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Theme illustrations by Mosha Arnatsiaq
Design by Lucy MacDonald

INTRODUCTION

This CD Rom, *Anijaarniq: Introducing Inuit Landskills and Wayfinding* was designed as an interactive resource for Inuktitut language and culture curriculum areas for youth in Nunavut high schools. It is designed to spark interest and provide a starting point in class to introduce students to the complex Inuit traditional wayfinding skills.

It is essential to invite elders and experienced landsmen into the classroom for discussions and training. Every opportunity must be taken to follow elders outside to find snow and ice features, landforms, horizons and weather and to go on trips and walks to experience, learn and practice being constant and keen observers of the surroundings.

Teachers are encouraged to use a digital projector to present the CD to the whole class. This allows everyone to be involved, hear the elder's interviews, check in the glossary for unfamiliar words and interact with the screens. Students are encouraged to revisit each section on their own as well.

The learning links section embraces the Inuit Qaujimajatuqangit Principles developed by the Nunavut Department of Education. This holistic curriculum has four main curricular strands – Nunavusiutit, Iqqaqqaukkaringniq, Uqausiliriniq and Aulajaaqtut represented by polar bear, harpoon head, throat singers and geese icons. In addition, the six cross-curricular values and social competencies skills to be gained while working on these topics are detailed.

Each section has the learning outcomes and curricular major understandings and competencies outlined followed by a quick overview of a suggested plan of daily activities.

A Multiple Intelligences/Bloom's Taxonomy grid provides ideas for 48 projects of varying interests and complexity to meet the range of interests, learning styles and abilities found in classes. Along with this are found samples of a project contract sheet, project mark sheet and projects summary sheet.

Detailed daily plans are included followed by additional evaluation strategies, including a skills checklist, student reflection sheet, interview evaluation sheet, and suggested portfolio content.

Finally there is a list of internet sites, additional resources and books that could provide some additional background, extend this learning and link with science and geography.

VALUES AND SOCIAL COMPETENCIES

PILRIQATIGIINGNIQ

- Follows class routines
- Interacts with classmates in a positive manner
- Able to take responsibility for finishing work
- Able to help others
- Able to take turns

AVATIMIK KAMATTIARNIQ

- Begins to understand how Inuit value observation skills
- Begins to show awareness of Inuit traditions
- Begins to understand about wayfinding, wind, snow, ice and weather

PILIMMAKSARNIQ

- Investigates weather
- Investigates night sky
- Shares information discovered while investigating
- Shows awareness of different ways of marking directions
- Shows awareness of using stars, wind and snow features for wayfinding

QANUQTUURUNGNARNIQ

- Shows curiosity
- Shows inventiveness
- Shows initiative in making choices
- Perseveres at a task even after having some difficulty

AAJIQATGIINGNIQ

- Shares ideas with classmates
- Listens to others ideas and presentations

PIJITSIRARNIQ

- Able to lead an activity and presentation
- Participates in group activities
- Able to take responsibility for completing projects and assignments

VALUES AND SOCIAL COMPETENCIES CHECKLIST

Name: _____

Date: _____

Pilriqatigiingniq	Needs improvement	Good	Very good	Excellent	**Comments**
Follows class routines					
Interacts with classmates in a positive manner					
Able to take responsibility for finishing work					
Able to help others					
Able to take turns					
Avatimik Kamattiarniq					
Begins to understand how Inuit value observation skills					
Begins to show awareness of Inuit traditions					
Begins to understand about wayfinding, wind, snow, ice and weather					
Pilimmaksarniq					
Investigates weather					
Investigates night sky					
Shares information discovered while investigating					
Shows awareness of different ways of marking directions					
Shows awareness of using stars, wind and snow features for wayfinding					
Qanuqtuurungnarniq					
Shows curiosity					
Shows inventiveness					
Shows initiative in making choices					
Perseveres at a task even after having some difficulty					
Aajiqatgiingniq					
Shares ideas with classmates					
Listens to others ideas and presentations					
Pijitsirarniq					
Able to lead an activity and presentation					
Participates in group activities					
Able to take responsibility for completing projects and assignments					

WINDS

LEARNING OUTCOMES

- Students will be able to make observations of the wind and clouds.
- Students will be able to connect their observations with the IQ of their elders.
- Students will be able to begin to make weather predictions based on the knowledge gained.
- Students will learn both the traditional Inuit and scientific directional positions and names.
- Students will gain an appreciation of traditional wayfinding skills.

MAJOR UNDERSTANDINGS

Nunavusiutit

- Inuit have traditional ways to mark directions
- Inuit have traditional ways to observe wind
- Inuit have traditional ways to predict weather

Iqqaqqaukkaringniq

- Inuit use observations to predict weather
- Inuit classify wind directions
- Inuit classify clouds

Uqausiliriniq

- Inuit tell stories about wind and weather
- Inuit have songs about the wind and weather

Aullaajaaqtut

- Inuit traditionally were encouraged to observe the weather first thing each day

WINDS COMPETENCIES

NUNAVUSIUTIT

Demonstrating

- Able to recount a traditional story about the winds

Practicing

- Able to Anijaarniq - observe the weather first thing each morning

WINDS COMPETENCIES

IQQAQQAUKKARINGNIQ

Investigating
- Able to investigate wind speed and direction
- Able to gather information to use to build a wind chart
- Able to gather information to use to build a cloud chart

Observing
- Able to observe wind speed and direction
- Able to observe cloud conditions

Predicting
- Able to begin to predict wind from clouds
- Able to begin to predict weather from wind directions

Classifying/Categorizing
- Able to classify clouds
- Able to classify different wind directions using scientific names
- Able to classify different wind directions using traditional names

Relating/Connecting
- Able to connect the traditional directional names with scientific names
- Able to relate observations to direction names

Manipulating
- Able to use a weather instrument
- Able to make a weather instrument

Synthesizing/Calculating
- Able to match wind observations with wind speed
- Able to organize wind speed observations into a chart

Measuring
- Able to match wind directions with traditional and scientific directions

WINDS COMPETENCIES

UQAUSILIRINIQ

Listening
- Able to listen to elder's interviews
- Able to listen to elder's stories and instructions
- Able to relate to the new information

Speaking
- Able to ask questions of elders
- Able to share information gathered
- Able to make a presentation

Reading
- Able to read the information in the CD
- Able to read information from class hand-outs

Writing
- Able to write up projects and reports
- Able to write up interviews
- Able to keep a journal
- Able to keep records of observations

Viewing
- Able to gather wind information from the CD
- Able to gather wind information from the elder's field trips
- Able to gather wind information from the internet

Creative
- Able to create questions for an interview
- Able to create a northern/arctic wind chart

WINDS COMPETENCIES

AULLAAJAAQTUT

Demonstrating

- Able to find features in the clouds
- Able to make a weather instrument to show wind direction
- Able to perform a play, chant or song about winds

Helping and Socializing

- Able to work in a group setting

Reflecting

- Able to choose activities from a variety of categories in the MI chart
- Able to reflect on choices of work
- Able to choose pieces of work to go in the wind portfolio

WINDS COMPETENCIES NUNAVUSIUTIT CHECKLIST

Name: _____

Date: _____

Demonstrating	Needs improvement	Good	Very good	Excellent	Comments
Able to recount a traditional story about the winds					
Practicing					
Able to Anijaarniq - observe the weather first thing each morning					

WINDS COMPETENCIES IQQAQQAUKKARINGNIQ CHECKLIST

Name: _____

Date: _____

Investigating	Needs improvement	Good	Very good	Excellent	Comments
Able to investigate wind speed and direction					
Able to gather information to use to build a wind chart					
Able to gather information to use to build a cloud chart					
Observing					
Able to observe wind speed and direction					
Able to observe cloud conditions					
Predicting					
Able to begin to predict wind from clouds					
Able to begin to predict weather from wind directions					
Classifying/Categorizing					
Able to classify clouds					
Able to classify different wind directions using scientific names					
Able to classify different wind directions using traditional names					
Relating/Connecting					
Able to connect the traditional directional names with scientific names					
Able to relate observations to direction names					
Manipulating					
Able to use a weather instrument					
Able to make a weather instrument					
Synthesizing/Calculating					
Able to match wind observations with wind speed					
Able to organize wind speed observations into a chart					
Measuring					
Able to match wind directions with traditional and scientific directions					

WINDS COMPETENCIES UQAUSILIRINIQ CHECKLIST

Name: _____

Date: _____

	Needs improvement	Good	Very good	Excellent	Comments
Listening					
Able to listen to elder's interviews					
Able to listen to elder's stories and instructions					
Able to relate to the new information					
Speaking					
Able to ask questions of elders					
Able to share information gathered					
Able to make a presentation					
Reading					
Able to read the information in the CD					
Able to read information from class hand-outs					
Writing					
Able to write up projects and reports					
Able to write up interviews					
Able to keep a journal					
Able to keep records of observations					
Viewing					
Able to gather wind information from the CD					
Able to gather wind information from the elder's field trips					
Able to gather wind information from the internet					
Creative					
Able to create questions for an interview					
Able to create a northern/arctic wind chart					

WINDS COMPETENCIES AULLAAJAAQTUT CHECKLIST

Name: _____

Date: _____

Demonstrating	Needs improvement	Good	Very good	Excellent	Comments
Able to find features in the clouds					
Able to make a weather instrument to show wind direction					
Able to perform a play, chant or song about winds					
Helping and Socializing					
Able to work in a group setting					
Reflecting					
Able to choose activities from a variety of categories in the Projects Grid					
Able to reflect on choices of work					
Able to choose pieces of work to go in the wind portfolio					

SUGGESTED PLAN OF DAILY ACTIVITIES

Day 1
What is wayfinding?

Day 2
Anijaarniq

Day 3
Introducing winds and the wind compass

Day 4
The four main winds

Day 5
The in-between winds

Day 6
Clouds and winds

Day 7
Winds are not always reliable

Day 8
Observing changing winds

Day 9
Puikkatuq - Mirages

Day 10
Winds and their stories

Day 11
Elder’s interviews

Day 12
Presentations

DAY 1

What is wayfinding?

Brainstorm "What is wayfinding?"

Introduce the CD-ROM *Anijaarniq: Introducing Inuit Landskills and Wayfinding*
Work through the first four screens to the wayfinding screen.

Discuss different ways of how to direct a person to a place.

Divide into small groups.
Each group will have a task of directing a stranger from one spot in town to another spot. Examples:

- The school to the Health Centre
- The school to the store
- The school to the recreation hall.
- The school to the post office.

Each group will present their directions.

