

Faces of the Franklin Expeditions

1

Learning objectives

- Students will distinguish between the historical and geographical significance of events.
- Students will review and investigate the people involved in the 1845 British Arctic and 2014 Victoria Strait expeditions.
- Students will explore the roles of participants on the 1845 British Arctic Expedition and 2014 Victoria Strait Expedition.

Time required

50-70 minutes

Grades

4-8

Materials

- Long rope and year cards
- Tape
- Access to Internet
- "Franklin Expedition: Then & Now" work sheets
- Problem solving worksheets ("Think Like a Scientist," "Think Like a Historian" and "Think Like a Geographer")
- Copies of pages 37-47 the December 2014 issue of *Canadian Geographic*

Set-up

Either affix a long rope to the classroom wall (it should be four or five metres long), or access an online timeline maker such as timeglider.com. Above the rope, or online, place the following years as historical points: 1845, 1847, 1848, 1850, 1852, 1854, 1857 and 2014.

Links to the Canadian National Standards for Geography

Essential Element 2: Places and Regions

- Political and historical characteristics of regions
- Changes in places and regions over time

Essential Element 5: Environment and Society

- Limits and opportunities of the physical environment for human activities

Introduction

Ask your students to describe what historians and geographers study. Record their answers in a T-chart on the board:

HISTORY	GEOGRAPHY

Explain that both historians and geographers are concerned with *significance*, meaning that they are interested in ascertaining how important something was/is and the scope of its influence. As part of the process of their study to determine significance, both historians and geographers ask questions.

Ask students the following questions in random order. Using the T-chart just made, instruct them to determine which column each question best fits.

Historical Significance	Geographical Significance
How were they important in their own time?	Where is it located?
Did this importance continue throughout the generations?	Why is it there?
How did this change things that followed?	What is the significance of the location?
How did following generations continue or discontinue the tradition?	
Did we learn anything from it?	
How has this influenced today?	

Development

Have your students visit Canadian Geographic's 2014 Victoria Strait Expedition: The Search for Franklin's Lost Ships website at cgeducation.ca/franklin. Be sure they focus on the two searches and the interactive timeline. Using the questions of historical and geographical significance on the board as a guide, have half of your students answer the questions as they pertain to the 1845 British Arctic Expedition and the other half explore the 2014 Victoria Strait Expedition.

Once your students have had time to review each expedition, ask each group to identify the key roles of people on each expedition (scientist, historian, technology specialist, etc.). Engage the class in a discussion: What types of people were involved in the 1845 British Arctic Expedition and later searches? What types of people were involved in the 2014 expedition?

Faces of the Franklin Expeditions

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Essential Element 6: The Uses of Geography

- Influences of physical and human features on historical events
- Effects of physical and human geographic factors in major historic events

Conclusion

Assign a person or organization involved in either expedition to each student. Make sure that all are assigned:

1845: British Expedition and subsequent searches	2014: Victoria Strait Expedition
Sir John Franklin	Parks Canada
Lady Jane Franklin	The Royal Canadian Geographical Society
John Rae	The W. Garfield Weston Foundation
Francis Crozier	Arctic Research Foundation
Harry Goodsir	Royal Canadian Navy
James Clark Ross	Canadian Coast Guard
James Fitzjames	One Ocean Expeditions
Sir John Barrow	Government of Nunavut
Edward Belcher	Fisheries and Oceans Canada
John Torrington	Canadian Ice Service
Francis Leopold McClintock	

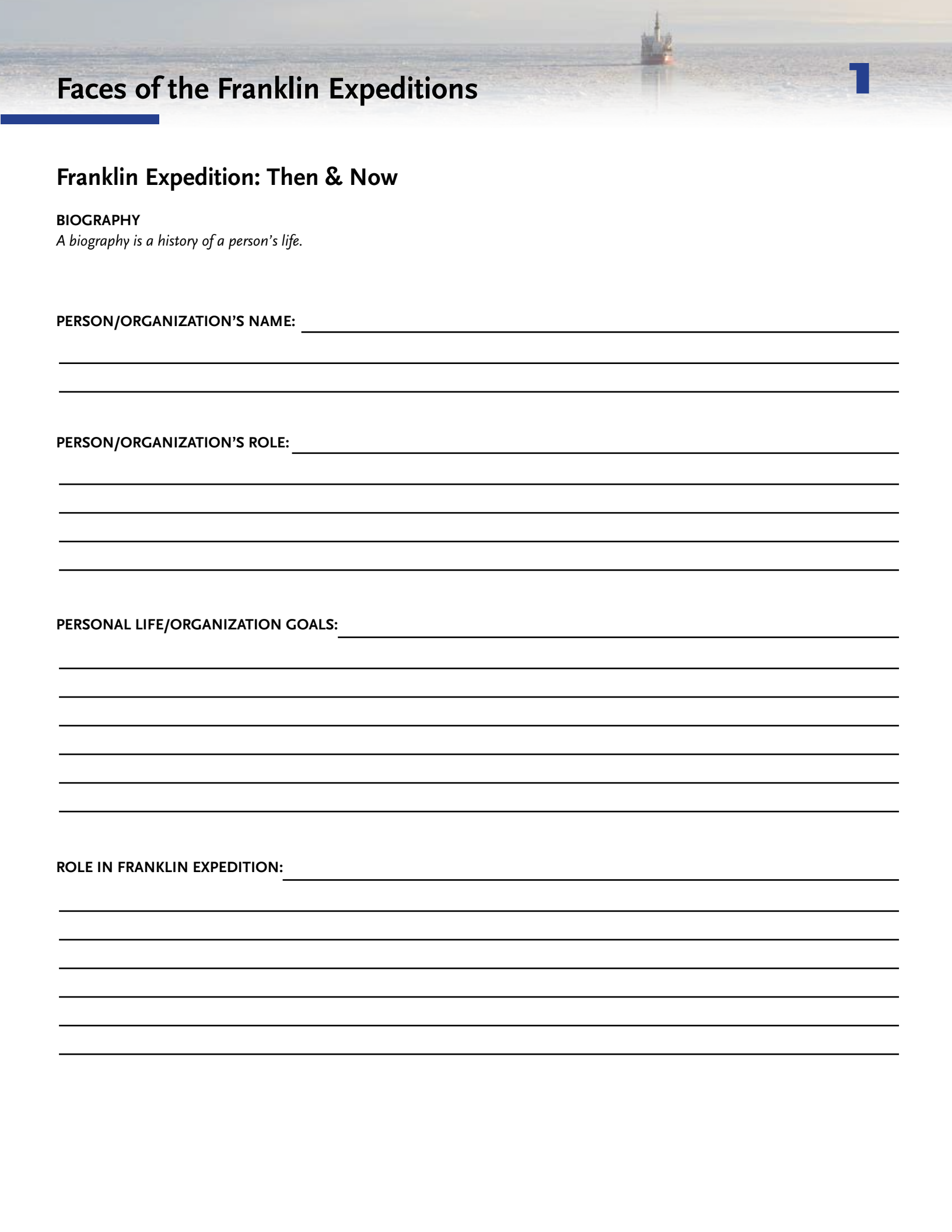
Hand out a “Franklin Expedition: Then & Now” sheet to each pupil and have the problem-solving worksheets available at the front of the class. Using the internet and *Canadian Geographic* magazine, instruct students to complete the biography worksheet first followed by the correct problem solving worksheet (i.e. if their personality was a scientist, complete the Think like a Scientist worksheet). Guide and assist as necessary.

