

Lesson Plan Title

Ecosystem Energy Flow and Monet's Water Lilies

Grade Level

5th Grade

Subject Area

Science

MSCCRS Performance Objectives

- L.5.3B.1 - Obtain and evaluate scientific information regarding the characteristics of different ecosystems and the organisms they support (e.g., salt and freshwater, deserts, grasslands, forests, rainforests, or polar tundra lands)
- L.5.3B.2 - Develop and use a food chain model to classify organisms as producers, consumers, or decomposers. Trace the energy flow to explain how each group of organisms obtains energy.
- L.5.3B.3 - Design and interpret models of food webs to justify what effects the removal or the addition of a species (i.e., introduced or invasive) would have on a specific population and/or the ecosystem as a whole.
- L.5.3B.4 - Communicate scientific or technical information that explains human positions in food webs and our potential impacts on these systems.

**Art Form**

Visual Art

MSCCR Creative Arts Standards

VA: Cr2.1.5 Organize and develop artistic ideas and work.

a. Experiment and develop skills in multiple art-making techniques and approaches through practice.

VA: Cr2.3.5 Organize and develop artistic ideas and work.

a. Identify, describe, and visually document places and/or objects of personal significance

VA: Pr6.1.5 Convey meaning through the presentation of artistic work.

a. Cite evidence about how an exhibition in a museum or other venue presents ideas and provides information about a specific concept or topic.

VA: Re9.1.5 Apply criteria to evaluate artistic work.

a. Recognize differences in criteria used to evaluate works of art depending on styles, genres, and media as well as historical and cultural contexts.

Duration

(2) 60-minute sessions

Materials

Stretched canvas, one per student (or very heavyweight paper)
Oil-based paints
Odor-free paint thinner
Various sizes of paint brushes

Objectives

The students will:

- Identify consumers, producers, decomposers and their energy sources
- Apply impressionistic techniques while painting an ecosystem landscape
- Analyze the relationships of the different roles in the ecosystem

Essential Question:

- How does energy flow within an ecosystem to meet the needs of all of its organisms?

Core Ideas:

- Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors.
- Food webs are models that demonstrate how matter and energy are transferred between producers, consumers, and decomposers as the three groups interact within an ecosystem. - - Transfers of matter into and out of the physical environment occur at every level.
- Decomposers recycle nutrients from dead plant or animal matter back to the soil in terrestrial environments or to the water in aquatic environments.
- The atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem.

Visual Arts Vocabulary

Background: The area of the artwork that appears furthest away and is the smallest

Color: An element of art with three properties: 1. hue, or the name of the color (e.g., red, yellow, etc.); 2. intensity, or the purity and strength of the color, such as brightness or dullness; and 3. value, or the lightness or darkness of a color

Emphasis: In a composition, this refers to developing points of interest to pull the viewer's eye to important parts of the body of the work

Subject matter: Refers to the things that are represented in a work of art such as people, buildings, and trees

Texture: This refers to the surface quality or "feel" of an object, such as roughness, smoothness, or softness; actual texture can be felt while simulated textures are implied by the way the artist renders areas of the picture

Impressionist: A painter, writer, or composer whose work exhibits the characteristics of impressionism

Impressionism: A painting style originating in France in the 1860s that depicts the visual impression of the moment, especially in terms of the shifting effect of light and color

MSCCRS Energy Flow in Ecosystems Vocabulary

Abiotic

Biotic

Ecosystem
Freshwater
Saltwater
Desert
Grassland
Forest
Taiga
Tundra
Rainforest

Lesson Description

- The students will view 2 separate video clips of Claude Monet painting in his flower garden as well as a clip that allows the class to see many of Monet's various versions of his Water Lilies series.
- Share the following information with the class: Water Lilies is a series of approximately 250 oil paintings by French Impressionist Claude Monet. The paintings depict Monet's flower garden at Giverny and were the main focus of Monet's artistic production during the last thirty years of his life.

Part 1

- As a whole group, view "Claude Monet's Garden" 4 minutes 3 seconds <https://www.youtube.com/watch?v=O2KGkK2wcbk>. In order to cut down on time, you could view the clip from the 1 minute 55-second mark till the 3 minute 6 second, as this part of the video focuses on the ponds and water lily plants.
- Pause the video clip every once in a while to ask the class what types of ecosystems they see. Create a list of the producers, consumers, and decomposers that inhabit these gardens.
- Once the list is complete, ask the students where the producers, consumers, and decomposers received their energy from? What is their energy source?

Part 2

- Discuss with the class the artistic methods Monet used in his paintings. (Big brush strokes, heavy use of oil-based paint, etc.) This would be a good opportunity to ask the visual arts teacher at your school for assistance.
- Each student will receive a stretched canvas, along with paint brushes and oil-based paints.
- The students will paint their own version of Monet's water lilies. They will include a water source, plants, as well as animals that may live in this type of habitat. In essence, they will be creating an ecosystem with consumers, producers, and decomposers. The students must also include the energy sources as well in their painting.
- Students will create an "Artist Statement," which is a brief paragraph description written by the artist about the piece created. The statement should describe how the artist integrated the science vocabulary and concepts into the painting.
- Once the paintings have dried, host a "Gallery Walk" with the class. The students will take a tour of each painting. As they view the paintings, they will discuss and identify the consumers, producers, and decomposers, as well as energy sources.

Recommended Resources

Websites/Video Clips:

- <https://www.youtube.com/watch?v=Jdj84IVvv7w> (This Youtube video takes you on a tour of many of Claude Monet's Water Lily paintings. 6 minutes, 55 seconds)

- <https://www.youtube.com/watch?v=BJE4QUNgaeg> (This Youtube video is a real film of Claude Monet painting in his Garden in Giverny in France in 1915. 2 minutes, 45 seconds)
- <https://www.youtube.com/watch?v=O2KGkK2wcbk> (This Youtube video takes you on a tour of Monet's gardens in Giverny, France. 4 minutes, 3 seconds)
- <http://art.pppst.com/monet.html> (This link/site provides over 10 Powerpoint slideshows from Claude Monet and the Presence of Nature to Impressionism and Claude Monet.)

Books

- *The Magical Garden of Claude Monet* by Laurence Anholt
- *Who Was Claude Monet?* by Ann Waldron
- *Linnea in Monet's Garden* by Cristina Bjork
- *Monet Paints a Day* by Julie Danneberg

Monet Style Ecosystem Painting Rubric - <https://artsnowlearning.org/wp-content/uploads/2017/01/Monet-Style-Ecosystem-Painting-Rubric.pdf>

Extended Learning Activities

Have the students reflect on this lesson with these questions:

- How did painting a Monet style painting help you better understand the roles/responsibilities of producers, consumers, and decomposers in an ecosystem?
- Why is the energy source for producers, consumers, and decomposers an important part of an ecosystem?

Sources

<https://artsnowlearning.org/project/module-4-ecosystems/>

Tips

- This works well when broken into two class periods. Introduction, exploration, and planning on day one. Sketching and painting on day two.
- If you have students that are intimidated by creating a painting on their own, partnering up students can work well. A collaborative project can be very rewarding!

Adapted by:

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