Analyze the different strategies used by each group. Record these strategies on chart paper.

DAY 2

Anijaarniq

Click on the fifth screen, "Anijaarniq"
Listen to the interview and read the screen.

Discuss what Hubert Amarualik is talking about. What experiences do the students have with anijaarniq?

What are we supposed to observe when we go outside? List these on chart paper.

- Wind direction
- Wind speed
- Clouds
- Stars

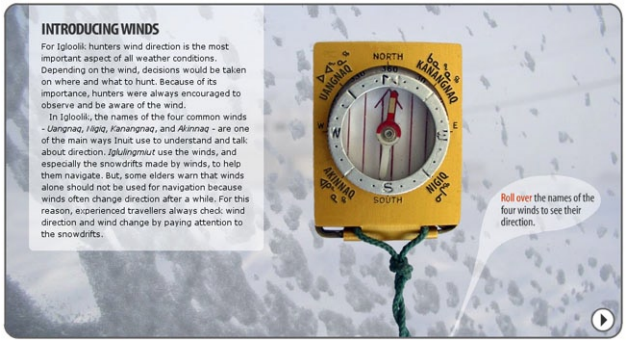
Introduce the weather observation journal.

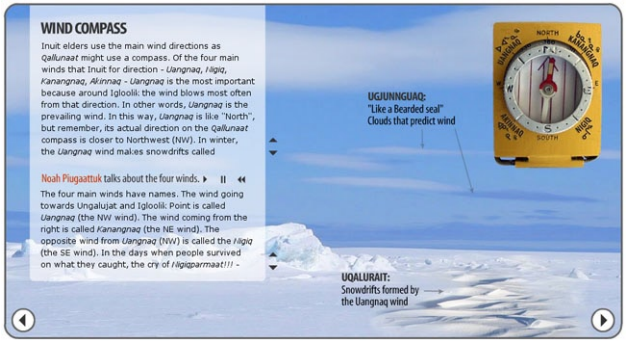
Each student will set up his/her journal.
Introduce the station model for recording weather.

Practice observing the weather for a week.
Record the weather using descriptive words.
Record the weather using the station model.

Take the weather journal home and record the weather each morning.

DAY 3





Introducing winds and the wind compass

Talk about magnetic compasses.
Experiment with them in class.
What do you notice about the needle?
Where is north? Is it easy to find your way using this tool in our northern latitudes?

Click on “Introducing winds”.
Read the script.
What do Inuit hunters say is the most important weather condition to be aware of?

Click over the four main winds.
List these names.
Go outside and observe the wind.
Point out the four main wind directions.

As a group, discuss exactly where each of these winds would be coming from.
Make labels and post these up in their correct positions in the classroom.

Discuss the compass points. Notice where their positions are.

Make labels and post the compass points in their correct positions in the classroom.

Make yourself an illustration of a compass with the four main scientific points labeled.

Make yourself an illustration of a compass with the four wind points labeled.

Use these names when describing the wind in your journal.

DAY 4

The four main winds

Review the four main winds.

Click on screen two of the winds, "Wind Compass".
Listen to Noah Piugaattuk talk about the four main winds.
What is important about each one?
List the winds and their importance.

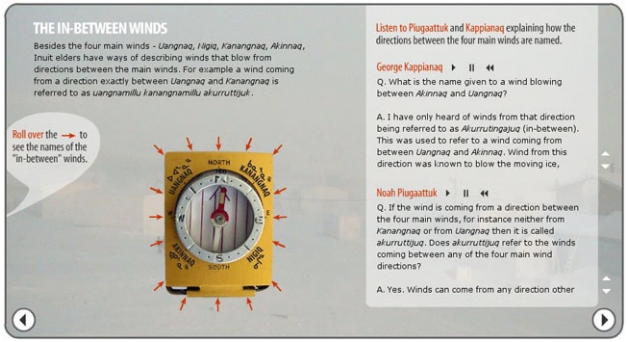
Click on the next screen, "The Four Winds".
Listen to Maurice Arnatsiaq talking about these winds.

On a map of your local surroundings, locate important landmarks.
Imagine you were standing at the spot.
Determine where would each of the winds be coming from?

Divide into small groups.
Each group takes a landmark.
Report to the class where your group's winds would be coming from.

Write up a memory you have of being at a spot and include the direction of the winds.

DAY 5



The in-between winds

Review the four main winds, their directions and the names and positions of the compass points.

Click on the next screen, "The In-between Winds".
Listen to George Kappianaq and Noah Piugaattuk talk about the in-between winds.
Discuss the important things they talked about.

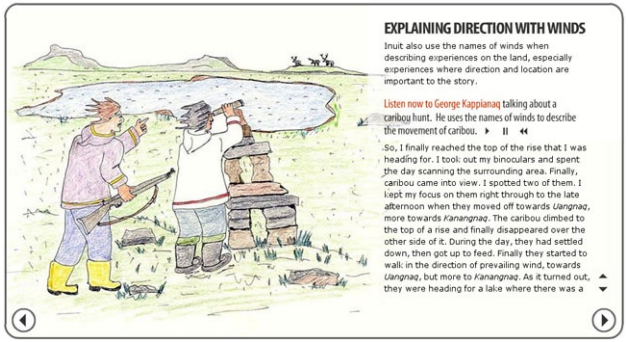
Look at the wind compass.
Click on the points.
Say each direction name.
Make a card for each of the directions.
Divide a large circle into 16 divisions.
Each will be 22.5 degrees wide.
Put each wind label in its correct place.
Start with the four main winds first.

Listen to George Kappianaq talk about explaining direction with winds.

Make yourself a 16 point wind compass.

Make yourself a 16 point traditional compass.
Search the internet if you need help.

DAY 6

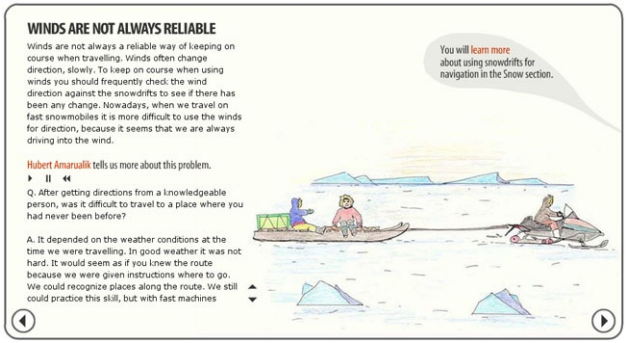


Clouds and winds

Invite an elder to come in to talk about the winds and clouds.
Write down the cloud names.
Make a chart of the cloud types and their names.

Write up the important points you learned from the interview.

DAY 7



Winds are not always reliable

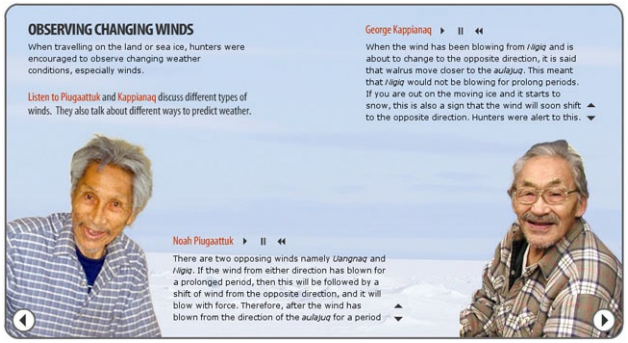
Listen to Hubert Amarualik talking about this problem.
Make a chart comparing taking wind and weather observations:

- when you are on a snowmobile
- when you are on a dog team

What precautions could you take to ensure that you would observe the wind when you are out snowmobiling?

Look at the Beaufort Wind Scale. What observations can we make here in the arctic to help us judge the strength of the wind?
Make a wind scale suitable for observing wind in your community and on the land.

DAY 8



Observing changing winds

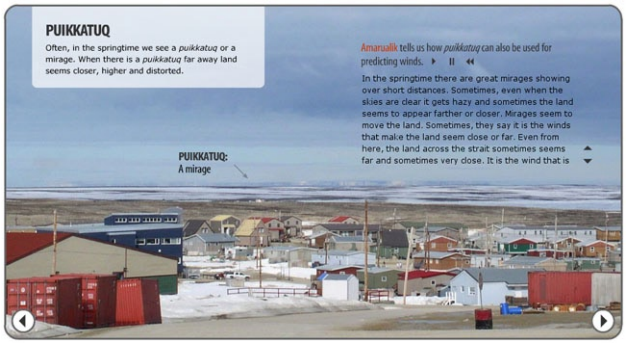
Listen to Noah Piugaattuk talk about observing the changing winds.
What warning is Noah Piugaattuk giving us?

Listen to George Kappianaq talk about observing the changing winds.
What warning is George Kappianaq giving us?

Think of recent windy days, what have you observed about the wind's changes in direction?

Make a series of safety posters about observing wind and navigating by the winds.

DAY 9



Puikkatuq – Mirages

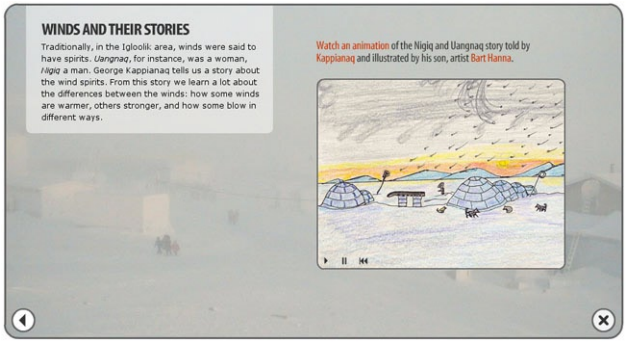
Listen to Hubert Amarualik talk about mirages. What do mirages look like? What information can they tell us about the wind?

What have you noticed about mirages? How did the mirages change?

Make a chart about mirages and what they can tell us.

Start to make yourself a dictionary of wind terms and their meanings.

DAY 10



Winds and their stories

Listen to the story about the winds told by George Kappianaq.

Make a list of the characteristics of Nigiq and Uangnaq.

Make your own drawings of these winds to illustrate their characteristics.

Interview elders and family members to see if they can tell you any songs and chants about winds. When were these performed?
Share this information with the class.

Learn the songs and chants. Make a recording of them.

DAY 11

Elder's interviews

Gather and review the elder's interviews about wind and weather observing.
Divide the class into groups.
Let each group choose some to listen to and review.
Write up the information you learned from these interviews.
Each group will then present this information to the whole class.

DAY 12

Presentations

Students will take turns presenting their Wind projects to the class.

