

Details



Completion Time: More than a week

Permission: Download, Share, and Remix

Drawing Diatoms Like Ernst Haeckel

Overview

Maggie Prevenas joined scientists in the Bering Sea where sampling was conducted to measure the productivity of the Bering Sea Ecosystem. She learned about the role of microscopic organisms and diatoms in algae blooms, carbon cycling, and global warming. Maggie developed a lesson using scientific illustration to introduce diatoms to her students.

Objective

In this lesson, students will gain a deeper understanding of how science is done by learning why scientists draw and its importance in recording scientific observations. They will practice the scientific skill of drawing what they see as well as learn about a scientist who drew detailed pictures of diatoms, Ernst Haeckel.

Students will:

- Gain a deeper understanding of how science is done.
- Use their observations to accurately draw and record phyto or zooplankton as seen under a microscope
- Understand the difference between a drawing and a photograph
- Create a piece of art by drawing a specific microorganism found in the near water environment

Lesson Preparation

N/A

Procedure

Use PowerPoint created from: *Science and the Artist's Book*, an online exhibition from the Smithsonian Institution Libraries and the Washington Project for the Arts.

Give student activity handout 1: *Art through a Scientists' Eyes*. Point out to students the importance of accuracy

Materials

- Information on common phyto and zooplankton from Hawaii's Near Shore (or equivalent) made available to students as text, downloaded images and projected images.
- Ernst Haeckel "Art in Nature" book and CD (ordered through Amazon.com)
- Paper for drawing microbes
- Pastels and pencils
- PowerPoint on Scientific Illustration (Art through a Scientists Eyes-attached)
- Projector for PowerPoint
- Activity Guide for PowerPoint (Art through a Scientist's Eyes)
- Rubric to assess student scientific illustrations

and drawing to scale in scientific illustration. Students should keep this in mind as they continue with and complete their own drawings/projects.

Project the PowerPoint onto a screen, view and discuss each illustrator's work with students. Identify similarities and differences between the works. Continue showing examples of Beatrix Potter's work taken from the Ambleside Museum's Beatrix Potter site. Have students compare the artwork in her children's' books to Potter's scientific illustrations. Have students discuss the questions in the activity guide.

Look at Ernst Haeckel's work. Have students compare the pictures of microbes to the drawings of microbes. Have the students draw an organism from the PowerPoint in the style of Haeckel. Give students computer copies of microbes. Allow some students to move to computer stations and look and draw 3 more water microbes.

Have students share one of the drawings with a peer and use a rubric to assess the work. Students make an entry in their journal reflecting on what they learned and what they still have questions about. Journal: Is drawing using 'MS Paint' art? Why or why not?

Resources

Ernst Haeckel "Art in Nature" book and CD (ordered through Amazon.com)
<http://www.sil.si.edu/Exhibitions/Science-and-the-Artists-Book/micr.htm>

Assessment

N/A

Credits

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National Science Education Standards (NSES):

Content Standards, Grades K-4

Content Standard C: Life Science

- a. Characteristics of organisms
- b. Life cycles of organisms
- c. Organisms and environments

Content Standard E: Science and Technology

- c. Abilities to distinguish between natural objects and objects made by humans

Content Standards, Grades 5-8

Content Standard C: Life Science

- a. Structure and function in living systems
- e. Diversity and adaptations of organisms

Content Standards, Grades 9-12

Content Standard C: Life Science

- a. The cell

Other Standards:

Hawaii State Performance Standard for Art

Art Production

Create drawings, paintings, prints, and sculpture as exploration of media and processes, records of observation, and developing self-expression.

Art History: Knowing about artworks and their creators

Talk and write about an artist and his or her artworks or a selected culture and its artifacts.
(Haeckle, Potter)

Hawaii State Performance Standards for Science

Standard 1-The Scientific Process: Scientific Investigation

Discover, invent, and investigate using the skills necessary to engage in the scientific process

Standard 2-The Scientific Process: Nature of Science

Understand that science, technology, and society are interrelated

Name: _____

How Science Is Done

What's Art Got To Do With Science?



Why do scientists draw their observations?

1. Why is it important to be accurate in drawing?



2. In what way are all the drawings the same?



3. In what way are all the drawings different?

4. How are Beatrix Potter's scientific illustrations different than her illustrations for her books?

5. Why do scientists still need to accurately draw their work?

6. What is one thing you learned about Ernst Haeckle?

7. On the back of this sheet, try to draw the drawing of the diatom in the same style of Ernst Haeckle.