Once completed, attach the biography sheets to the rope timeline in your class, or create your own online timeline, using the interactive timeline on cgeducation.ca/franklin as a guide. The personalities and organizations should be ordered in time based on their role in the 1845 British Arctic and the 2014 Victoria Strait expeditions. Using the problem-solving worksheets, discuss how the different people and organizations involved in the expeditions would approach the situation and how their personal expertise would have helped in the discovery of HMS *Erebus*.

Extend your geographical thinking

Have your students explore the concept of geographical importance by exploring the local, national and international media coverage of the 2014 Victoria Strait Expedition. Many of the stories can be found at www.rcgs.org. Instruct your students to collect news articles about the event and have them answer: How profound was the influence of the find? How widespread was the media coverage? How long-lasting were the after-effects of the find? What is the historical and geographical significance?

For more information about the search for Franklin's lost ships, please visit www.pc.gc.ca/eng/culture/franklin/index.aspx



Faces of the Franklin Expeditions

Franklin Expedition: Then & Now

BIOGRAPHY

A biography is a history of a person's life.

PERSON/ORGANIZATION'S NAME: _____

PERSON/ORGANIZATION'S ROLE: _____

PERSONAL LIFE/ORGANIZATION GOALS: _____

ROLE IN FRANKLIN EXPEDITION: _____



Faces of the Franklin Expeditions

1

Think like a **scientist** and help solve the mystery of the 1845 British Arctic Expedition!

The question: Where is Franklin's missing ship, the *Terror*?

Background research: What do you know about the 1845 British Arctic Expedition?

Hypothesis: Where do you think the missing ship is located?

Experiment: How will you test your hypothesis? Create a step-by-step procedure and conduct an "experiment" that tests your hypothesis.

Collect data: What kinds of methods will you use to keep track of your findings? (notes, journal entries, photos, charts and graphs)

Observations: Describe the observations you made during your experiment. Include information that could have affected your results, such as errors, environmental factors and unexpected surprises.

Conclusions: Use your analysis to answer your original question. Do the results of your experiment support or oppose your hypothesis?

Communication: Present your findings! Write a paragraph detailing what you learned about the 1845 British Arctic Expedition.



Faces of the Franklin Expeditions

1

Think like a historian and help solve the mystery of the 1845 British Arctic Expedition!

The question: Where?

Gather and analyze historical sources: Where can I find information about the 1845 Franklin Expedition? What are the different types of sources available?

Differentiate between primary and secondary source: Primary sources include letters, diaries maps, newspapers, public records, artifacts; they are “eye-witness” accounts and testimonies to the events. Secondary sources, like textbooks and encyclopedia articles, were written about the event.

Find patterns in the information gathered: What story is being told by your sources? What have you learned?

Present explanations or arguments that answer the key question: Present your findings. Write a paragraph detailing what you learned about the 1845 Franklin Expedition.



Faces of the Franklin Expeditions

1

Think like a geographer and help solve the mystery of the 1845 British Arctic Expedition!

The question: Where is Franklin's missing ship, the *Terror*?

Gather geographic resources: What data and information will you need to answer your question about the 1845 Franklin Expedition?

Explore geographic data: Carefully study your information. Create a map or graph. What patterns and relationships do you see?

Analyze geographic information: Determine how the patterns and relationships can help you answer your question.

Act on geographic knowledge: Use the results of your work to answer your question. Share your findings by writing a paragraph detailing what you learned about the British Expedition.

Geography's Effects on History

2

Learning objectives

- Students will examine the relationship between geography and history.
- Students will explore the search missions for the 1845 British Arctic Expedition and evaluate the effects of the Arctic's physical geography on their outcome.

Time required

50-70 minutes

Grades

4-8

Materials

- "Searching for the 1845 British Arctic Expedition" worksheet
- Access to Internet
- December 2014 issue of *Canadian Geographic*

Set-up

Make copies of the "Searching for the 1845 British Arctic Expedition" worksheet – one for each student. Arrange for the class to have access to the Internet for research.

Links to the Canadian National Standards for Geography

Essential Element 1: The World in Spatial Terms

- Mental maps
- Map types

Essential Element 2: Places and Regions

- Perceptions of places and regions
- Political and historical characteristics of regions

Essential Element 5: Environment and Society

- Limits and opportunities of the physical environment for human activities

Essential Element 6: The Uses of Geography

- Influences of physical and human features on historical events

Introduction

Write on the board one, two, or all of the following statements (based on your students' ability and knowledge):

Geography is the place where history happens.

Latitudes not attitudes: geography explains history.

An atlas is like a long-term forecast – it sees history before it happens.

What is where? Why there? Why care?

Begin your discussion by having your class define what geography is. Have them explore the different types of geography (physical, human, historical, etc.) and which type(s) they think would play a role in an expedition. Facilitate a class discussion about geography's effects on history using the above quotes as guiding statements.

Ask students to think about the Arctic and list all the things they remember learning about the history and geography of the region. Ask students to draw a map from memory of Canada's Arctic, labelling all the geographical features they can recall (water bodies, island, coastline, rivers, etc.). Tell them to turn to a neighbour and compare maps, focusing on where they started their maps and how each student was able to identify geographic features. Have each pair make a list of words that describe the geography of the region.

Discuss the importance of the Arctic to Canada and how much of Canada is considered to be part of the Arctic. Using your students' maps and adjectives as a starting point, have students compare and contrast the geography of where they live to the geography of where the 2014 Victoria Strait Expedition occurred. Record responses for all students to see.

Development

Provide an overview of the 1845 British Arctic Expedition by reading pages 48-51 of the December 2014 issue of *Canadian Geographic*. Have the students consider this quote by Professor Russell Potter of Rhode Island College: "You see a region of the Earth that defeats great imperial power." Check for understanding by asking:

- What region of Earth is he referring to?
- What is the "great imperial power"?
- What was the role of geography?