WINDS PROJECTS GRID

	LANGUAGE Reading, Writing & Speaking	**MATHS/LOGIC** Science	**VISUAL/SPATIAL** Painting, Drawing & Visualizing	**MOVING/ MAKING** Hands-on	**MUSICAL** Making rhythm & Listening	**SOCIAL** Working with others	**INDIVIDUAL** Working Independently	**NATURE** Observing nature
KNOW	Learn wind direction names, cloud names and precipitation names.	Learn the compass rose 16 points.	Recognize the wind direction from flag movements.	Make a wind vane to mark wind directions.	Learn an ayaya song about wind.	Record classmate's and family's land experiences with different winds.	Recall your experiences in different wind situations.	Recognize different winds, clouds and precipitation.
10 **UNDERSTAND**	Describe the character of each of the winds.	Write up the weather observations using the station model configuration.	Learn the weather changes indicated by the different winds.	Pretend to be on moving ice and make a model to show what happens with the actions of the different winds and currents.	Recognize the sounds of the winds in town at the different strengths.	Make a quiz game about the winds.	Write the route you use to come to school using the different directions.	Summarize an elder's story about wind and direction.
APPLY	Gather stories about the winds from elders in the community.	Using your observations, make a wind rose for the month. Determine the prevailing wind.	Make a map of how to use the wind directions to go to camping sites near your settlement.	Make a charades game based on the winds.	Create a Make a song about the opposing winds.	Make a game of activities using traditional directions to direct a person to find hidden objects.	Keep a journal of your predictions for wind direction and speed.	Keep a journal of morning and evening weather conditions – wind, sky, clouds and precipitation.
20 **ANALYZE**	Make a skit to show the relationship between wind direction and weather.	Make a chart to classify the winds.	Make a poster to illustrate the ways of finding your direction in a blizzard.	Using fans, experiment with the effects of the different winds on "ice" movement.	Make a rap song to tell about traditional direction and the different winds.	Debate the value of careful observations with regard to wayfinding.	Analyze your predictions compared with the actual weather that you recorded in your daily journal.	Point out how the elders used wind directions in telling his story.
CREATE	Create a story about a wind.	Using observations and the Baufort Wind Scale, create a wind scale for use in northern areas.	Illustrate your wind story.	Create a dance about a blizzard or wind.	Create a throat song to imitate the wind and weather.	Create a game to play in the gym about moving to the different directions using traditional direction names.	Create a card or board game using the information about the different winds.	Create a guide to organize the winds into different categories.
30 **EVALUATE**	Evaluate the implications of wind from the various directions.	Compare the southern compass rose with the Inuit compass rose.	Create a poster or brochure to caution others about the possible dangers that could arise from the different winds.	Make a video to tell about the critical observations that you need to make when you are out on the land.	Perform a play including a drum dance and ayaya song about the wind.	Select critical wind features to be used in wayfinding.	Reflect on your observations and select the most critical ones you need to make on a daily basis.	Evaluate the value of traditional observations in wayfinding.

WINDS PROJECTS CONTRACT

Name:_____ **Date:**_____

Examine the Project Grid. You may add extra ideas in any category, providing you confer with the teacher first.
Choose projects from a variety of categories.

Knowing and Understanding have a value of 10
Applying and Analyzing have a value of 20
Creating and Evaluating have a value of 30

Projects that total 80 to 100 points add up to a possible	A
Projects that total 70 to 80 points add up to a possible	B
Projects that total 60 to 70 points add up to a possible	C
Projects that total 50 to 60 points add up to a possible	D

Include these project summaries in your final wind portfolio.

Project Name:	**Value:**
1_____	_____
2_____	_____
3_____	_____
4_____	_____
5_____	_____
6_____	_____
7_____	_____
8_____	_____
9_____	_____
10_____	_____

WINDS PROJECT MARK SHEET

Name:_____ **Date:**_____

Name of project:_____

Things the teacher will take into consideration:

Planning
- Evidence of careful planning

Research
- Evidence of careful research
- Evidence of careful referencing of sources

Design
- Evidence of originality and creativity

Quality
- Evidence of good use of equipment and materials
- Evidence of care taken in finishing the project
- Evidence of clear labeling

Presentation
- Evidence of clear written, oral or visual presentation

Rating Scale:
0 - no attempt, absent.
3 - incomplete work, only outline
4 - incomplete work, some details
5 - completed work, minimum details and poor presentation
6 - completed work with minimum of details
7 - completed work with moderate details but poor presentation
8 - completed work with moderate details
9 - completed work with excellent details
10 - completed work with exceptional details

Comments:

Mark:____/10 **Value:** 10 20 30

For value 10 multiply by 1 for Final Mark
For value 20 multiply by 2 for Final Mark
For value 30 multiply by 3 for Final Mark

Final Mark:_____

WINDS PROJECTS SUMMARY

Name:_____ **Date:**_____

Project Name:	**Mark:**
1_____	_____
2_____	_____
3_____	_____
4_____	_____
5_____	_____
6_____	_____
7_____	_____
8_____	_____
9_____	_____
10_____	_____

Final Project Mark: _____

WINDS INTERVIEW COVER SHEET

Name:_____ **Date:**_____

Attach wind interview questions.

Date of interview:_____

Name of interviewer:_____

Name of person interviewed:_____

Other people present:_____

Attach write up of the interview.

Date of report to the class:_____

Rating Scale:
0 – incomplete work, unable to assign any mark
1 – completed work with minimum of details
2 – completed work with moderate details
3 – completed work with exceptional details

Comments:

Mark:_____

WINDS REFLECTION SHEET

Name:_____ **Date:**_____

What were the most interesting things you learned about wind?

What do you want to learn more about?

How have your observation skills changed?

Who in your community could help you learn more about wind?

WINDS PORTFOLIO COVER SHEET

Name:_____ **Date:**_____

Each student is required to make a portfolio of their work.

The following are to be included:

1. Winds Projects Summary Sheet

2. Choose three best or favourite projects

- _____
- _____
- _____

3. Interview sheets

4. Reflection sheet

Comments:

Mark:_____

WINDS EVALUATION STRATEGIES

The following are evaluation strategies that will be helpful for the teacher to determine the student's progress while participating in the Winds activities. These strategies are ongoing throughout the theme and are integrated with the teaching plans. They cover teacher's observations and student's work from a variety of sources that have been collected over the length of the theme. Students are also involved in choosing their work and reflecting on their skills gained.

Presentations in class

Anecdotal observations of class participation

Quizzes and class tests

WINDS RESOURCES

Anijaarniq: Introducing Inuit Landskills and Wayfinding, CD-ROM

When the Weather is Uggianaqtuq: Inuit observations of environmental change. CD-ROM. Shari Fox. Produced at the University of Colorado, Geography - Cartography Lab, 2003.

Internet sites

Environment Canada:
www.msc.ec.gc.ca/education
Select "Weather" for Project Atmosphere Canada: Wind chill, Clouds, Precipitation, Wind.

Select "Climate" for CRYSYS: Snow, Ice, Photo gallery of snow and ice.

Simplified Weather Station Model:
www.kinderscience.com/simplified_weather_station_model.htm

International Cloud Symbols:
www.mightytrees.com/science/teacher/h22.html

Weather symbols:
www.ametsoc.org/dstreme/extras/wxsym2.html

Weather people and history – Beaufort Wind Scale:
www.islandnet.com/~see/weather/history/beauwscl.htm

Books and references

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Cosgrove, Brian. *Weather*. Eyewitness Books. Stoddart Publishing Co. Toronto: Ontario. 1991.

Day, John A. and Schaefer, Vincent J. *Clouds and Weather Peterson First Guides*. Houghton Mifflin Co. 2003.

Dunlop, Storm. *The Weather Identification Book*. The Lyons Press. 2004.

Krupnik, Igor and Jolly, Dyanna. Editors. *The Earth is Faster Now. Indigenous Observations of Arctic Environmental Change*. Arctic Research Consortium of the United States: Fairbanks Alaska. 2002.

MacDonald, John. *Arctic Sky. Inuit Astronomy, Star Lore and Legend*. Royal Ontario Museum/Nunavut Research Institute: Toronto, Ontario. 2000.

Oozeva, Conrad, Noongwook, Chester, Noongwook, George, Alowa, Christina and Krupnik, Igor. *Watching Ice and Weather Our Way*/Aluki, Tapghaghmii, Mangtaaquli, Sunqaanga, Igor Krupnik. Sikumengllu Eslamengllu Esghapalleghput. Edited by Igor Krupnik, Henry Huntington, Christopher Koonooka and George Noongwook. Washington, DC: Arctic Studies Center, Smithsonian Institution. 2004.

Watts, Allan. *Instant Wind Forecasting,* Second Edition, A & C Black: London. 2005.

Watts, Allan. *The Weather Handbook*, Second Edition, Sheridan House Publishing: Dobbs Ferry, NY. 1999.

SNOW & SNOWDRIFTS

LEARNING OUTCOMES

- Students will be able to make observations of the snow and snow drifts.
- Students will be able to connect their observations with the IQ of their elders.
- Students will gain an appreciation of traditional wayfinding skills using snow features.

