

Arctic Ice: Melancholic Beauty in Melting Glaciers



OBJECTIVE:

Ocean, Island and Polar Regions are highly dependent and deeply connected to one another. When any one of these ecosystems is damaged by environmental change, there is an acute domino effect, as the others are influenced as well. The Arctic represents some of the most powerful evidence of global climate change. Students will understand how human behavior is disrupting the fragile ecological balance, and why this region is warming twice as fast as anywhere else in the world. They will examine why monitoring and protecting the Arctic region is so imperative, and they will acknowledge that as massive Arctic glaciers melt, the human consequences are catastrophic.

PURPOSE:

Students will examine their interconnectedness to the natural environment, and how their daily choices influence the stability of our planet. Students will understand that one of the primary reason adults change their behavior, is because of the influence of their children. Students will brainstorm on local and global solutions, and recognize that kids have great power to transform a small idea into something big. They will examine consequences to climate change and how melting Arctic glaciers can affect sea level rise, Indigenous peoples' way of life, as well as the detrimental impact on wildlife, animal migration, and ecosystems. Students will be introduced to various techniques of watercolor painting and will explore texture, horizon line, and depth. They will create a mixed-media, watercolor glacier painting, representative of the precious Arctic landscape in flux.

VOCABULARY:

Glacier, climate change, horizon line, depth, landscape, collage

TIME NEEDED: 3 classes, 60 minutes each

GRADE LEVEL: 5-8

MATERIALS:

- watercolor paint
- large paintbrushes
- a glass (for the sun)
- white cardboard or large water sheet
- watercolor paper strips (approximately 4 inches high)
- salt (for the sky effect)
- plastic saran/cling film (for the ice effect)
- scissors
- glue

DISCUSSION QUESTIONS:

What is an Arctic glacier?

Why does a glacier look so blue in color?

What is a glacier made of and what causes it to form?

How and why do glaciers move?

What are some consequences that climate change is having on the Arctic habitat and animal food chains?

Why do changes in the Arctic region the world influence other parts of the world?

How can students educate their friends and family on climate change?

What are some practical ways that kids can make a difference in their schools and communities?

PROCEDURE:

- Climate change is causing sea ice, glaciers, icebergs in the Arctic to melt, which as a result, forces habitats to adjust. Living things in the Arctic have a wide variety of special adaptations in order to survive. Students will understand that although the region seems like a removed, far off land, the melting Arctic glaciers can result in the very real threat of rising sea levels, which in turn, would affect coastlines around the globe:

(older student video link)

<https://www.youtube.com/watch?v=eIZTMVNBjc4>

- Melting ice can change temperatures in the ocean, which can affect marine life and habitat around the world. Rising sea levels can cause an array of devastation, including flooding and coastal erosion. Teacher will explain that erosion is defined as the wearing away of the land by flowing water, the movement of glaciers, or by wind. Students will view “Shrinking Oceans, Rising Seas” :

<https://www.youtube.com/watch?v=AE7ZYyb9EQ>

- Teacher will explain that Arctic sea ice helps regulate the Earth’s climate. White ice reflects more than dark water does, so white glaciers reflect more of the sun’s energy into space. Without sea ice, our climate would be warmer. Students will understand that glaciers are formed by the gradual compression of snowfall accumulating over the course of thousands of years. Students will be artistically inspired by these massive, moving, blue-and-white ice mountains, which destroy most everything in their path. Students will understand how powerful the force of a glacier can be.
- Teachers will explain that a glaciers moves by the pressure of its own weight, flowing downhill over time. Students will understand that touching a glacier would feel cold, icy, and hard, but over a long time it can flow like smooth honey. Teachers will explain that basal slip is a process of glaciers moving downhill by sliding at their own base. The pressure on the bottom of a glacier can cause that ice to melt, producing a slippery section for the rest of the ice to slide upon. Students will understand why melting land ice causes sea levels to rise, but melting sea ice does not raise ocean levels, (considering sea ice is already floating in the ocean), although it does affect ocean temperature. Teachers will mention that Icebergs are pieces broken off from glacier ice shelves , and the process of detachment is called “calving”.
- Students will understand that there are various groups of indigenous people who live in the Arctic, such as the Inuit and Sámi, both of whom have subsisted on fishing, hunting. Culturally, their traditional customs involve a deep respect for their natural environment. They have been living in the Arctic for approximately 1,000 years, and are noted to have invented the kayak. Many animals such as polar bears, also depend greatly on sea ice in order to hunt and survive.
- Students will understand that glaciers appear to be colored stunning shades of blue and turquoise. Similar to the way that large quantities of water appear to be blue, in glaciers, the other color spectrums are absorbed more efficiently, resulting in the appearance of blue. Small amounts of regular ice appear white considering all the air bubbles inside them, and small quantities of water appear to be colorless. In glaciers, the pressure causes the air bubbles to be squeezed out increasing the density of the created ice, which also contributes to the appearance of the blue. Students will understand they will be creating an Arctic glacier landscape collage:



- Before students begin their colleges, or while they are painting, the teachers may choose to inspire the kids by playing the environmentally minded song “In These Times” by Noel Paul Stookey:

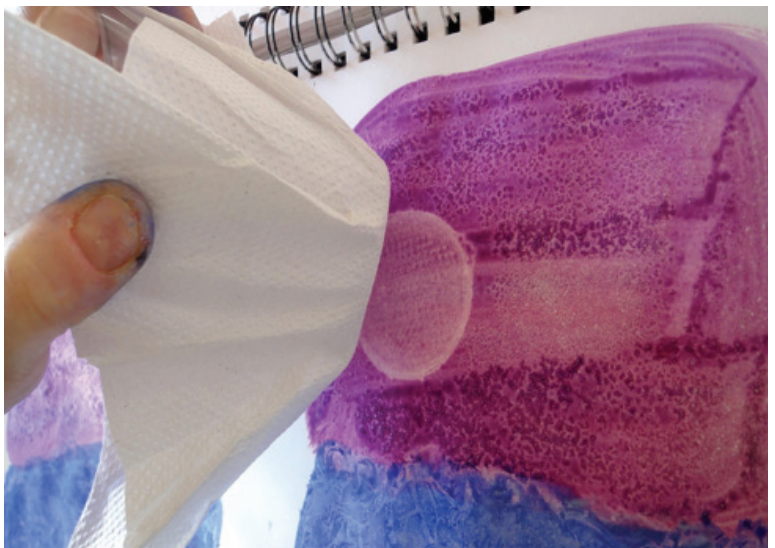
<https://www.youtube.com/watch?v=J2Rb7tjm-zA>

- Students will experiment with a different watercolor technique on each section of paper. The students will practice the techniques of watercolor painting wet on wet, using salt, and experimenting with plastic wrap to add dimension and texture. The back ground (sky) will be painted first, using a “wet on wet” technique. Students will paint the background of the full watercolor sheet (from middle of the paper to the top) in order to paint the sky. Teacher will instruct how the “wet on wet” sky section will first be painted in long, horizontal strokes, using just a clean brush and water. While still wet, the students will then add watercolor green or purple paint and brush on the color “wet”.

- While the paper is still wet, students will cover a wrapped cup in paper towel or cloth, and press it onto a spot in the sky where they would like the moon or sun.

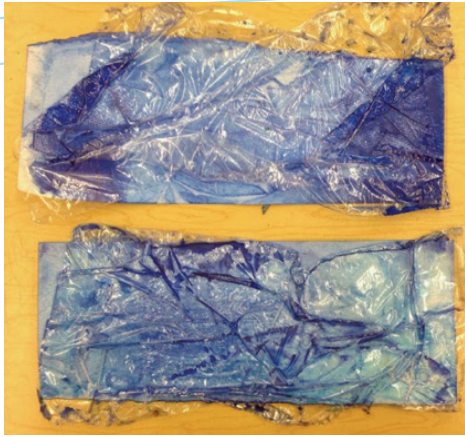


- On the second sections (strip) of paper for the landscape, students will paint purple or dark navy blue (using a lot of watercolor pigment and a very wet brush), then immediately sprinkle salt on it. (The more coarse, and thicker the salt the better, ideally margarita salt works best.) Students will observe the salt absorbing some of the water and paint.



- On the third and fourth section of the paper strips, students will practice a technique to represent the icy glacier layers. They will paint “blobs of color” using a lot of watercolor pigment, bright blues or turquoise. They will not paint, filling in evenly with brushstrokes,





but instead with wet rounded areas of paint. They will crumple up saran wrap (plastic wrap) and while the paint is still very wet, they will quickly place the saran wrap and manipulate the plastic to represent the look of ice. If needed during the process, they can rewet and add more paint to the paper beneath the plastic. Teacher will instruct students not touch the plastic wrap while it is drying.



- Once dried, the sheets can be cut, assembled in layers and glued to create the different Arctic glacier landscape.



ART ELEMENTS

- Shape
- Form
- Color
- Space

ART SKILLS

- Drawing
- Painting
- Collaboration
- Ideation

NATIONAL STANDARDS:

- Visual Art Standard 1: Understanding and applying media, techniques, and processes
- Visual Art Standard 3: Choosing and evaluating a range of subject matter, symbols, and ideas
- Visual Art Standard 5: Reflecting upon and assessing the characteristics and merits of their work and the work of others

Additional information that teachers may choose to share with students include:

<http://ocean.si.edu/ocean-videos/arctic-scientists-work>

<http://www.mnh.si.edu/arctic/index.html>

<http://www.nrdc.org/globalwarming/fcons/fcons4.asp>

<http://www.climatenewsnetwork.net/arctic-glaciers-galloping-melt-baffles-scientists/>