Have students reflect on the describing words and maps from the introductions when discussing this.

Introduce students to the 2014 Victoria Strait Expedition. If possible, have students watch the videos found on cgeducation.ca/franklin. Explain that the 2014 expedition sought the location of the missing ships from the 1845 British Arctic Expedition led by Sir John Franklin. A succession of search expeditions that began in 1847 had tried to do the same. Explore each of these expeditions through the interactive timeline found at cgeducation.ca/franklin.

Geography played a pivotal role in the 1845 British Arctic Expedition, as well as in the searches following. Discuss the geographical struggles faced by the 2014 search crew and how they overcame these issues. Be sure to focus on geography's effects before, during and after the find of HMS *Erebus*. Consult the maps on pages 78-82 of the December 2014 issue of *Canadian Geographic* for additional insight about the geography of the Arctic.

Conclusion

Instruct students to complete the "Searching for the 1845 British Arctic Expedition" worksheet using the information they find on cgeducation.ca/franklin as well as their prior geographic knowledge. Tell them to choose one of the search expeditions. Guide and assist as necessary. Conclude with a discussion about the role that the different types of geography have played in searches in the past and will continue to play in future expeditions.

Extend your geographical thinking

Evidence and interpretation are key features of geographical thinking. Have the students investigate evidence collected by the many searches for the lost 1845 British Arctic Expedition. Instruct them to categorize it as a primary, secondary or tertiary source. What does each tell us?

For more information about the search for Franklin's lost ships, please visit www.pc.gc.ca/eng/culture/franklin/index.aspx

Searching for the 1845 British Arctic Expedition

Complete the following:

Search expedition year: _____ Expedition lead: _____

Other members of expedition: _____

Technology/tools used in search: _____

Discoveries: _____

Questions/mysteries remaining: _____

Geography's Effects on History

2

Role of geography in the search. Did it help or hinder the search? Provide examples.

Plot the searchers' route: Trace the route in red and locate and indicate several geographic features.



Learning objectives

- Students will investigate the character traits of an explorer.
- Students will contrast and compare historical and modern explorers.
- Students will review the 2014 Victoria Strait Expedition.
- Students will plan an expedition for a modern-day explorer.

Time required

50-70 minutes

Grades

4-8

Materials

- Atlases or online mapping tools such as Google Maps or ArcGIS online
- Explorer cards (7)
- World outline maps printed on 11 x 17 paper (if not using online tools)
- Access to the Internet
- Coloured pencils or pens

Set-up

Print seven large outline maps of the world or access an online mapping tool such as Google Maps. If you are using print maps, print and cut out the explorer cards. If you are doing this online, please provide students access to the explorer cards electronically.

Links to the Canadian National Standards for Geography

Essential Element 1: The World in Spatial Terms

- Location of major human and physical features on Earth
- Latitude, longitude and the global grid
- Major countries of the world

Essential Element 2: Places and Regions

- Perceptions of places and regions
- Political and historical characteristics of regions

Introduction

Ask your students to brainstorm the personality traits of people who chose a life of exploration, challenge and discovery, and what they think are the most important. Discuss why students may have selected these traits, and how these traits may benefit an explorer's career.

According to "A Profile of Greatness" in the audiobook *The World's 100 Greatest People*, the 10 characteristics of the achieving personality are:

1. Focus	6. Curiosity
2. Preparedness	7. Resilience
3. Conviction	8. Risk taking
4. Perseverance	9. Independence
5. Creativity	10. A sense of higher purpose

Display these traits for your students to see. Ask students to identify the ones that they think are the most connected to or indicative of explorers. Explain and expand as necessary, inviting discussion.

Ask students to make a list of explorers whose names they know (Jacques Cartier, Henry Hudson, Ferdinand Magellan, James Cook, Christopher Columbus, Marco Polo, etc.). Expand the class discussion by asking the students about *modern* explorers. Ask them to compare and contrast what it meant to be an explorer historically and what it means now. Focus on the role of an explorer in historical and modern society. Ensure that students consider how the career of explorer is viewed in today's society and how it would have been perceived in 1845.

Development

Display a world map at the front of the class either on paper or on screen. Divide the class into seven groups, and give each an atlas or Internet access as well as an explorer card. Have one representative from each group read their card to the rest of the class. Check for understanding by asking the following questions and having students stand up if they think their explorer is the answer to a question.

- Whose explorer is historical?
- Whose explorer is modern?
- Who has an explorer who wants to move higher? (climbs mountains)
- Which group has an explorer who wants to go with the flow? (explores water)
- Which group has an explorer that wants to go deeper? (explore the oceans)
- Which group has an explorer doesn't mind being cold? (explore polar regions)
- Whose explore is Canadian?

Summarize the discussion by listing some of ways the explorers on students cards did their exploring (dogsled, sled, ski, foot, submarine, sailboat, bicycle, horse, etc.).

Instruct each group, with the use of an atlas or online search engine, to complete the "challenge" on their explorer card. Once all groups have completed their challenge, have each share the answers with the class.

Essential Element 5: Environment and Society

- Limits and opportunities of the physical environment for human activities

Essential Element 6: The Uses of Geography

- Influences of physical and human features on historical events

Now, link these explorers to the 2014 Victoria Strait Expedition. Ask your students to review the information on cgeducation.ca/franklin. Ask your class to review the equipment, tools, maps, supplies, etc. that members of the 2014 expedition used to increase their chances of success. Refer to pages 13 and 88-91 from the December 2014 issue of *Canadian Geographic* for more information about the technology used in this year's search.

Conclusion

Explain to students that they are going to plan an expedition as a modern-day explorer. Instruct each group to plan an expedition to the location that corresponds with the number on their explorer card. Have them begin by choosing a start and end location:

- Group #1 – Mariana Trench
- Group # 2 – Mount Everest
- Group #3 – Antarctica
- Group #4 – Circumnavigate the globe, starting in Sydney, Australia
- Group # 5 – Amazon River
- Group # 6 – From Chile to Alaska, by land
- Group # 7 – Caves in Antarctica

Give each group either an 11" x 17" outline map of the world or direct them to an online mapping tool. Instruct them to locate their exploration site and to trace the path they are going to follow in red. Using their atlas or other Internet resources, have the students locate other relevant physical features. Instruct the students to create a table detailing the following:

Expedition site:	
Method(s) of transportation	
Tools/equipment	
Route (description of route travelled)	
Food and supplies	
Special guides	
Challenges	

Extend your geographical thinking

Geographical regions are places that have several features in common that make them distinct from other areas around them. Regions can be defined by physical, cultural or political properties. With this in mind, have students make a list of commonalities between the regions they explored. What factors make a region or location worthy of an expedition?

