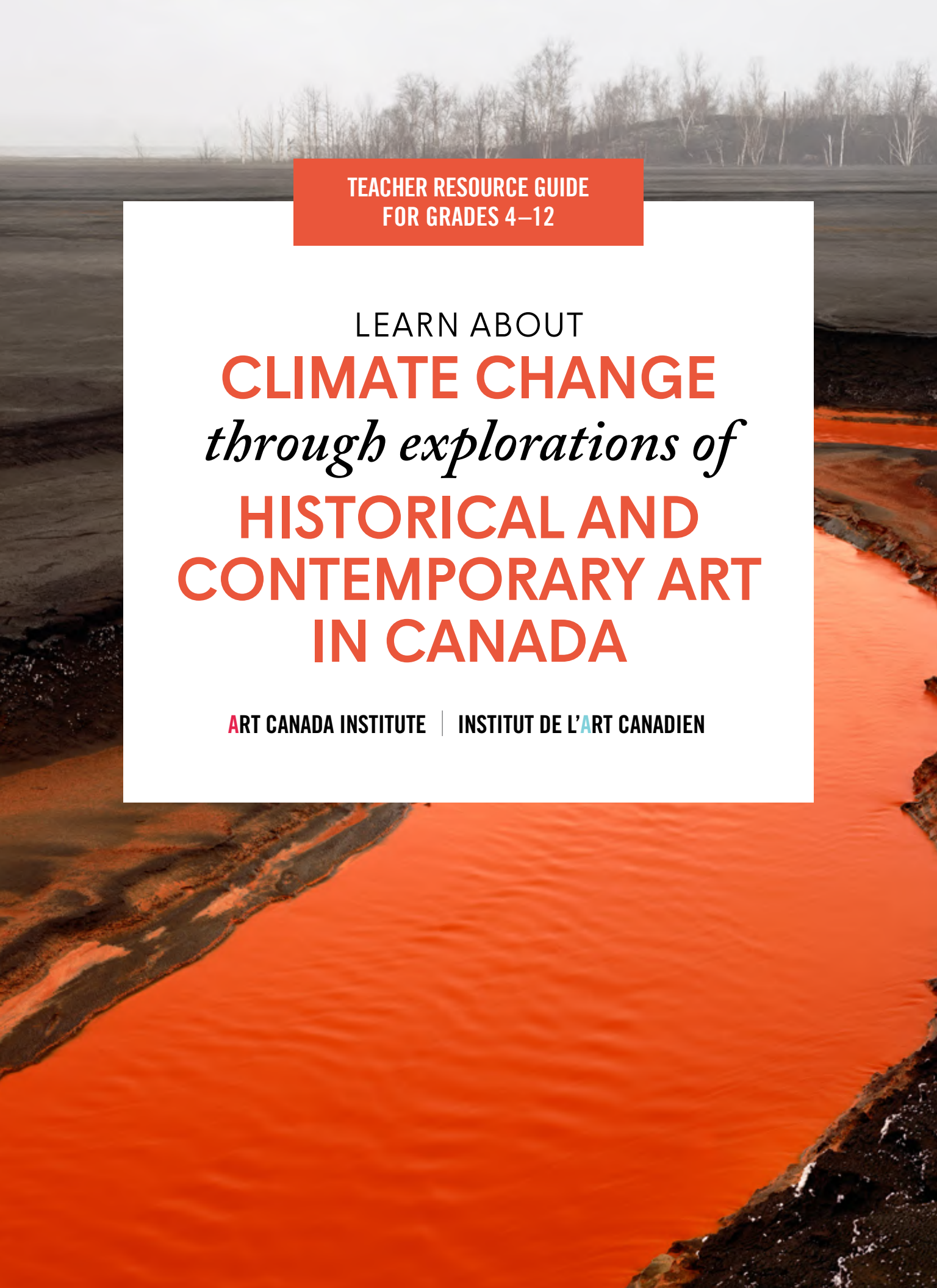

TEACHER RESOURCE GUIDE
FOR GRADES 4–12

LEARN ABOUT

CLIMATE CHANGE *through explorations of* HISTORICAL AND CONTEMPORARY ART IN CANADA

ART CANADA INSTITUTE | INSTITUT DE L'ART CANADIEN

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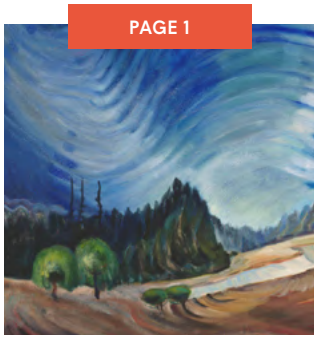

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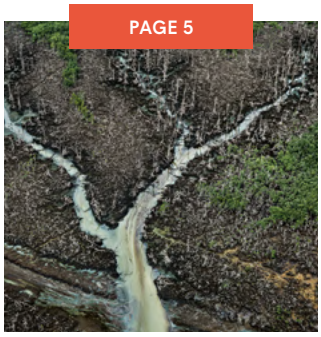

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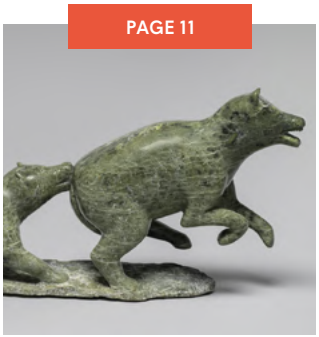

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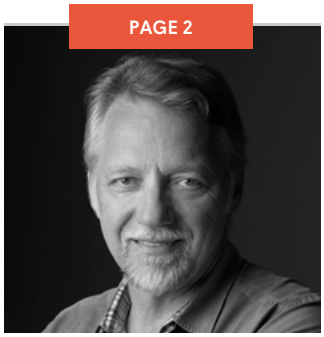

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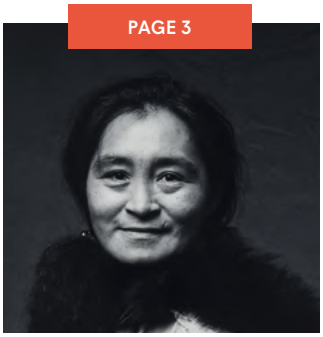

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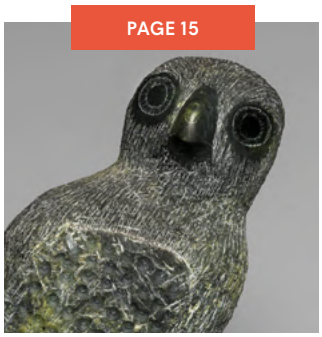