MAJOR UNDERSTANDINGS

Nunavusiutit

- Inuit have traditional ways to observe snow and snowdrifts
- Inuit have traditional ways to use snowdrifts for wayfinding

Iqqaqqaukkaringniq

- Inuit use observations of snowdrifts for navigation
- Inuit classify snow
- Inuit recognize importance of the correct snow type to use to build an igloo

Uqausiliriniq

- Inuit have many terms for identifying snow and snow formations
- Inuit have songs about snow

Aullaajaaqtut

- Inuit traditionally were encouraged to observe the weather first thing each day
- Inuit were encouraged to observe the snow formations for navigation

SNOW & SNOWDRIFTS COMPETENCIES

NUNAVUSIUTIT

Demonstrating

- Able to recount a traditional story about snow

Practicing

- Able to observe the snow and snowdrifts

SNOW & SNOWDRIFTS COMPETENCIES

IQQAQQAUKKARINGNIQ

Investigating
- Able to investigate snow formations
- Able to gather information from the snow to use to build an igloo
- Able to gather information from snowdrifts to use for wayfinding

Observing
- Able to observe snow drifts
- Able to observe snow

Predicting
- Able to begin to predict direction from snowdrifts
- Able to begin to predict the best snow for building igloos

Classifying/Categorizing
- Able to classify snow and snowdrifts
- Able to classify snow for building igloos
- Able to classify snowdrifts for wayfinding

Relating/Connecting
- Able to relate observations to snow terms

Manipulating
- Able to use foot to determine orientation of uqalurait

Synthesizing/Calculating
- Able to match snow observations
- Able to organize snow terms into a chart

Measuring
- Able to match snowdrift orientation with wind directions

SNOW & SNOWDRIFTS COMPETENCIES

UQAUSILIRINIQ

Listening
- Able to listen to elder's interviews
- Able to listen to elder's stories and instructions
- Able to relate to the new information

Speaking
- Able to ask questions of elders
- Able to share information gathered
- Able to make a presentation

Reading
- Able to read the information in the CD
- Able to read information from class hand-outs

Writing
- Able to write up projects and reports
- Able to write up interviews
- Able to keep a journal
- Able to keep records of observations

Viewing
- Able to gather snow information from the CD
- Able to gather snow information from the elder's field trips
- Able to gather snow information from the internet

Creative
- Able to create questions for an interview
- Able to create a snowdrift chart

SNOW & SNOWDRIFTS COMPETENCIES

AULLAAJAAQTUT

Demonstrating

- Able to find features in the snow
- Able to perform a play, chant or song about snow

Helping and Socializing

- Able to work in a group setting

Reflecting

- Able to choose activities from a variety of categories in the Snow & Snowdrifts Projects Grid
- Able to reflect on choices of work
- Able to choose pieces of work to go in the wind portfolio

SNOW & SNOWDRIFTS COMPETENCIES NUNAVUSIUTIT CHECKLIST

Name: _____

Date: _____

Demonstrating	Needs improvement	Good	Very good	Excellent	Comments
Able to recount a traditional story about the snow					
Practicing					
Able to observe the snow and snowdrifts					

SNOW & SNOWDRIFTS COMPETENCIES IQQAQQAUKKARINGNIQ CHECKLIST

Name: _____

Date: _____

Investigating	Needs improvement	Good	Very good	Excellent	**Comments**
Able to investigate snow formations					
Able to gather information from the snow to use to build an igloo					
Able to gather information from snowdrifts to use for wayfinding					
Observing					
Able to observe snowdrifts					
Able to observe snow					
Predicting					
Able to begin to predict direction from snowdrifts					
Able to begin to predict the best snow for building igloos					
Classifying/Categorizing					
Able to classify snow and snowdrifts					
Able to classify snow for building igloos					
Able to classify snowdrifts for wayfinding					
Relating/Connecting					
Able to relate observations to snow terms					
Manipulating					
Able to use foot to determine orientation of uqalurait					
Synthesizing/Calculating					
Able to match snow observations					
Able to organize snow terms into a chart					
Measuring					
Able to match snowdrift orientation with wind directions					

SNOW & SNOWDRIFTS COMPETENCIES UQAUSILIRINIQ CHECKLIST

Name: _____

Date: _____

Listening	Needs improvement	Good	Very good	Excellent	Comments
Able to listen to elder's interviews					
Able to listen to elder's stories and instructions					
Able to relate to the new information					
Speaking					
Able to ask questions of elders					
Able to share information gathered					
Able to make a presentation					
Reading					
Able to read the information in the CD					
Able to read information from class hand-outs					
Writing					
Able to write up projects and reports					
Able to write up interviews					
Able to keep a journal					
Able to keep records of observations					
Viewing					
Able to gather wind information from the CD					
Able to gather wind information from the elder's field trips					
Able to gather wind information from the internet					
Creative					
Able to create questions for an interview					
Able to create a snowdrift chart					

SNOW & SNOWDRIFTS COMPETENCIES AULLAAJAAQTUT CHECKLIST

Name: _____

Date: _____

Demonstrating	Needs improvement	Good	Very good	Excellent	Comments
Able to find features in the snow					
Able to perform a play, chant or song about snow					
Helping and Socializing					
Able to work in a group setting					
Reflecting					
Able to choose activities from a variety of categories in the Projects Grid					
Able to reflect on choices of work					
Able to choose pieces of work to go in the wind portfolio					

SUGGESTED PLAN OF DAILY ACTIVITIES

Day 1
Introducing snow and snowdrifts

Day 2
Talking about snow and snowdrifts

Day 3
Recognizing snowdrifts

Day 4
How snowdrifts are formed

Day 5
Uqalurait: The snow compass

Day 6
Using uqalurait for wayfinding continued

Day 7
Using uqalurait for wayfinding continued

Day 8
Elder’s interviews

Day 9
Presentation

SNOW & SNOWDRIFTS

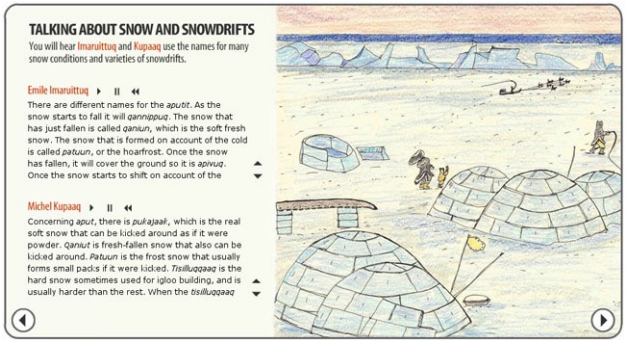
DAY 1

Introducing snow and snowdrifts

Read the introduction.
Brainstorm snow words.
Make a list of these words and include descriptions of each word.
Look up each term in the glossary.

Begin to make a dictionary of snow terms.

DAY 2



Talking about snow and snowdrifts

Listen to Emile Imaruittuq talk about different snow conditions and snow drifts.

List the terms he talks about.
Make a snow scene to illustrate these terms.
Label each term.

Listen to Michel Kupaaq talk about different snow conditions.

Make a list of these terms.
What message does he give about choosing snow to use when making an igloo?
Make a snow scene to illustrate these snow terms.
Label your illustration.

SNOW & SNOWDRIFTS

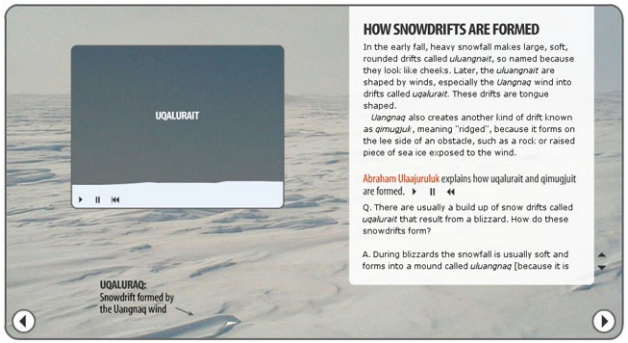
DAY 3

Recognizing snowdrifts

Read the screen.
Invite an elder to take you outside to point out the different snow features and examples of different snow terms.
Write up this interview and add this knowledge to your glossary of snow terms.

Take the digital camera with you to photograph examples of the different snow features.
Make a photographic display and label each feature.

DAY 4



How snowdrifts are formed

Listen to Abraham Ulaajuruluk explain how uqalurait and qimugjuit are formed.
Watch the animation of uqalurait being formed.

Make a series of drawings to illustrate the different drift types.
Make a series of drawings to illustrate the formation of uqalurait.
Label your drawings and mark the winds that helped to form these drifts.

DAY 5

Uqalurait: the snow compass

Listen to Maurice Arnatsiaq explaining the formation of uqalurait and qimugjuit.
Go outside and look for uqalurait and qimugjuit.
Determine where Uangnaq is.
Draw the drifts and mark in the orientation.

Set up an obstacle in the snow.
Observe the snow formation around it as the snow falls and the wind blows.
Document the developments over a period of time.
Date and label your observations.

Make yourself a snow compass.

DAY 6

Using uqalurait for wayfinding

Listen to Aipilik Innuksuk talk about uqalurait.

On a map of the surrounding area, choose important sites.
Imagine that you were at that spot. What would be the orientation of the uqalurait?
Draw them in on the map at that site.

Go outside and take turns pulling each other over uqalurait.
Drag your foot to feel the uqalurait.

DAY 7

Using Uqalurait for wayfinding cont.

Listen to Abraham Ulaajuruluk talk about uqalurait.

What can uqalurait and qimugjuit be used for? Make a poster or pamphlet to tell others of their uses.

Interview another elder on his experiences using snow features to help him find his way on the land.

DAY 8

Elder's interviews

Gather and review the elder's interviews about snow and snowdrifts.
Divide the class into groups. Let each group choose some to listen to and review.
Write up the information you learned from these interviews.
Each group will then present this information to the whole class.

DAY 9

Presentations

Students will take turns presenting their Snow and Snowdrifts projects to the class.

SNOW & SNOWDRIFTS PROJECTS GRID

	LANGUAGE Reading, Writing & Speaking	**MATHS/LOGIC** Science	**VISUAL/SPATIAL** Painting, Drawing & Visualizing	**MOVING/ MAKING** Hands-on	**MUSICAL** Making rhythm & Listening	**SOCIAL** Working with others	**INDIVIDUAL** Working Independently	**NATURE** Observing nature
KNOW	Learn the different terms for snow and snow conditions.	Record snow falls. Record temperature and classify the types of snow.	Collect snow and snowflakes under different conditions. Draw and label them.	Slide or snowboard in different snow conditions. Make a table to describe the best conditions.	Record a snow storm and make a soundscape.	Go on an outing with an elder to observe snow and snow drifts.	Put obstacles - boxes or stones outside. Observe the patterns of snow around them. Draw your findings.	Make a map of the snow formations around your school and settlement.
10 **UNDERSTAND**	Interview an elder about snow and snow formations.	Compare old snow and new snow for shape of crystals, compactness and other characteristics.	Make models of different snow drift types.	Cut snow blocks in different areas. Describe what conditions give the best blocks.	Write a rap/ayaya song to tell about snow and snow conditions.	Send an email to a friend telling about snow conditions in your settlement.	View a video of snow conditions and snow formations and name the various formations.	Observe the snowdrifts around the school. Determine the wind direction that formed them.
APPLY	Make a dictionary of snow terms.	Make a graph showing the temperatures at different depths in the snow – at the surface, and at depths of 20 cm and 80 cm.	Following the Thule way, make a design on a bow drill telling a story about snow formations.	Make snow houses, shelters and sculptures.	Create a jingle to help you remember the snow terms.	On a map of your town, mark on the places where snow should be piled to reduce the drifting on the roads.	Make a map of drift types and the directions their orientation.	On a route map to nearby landmarks, mark on the orientation of the various drifts.
20 **ANALYZE**	Write an article about choosing snow for building an igloo.	Measure snow drifts and determine their orientation.	Make a video that shows the different snow formations and conditions.	Make models of different types of snow formations.	Make a song or chant to go with a game about snow and snowdrifts to be played outside in the snow.	Collect snow around town. Mark the collection spots on the map. Melt the snow and filter it. Check for pollution. Rate the pollution found at each site.	Write a journal entry about your experience in different snow conditions.	Make tea with different types of snow. Compare the results. Rate the snow types according to the amount of water each gives.
CREATE	Create a story about being caught in a blizzard and detail the ways to survive.	Design a grid to compare the different types of snow formations and the conditions necessary to create them.	Design a brochure for tourists to tell about snow terms and Inuit uses of snow.	Create Inuit games that would teach about snow formations.	Create throat singing song to imitate or sing about the snow conditions.	Create a snow boarding or sliding course on a hill.	Create a town plan showing the position of houses and roads that would require the minimum of snow clearing work.	Create a model for a camping or building site. Show wind directions and possible snow drift formations.
30 **EVALUATE**	Write a report about the importance of observing snow conditions and snowdrifts.	Evaluate the changes in snowdrift formation before and after a storm.	Create a collage to represent snow formations.	Perform a dance or play to describe snow conditions and drift formations.	Create a drum dance to tell about snow and snow storms.	On a hamlet map, predict areas where there may be dangers due to slush when the snow is melting.	Choose an area in town or around your house that has drifting in problems. Suggest solutions to this problem.	Evaluate camping and building sites with regard to snowdrift formations.