For more information about the search for Franklin's lost ships, please visit www.pc.gc.ca/eng/culture/franklin/index.aspx

Explorer cards

1: JAMES CAMERON

The director of *Titanic* and *Avatar* set the record for the deepest solo voyage underwater in 2012. James Cameron plunged into the Mariana Trench, a spot in the west Pacific known to be the deepest part of the world's oceans. Cameron's voyage took place inside the *Deepsea Challenger* — a 10.8-tonne, battery-powered sub that took seven years to build.

CHALLENGE: Locate the Mariana Trench on a world map. Provide its coordinates and show how to get there from your hometown.

2: REINHOLD MESSNER

The summit of Mount Everest, the tallest mountain in the world, is believed to have been first reached in 1953 by Edmund Hillary and Tenzing Norgay. In May 1978, Italian mountain-climber Reinhold Messner climbed Mount Everest without bottled oxygen — no small feat, since the air there has as little as one-third the normal amount of oxygen. Messner is also renowned for being the only person to climb all 14 of the world's 8,000-metre mountains.

CHALLENGE: Find Mount Everest on a map. What symbol does the cartographer use to show a mountain peak? What mountain range is Mount Everest located in, and what are the next two tallest mountains in this range?

3: WILL STEGER

Will Steger is an American with many titles — educator, author, photographer, lecturer and explorer, to name a few. In 1990, he famously led a team of five adventurers and 42 sled dogs on a crossing of Antarctica. Travelling by sled, ski and foot, they were battered by wind chills of -100 degrees Celsius and crossed mountain ranges as high as 3,475 metres. Seven months later, they reached the end of their journey — one that could not be repeated today due to the loss of land ice as a result of climate change.

CHALLENGE: Find a map of Antarctica. Using the scale, calculate the distance from the most eastern edge of the continent to the most western edge.

4: JESSICA WATSON

Jessica Watson isn't the only person to sail around the world solo, but when she left Sydney, Australia in October 2009 at age 16, she set out to become the youngest person to circumnavigate the globe unassisted. When the young Australian returned to Sydney 210 days later, critics said Watson didn't sail far enough into the Northern Hemisphere to set a record. Still, she won over a loyal fan base worldwide for her feat.

CHALLENGE: There are four hemispheres: the Northern, Southern, Eastern and Western hemispheres. What is the name of the lines that divide them? What hemisphere is Australia in? Which hemisphere do you live in?

5: ED STAFFORD

Ed Stafford, a former British Army captain, holds the Guinness World Record for being the first human ever to walk the length of Brazil's Amazon River. Stafford began walking down the Amazon in 2008 and didn't stop until two years later, on August 9, 2010, when he reached the Atlantic Ocean. The Amazon River runs for about 6,400 kilometres, starting as a stream in the Andes mountain range before running through some of the most dangerous and unexplored territory left on the planet.

CHALLENGE: A tributary (TRI-byoo-tair-ee) is a stream or river that flows into a larger river. Make a list of several tributaries of the Amazon River. Name the watershed that the Amazon river drains into.

6: MIKAEL STRANDBERG

Mikael Strandberg is a renowned Swedish explorer who started his professional career in the early 1980s. He has cycled from Chile to Alaska, from Norway to South Africa, and from New Zealand to Cairo — a total of 90,000 kilometres over the course of 10 years. He exchanged his bicycle saddle for a horse saddle in 1997, travelling by horse 3,000 km across Patagonia. In 2004, he explored the unknown Kolyma River in north-eastern Siberia, and in 2011-12 he went to the opposite climatic extreme, conducting two expeditions to the desert of Yemen.

CHALLENGE: Patagonia is a region. What counties are found within the region? Why has it been given this name?

7: JILL HEINERTH

Jill Heinerth won The Royal Canadian Geographical Society's Ondaatje medal for exploration in 2013 for her incredible accomplishments in cave diving. She has swam further into underwater caves than any other woman and helped map caves from Antarctica to Russia and everywhere in between. In 2016, Heinerth will take part in the Sedna Epic Expedition, joining nine other women to snorkel across the Northwest Passage from Pond Inlet, in Nunavut, to Inuvik, Northwest Territories. This 3,000-kilometre journey will take 100 days.

CHALLENGE: Find the Northwest Passage on a map using coordinates and mark the route of the 2016 Sedna expedition. Research the origin of the name Sedna.

Learning objectives

- Students will learn about the 2014 Victoria Strait Expedition.
- Students will assess the significance of the 2014 Victoria Strait Expedition to Canadians.

Time required

50-70 minutes

Grades

4-8

Materials

- Finding H.M.S. *Erebus* handout
- Multiple copies of the December 2014 issue of *Canadian Geographic*
- Access to the internet and a projector to view videos (optional)

Set-up

Print the “Finding the HMS *Erebus*” student handout, one for every two or three students. Photocopy the essays on pages 53 to 72 of the December 2014 issue of *Canadian Geographic*.

Links to the Canadian National Standards for Geography

Essential Element 1: The World in Spatial Terms

- Map types

Essential Element 2: Places and Regions

- Perceptions of places and regions
- Political and historical characteristics of regions
- Changes in places and regions over time

Essential Element 4: Human Systems

- Regional development in Canada and the world
- Transportation and communications networks in Canada and the world
- Territorial dispute and conflict

Essential Element 5: Environment and Society

- Limits and opportunities of the phys-

Introduction

Introduce the 2014 Victoria Strait Expedition to the class. If possible, have them watch, individually or as a class, the short videos on cgeducation.ca/franklin. Focus their attention on the fact that on September 9, 2014 Parks Canada announced that one of the missing 1845 British Arctic Expedition ships had been found. On October 1, 2014, Parks Canada confirmed that the ship was HMS *Erebus*. Read the Prime Minister’s press release here: <http://pm.gc.ca/eng/news/2014/10/01/pm-announces-hms-erebus-discovered-franklin-expedition-ship>.

Read the following quotes to students:

“[This is] the biggest archaeological discovery the world has seen since the opening of Tutankhamun’s tomb almost 100 years ago.”

- British archeologist, William Battersby

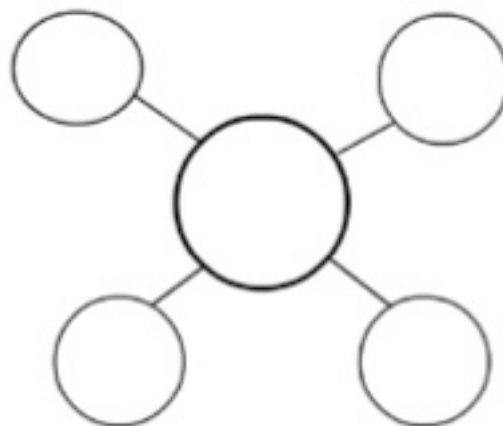
“This is truly a historic moment for Canada. Franklin’s ships are an important part of Canadian history given that his expedition, which took place nearly 170 years ago, laid the foundations of Canada’s Arctic sovereignty.”