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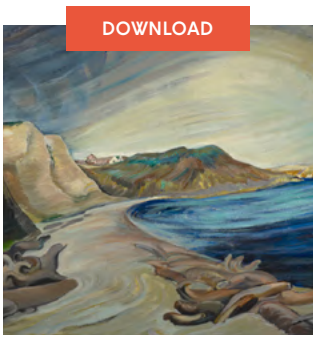

CLIMATE CHANGE IMAGE FILE

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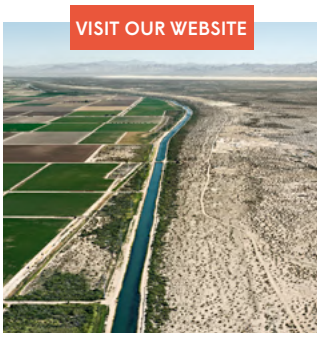

EXPLORE ACI'S RESOURCES FOR TEACHERS

RESOURCE OVERVIEW

This teacher resource guide has been designed in partnership with the Art Canada Institute and GreenLearning. The artworks within this guide and images required for the learning activities and culminating task can be found in the Climate Change Image File provided.

Climate change is one of the most urgent challenges facing the world today, and it has been a subject of critical importance to many Canadian and Indigenous artists. Photographer Edward Burtynsky (b.1955), sculptor Oviloo Tunnillie (1949–2014), and painter Emily Carr (1871–1945) were all inspired by an aspect of the natural world that is at risk due to the changing climate. The impact of industrialization is documented in majestic large-scale images by Burtynsky, while the Arctic—a region that is particularly vulnerable to warming temperatures—is evoked in Tunnillie's wildlife carvings. For Carr, the preservation of ecosystems in British Columbia, themselves at risk because of a warming world, became the subject of some of her most haunting works. In this resource guide, exploring these artists' achievements is the foundation for proposing nature-based solutions to climate change in three creative activities with sustainability and the protection of biodiversity at their core.

Curriculum Connections

- Grade 4 Social Studies
- Grades 4–10 Science
- Grade 11 Oceans
- Grades 11–12 Biology
- Grades 11–12 Environmental Science

Themes

- Climate Change
- Biodiversity
- Ecosystems
- Circular Economies
- Environmental Sustainability

Fig 1. Emily Carr, *Above the Gravel Pit*, 1937. In the 1930s Carr focused her attention on the landscape surrounding her Victoria home.

Teaching Exercises

The exercises in this guide explore the theme of climate change as represented in artworks by Edward Burtynsky, Oviloo Tunnillie, and Emily Carr.

- Learning Activity #1: Water Systems and Climate Change: Exploring a Circular Economy (page 5)
- Learning Activity #2: The Impacts of Climate Change on Arctic Wildlife (page 8)
- Culminating Task: Supporting Thriving Ecosystems: Working Toward Nature-Based Climate Solutions (page 11)

A Note on Using This Guide

This guide focuses on some of the impacts of climate change in different international contexts, including Canada. For many, this subject matter can conjure feelings of worry and eco-anxiety. Creativity can be a positive outlet for these feelings, and we therefore encourage educators to highlight the solutions-based orientation of each of these learning activities.

This resource guide has been created in collaboration with GreenLearning. GreenLearning creates free education programs about energy, climate change, and the green economy that engage and empower students to create positive change for the evolving world. Visit greenlearning.ca for more information.

WHO IS EDWARD BURTYNSKY?

Fig 2. Edward Burtynsky.

Edward Burtynsky was born to Ukrainian Canadian parents in 1955, and grew up in St. Catharines, Ontario. His father, Peter, worked at the local General Motors plant, as did Burtynsky himself for a time, and this would later become a major influence in the development of his photographic interest in factories and industrial sites. After obtaining a diploma in graphic design from Niagara College, he completed a degree in Photography and Media Studies at Ryerson Polytechnic Institute in 1982. He went on to establish the Toronto Image Works, an important space for aspiring photographers that functioned as a darkroom, photo lab, and digital imaging and new media training centre.

Burtynsky is best known for creating photographs that capture the effects of industry, human presence and activity, and global warming on the natural world. Highly skilled in different analog and digital techniques and photographic technologies, Burtynsky predominantly produces large-scale images, printed in colour. One of the signature characteristics of his output is the adoption of an aerial view: he pictures the landscape from above, using a variety of tactics that include drone technology, elevated platforms, and working from helicopters and airplanes. The effect of this aspect of his practice is the creation of sweeping views of a single subject—which in some cases verge on visual abstraction. Painting was a touchstone for Burtynsky early on, and he describes some of his earliest photo series as using the landscape to try to capture a visual form he was interested in. "I started painting before I took up the camera," Burtynsky explains, "From when I was seven, I did oil paintings and landscapes. I just thought the camera was quicker. It was like painting, which I love."

Fig 3. Edward Burtynsky, *Densified Oil Drums #4, Hamilton, Ontario*, 1994. This work is from a series exploring materials collected in large recycling yards.

Fig 4. Edward Burtynsky, *Nickel Tailings #34, Sudbury, Ontario*, 1996. The bright red and orange in this image is caused by the oxidization of iron in mining.

One of Burtynsky's most notable long-term initiatives is *The Anthropocene Project*, a collaborative and multidisciplinary body of work that combines photography, film, and virtual and augmented reality to explore our current epoch, the Anthropocene, in which humans have had unprecedented impacts on the planet. In many ways, the Anthropocene is at the heart of Burtynsky's art, which investigates, documents, and bears witness to the state of our shared earth.

Fig 5. Edward Burtynsky, *Makrana Marble Quarries #3, Rajasthan, India*, 2000. Burtynsky has photographed quarries in several countries.

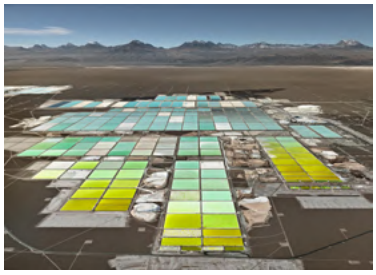

Fig 6. Edward Burtynsky, *Lithium Mines #1, Salt Flats, Atacama Desert, Chile*, 2017. This image is part of *The Anthropocene Project*.

In recognition of his extraordinary art and leadership, Burtynsky has received numerous honours and accolades, including the Governor General's Award in Visual and Media Arts; the Officer of the Order of Canada; and most recently, the Outstanding Contribution to Photography Award from the World Photography Organization.

WHO WAS OVILOO TUNNILLIE?

Fig 7. Jerry Riley, *Oviloo and Granddaughter Tye*, 1990.