SNOW & SNOWDRIFTS
PROJECTS CONTRACT

Name:_____ **Date:**_____

Examine the Project Grid. You may add extra ideas in any category, providing you confer with the teacher first.
Choose projects from a variety of categories.

Knowing and Understanding have a value of 10
Applying and Analyzing have a value of 20
Creating and Evaluating have a value of 30

Projects that total 80 to 100 points add up to a possible	A
Projects that total 70 to 80 points add up to a possible	B
Projects that total 60 to 70 points add up to a possible	C
Projects that total 50 to 60 points add up to a possible	D

Include these project summaries in your final wind portfolio.

Project Name:	**Value:**
1_____	_____
2_____	_____
3_____	_____
4_____	_____
5_____	_____
6_____	_____
7_____	_____
8_____	_____
9_____	_____
10_____	_____

SNOW & SNOWDRIFTS
PROJECT MARK SHEET

Name:_____ **Date:**_____

Name of project:_____

Things the teacher will take into consideration:

Planning
- Evidence of careful planning

Research
- Evidence of careful research
- Evidence of careful referencing of sources

Design
- Evidence of originality and creativity

Quality
- Evidence of good use of equipment and materials
- Evidence of care taken in finishing the project
- Evidence of clear labeling

Presentation
- Evidence of clear written, oral or visual presentation

Rating Scale:
0 - no attempt, absent.
3 - incomplete work, only outline
4 - incomplete work, some details
5 - completed work, minimum details and poor presentation
6 - completed work with minimum of details
7 - completed work with moderate details but poor presentation
8 - completed work with moderate details
9 - completed work with excellent details
10 - completed work with exceptional details

Comments:

Mark:____/10 **Value:** 10 20 30

For value 10 multiply by 1 for Final Mark
For value 20 multiply by 2 for Final Mark
For value 30 multiply by 3 for Final Mark

Final Mark:_____

SNOW & SNOWDRIFTS PROJECTS SUMMARY

Name:_____ **Date:**_____

Project Name:	**Mark:**
1_____	_____
2_____	_____
3_____	_____
4_____	_____
5_____	_____
6_____	_____
7_____	_____
8_____	_____
9_____	_____
10_____	_____

Final Project Mark: _____

SNOW & SNOWDRIFTS INTERVIEW COVER SHEET

Name:_____ **Date:**_____

Attach Snow & Snowdrifts interview questions.

Date of interview:_____

Name of interviewer:_____

Name of person interviewed:_____

Other people present:_____

Attach write up of the interview.

Date of report to the class:_____

Rating Scale:
0 – incomplete work, unable to assign any mark
1 – completed work with minimum of details
2 – completed work with moderate details
3 – completed work with exceptional details

Comments:

Mark:_____

SNOW & SNOWDRIFTS REFLECTION SHEET

Name:_____ **Date:**_____

What were the most interesting things you learned about snow and snowdrifts?

What do you want to learn more about?

How have your observation skills changed?

Who in your community could help you learn more about snow and snowdrifts?

SNOW & SNOWDRIFTS PORTFOLIO COVER SHEET

Name:_____ **Date:**_____

Each student is required to make a portfolio of their work.

The following are to be included:

1. Snow & Snowdrifts Projects Summary Sheet

2. Choose three best or favourite projects

- _____
- _____
- _____

3. Interview sheets

4. Reflection sheet

Comments:

Mark:_____

SNOW & SNOWDRIFTS EVALUATION STRATEGIES

The following are evaluation strategies that will be helpful for the teacher to determine the student's progress while participating in the Winds activities. These strategies are ongoing throughout the theme and are integrated with the teaching plans. They cover teacher's observations and student's work from a variety of sources that have been collected over the length of the theme. Students are also involved in choosing their work and reflecting on their skills gained.

Presentations in class

Anecdotal observations of class participation

Quizzes and class tests

SNOW & SNOWDRIFTS RESOURCES

Anijaarniq: Introducing Inuit Landskills and Wayfinding, CD-ROM

When the Weather is Uggianaqtuq: Inuit observations of environmental change. CD-ROM. Shari Fox. Produced at the University of Colorado, Geography - Cartography Lab, 2003.

Internet sites

Environment Canada:
www.msc.ec.gc.ca/education
Select "Weather" for Project Atmosphere Canada: Wind chill, Clouds, Precipitation, Wind.

Select "Climate" for CRYSYS: Snow, Ice, Photo gallery of snow and ice.

Guide to snowflakes and snow crystals:
www.caltech.edu/~atomic/snowcrystals

Photographs of snowflakes and photographing snowflakes:
www.snowflakebently.com/snowflakes

Description of snowdrifts:
www.frozentoes.com/expedition/reports/report32.htm

Snowdrift photographs:
www.fotosearch.com/photos-images/snowdrift_4.html

Books and references

Bennet, John and Rowley, Susan, editors. *Uqalurait – An Oral History of Nunavut*. McGill-Queen's University Press: Montreal, Quebec. 2004.

Cox, John D. *Weather for Dummies*. Hungry Minds, Inc.: New York, NY. 2000.

Cosgrove, Brian. *Weather*, Eyewitness Books. Stoddart Publishing Co.: Toronto, Ontario. 1991.

Day, John A. and Schaefer, Vincent J. *Clouds and Weather Peterson First Guides*. Houghton Mifflin Co. 2003.

Dunlop, Storm. *The Weather Identification Book*. The Lyons Press. 2004.

MacDonald, John. *Arctic Sky: Inuit Astronomy, Star Lore and Legend*. Royal Ontario Museum/Nunavut Research Institute: Toronto, Ontario. 2000.

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Watts, Allan. *Instant Wind Forecasting Second Edition*, A & C Black: London. 2005.

Watts, Allan. *The Weather Handbook.* Second Edition, Sheridan House Publishing: Dobbs Ferry NY. 1999.

STARS

LEARNING OUTCOMES

- Students will be able to make observations of the sky in winter.
- Students will be able to connect their observations with the IQ of their elders.
- Students will gain an appreciation of traditional wayfinding skills using stars.

MAJOR UNDERSTANDINGS

Nunavusiutit

- Inuit have traditional stories about the stars
- Inuit have traditional ways to observe the stars
- Inuit have traditional ways to wayfind using stars

Iqqaqqaukkaringniq

- Inuit use observations of the stars to predict weather
- Inuit use stars for direction

Uqausiliriniq

- Inuit tell stories about the stars
- Inuit have songs and chants about the stars

Aullaajaaqtut

- Inuit traditionally were encouraged to observe the stars each day

STARS COMPETENCIES

NUNAVUSIUTIT

Demonstrating

- Able to recount a traditional story about the stars

Practicing

- Able to observe the stars at night

STARS COMPETENCIES

IQQAQQAUKKARINGNIQ

Investigating
- Able to investigate star positions over time
- Able to gather information to use to make a star map

Observing
- Able to observe star positions
- Able to observe star paths

Predicting
- Able to begin to predict time from star positions
- Able to begin to predict weather from star's appearances

Classifying/Categorizing
- Able to classify different stars using scientific names
- Able to classify different stars using traditional names

Relating/Connecting
- Able to connect the traditional star names with scientific names
- Able to relate observations of stars with traditional stories

Manipulating
- Able to use hands and fingers to measure the positions of stars
- Able to make an instrument to measure altitude of a star

Synthesizing/Calculating
- Able to match star observations with approaching wind
- Able to organize star observations into a chart

Measuring
- Able to do a rough measure of the altitude of stars
- Able to do a rough measure of the distance between stars

STARS COMPETENCIES

UQAUSILIRINIQ

Listening
- Able to listen to elder's interviews
- Able to listen to elder's stories and instructions
- Able to relate to the new information

Speaking
- Able to ask questions of elders
- Able to share information gathered
- Able to make a presentation

Reading
- Able to read the information in the CD
- Able to read information from class hand-outs

Writing
- Able to write up projects and reports
- Able to write up interviews
- Able to keep a journal
- Able to keep records of observations

Viewing
- Able to gather star information from the CD
- Able to gather star information from the elder's field trips
- Able to gather star information from the internet

Creative
- Able to create questions for an interview
- Able to create a northern star chart or map

STARS COMPETENCIES

AULLAAJAAQTUT

Demonstrating
- Able to find important Inuit stars
- Able to make an instrument to measure star altitude
- Able to perform a play, chant or song about stars

Helping and Socializing
- Able to work in a group setting

Reflecting
- Able to choose activities from a variety of categories in the Projects Grid
- Able to reflect on choices of work
- Able to choose pieces of work to go in the wind portfolio

STARS COMPETENCIES NUNAVUSIUTIT CHECKLIST

Name: _____

Date: _____

Demonstrating	Needs improvement	Good	Very good	Excellent	**Comments**
Able to recount a traditional story about the stars					
Practicing					
Able to observe the stars at night					