- Prime Minister Stephen Harper

Lead a class discussion centred on the following question: What is the significance of the 2014 Victoria Strait Expedition and the finding of one of Franklin’s lost ships? Distribute copies of the December 2014 issue of *Canadian Geographic* to your class and discuss what they see, what they don’t see, and what conclusions can be drawn from the photos in the magazine.

Development

Distribute one essay from the December 2014 issue of *Canadian Geographic* to group of students. Instruct students to read it in their groups and highlight the key points. Ask each group to create a bubble map organizer similar to the one below. In the centre, have them write “2014 Victoria Strait Expedition.” In the outside circle, have the students record four or five reasons why the expedition was significant from the perspective of the essay they read.



ical environment for human activities

Essential Element 6: The Uses of Geography

- Influences of physical and human features on historical events

Conclusion

Have each group report to the class the perspective that they read about and why the find is significant to it. Explain to the class that finding HMS *Erebus* is significant in many ways, beyond simple historical curiosity. Be sure that students understand that the find:

- will tell us a great deal about many aspects of the 1845 British Arctic Expedition, both before and after the crew abandoned ship
- validates the Inuit testimony related to the location of the ship
- demonstrates that modern technology and traditional knowledge combined to locate the missing ship
- will further support scientific exploration in the Arctic
- asserts Canada's sovereignty in the Arctic with respect to resources and maritime passages
- gives Canada the ability to patrol and protect Arctic waters as northern sea routes see increased international trade and travel
- shows a commitment to involving the people of Nunavut into northern economic development and exploration

Conclude with a discussion about what they think the next steps in the search are, and how the ongoing search will contribute to future developments in the Canadian Arctic.

Extend your geographical thinking

Control over the Arctic Ocean is a matter of much debate. Under current international law, countries can claim jurisdiction over areas extending up to 200 nautical miles (370 kilometres) from their coastline. Provide students with a circumpolar map and have them investigate which countries are located in the region. How is climate change affecting debates over territorial claims in the Arctic?

For more information about the search for Franklin's lost ships, please visit www.pc.gc.ca/eng/culture/franklin/index.aspx

Discovering the Science Behind the Story

5

Learning objectives

- Students will learn about the scientific research that occurred on the 2014 Victoria Strait Expedition.
- Students will examine the steps of scientific thinking and inquiry.

Time required

50-70 minutes

Grades

4-8

Materials

- “Scientist Biography Report” worksheet
- “The Scientific Process” handout
- “Scientists Biographies” handout
- Access to the internet for research

Set-up

Make copies of the “The Scientific Process” handout for all students, make three copies of the “Scientist Biography Report” worksheet.

Links to the Canadian National Standards for Geography

Essential Element 1: The World in Spatial Terms

- Map types

Essential Element 2: Places and Regions

- Political and historical characteristics of regions
- Changes in places and regions over time

Essential Element 5: Environment and Society

- Limits and opportunities of the physical environment for human activities

Essential Element 6: The Uses of Geography

- Influences of physical and human features on historical events
- Effects of physical and human geographic factors in major historic events

Introduction

Explain to the students that expeditions usually have more than one goal. The 1845 British Arctic Expedition led by Sir John Franklin was searching for the Northwest Passage, but also intended to map the Arctic region and research how the British Empire could further explore the area. The primary goal of the 2014 Victoria Strait Expedition was to locate the missing ships from the 1845 British Arctic Expedition but it also had several other goals. A number of scientists and researchers took part in the 2014 expedition and had the opportunity to pursue other research goals. Discuss the following goals of the 2014 expedition:

- Map the Arctic seabed
- Undertake terrestrial archaeology surveys and excavations on King William Island
- Use satellite imagery to collect data about sea ice type and extent, coastal features and shoreline delineation
- Discover how localized environmental stressors as well as regional climate changes impact aquatic ecosystems in the Canadian Arctic
- Explore how side-scanning sonar could be used to determine how ice masses, including sea ice, ice shelves and glaciers have been changing on Northern Ellesmere Island, and how these changes interact with each other
- Undertake a reconnaissance survey of whales in relation to sea ice concentrations, to contribute to a study of climate-induced prey shifts on beluga whales in the Beaufort Sea
- Examine the ice characteristics in the area where the Franklin vessels were abandoned to interpret the historical evidence, mostly Inuit testimony, thereby helping to plan the search effort

Continue the discussion by reviewing the scientific process with your students (hand out copies of “The Scientific Process”) and asking them to determine how each of these goals could be achieved through this process. Although this is known as the scientific process, explain that many other disciplines follow similar processes (refer to the activity “Faces of the Franklin Expeditions” for a more in-depth look at this).

Development

Divide your class into small groups. Distribute the “Scientists Biographies” handout and have each group research a scientist and complete the “Scientist Biography Report” worksheet attached. Explain that inquiry is another way to describe the process of asking questions to investigate a topic. Inquiry is a process, which means that there are steps involved. Have each group brainstorm how their scientist might have approached his/her particular goal using an inquiry process. Be sure that all groups are looking at the information that was collected by each scientist and viewing the videos that were produced to get all information necessary to complete their worksheets.

Conclusion

Have each group of students present their scientist to the rest of the class, using the checklist on the “Scientist Biography Report” worksheet as a guide. When all groups have presented, have a discussion about other topics that might lead to future scientific research in the Arctic.

Extend your geographical thinking

Have your students explore geographical perspective by assessing the importance of the 2014 Victoria Strait Expedition and the discovery of HMS *Erebus* through the lens of a conservationist, business owner, Inuit resident or tourist.

For more information about the search for Franklin's lost ships, please visit www.pc.gc.ca/eng/culture/franklin/index.aspx

Discovering the Science Behind the Story

5

Scientist Biography Report:

Name:

School:

Research topic:

What goal is the scientist working towards?

Why was the scientist on the 2014 Victoria Strait Expedition?

What was the result of the scientist being on the expedition?

What research was necessary before the expedition?

What tools were needed to conduct their research?