Oviloo Tunnillie (1949–2014) was an internationally celebrated sculptor who was based in the artistic hamlet of Kinngait (Cape Dorset), Nunavut for most of her career. She was born in Kangia, a small camp situated along the coast of Baffin Island, to her artist parents Sheokjuke (1928–2012), a graphic artist and printmaker, and Toonoo (1920–1969), a carver. Oviloo's family were part of the first generation of Inuit artists to produce contemporary work for audiences in southern Canada, before the eventual establishment of the iconic West Baffin Eskimo Co-operative in Kinngait.

From a young age, Oviloo showed great interest in the stone carvings of her father Toonoo. Many of his sculptures were created from serpentinite and marble, materials that were accessible from deposits at Andrew Gordon Bay, close to Oviloo's home. Oviloo would go on to sculpt using the same materials, inspired by the subject matter and technique she saw her father master. As she stated, "At that time I didn't know I could carve, but by watching my father, Toonoo, I learned. I loved my father's carvings. From there I began to learn to carve, always noticing the beauty and shapes of the rock."

The materials that Oviloo used to create her sculptures were connected with the land and locations where she lived. When she moved to Igalaliq, a large settlement near Kinngait, she was situated close to two stone quarries and camps where she had access to deposits of serpentinite stone—a type of rock that contains minerals that often appear in greenish hues. Early on, her carving materials included hand tools, such as an axe, file, and sandpaper; by the 1980s, Oviloo started to employ electric tools like grinders and drills to refine her sculptures and create different types of form and texture in stone.

In Inuit Qaujimajatuqangit, a knowledge system that translates in English to mean "what Inuit have always known to be true," laws of relationships are central, and encompass respect and care for the land, animals, and the environment. In the 1970s and 1980s, Oviloo created several intricate carvings of animals, which was a frequent subject matter for many carvers working in Kinngait during this period. Carvings of hawks, dogs, bears, and owls—all part of the Arctic ecosystem—appear in Oviloo's oeuvre and reveal the vital importance of animals in the artist's community context.

Oviloo carved continually from 1972 to 2012, when she was diagnosed with cancer. She died in 2014, leaving behind a remarkable legacy as one of the few Inuit female stone carvers to achieve international recognition. She is a cherished figure in Canadian and Indigenous art history.

Fig 8. Oviloo Tunnillie, *Hawk Taking Off*, c.1987. This work reveals Tunnillie's talent for realistic sculptures of animals.

Fig 9. Oviloo Tunnillie, *My Father Carving a Bear*, 2004. As a young artist, Tunnillie was inspired by her father's practice.

Fig 10. Oviloo Tunnillie, *Self-Portrait with Carving Stone*, 1998. In this large sculpture, the artist appears to merge with the stone she is carving.

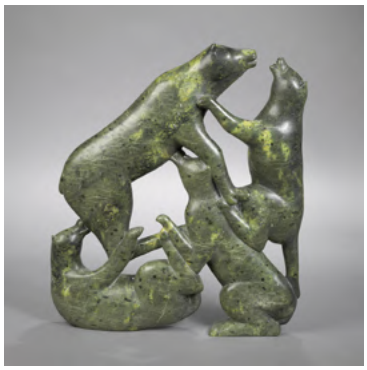

Fig 11. Oviloo Tunnillie, *Dogs Fighting*, c.1975. Dogs were an important part of Tunnillie's community.

WHO WAS EMILY CARR?

Fig 12. Emily Carr in Her Studio, 1939.

Emily Carr (1871–1945) was born in Victoria, British Columbia. Carr's father encouraged her adventurous and independent spirit; however, he was also a stern man, with strict rules, leading to Carr's sense of alienation and rebellion. Both her parents died when Carr was young, and she left home to study art, first in the United States, then in England and France, where she learned of modern art movements and developed a brilliant use of colour and an understanding of how to paint outdoors.

In 1907 Carr and her sister Alice took a sightseeing trip to Alaska, which Carr documented in a series of journals and sketches. Her exposure to Indigenous cultures during the trip had a profound influence on her interest and encouraged her to paint and learn from the Indigenous populations across British Columbia. Carr formed an important connection with the First Nations communities, adopting their spiritual beliefs and depicting their symbols in her artworks. Contemporary critiques question Carr's colonial perspective; in her own writings, Carr's interpretation of this relationship was one of respect and understanding.

Carr felt her artistic career was a failure. Her art did not meet with success, and she took a hiatus from her work for a number of years, keeping a boarding house in British Columbia and producing pottery and hooked rugs for tourists. However, in 1927 her art was included in an important show at the National Gallery of Canada, *Exhibition of Canadian West Coast Art: Native and Modern*, along with paintings by the famous Group of Seven. One of its members, Lawren Harris, became a friend to Carr and encouraged her to return to painting. She did, with a focus on her spiritual connection to the land, sky, and sea. The effects of clearcutting on the British Columbia forests had already become visible, and these foreboding elements made themselves apparent in Carr's interpretations of the landscape.

Carr suffered a severe heart attack in 1937; she died in Victoria in 1945. Carr's writings, sketch books, and personal journals remain important documentations of her art, travels, and friendships. In the twenty-first century there has been a resurgence of interest in Carr's work, particularly on the international stage, with exhibitions in England and Germany. As a result, the appreciation of the sophistication and courage of Carr's work has reached new heights.

Fig 13. Emily Carr, *War Canoes, Alert Bay*, 1912. Early in her career Carr developed a passionate interest in First Nations art and cultures.

Fig 14. Emily Carr, *Vanquished*, 1930. This painting depicts totem poles tilting toward the earth in a village that had been abandoned.

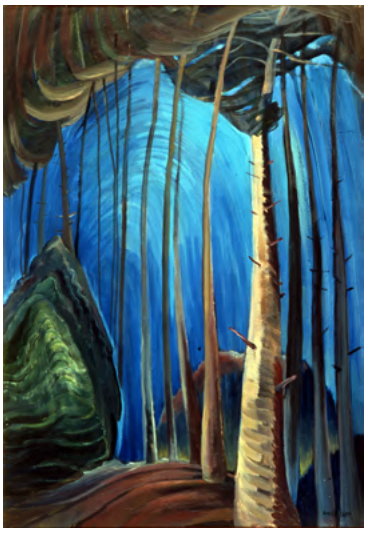

Fig 15. Emily Carr, *Blue Sky*, 1936. Late in life Carr created paintings that seem to represent forests as spiritual places.

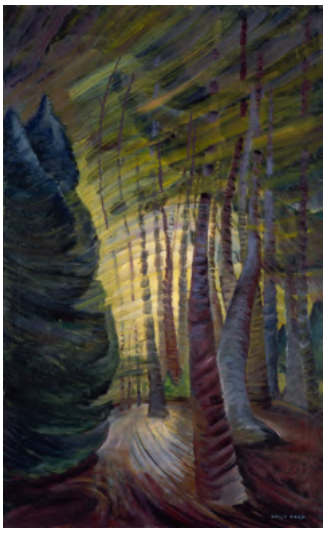

Fig 16. Emily Carr, *Sombreness Sunlit*, 1938–40. Vibrant brushstrokes are typical of Carr's final works.