STARS COMPETENCIES IQQAQQAUKKARINGNIQ CHECKLIST

Name: _____

Date: _____

	Needs improvement	Good	Very good	Excellent	Comments
Investigating					
Able to investigate star positions over time					
Able to gather information to use to make a star map					
Observing					
Able to observe star positions					
Able to observe star paths					
Predicting					
Able to begin to predict time from star positions					
Able to begin to predict weather from star's appearances					
Classifying/Categorizing					
Able to classify different stars using scientific names					
Able to classify different stars using traditional names					
Relating/Connecting					
Able to connect the traditional star names with scientific names					
Able to relate observations of stars with traditional stories					
Manipulating					
Able to use hands and fingers to measure the positions of stars					
Able to make an instrument to measure altitude of a star					
Synthesizing/Calculating					
Able to match star observations with approaching wind					
Able to organize star observations into a chart					
Measuring					
Able to do a rough measure of the altitude of stars					
Able to do a rough measure of the distance between stars					

STARS COMPETENCIES UQAUSILIRINIQ CHECKLIST

Name: _____

Date: _____

Listening	Needs improvement	Good	Very good	Excellent	Comments
Able to listen to elder's interviews					
Able to listen to elder's stories and instructions					
Able to relate to the new information					
Speaking					
Able to ask questions of elders					
Able to share information gathered					
Able to make a presentation					
Reading					
Able to read the information in the CD					
Able to read information from class hand-outs					
Writing					
Able to write up projects and reports					
Able to write up interviews					
Able to keep a journal					
Able to keep records of observations					
Viewing					
Able to gather star information from the CD					
Able to gather star information from the elder's field trips					
Able to gather star information from the internet					
Creative					
Able to create questions for an interview					
Able to create a northern star chart or map					

STARS COMPETENCIES AULLAAJAAQTUT CHECKLIST

Name: _____

Date: _____

Demonstrating	Needs improvement	Good	Very good	Excellent	Comments
Able to find important Inuit stars					
Able to make an instrument to measure star altitude					
Able to perform a play, chant or song about stars					
Helping and Socializing					
Able to work in a group setting					
Reflecting					
Able to choose activities from a variety of categories in the Projects Grid					
Able to reflect on choices of work					
Able to choose pieces of work to go in the wind portfolio					

SUGGESTED PLAN OF DAILY ACTIVITIES

Day 1
Introducing stars

Day 2
The winter sky

Day 3
Nuutuittuq

Day 4
Using stars

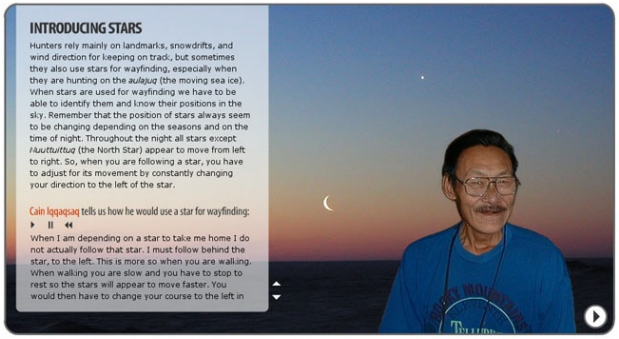
Day 5 and 6
Remembering constellations

Day 7
Elder’s interviews

Day 8
Presentations

STARS

DAY 1



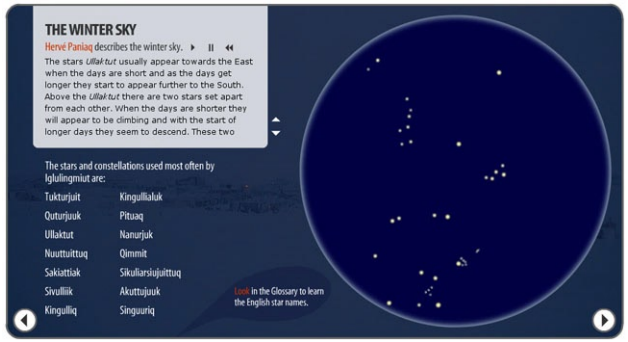
Introducing stars

Listen to Cain Iqqaqsaq telling how he would use stars for wayfinding.
When would he use stars?
Why is it important to be aware of the stars and their movement?

Observe the stars at different times of the night.
What time did you first notice the star?
What did you notice about its position?

Choose a star.
Make a chart showing the star's path across the sky.
Mark in the time of your observations.

DAY 2



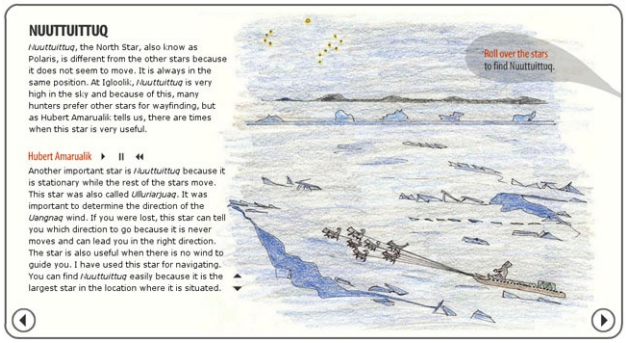
The winter sky

Look at the map of the stars that are important to Iglulingmuit.
Go over each star or group of stars.

Listen to Paniaq describe the night sky.

Make your self a star map.
Put on the star names.
Look in the glossary to find the English names too.

DAY 3

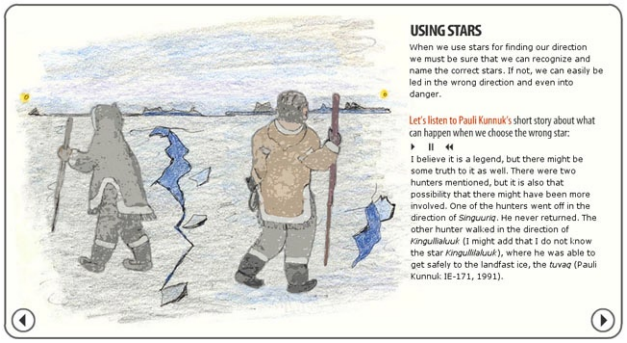


Nuuttuittuq

Listen to Hubert Amarualik talking about Nuuttuittuq.
What is different about this star?
How can it be used?

Interview elders to find out more about the important stars and how they can be used for wayfinding.

DAY 4



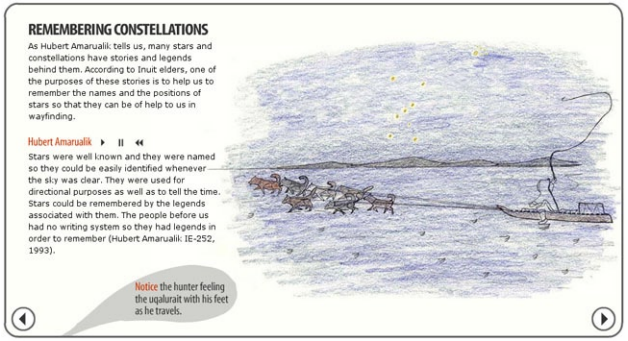
Using stars

Listen to Pauli Kunuk talk about using stars.

What important message did he have for you?
Pick traditional flow edge hunting spots or important landmarks around your settlement.
What would happen to you if you followed Singuuriq instead of Kingullialuuk when you were trying to return home?

Make a poster or pamphlet to tell others of this important message.

DAY 5 and 6

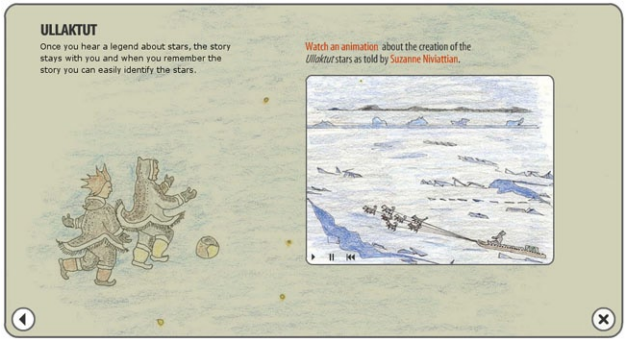


Remembering constellations

Listen to Hubert Amarualik tell of traditional ways to remember the stars.

What star stories do you remember?
List the stories that the class knows.

Click to the next screen, "Ullaktut".



Listen to Suzanne Niviattian tell the story of Ullaktut.

Make a list of important stars in your area.
Choose a star or group of stars.

Interview elders about their stories about the star or group of stars.
Record this and compile this knowledge.

Present your findings to the class.

DAY 7

Elder's interviews

Gather and review the elder's interviews about stars.
Divide the class into groups. Let each group choose some to listen to and review.
Write up the information you learned from these interviews.
Each group will then present this information to the whole class.

DAY 8

Presentations

Students will take turns presenting their Stars projects to the class.

STARS PROJECTS GRID

	LANGUAGE Reading, Writing & Speaking	**MATHS/LOGIC** Science	**VISUAL/SPATIAL** Painting, Drawing & Visualizing	**MOVING/ MAKING** Hands-on	**MUSICAL** Making rhythm & Listening	**SOCIAL** Working with others	**INDIVIDUAL** Working Independently	**NATURE** Observing nature
KNOW	Name the different star groups.	Record the order in which the stars appear each night.	Find examples of stars represented in Inuit art.	Learn Inuit games played traditionally in the dark period.	Learn ayaya songs about stars from elders.	View a video on stars and constellations.	Describe a starry night.	Observe the stars and pick out the common star groups.
10 **UNDERSTAND**	Interview an elder about star legends.	Use a protractor to measure the altitude of a star.	Make a diorama of a star story.	Make an instrument to measure the altitude of a star using a protractor.	Write a rap/ayaya song to tell about the stars.	Interview elders about navigating by the stars in the old days.	Research activities that happened traditionally during the dark period.	Using a clear plastic sheet, track the "movement" of a star over a period of time.
APPLY	Research star stories across the Circumpolar world.	Make a model to demonstrate the earth moving relative to the stars.	Following the Thule way, make a design on a bow drill telling a story about stars.	Make a planetarium. Make a model of a camp and put a starscape overhead using a dome shape.	Create a jingle to help you remember the star groups.	Send an email to a friend telling about the stars and northern lights you have seen recently.	Make a chart showing the Inuit stars and their English equivalents.	Make a map of the stars overhead at a certain time in your community.
20 **ANALYZE**	Compare star stories of your area with that of another area in the arctic.	Compare the different positions of a star or group of stars at different times of night.	Make an animation of a star story.	Using your hands, fingers and outstretched arm, measure the altitude and distance apart of some stars. Record your data.	Compare star songs and chants from different areas in the arctic.	One night, survey a group of people about which stars they can recognize in the sky.	Keep a journal of night sky and star observations.	Make a booklet about which star to use for navigation when you are travelling on moving ice or are at the floe-edge.
CREATE	Create a star story for a child.	Design a grid to show the track of the positions of the different stars across the sky.	Design a cover for a book about the northern sky.	Create Inuit games that could be played in the dark times these days.	Create throat singing to imitate the stars and night sky.	Arrange a star gazing evening for students and elders.	Create a list of stars that belong to a story and those that represent things.	Create a pamphlet or poster to tell others how to use stars to navigate.
30 **EVALUATE**	Write an essay about the consistency or variations in star stories across the arctic.	Evaluate the relationship between stars twinkling and approaching winds.	Create a collage or painting about the arctic sky.	Perform a dance or play to describe the stories in the sky.	Create a drum dance or puppet show to tell a story about stars.	Present a review of the star gazing outing on community radio.	Write an essay about the cautions you need to take when using stars to navigate by.	Design a brochure for tourists about the star groups in your area.