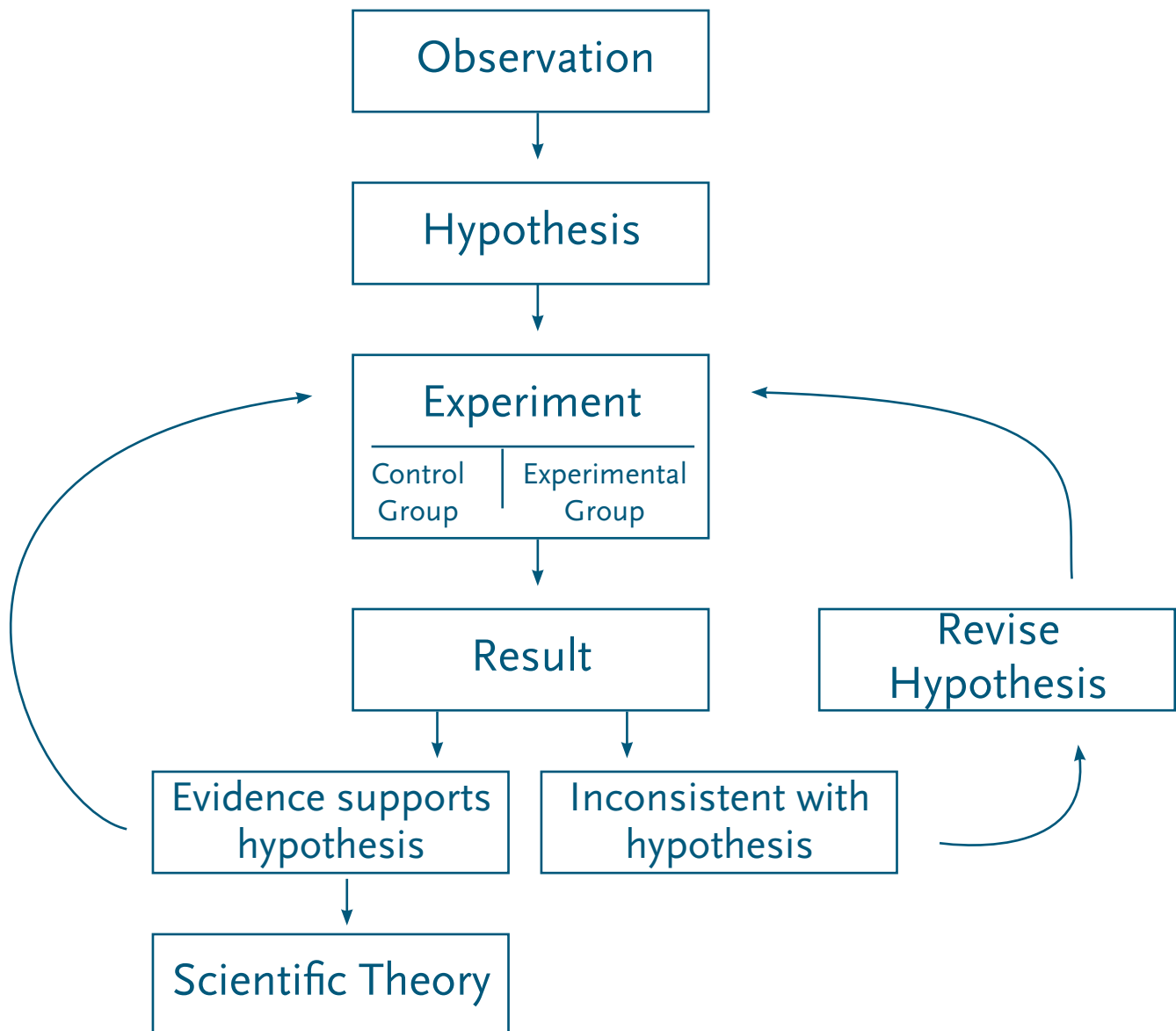
What does the scientist have to do now that he or she is back?

Do you think the scientist will be successful in their research?

Checklist for presentation:

- ☐ Name of scientist
- ☐ School the scientist attends (if available, academic level they are working at)
- ☐ What is their research topic?
- ☐ Summarize their experience on the expedition
- ☐ How will they contribute to a better understanding of the Arctic?

The Scientific Process



Scientists Biographies

Emily Choy

<https://sites.google.com/site/emilyschoy>

My PhD research examines the consequences of climate-induced shifts in the prey of beluga whales in the Beaufort Sea. Beluga whales are marine mammals that select habitat based on sea-ice concentrations – they rely on sea ice to help hide from their predators and find food around sea ice. One of the major prey species of the Beaufort Sea beluga population is Arctic cod, which also live where there is sea ice. Therefore, the loss of sea ice due to climate change will not only affect beluga habitat-use, but also will affect the abundance and distribution of prey.

On the Victoria Strait Expedition, I attempted to do a reconnaissance survey of cetaceans in relation to sea-ice concentrations. A reconnaissance survey is basically a count of species in an area. Beluga whales, bowhead whales and narwhals can be found in Lancaster Sound, Prince Regent Inlet and Peel Sound. Unfortunately for me, no whales were sighted by myself or any of the naturalists on the expedition. However, I sent the marine mammal survey list of pinnipeds (seals) conducted by the ship naturalists to the marine mammal research scientists at Fisheries and Oceans Canada, since they do not have much knowledge on species abundance in the route covered by our expedition. They confirmed to me that the species that had been sighted were all common species to the area.

Tom Zagon, Canadian Ice Service

<http://www.ec.gc.ca/glaces-ice/>

My work took place before the 2014 expedition in that I wrote an ice study based on archived satellite imagery, using images from Canada's RADARSAT-1 and RADARSAT-2 satellites. That study examined the ice characteristics in the area where the Franklin vessels were abandoned and was used to interpret the historical evidence, mostly Inuit testimony, thereby helping to plan the search effort.

I am a scientist at the Canadian Ice Service (CIS), part of Environment Canada. Prior to joining CIS, I worked in providing ice information to vessels navigating the Canadian Arctic and working on the development of shipboard ice information systems. I've been looking at satellite imagery of sea ice for over 20 years.

Joshua R. Thienpont, PhD

www.thienpont-korosi.com/

My research focuses on understanding how localized environmental stressors (such as permafrost thaw and oil and gas development), and regional climate changes affect aquatic ecosystems in the Canadian Arctic. In particular, I am interested in how changes in sea ice, rising sea levels and more intense and frequent storms are impacting coastal, freshwater lake ecosystems. My research has focused primarily on the Mackenzie Delta in Canada's western Arctic, and how changing environmental conditions have impacted this economically, culturally and ecologically important ecosystem.

Adrienne White

<http://cryospheric.org/people/adrienne-white/>

My PhD research focuses on determining how ice masses, including sea ice, ice shelves and glaciers, have been changing on Northern Ellesmere Island, and how these changes interact with each other. During this expedition, I had the opportunity to investigate the potential use of side-scanning sonar — like the one used on the AUV (autonomous underwater vehicle) to find the Franklin ships — for imaging the basal (bottom layer) topography of the ice masses in my study area. Furthermore I was able to meet with other Arctic scientists to discuss potential collaborations in the near future.