LEARNING ACTIVITY #1

WATER SYSTEMS AND CLIMATE CHANGE: EXPLORING A CIRCULAR ECONOMY

In this activity, students will learn about the relationship between humans and water through the work of contemporary Canadian photographer Edward Burtynsky, who witnesses and documents the impacts of climate change and environmental precarity in his large-scale works. Through Burtynsky's depictions of the world's water systems, students will explore human reliance on this essential natural resource and our alteration of it over time. They will then take inspiration from natural ecosystems to develop sustainable solutions contributing to a circular economy for water-based industries.

Big Idea

Maintaining balance

Learning Goals

1. I can describe a circular economy and how it applies to water and water-based industries.
2. I can demonstrate how we can practise a sustainable relationship with water.
3. I can identify natural ecosystems that we can take as inspiration to build better systems.

Fig 17. Edward Burtynsky, *Row Irrigation, Imperial Valley, Southern California, USA*, 2009. This image reveals the power of contemporary irrigation systems.

Materials

- Chart paper
- Climate Change Image File
- GreenLearning resource "What is a Circular Economy?"
- Internet
- Large print-outs of images of Edward Burtynsky's artworks
- Markers
- Student journals
- "Who Is Edward Burtynsky?" biographic information sheet (page 2)

Process

1. Show students the Edward Burtynsky photograph *Row Irrigation, Imperial Valley, Southern California, USA*, 2009, and do an analysis as a class by guiding them with the following discussion questions:

    - What do you think you are looking at in this photograph?
    - How is water being depicted in this photograph?
    - How does the perspective of this photograph (a bird's eye view) contribute to the overall effect of the image?

Learning Activity #1 continued

2. Hand out the Edward Burtynsky biographic information sheet and have the class read it together. Learn about how Burtynsky documents water in the following learning video: https://www.edwardburtynsky.com/projects/photographs/water.

   a. After reading the handout and watching the video, ask the class to reflect on the following quote from Burtynsky: "I wanted to understand water: what it is, and what it leaves behind when we're gone. I wanted to understand our use and misuse of it. I wanted to trace the evidence of global thirst and threatened sources. Water is part of a pattern I've watched unfold throughout my career. I document landscapes that, whether you think of them as beautiful or monstrous, or as some strange combination of the two, are clearly not vistas of an inexhaustible, sustainable world." (*The Walrus*, October 2013).

   b. Ask the class to record their reflections in their journals on what the quotation from Burtynsky means to them in relation to water systems they are aware of. How do they relate to this statement? Discuss as a class.

3. Divide the class into six groups, and assign each group one of the following three Burtynsky artworks related to water systems that have been affected by humans, irrigation, and oil.

   - *Kumbh Mela #1, Haridwar, India*, 2010
   - *Pivot Irrigation #1, High Plains, Texas Panhandle, USA*, 2011
   - *Oil Bunkering #2, Niger Delta, Nigeria*, 2016

   Give students time to review their assigned artworks and ask them to record their reflections as a group to answer the following questions:

   a. How is the relationship between humans and water evoked in Burtynsky's work?

   b. What is the significance of water for humans across the globe? How does this relationship change in different communities?

   c. What are some of the potential impacts of a warming climate on water systems, and how does Burtynsky explore this in his work?

Fig 18. Edward Burtynsky, *Kumbh Mela #1, Haridwar, India*, 2010. Haridwar is on the Ganges, a river that is deeply sacred for Hindu people.

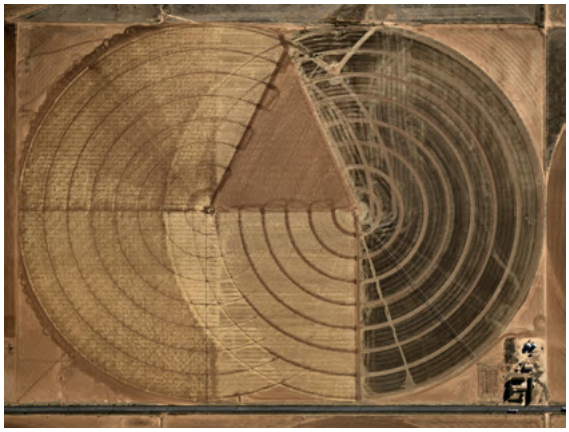

Fig 19. Edward Burtynsky, *Pivot Irrigation #1, High Plains, Texas Panhandle, USA*, 2011. Burtynsky captured this dramatic landscape from the air.

Fig 20. Edward Burtynsky, *Oil Bunkering #2, Niger Delta, Nigeria*, 2016. This photograph from *The Anthropocene Project* captures the impact of the oil industry on the land.

Learning Activity #1 continued

4. Introduce the concept of a circular economy by watching this video with your class: "Moving from the Linear to the Circular Economy": https://www.youtube.com/watch?v=VqgqiCL-JwU

5. Using chart paper, co-construct definitions for the linear economy and the circular economy. Post these definitions in the classroom so students can refer to them in the future.

6. After watching the video, lead the class in a discussion of the following questions.

   a. Ask students to list some concerns they identify with the way water resources are currently being used by humans and the impact of climate change on water resources.

   b. Why do we need to explore a circular economic model for managing our water resources in a changing climate?

   c. What are some sustainable, circular solutions for different water-intensive industrial processes?

7. As a final step, ask students to document an example of a circular or linear economic model, ideally connected to a water-based industry. Inspired by Burtynsky's documentary lens, encourage students to take their own photographs and to write an artist statement demonstrating their understanding of either the circular economy or the linear economy. In their chosen case study, how is water being used? If they choose a linear economic model for their case study, how would they change it?

Fig 21. Edward Burtynsky, *Colorado River Delta #2, Near San Felipe, Baja, Mexico*, 2011. The Colorado River Delta was once a thriving wetland ecosystem, but because of water diversion it lost nearly all of its water.

LEARNING ACTIVITY #2

THE IMPACTS OF CLIMATE CHANGE ON ARCTIC WILDLIFE

In this activity, students will learn about how communities grapple with climate change at a local level through a consideration of the work of Inuit artist Oviloo Tunnillie. Animals are at the heart of many of her sculptures, which inspire reflection on the centrality of Arctic wildlife in northern Inuit contexts. Because of its unique geographical location and climate, the Arctic is particularly vulnerable to the effects of a warming world, and it is important to think about the community impact of climate change within this context. Using Tunnillie's work as a touchstone, in this learning activity students will explore the current and predicted impacts of global warming on a chosen Arctic animal, ultimately tackling the question: How is an individual animal's life affected by climate change, and how can we protect it?