STARS PROJECTS CONTRACT

Name:_____ **Date:**_____

Examine the Project Grid. You may add extra ideas in any category, providing you confer with the teacher first.
Choose projects from a variety of categories.

Knowing and Understanding have a value of 10
Applying and Analyzing have a value of 20
Creating and Evaluating have a value of 30

Projects that total 80 to 100 points add up to a possible	A
Projects that total 70 to 80 points add up to a possible	B
Projects that total 60 to 70 points add up to a possible	C
Projects that total 50 to 60 points add up to a possible	D

Include these project summaries in your final wind portfolio.

Project Name:	**Value:**
1_____	_____
2_____	_____
3_____	_____
4_____	_____
5_____	_____
6_____	_____
7_____	_____
8_____	_____
9_____	_____
10_____	_____

STARS PROJECT MARK SHEET

Name:_____ **Date:**_____

Name of project:_____

Things the teacher will take into consideration:

Planning
- Evidence of careful planning

Research
- Evidence of careful research
- Evidence of careful referencing of sources

Design
- Evidence of originality and creativity

Quality
- Evidence of good use of equipment and materials
- Evidence of care taken in finishing the project
- Evidence of clear labeling

Presentation
- Evidence of clear written, oral or visual presentation

Rating Scale:
0 - no attempt, absent.
3 - incomplete work, only outline
4 - incomplete work, some details
5 - completed work, minimum details and poor presentation
6 - completed work with minimum of details
7 - completed work with moderate details but poor presentation
8 - completed work with moderate details
9 - completed work with excellent details
10 - completed work with exceptional details

Comments:

Mark:____/10 **Value:** 10 20 30

For value 10 multiply by 1 for Final Mark
For value 20 multiply by 2 for Final Mark
For value 30 multiply by 3 for Final Mark

Final Mark:_____

STARS PROJECTS SUMMARY

Name:_____ **Date:**_____

Project Name:	**Mark:**
1_____	_____
2_____	_____
3_____	_____
4_____	_____
5_____	_____
6_____	_____
7_____	_____
8_____	_____
9_____	_____
10_____	_____

Final Project Mark: _____

STARS INTERVIEW COVER SHEET

Name:_____ **Date:**_____

Attach Stars interview questions.

Date of interview:_____

Name of interviewer:_____

Name of person interviewed:_____

Other people present:_____

Attach write up of the interview.

Date of report to the class:_____

Rating Scale:
0 – incomplete work, unable to assign any mark
1 – completed work with minimum of details
2 – completed work with moderate details
3 – completed work with exceptional details

Comments:

Mark:_____

STARS REFLECTION SHEET

Name:_____ **Date:**_____

What were the most interesting things you learned about stars?

What do you want to learn more about?

How have your observation skills changed?

Who in your community could help you learn more about stars?

STARS PORTFOLIO COVER SHEET

Name:_____ **Date:**_____

Each student is required to make a portfolio of their work.

The following are to be included:

1. Stars Projects Summary Sheet

2. Choose three best or favourite projects

- _____
- _____
- _____

3. Interview sheets

4. Reflection sheet

Comments:

Mark:_____

STARS EVALUATION STRATEGIES

The following are evaluation strategies that will be helpful for the teacher to determine the student's progress while participating in the Stars activities. These strategies are ongoing throughout the theme and are integrated with the teaching plans. They cover teacher's observations and student's work from a variety of sources that have been collected over the length of the theme. Students are also involved in choosing their work and reflecting on their skills gained.

Presentations in class

Anecdotal observations of class participation

Quizzes and class tests

STARS RESOURCES

Anijaarniq: Introducing Inuit Landskills and Wayfinding, CD-ROM

Internet sites

www.starmap.causeway.co.uk

Books and references

Bennet, John and Rowley, Susan, editors. *Uqalurait – An Oral History of Nunavut*. McGill-Queen's University Press: Montreal, Quebec. 2004.

Chartrand, Mark R. III, Wimmer, Helmut K. Skyguide. *A Field Guide to the Heavens*. New York, NY: Golden Press, 1982.

Dickinson, Terrence. *Exploring the Night Sky*. Toronto: Camden House, 1990.

Krupnik, Igor and Jolly, Dyanna. Editors. *The Earth is Faster Now. Indigenous Observations of Arctic Environmental Change*. Arctic Research Consortium of the United States: Fairbanks Alaska. 2002.

MacDonald, John. *Arctic Sky. Inuit Astronomy, Star Lore and Legend*. Royal Ontario Museum/Nunavut Research Institute: Toronto, Ontario. 2000.

Mayall, R. Newton, Mayall, Margaret, Wyckoff, Jerome. *The Sky Observers Guide: A Handbook for Amateur Astronomers*. New York, NY: Golden Press, 1985.

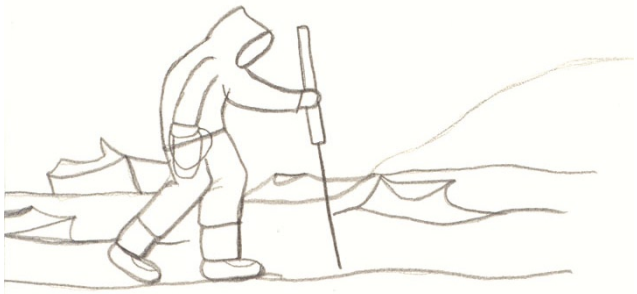
Miller, Dorcas S. *Stars of the First People. Native American Star Myths and Constellations*. Bolder, Colorado: Pruett Publishing Company, 1997.

Ridpath, Ian. *Stars and Planets: The Visual Guide to the Night Sky Viewed from Around the World*. (Eyewitness Books) London, UK: Dorling Kindersley Limited, 1998.

Van Cleave, Janice. *Astronomy for Every Kid*. New York: John Wiley and Sons, Inc., 1990.

Whitney, Charles A. *Whitney's Star Finder. A Field Guide to the Heavens*. (Fifth edition) New York, NY: Alfred A. Knopf, 1989.

SEA ICE



LEARNING OUTCOMES

- Students will be able to make observations of the sea ice.
- Students will be able to connect their observations with the IQ of their elders.
- Students will be able to begin to make ice safety predictions based on the knowledge gained.
- Students will learn the traditional Inuit terms for ice.
- Students will gain an appreciation of traditional wayfinding skills.

MAJOR UNDERSTANDINGS

Nunavusiutit

- Inuit traditionally have extensive ice terms
- Inuit have traditional ways to observe ice
- Inuit have traditional ways to predict safety at the floe-edge and on ice

Iqqaqqaukkaringniq

- Inuit use observations to predict safe situations at the floe-edge
- Inuit classify ice

Uqausiliriniq

- Inuit tell stories about ice and ice conditions
- Inuit have songs about the ice

Aullaajaaqtut

- Inuit traditionally were encouraged to observe weather and ice conditions at the floe-edge

SEA ICE COMPETENCIES

NUNAVUSIUTIT

Demonstrating
- Able to recount a story about sea ice

Practicing
- Able to predict safe and unsafe situations at the floe-edge
- Able to predict safe and unsafe situations on sea ice

SEA ICE COMPETENCIES

IQQAQQAUKKARINGNIQ

Investigating
- Able to investigate ice

Observing
- Able to observe ice formations
- Able to observe floe-edge conditions

Predicting
- Able to begin to predict safe sea ice conditions
- Able to begin to predict safe conditions at the floe-edge

Classifying/Categorizing
- Able to classify sea ice

Relating/Connecting
- Able to relate observations to traditional ice terms

Manipulating
- Able to use a harpoon to test ice safety
- Able to make a model of ice conditions

Synthesizing/Calculating
- Able to organize tidal, wind and moon phases into a floe-edge safety chart

Measuring
- Able to measure safe and unsafe ice

SEA ICE COMPETENCIES

UQAUSILIRINIQ

Listening
- Able to listen to elder's interviews
- Able to listen to elder's stories and instructions
- Able to relate to the new information

Speaking
- Able to ask questions of elders
- Able to share information gathered
- Able to make a presentation

Reading
- Able to read the information in the CD
- Able to read information from class hand-outs

Writing
- Able to write up projects and reports
- Able to write up interviews
- Able to keep a journal
- Able to keep records of observations

Viewing
- Able to gather sea ice information from the CD
- Able to gather sea ice information from the elder's field trips
- Able to gather sea ice information from the internet

Creative
- Able to create questions for an interview
- Able to create a floe-edge safety chart

SEA ICE COMPETENCIES

AULLAAJAAQTUT

Demonstrating
- Able to find features in the sea ice
- Able to perform a play, chant or song about sea ice

Helping and Socializing
- Able to work in a group setting

Reflecting
- Able to choose activities from a variety of categories in the Projects Grid
- Able to reflect on choices of work
- Able to choose pieces of work to go in the sea ice portfolio

SEA ICE COMPETENCIES NUNAVUSIUTIT CHECKLIST

Name: _____

Date: _____

Demonstrating	Needs improvement	Good	Very good	Excellent	Comments
Able to recount a story about sea ice					
Practicing					
Able to predict safe and unsafe situations at the floe-edge					
Able to predict safe and unsafe situations on sea ice					

SEA ICE COMPETENCIES IQQAQQAUKKARINGNIQ CHECKLIST

Name: _____

Date: _____

Investigating	Needs improvement	Good	Very good	Excellent	Comments
Able to investigate ice					
Observing					
Able to observe ice formations					
Able to observe floe-edge conditions					
Predicting					
Able to begin to predict safe sea ice conditions					
Able to begin to predict safe conditions at the floe-edge					
Classifying/Categorizing					
Able to classify sea ice					
Relating/Connecting					
Able to relate observations to traditional ice terms					
Manipulating					
Able to use a harpoon to test ice safety					
Able to make a model of ice conditions					
Synthesizing/Calculating					
Able to organize tidal, wind and moon phases into a floe-edge safety chart					
Measuring					
Able to measure safe and unsafe ice					

