to render their native plants. Instructor should set up microscopes and demonstrate how to use them. Students will utilize the microscopes to get a magnified...
perspective of their plants. They should portray this magnification in a box or circle on their page with a line indicating which part of the plant is being magnified.

**Day 4:** Students will finish native plant illustrations and put them on exhibit. Time should be made for students to reflect and write about their lesson experience and the connection they found between Science and Art.

**References:**

Blue-Eyed Grass
Sisyrinchium Bellum