Big Idea

Protecting Arctic wildlife

Learning Goals

1. I can identify how Arctic wildlife is at risk due to climate change.
2. I can give examples of the impacts of climate change on Arctic wildlife.
3. I can describe some ways in which we can protect Arctic wildlife from the adverse impacts of climate change.

Fig 22. Olivoo Tunnillie, *Man and Bear*, 1974–76. This sculpture is one of Tunnillie's earliest works to be included in an exhibition.

Materials

- Additional resources for research (page 15)
- Climate Change Image File
- Internet
- Inuit Qaujimajatuqangit handout (page 16)
- Large pieces of cardboard
- Markers, pencil crayons, pastels
- Ocean Conservancy Wildlife Factsheet
- Student journals
- "Who Was Oviloo Tunnillie?" biographic information sheet (page 3)

Process

1. Start this learning activity by showing students a map that clearly delineates the Arctic regions of the world (select a map from the University of Lapland's Arctic Centre: https://www.arcticcentre.org/EN/arcticregion/Maps).

Learning Activity #2 continued

2. Next, show students a map of Oviloo Tunnillie's community and the surrounding region (see the Climate Change Image File) and the following two works by Inuit artist Shuvinai Ashoona (b.1961) that depict the community of Kinngait (Cape Dorset), where Oviloo eventually settled.

    - Shuvinai Ashoona, *Untitled*, 2013
    - Shuvinai Ashoona, *Cape Dorset from Above*, 2012

Fig 23. Shuvinai Ashoona, *Untitled*, 2013. In this drawing Ashoona depicts life on the land in her community.

While students are looking at the maps and images, have them consider: Where in Canada is the Arctic region located? What is the climate of this region? How do you think climate change might impact the communities in Arctic regions?

3. Using the biographic information sheet, the Inuit Qaujimajatuqangit handout, and a selection of Oviloo Tunnillie's artworks depicting Arctic wildlife (see the Climate Change Image File), introduce students to this sculptor. As a class, discuss the following questions and record reflections on the board or using a collaborative tool like JamBoard:

    - What is the significance of wildlife in the Arctic region?
    - How is wildlife diversity reflected in Tunnillie's work? What is its significance?
    - What is the role of animals in the Inuit Qaujimajatuqangit?

Fig 24. Shuvinai Ashoona, *Cape Dorset from Above*, 2012. With this work Ashoona offers an aerial view of Kinngait.

Learning Activity #2 continued

4. Using one of the additional resources, as a class, brainstorm a list of Arctic wildlife. Make sure to include a few of the animals that Tunnillie represents in her sculptures. Some ideas include:

    - Polar bear
    - Owl
    - Hawk
    - Arctic fox
    - Ringed seal
    - Arctic cod

    Ask each student to select an Arctic animal to study the impacts of climate change on its population. Students can use this resource provided by Ocean Conservancy to choose the animal they want to research: https://oceanconservancy.org/climate/wildlife-fact-sheets/.

5. Once students have chosen the animal, have them research and describe at least five threats it faces due to climate change, and three actions that can be taken to help protect it. Students should make sure to research the importance of their chosen animal within its community context.

6. Students can present their findings by creating artwork placards. Have them make a visual representation of their chosen animal on a large piece of cardboard, and itemize the main climate change issues their animal faces on one side and their solutions on the other side.

7. Once all students have completed their visual presentations, as a class students can engage the school community by standing outside with their placards, or they can display their placards at school as an educational installation on protecting Arctic wildlife.

Fig 25. Oviloo Tunnillie, *Hawk Landed*, c.1989. Tunnillie was known for exceptional detail, as can be seen in this hawk's feathers and claws.

Fig 26. Oviloo Tunnillie, *Owl*, 1974. For this work Tunnillie used an axe on the body and sandpaper to shape the feathers on the wings.

Fig 27. Oviloo Tunnillie, *Dog and Bear*, 1977. This sculpture captures the determination of a dog hunting and a bear's frantic effort to escape.

CULMINATING TASK

SUPPORTING THRIVING ECOSYSTEMS: WORKING TOWARD NATURE-BASED CLIMATE SOLUTIONS

Maintaining thriving ecosystems is a key priority for protecting the health of the natural world. This was a major concern for West Coast artist Emily Carr, who developed uniquely expressive ways of representing the natural landscape and explored the benefits of connecting with natural spaces in her paintings and writings. In this activity, students will learn from Carr's passion for forests and other ecosystems in British Columbia in order to understand the interconnected nature of ecosystems and the ways in which a changing climate affects biodiversity. As a culminating task, students will learn about how they can develop nature-based solutions to address climate change by choosing an ecosystem and proposing solutions that aim to restore and protect it.

Big Idea

Combatting climate change

Learning Goals

1. I can define nature-based climate solutions, including articulating how they differ from other types of climate solutions and what they aim to achieve.
2. I can identify some examples of nature-based climate solutions.
3. I can develop a nature-based climate solution project that aims to restore a local ecosystem.

Success Criteria

To be added to, reduced or changed in collaboration with students.

1. The chosen ecosystem and the threats facing it are clearly defined.
2. The solutions presented meet the definition of nature-based.
3. The solutions are logical and would address the presented threats.
4. The information presented is correct and supports the larger ideas.
5. The information has been obtained from reputable sources.
6. The source of the information is properly cited following referencing guidelines.
7. The final presentation board is thoughtful and created with care.

Materials

- Artmaking materials (paints, markers, pencil crayons)
- Cardboard
- Climate Change Image File
- Edward Mitchell Bannister online exhibition
- Emily Carr learning video
- Homer Watson learning video
- Internet
- Student journals
- "Who Is Edward Burtynsky?" biographic information sheet (page 2)
- "Who Was Emily Carr?" biographic information sheet (page 4)
- "Who Was Oviloo Tunnillie?" biographic information sheet (page 3)

Fig 28. Emily Carr, *Odds and Ends*, 1939. Carr was deeply moved by the sight of rotting tree stumps after clearcutting.

Culminating Task continued

Process

1. Begin by asking students to revisit the learnings from the activity on the impacts of climate change on water systems and the activity on Arctic wildlife and communities. Students are encouraged to refer back to their student journals for this learning step or the collaborative JamBoard. Have a discussion as a class.

2. Show students a selection of Emily Carr's depictions of landscapes and forests (see the Climate Change Image File for options). Ask them to reflect on the following questions (adapted from the "See-Think-Wonder" learning model):

    - Imagine what it would be like to be in this environment. What can you see? Hear? Smell?
    - What animals do you think live here?
    - What emotions are evoked as you look at the imagery of natural landscapes in Carr's work?