Traditional Inuit Knowledge

6

Learning objectives

- Students will recognize the contribution of traditional Inuit knowledge to scientific knowledge.
- Students will apply their understandings of traditional and scientific knowledge to the 2014 Victoria Strait Expedition.

Time required

50-70 minutes

Grades

4-8

Materials

- Atlases or access to online mapping tools such as Google Maps or ArcGIS online
- Place name cards (14)
- “Comparing Map Resources” handout, one per group
- “Compare and Contrast Frame” worksheet, one per student
- “Traditional Inuit Knowledge” handout, one per student (optional)

Set-up

Read “Traditional Inuit Knowledge” handout to familiarize yourself with the subject matter, if necessary, and make copies for students, if desired. Make copies of the “Comparing Map Resources” handout and “Compare and Contrast Frame” worksheet. Cut out place name cards.

Links to the Canadian National Standards for Geography

Essential Element 1: The World in Spatial Terms

- Physical/political maps of the province, Canada and the world
- Map types
- Major cities of the province and Canada and the world

Essential Element 2: Places and Regions

Introduction

Organize the class into groups of two or three students. Distribute atlases, or give online access to a mapping tool to each group. Instruct the groups to locate a map of Canada’s North. Hand each group a place name card and instruct them to locate it on the map. Depending on the number of groups, and time permitting, give each group a second place name.

Find out what they discovered (Baker Lake and Qamani’tuaq are the same place; Arctic Bay and Ikpiarjuk are the same place, etc).

Ask the groups: Why would a community have two names?
Why would a community be renamed?

Explain that in 1999, when Nunavut became a separate territory, many of the communities in Nunavut changed back to their original Inuit names, reflecting the Inuit culture and heritage. For this reason, several communities have alternate names or spellings in Inuktitut or Inuinnaqtun. Ask students why they think this was done and the outcomes that this decision may have had.

Explain that many place names in the north reflect the Inuit’s close ties to the land. For example:

- Qamani’tuaq (also called Baker Lake) means big lake joined by a river at both ends
- Iqaluktuuttiaq (also called Cambridge Bay) means fair fishing place
- Sallit (also called Coral Harbour) means a large, flat island in front of the mainland
- Naujaat (also called Repulse Bay) means a seagull resting place

Familiarize the students with the concept of traditional knowledge. Distribute the “Traditional Inuit Knowledge” handout to your students (optional). Ask students to think of an example of traditional knowledge or oral history in their own lives. Differentiate between traditional knowledge and scientific knowledge. Brainstorm a class definition of each; record and keep for reference for the following part of the lesson.

Development

Distribute copies of “Comparing Map Resources” handout. Read over the document and examine the images with the class. To check for understanding, ask:

- How was each map created? By whom? What technology was used?
- How do you think Image 1 was created with little or no modern technology?
- In what ways do the maps complement each other? Refer the class definitions of traditional and scientific knowledge.

- Factors that influence people's perception of places and regions
- Changes in places and regions over time
- How culture affects places and regions

Essential Element 4: Human Systems

- Cultural regions

Essential Element 6: The Uses of Geography

- Effects of physical and human geographic factors on major historic events

Provide students with an overview of the 2014 Victoria Strait Expedition either from cgeducation.ca/franklin or the December 2014 issue of *Canadian Geographic*. Draw the students' attention to this sentence taken from The Royal Canadian Geographical Society website about the discovery of HMS *Erebus*:

The discovery of the wreck was confirmed on Sunday, Sept. 7, using a remotely operated underwater vehicle recently acquired by Parks Canada. Details of where exactly the ship was found have not yet been released.

Read the following excerpt from a CBC News article, September 9, 2014:

"The beauty of where they found it is its proof positive of Inuit oral history," CBC chief correspondent Peter Mansbridge, who has covered the Franklin search for many years, said Tuesday. "The Inuit have said for generations that one of their hunters saw a ship in that part of the passage, abandoned and ended up wrecking.... It's exactly where this guy said it was."

Conclusion

Ask students how traditional knowledge complemented the equipment used in finding the HMS *Erebus*. Instruct students to complete the "Compare and Contrast Frame" worksheet. Guide and assist as necessary.

Optional: View the CBC clip, "Inuit history and Franklin" ships [10:33] at www.cbc.ca/player/News/TV%20Shows/The%20National/ID/2278124371/

Extend your geographical thinking

Sense of place refers to the mix of physical and human features that characterize and give meaning to a particular location. Without this understanding, students may hold stereotypical views of places that are foreign to them. For example, many see Canada's North as "barren" or "lifeless." Aid your students in dispelling this misconception by having them research modern life in the Arctic.

For more information about the search for Franklin's lost ships, please visit www.pc.gc.ca/eng/culture/franklin/index.aspx

There are two overarching ways in which we can learn about and approach the study of the Arctic. One is Western science and the other is traditional Inuit indigenous knowledge. Together, these perspectives are able to enrich our understanding of Canada's North.

There are many definitions of traditional knowledge (also called indigenous knowledge or local knowledge). For some, traditional knowledge is information that indigenous peoples have about the land, animals and the special relationship they have with them. However, from an indigenous perspective, traditional knowledge is much more. Since Inuktitut was not a written language until relatively recently, oral tradition is how Inuit people passed traditions from generation to generation. This knowledge has been orally transmitted through generations for thousands of years. It is a lifelong quest requiring patience, introspection, learning by trial and error, sacrifices and spirituality. The acquisition of knowledge starts during childhood and continues until death; it is conveyed through experiential learning and oral teachings. Family members are involved in passing on skills and wisdom; however, it is the elders who generally serve as the primary instructors for life's necessary lessons.

The Department of Education, Culture and Employment (formerly the department of Culture and Communications) in the Northwest Territories (ece.gov.nt.ca) has defined traditional knowledge as: "the condition of knowing something with familiarity gained through experience or association. The traditional knowledge of northern aboriginal peoples has roots based firmly in the northern landscape and a land-based life experience of thousands of years. Traditional knowledge offers a view of the world, aspirations, and an avenue to 'truth,' different from those held by non-aboriginal people whose knowledge is based largely on European philosophies."

The United Nations Educational, Scientific and Cultural Organization (UNESCO) defines traditional knowledge as: "the understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings. For rural and indigenous peoples, local knowledge informs decision-making about fundamental aspects of day-to-day life. This knowledge is integral to a cultural complex that also encompasses language, systems of classification, resource use practices, social interactions, ritual and spirituality. These unique ways of knowing are important facets of the world's cultural diversity, and provide a foundation for locally-appropriate sustainable development."