3. Introduce students to Emily Carr using the biographic information sheet and the learning video. As a class, explore her passion for forests and ecosystems in British Columbia.

4. Show students the following definition of an ecosystem: "A biological community of interacting organisms and their physical environment." Using this as a springboard, co-create, as a class, a more expanded working definition of what an ecosystem is.

Fig 29. Emily Carr, *Shoreline*, 1936. Carr experimented with using very thin paints to capture swirling rays of light.

Fig 30. Emily Carr, *Beacon Hill Park*, 1909. This early work represents a park near Carr's childhood home.

Fig 31. Emily Carr, *Forest, British Columbia*, 1931–32. In this painting, the forest is illuminated from within.

Fig 32. Emily Carr, *Sunshine and Tumult*, 1938–39. The swirling blues of the sky suggest a joyous energy.

Fig 33. Emily Carr, *Tree Trunk*, 1931. Carr's explorations of trees and forests sometimes seem almost abstract.

Culminating Task continued

5. Once students have studied and reflected upon Carr's work and its relationship to ecosystems in British Columbia, introduce the concept of nature-based climate solutions by watching the following learning videos:

   a. Nature-based solutions to the hazards and impacts of climate change
   b. Natural climate solutions

6. Introduce the following ecosystems with reference to artists in Canada and their engagement with the land using the biographic information sheets and online resources.

   - River Ecosystems—Homer Watson, *The Flood Gate*, 1900–1
   - Grassland Ecosystems—Edward Burtynsky, *Grasses, Bruce Peninsula*, 1981
   - Arctic Ecosystems—Oviloo Tunnillie, *Dog and Bear*, 1977
   - Coastal Ecosystems—Edward Mitchell Bannister, *Seaweed Gatherers*, c.1898 and *Untitled* (*Rhode Island Seascape*), c.1856

7. Divide your class into groups and, based on the examples presented in Step 6, have each group identify an ecosystem at risk due to climate change in Canada. After choosing the ecosystem, ask students to research it and come up with a nature-based climate solution to protect it. Students can use the following resources:

   a. Nature-based climate solutions Toolkit, Nature Canada https://naturecanada.ca/defend-nature/how-you-help-us-take-action/nature-based-climate-solutions/toolkit/?
   b. Nature-based climate solutions, World Wildlife Fund Canada (WWF-Canada) https://wwf.ca/climate/nature-based-climate-solutions/
   c. Fact Sheet: Nature-Based Solutions to Climate Change, American University https://www.american.edu/sis/centers/carbon-removal/fact-sheet-nature-based-solutions-to-climate-change.cfm

Fig 34. Homer Watson, *The Flood Gate*, 1900–1. Watson was passionately interested in the landscape near his home in Doon, Ontario.

Fig 35. Edward Burtynsky, *Grasses, Bruce Peninsula*, 1981. Burtynsky has long had an interest in the Ontario landscape, returning to it many times.

Fig 36. Oviloo Tunnillie, *Dog and Bear*, 1977. This sculpture is made from serpentinite, a stone from the Arctic.

Fig 37. Edward Mitchell Bannister, *Seaweed Gatherers*, c.1898. One of the most celebrated Black Canadian artists from the mid 1800s, Bannister became famous for his rural subjects.

Fig 38. Edward Mitchell Bannister, *Untitled (Rhode Island Seascape)*, c.1856. Originally from New Brunswick, Bannister moved to the United States as a young artist.

Culminating Task continued

8. While conducting the research, students should make sure to complete the following steps:

   a. Describe the ecosystem and where it is located.
   b. Describe the threats posed by climate change to the ecosystem.
   c. Describe your nature-based solution to protecting and restoring the ecosystem.

9. As a final step, have students create a visual presentation that takes inspiration from the mediums, forms, and themes explored by the three core artists represented in this guide: Edward Burtynsky, Oviloo Tunnillie, and Emily Carr. Have students create a three-sided cardboard visual display, with sides covering the following main elements:

   - Their chosen ecosystem
   - The threats to their chosen ecosystem
   - Their nature-based solution

   Exhibit the visual displays in the classroom so that students can learn from each other's works.

Fig 39. Emily Carr, *Loggers' Culls*, 1935. Carr was deeply troubled by the effects of clearcutting and in her art she represented devastated landscapes.

ADDITIONAL RESOURCES

Supplementary Materials Provided by the Art Canada Institute

- The online art book *Oviloo Tunnillie: Life & Work* by Darlene Coward Wight: https://www.aci-iac.ca/art-books/oviloo-tunnillie/
- The online art book *Emily Carr: Life & Work* by Lisa Baldissera: https://www.aci-iac.ca/art-books/emily-carr/
- Climate Change Image File with artworks and images related to this guide
- "Who Is Edward Burtynsky?" information sheet (page 2)
- "Who Was Oviloo Tunnillie?" information sheet (page 3)
- "Who Was Emily Carr?" information sheet (page 4)
- Introducing Inuit Qaujimajatuqangit information sheet (page 16)

GLOSSARY

Here is a list of terms that appear in this resource guide and are relevant to the learning activities and culminating task. For a comprehensive list of art-related terms, visit the Art Canada Institute's ever-growing Glossary of Canadian Art History.

abstract art
Also called nonfigurative or nonrepresentational art, abstract art uses form, colour, line, and gestural marks in compositions that do not attempt to represent images of real things. It may interpret reality in an altered form, or depart from it entirely.

modernism
A movement extending from the mid-nineteenth to the mid-twentieth century in all the arts, modernism rejected academic traditions in favour of innovative styles developed in response to contemporary industrialized society. Modernist movements in the visual arts have included Gustave Courbet's Realism, and later Impressionism, Post-Impressionism, Fauvism, and Cubism and on to abstraction. By the 1960s, anti-authoritarian postmodernist styles such as Pop art, Conceptual art, and Neo-Expressionism blurred the distinction between high art and mass culture.

West Baffin Eskimo Co-operative
Established in 1960 as a formalized organization, the West Baffin Eskimo Co-operative is an artists' co-operative that houses a print shop. It markets and sells Inuit carvings and prints, in particular through its affiliate in the South, Dorset Fine Arts. Since approximately 2006 the arts and crafts sector of the co-op has been referred to as Kinngait Studios.

Fig 40. Oviloo Tunnillie, *Family*, 2006. This family sculpture includes a dog.

INTRODUCING INUIT QAUJIMAJATUQANGIT

Inuit Qaujimajatuqangit encompasses Inuit experience, values, beliefs, and knowledge about the world, with the past informing the present and future in a non-linear way. It translates to mean “what Inuit have always known to be true,” and brings together social, cultural, ecological, and cosmological knowledge. Inuit Qaujimajatuqangit has played an integral role in establishing Nunavut’s government and plays an integral role in Inuit communities.

The following is an introduction to Inuit Qaujimajatuqangit based on the *Inuit Qaujimajatuqangit: Education Framework for Nunavut Curriculum* published by the Government of Nunavut.

Belief Systems and Laws

Inuit belief systems and laws of relationships between individuals, communities, and the environment are central to Inuit Qaujimajatuqangit. Some of the belief systems that Inuit are guided by include:

- Laws of Relationships: Including the laws of relationship to the environment, and relationships to people, the cycle of life, and the cycle of the seasons.
- Inuit Maligait: Essential beliefs that include working for the common good, being respectful of all living things, maintaining harmony, and continually preparing for a better future.

Inuit Qaujimajatuqangit includes these communal laws or principles:

Inuuqatigiitsiarniq: Respecting others, relationships, and caring for people
Tunnganarniq: Fostering good spirits by being open, welcoming, and inclusive
Pijitsirniq: Serving and providing for family and / or community
Aajiiqatgiinniq: Decision-making through discussion and consensus
Pilimmaksarniq/Pijariuqsarniq: Development of skills and knowledge through observation, mentoring, practise, and effort
Piliriqatigiigniq / Ikajuqtigiinniq: Working together for a common cause
Qanuqtuurunnarniq: Being innovative and resourceful
Avatittinnik Kamatsiarniq: Respect and care for the land, animals, and the environment

Fig 41. Map of Qikiqtaaluk (Baffin Island).

EXTERNAL RESOURCES

The following external resources can be used to augment the learning activities and materials provided by the Art Canada Institute. They are to be used at the teacher's own discretion.

Canadian Geographic, Indigenous Peoples Atlas of Canada / Wildlife (English and French):
https://indigenouspeoplesatlasofcanada.ca/article/wildlife/

Art on the Run – Indigenous Climate Solutions Documentary (Rock House Project):
https://www.youtube.com/watch?v=NcOr_CdbDXk

Arctic Centre, University of Lapland:
https://www.arcticcentre.org/EN/arcticregion/Maps

World Wildlife Fund Canada (WWF-Canada) website (English and French):
https://wwf.ca/

ACTIVITIES PROVIDED BY GREENLEARNING:

GreenLearning's activity "Climate Justice in the Canadian Arctic"
https://programs.greenlearning.ca/course/climate-justice-in-the-canadian-arctic

GreenLearning's activity "Evolution of Climate Science"
https://programs.greenlearning.ca/course/evolution-of-climate-science

GreenLearning's activity "Global Impacts of Climate Change"
https://programs.greenlearning.ca/course/global-impacts-of-climate-change

GreenLearning's activity "How is Climate Change Shaping This World?"
https://programs.greenlearning.ca/course/how-is-climate-change-shaping-this-world

Fig 42. Edward Burtynsky, *Oil Spill #10, Oil Slick at Riptide, Gulf of Mexico*, June 24, 2010. Commenting on his interest in oil, Burtynsky notes that he has considered it "as both the source of energy that makes everything possible, and as a source of dread, for its ongoing endangerment of our habitat."

FIGURE LIST

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Cover: Edward Burtynsky, *Nickel Tailings #34, Sudbury, Ontario* (detail), 1996 (See figure 4 for details).

Fig 1. Emily Carr, *Above the Gravel Pit*, 1937, oil on canvas, 77.2 x 102.3 cm. Collection of the Vancouver Art Gallery, Emily Carr Trust, VAG 42.3.30. Photograph by Trevor Mills, Vancouver Art Gallery.

Fig 2. Edward Burtynsky. © Edward Burtynsky, courtesy Nicholas Metivier Gallery, Toronto.

Fig 3. Edward Burtynsky, *Densified Oil Drums #4*, Hamilton, Ontario, 1994. Photo: © Edward Burtynsky, courtesy Nicholas Metivier Gallery, Toronto.

Fig 4. Edward Burtynsky, *Nickel Tailings #34*, Sudbury, Ontario, 1996. Photo: © Edward Burtynsky, courtesy Nicholas Metivier Gallery, Toronto.

Fig 5. Edward Burtynsky, *Makrana Marble Quarries #3, Rajasthan, India*, 2000. Photo: © Edward Burtynsky, courtesy Nicholas Metivier Gallery, Toronto.

Fig 6. Edward Burtynsky, *Lithium Mines #1, Salt Flats, Atacama Desert, Chile*, 2017. Photo: © Edward Burtynsky, courtesy Nicholas Metivier Gallery, Toronto.

Fig 7. Oviloo and Granddaughter Tye, 1990. Photograph by Jerry Riley. Courtesy of the Inuit Art Foundation.

Fig 8. Oviloo Tunnillie, *Hawk Taking Off*, c.1987, serpentinite (Kangiqsuqutaq/Korok Inlet), 17.4 x 72 x 38 cm, signed with syllabics. Collection of the Canadian Museum of History, Gatineau (IV-C:5488). Courtesy of the Winnipeg Art Gallery. Photo credit: Ernest Mayer. © Dorset Fine Arts.

Fig 9. Oviloo Tunnillie, *My Father Carving a Bear*, 2004, serpentinite, antler, 35.6 x 30.5 x 22.9 cm. Courtesy of Spirit Wrestler Gallery. Photo credit: Kenji Nagai. © Dorset Fine Arts.

Fig 10. Oviloo Tunnillie, *Self-Portrait with Carving Stone*, 1998, serpentinite (Kangiqsuqutaq/Korok Inlet), 53.0 x 37.5 x 33.3 cm, signed with syllabics. Collection of Fred and Mary Widding. Courtesy of the Winnipeg Art Gallery. Photo credit: Ernest Mayer. © Dorset Fine Arts.

Fig 11. Oviloo Tunnillie, *Dogs Fighting*, c.1975, serpentinite (source unknown), 43.3 x 38.9 x 4 cm. Collection of the National Gallery of Canada, Ottawa (29284). Gift of M.F. Feheley, Toronto, 1985. Photo credit: National Gallery of Canada. © Dorset Fine Arts.

Fig 12. Emily Carr in Her Studio, 1939, by Harold Mortimer-Lamb. Modern print from original negative. Vancouver Art Gallery, gift of Claudia Beck and Andrew Gruft.

Fig 13. Emily Carr, *War Canoes, Alert Bay*, 1912, oil on canvas, 63.5 x 80 cm. Audain Art Museum, Whistler.

Fig 14. Emily Carr, *Vanquished*, 1930, oil on canvas, 92 x 129 cm. Collection of the Vancouver Art Gallery, Emily Carr Trust, VAG 42.3.6. Photograph by Trevor Mills, Vancouver Art Gallery.