Parks Canada works with over 300 Aboriginal communities across the country to manage, present and educate visitors about the heritage places that have been entrusted to its care. Parks Canada believes that Aboriginal Traditional Knowledge rests with Aboriginal Knowledge Holders and that integrating Aboriginal Traditional Knowledge into Parks Canada operations and decision-making is first and foremost a process of building relationships and working with Aboriginal Knowledge Holders. For example, in determining the search area for the Franklin ships, Parks Canada worked with Inuit Knowledge Holders who had, for generations, received oral knowledge from their elders regarding the possible location of the ships.

INFORMATION SOURCED FROM: THE DEPARTMENT OF EDUCATION, CULTURE AND EMPLOYMENT, THE UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION (UNESCO), AND PARKS CANADA

Comparing Map Resources Option 1

Image 1 is a map of the Cumberland Sound-Frobisher Bay region drawn from memory by an Inuk named Sunapignanq. Image 2 is a modern cartographic map. Image 3 is a satellite image.

Image 1

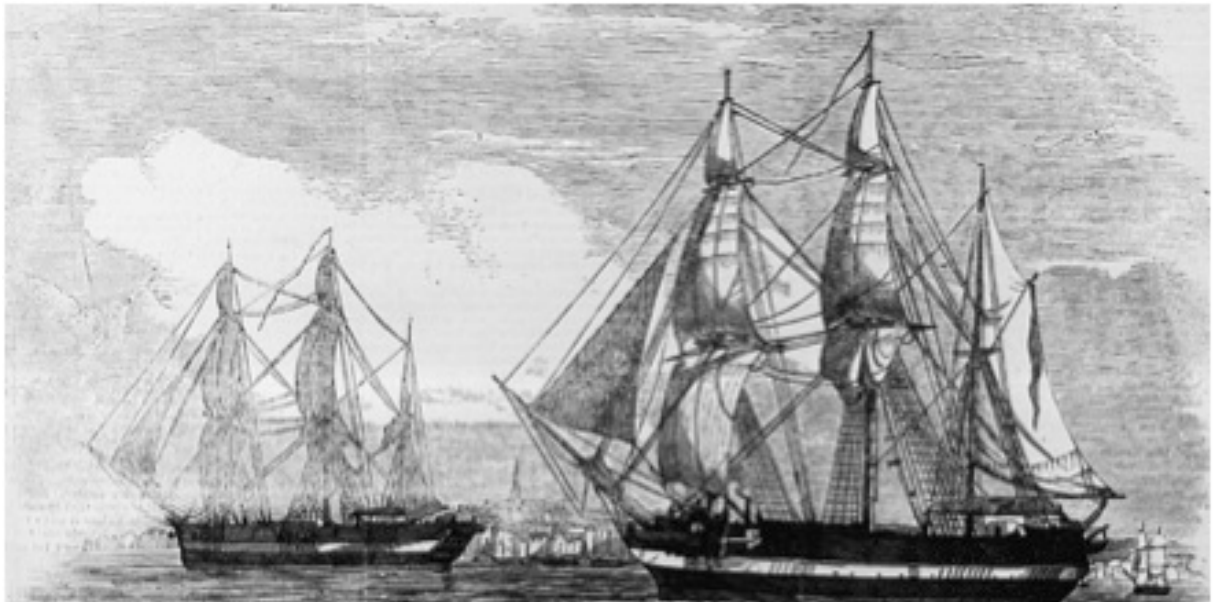


Image 2



Image 3

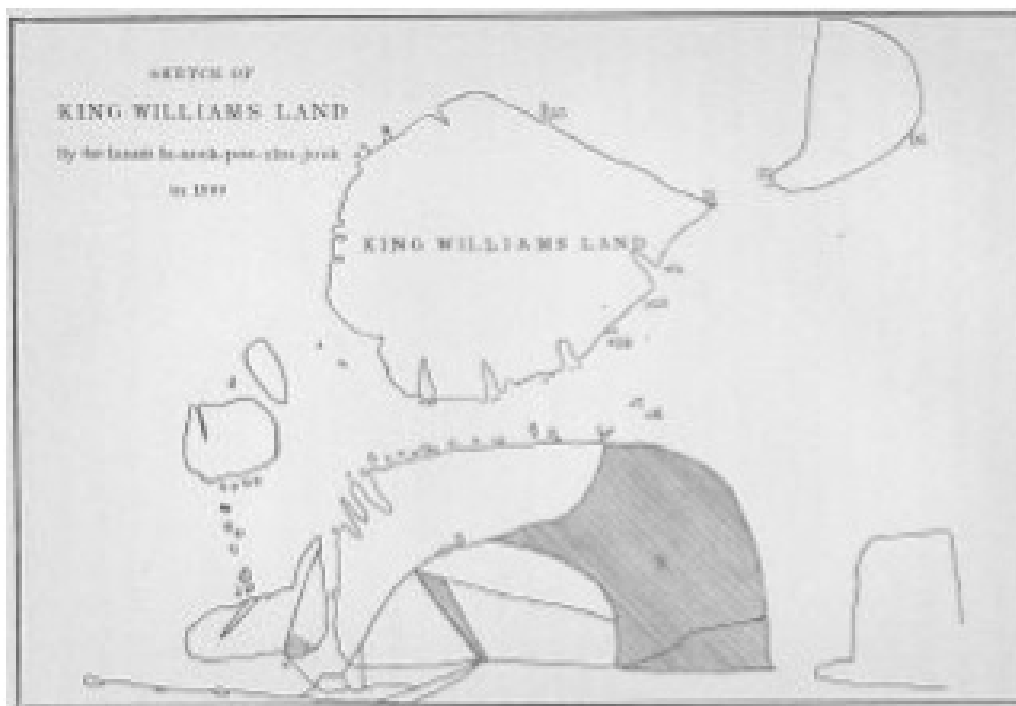


Comparing Map Resources Option 2

Image 1



Image 2



2014 Victoria Strait Expedition Compare and Contrast Frame

How are traditional knowledge and scientific knowledge alike?

How are traditional knowledge and scientific knowledge different?

Write a statement to compare and contrast how each was valuable in locating Franklin's lost ship, the HMS *Erebus*.

Place name cards:

Baker Lake

Salliit

Qamani'tuaq

Cambridge Bay

Chesterfield Inlet

Iqaluktuuttiaq

Igluligaarjuk

Repulse Bay

Bathurst Inlet

Naujaat

Kingoak

Arctic Bay

Coral Harbour

Ikpiarjuk