Fig 15. Emily Carr, *Blue Sky*, 1936, oil on canvas, 93.5 x 65 cm. Art Gallery of Greater Victoria.

Fig. 16. Emily Carr, *Sombreness Sunlit*, c.1938–40, oil on canvas, 110.7 x 67.2 cm. British Columbia Archives, Victoria.

Fig 17. Edward Burtynsky, *Row Irrigation, Imperial Valley, Southern California*, USA, 2009. Photo: © Edward Burtynsky, courtesy Nicholas Metivier Gallery, Toronto.

Fig 18. Edward Burtynsky, *Kumbh Mela #1, Haridwar, India*, 2010. Photo: © Edward Burtynsky, courtesy Nicholas Metivier Gallery, Toronto.

Fig 19. Edward Burtynsky, *Pivot Irrigation #1, High Plains, Texas Panhandle, USA*, 2011. Photo: © Edward Burtynsky, courtesy Nicholas Metivier Gallery, Toronto.

Fig 20. Edward Burtynsky, *Oil Bunkering #2, Niger Delta, Nigeria*, 2016. Photo: © Edward Burtynsky, courtesy Nicholas Metivier Gallery, Toronto.

Fig 21. Edward Burtynsky, *Colorado River Delta #2, Near San Felipe, Baja, Mexico*, 2011. Photo: © Edward Burtynsky, courtesy Nicholas Metivier Gallery, Toronto.

Fig 22. Oviloo Tunnillie, *Man and Bear*, 1974–76, cast bronze, 4.4 x 3.8 x 1.9 cm, unsigned. Collection of La Guilde, Montreal. Courtesy of the Winnipeg Art Gallery. Photo credit: Ernest Mayer. © Dorset Fine Arts.

Fig 23. Shuvinai Ashoona, *Untitled*, 2013, graphite, coloured pencil, and ink on paper, 45 x 126 cm. Dorset Fine Arts, Toronto (148-1720). © Dorset Fine Arts.

Fig 24. Shuvinai Ashoona, *Cape Dorset from Above*, 2012, coloured pencil and ink on paper, 127 x 121.9 cm. Art Gallery of Ontario, Toronto, purchased with the assistance of the Joan Chalmers Inuit Art Fund, 2014 (2014/388). © Dorset Fine Arts, Toronto.

Fig 25. Oviloo Tunnillie, *Hawk Landed*, c.1989, serpentinite (Kangiqsuqutaq/Korok Inlet), 12 x 34.5 x 29.2 cm, signed with syllabics. Collection of the Canadian Museum of History, Gatineau (IV-C:5487). Courtesy of the Winnipeg Art Gallery. Photo credit: Ernest Mayer. © Dorset Fine Arts.

Fig 26. Oviloo Tunnillie, *Owl*, 1974, serpentinite (Tatsiituq), 18.4 x 6.1 x 5.7 cm, unsigned. Collection of the Winnipeg Art Gallery (2016-428). Gift of Marnie Schreiber. Courtesy of the Winnipeg Art Gallery. Photo credit: Ernest Mayer. © Dorset Fine Arts.

Fig 27. Oviloo Tunnillie, *Dog and Bear*, 1977, serpentinite (Kangiqsuqutaq/Korok Inlet), 23.0 x 21.8 x 12.2 cm, unsigned. Collection of the Canada Council Art Bank, Ottawa. Courtesy of the Winnipeg Art Gallery. Photo credit: Ernest Mayer. © Dorset Fine Arts.

Fig 28. Emily Carr, *Odds and Ends*, 1939, oil on canvas, 67.4 x 109.5 cm. Art Gallery of Greater Victoria.

Fig 29. Emily Carr, *Shoreline*, 1936, oil on canvas, 68 x 111.5 cm. McMichael Canadian Art Collection, Kleinburg, Ontario, gift of Mrs. H.P. de Pencier.

Fig. 30. Emily Carr, *Beacon Hill Park*, 1909, watercolour on paper, 35.2 x 51.9 cm. Art Gallery of Greater Victoria.

Fig 31. Emily Carr, *Forest, British Columbia*, 1931–32, oil on canvas, 130 x 86.8 cm. Collection of the Vancouver Art Gallery, Emily Carr Trust, VAG 42.3.9. Photograph by Trevor Mills, Vancouver Art Gallery.

Fig 32. Emily Carr, *Sunshine and Tumult*, 1938–39, oil on paper, 87 x 57.1 cm. Art Gallery of Hamilton, bequest of H.S. Southam, CMG, LL.D, 1966. Photograph by Mike Lalich.

Fig 33. Emily Carr, *Tree Trunk*, 1931, oil on canvas, 129.1 x 56.3 cm. Collection of the Vancouver Art Gallery, Emily Carr Trust, VAG 42.3.2. Photograph by Trevor Mills, Vancouver Art Gallery.

Fig 34. Homer Watson, *The Flood Gate*, c.1900–1, oil on canvas, mounted on plywood, 86.9 x 121.8 cm. Collection of the National Gallery of Canada, Ottawa, purchased 1925 (3343). Photo credit: National Gallery of Canada.

Fig 35. Edward Burtynsky, *Grasses*, Bruce Peninsula, 1981. Photo: © Edward Burtynsky, courtesy Nicholas Metivier Gallery, Toronto.

Fig 36. Oviloo Tunnillie, *Dog and Bear*, 1977 (see figure 27 for details).

Fig 37. Edward Mitchell Bannister, *Seaweed Gatherers*, c.1898, oil on canvas, 65.7 x 50.6 cm. Collection of the Smithsonian American Art Museum, Washington, DC, Gift of H. Alan and Melvin Frank (1983.95.149).

Fig 38. Edward Mitchell Bannister, *Untitled (Rhode Island Seascape)*, c.1856, oil on canvas, 45.7 x 55.9 cm. Collection of Kenkeleba House, New York.

Fig 39. Emily Carr, *Loggers' Culls*, 1935, oil on canvas, 69 x 112.2 cm. Collection of the Vancouver Art Gallery, gift of Miss I. Parkyn, VAG 39.1. Photograph by Trevor Mills, Vancouver Art Gallery.

Fig 40. Oviloo Tunnillie, *Family*, 2006, serpentinite, 53.5 x 35 x 24 cm. Collection of the Musée national des beaux-arts du Québec, Quebec (Achat (2007.27). Courtesy of the Musée national des beaux-arts du Québec. © Dorset Fine Arts.

Fig 41. Map of Qikiqtaaluk (Baffin Island). © Eric Leinberger.

Fig 42. Edward Burtynsky, *Oil Spill #10, Oil Slick at Riptide, Gulf of Mexico*, June 24, 2010. Photo: © Edward Burtynsky, courtesy Nicholas Metivier Gallery, Toronto.