SEA ICE COMPETENCIES UQAUSILIRINIQ CHECKLIST

Name: _____

Date: _____

	Needs improvement	Good	Very good	Excellent	Comments
Listening					
Able to listen to elder's interviews					
Able to listen to elder's stories and instructions					
Able to relate to the new information					
Speaking					
Able to ask questions of elders					
Able to share information gathered					
Able to make a presentation					
Reading					
Able to read the information in the CD					
Able to read information from class hand-outs					
Writing					
Able to write up projects and reports					
Able to write up interviews					
Able to keep a journal					
Able to keep records of observations					
Viewing					
Able to gather sea ice information from the CD					
Able to gather sea ice information from the elder's field trips					
Able to gather sea ice information from the internet					
Creative					
Able to create questions for an interview					
Able to create a floe-edge safety chart					

SEA ICE COMPETENCIES AULLAAJAAQTUT CHECKLIST

Name: _____

Date: _____

Demonstrating	Needs improvement	Good	Very good	Excellent	Comments
Able to find features in the sea ice					
Able to perform a play, chant or song about sea ice					
Helping and Socializing					
Able to work in a group setting					
Reflecting					
Able to choose activities from a variety of categories in the Projects Grid					
Able to reflect on choices of work					
Able to choose pieces of work to go in the sea ice portfolio					

SUGGESTED PLAN OF DAILY ACTIVITIES

Day 1
Introducing sea ice

Day 2
Living on the sea ice and Agiuppiniq

Day 3
Living on the sea ice and Agiuppiniq

Day 4
Tuvaq

Day 5
Tuvaq

Day 6
Aulajuq

Day 7
Aulajuq and winds

Day 8
Aulajuq and the floe-edge

Day 9
Aulajuq and the tides

Day 10
Aulajuq and the tides continued

Day 11
Aulajuq and the tides continued

Day 12
Aulajuq and the tides continued

Day 13
Elder’s interviews

Day 14
Presentations

SEA ICE

DAY 1

Introducing sea ice

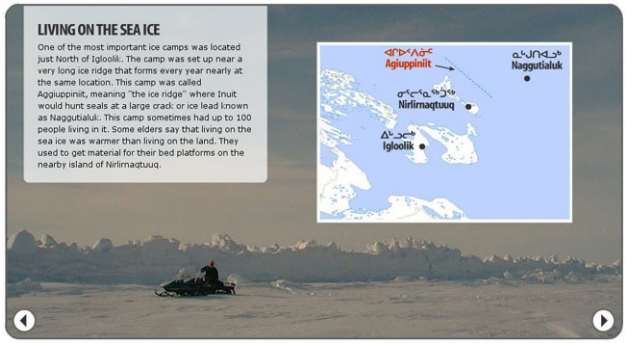
Read the introduction to sea ice.
Talk about the sea ice in the photograph.

Brainstorm what we already know about sea ice, places in our area that are unsafe, and sea ice terms.

On a map of the surrounding area, locate travelling routes to important places that go across sea ice.

Begin to make a dictionary of ice terms and their definitions.

DAY 2



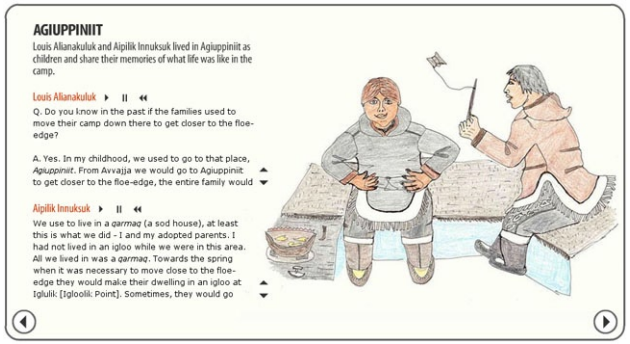
Living on the sea ice and Agiuppiniq

Read the information about living on the sea ice.
Locate where people used to live on the map.
Why did people move there?
What time of the year did they move there?

Listen to Louis Alianakuluk talk about his childhood at Agiuppiniq.
When did he live there?
How did they manage on the ice with no land around?
What was it like to live there?
What games did the children play?

Make a list of games that the children played.
Which of these games do we still play today?
Describe how these games are played.

DAY 3

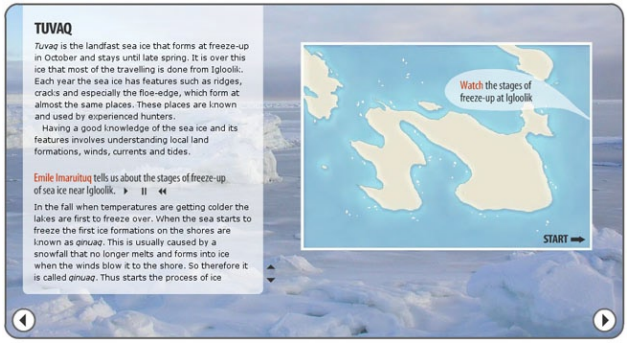


Living on the sea ice and Agiuppiniq

Listen to Aipilik Innuksuk talk about his childhood at Agiuppiniq.
How is it similar to Louis Alianakuluk's description?

Invite an elder in to talk about living on the sea ice.

DAY 4



Tuvaq

Listen to Emile Immaruituq describe the stages of freeze-up.
Watch the animation of freeze-up.
Make a list of ice terms and their descriptions.
List the sequence of events that lead up to ice being formed.
Make drawings to illustrate this and label these.
Make a poster to warn of the dangerous situations on the new sea ice.

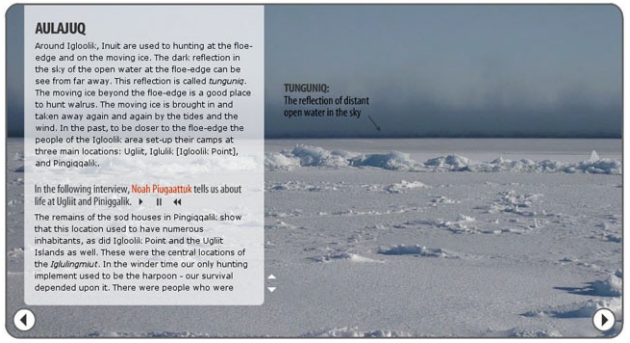
If possible, keep a daily journal of observations documenting freeze-up in your community. Include photographs and descriptions of the process.

DAY 5

Tuvaq map

Listen to Maurice Arnatsiaq talk about Tuvaq.
What message is he giving us?
Make a map of the features and important places on the sea ice.
Explain how to check ice for thickness.
Explain what you must consider before you build an igloo on the sea ice.

DAY 6

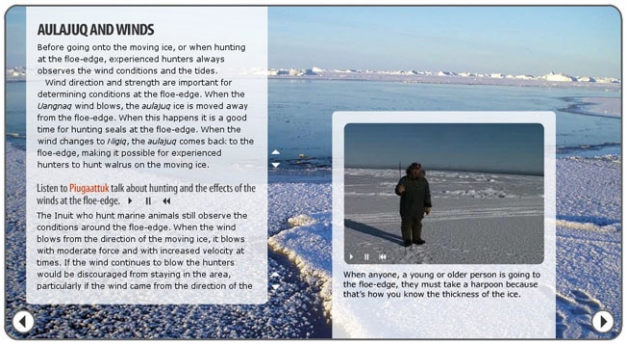


Aulajuq

Look at the photograph on the screen.
What is the Tunguniq?

Read the information. What is Aulajuq?
Listen to Noah Piugaattuk describe life near the floe-edge.
How were the hunting patterns different at the two locations he describes?

DAY 7



Aulajuq and winds

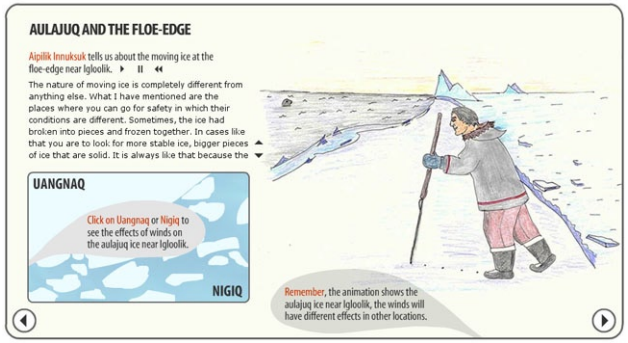
Read the introduction on the screen.
What factors do we need to keep in mind if we are thinking of hunting or going to the floe-edge?
When is it the best time to hunt seals at the floe-edge?
When is it the best time to hunt walrus at the floe-edge?

Listen to Noah Piugattuk talk about Aulajuq and winds.
List the important pieces of information he gives us about the winds and the moving ice.

Watch Maurice Arnatsiaq talk about going to the floe-edge.
List the ice terms he talks about.
Make a diagram about the progression of different ice qualities as you proceed to the floe-edge.
Label the different types of ice.
List the safety situations you need to consider at the floe-edge.

Update your dictionary of ice terms.

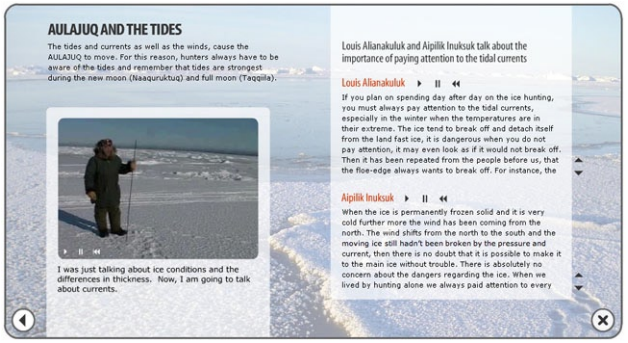
DAY 8



Aulajuq and the floe-edge

Listen to Aipilik Innuksuk talk about the moving ice near the floe-edge.
Explain how the moving ice behaves at the floe-edge.
Make a model to demonstrate this process.
Make an illustration of safe and unsafe situations on moving ice.
Make a diagram to illustrate the effects of Uangnaq and Nigiq on the moving ice at the floe-edge in your area.

DAY 9



Aulajuq and the tides

Listen to Maurice Arnatsiaq talk about the currents, tides and the floe-edge.
What are the messages he is giving us?
How is the floe-edge changing when it is very cold?

Make a chart showing the moon phases for the coming months.
On this chart, mark in the days when the tides and currents will be the strongest.
Mark in the times when the tides and currents will be the weakest.

Make a model to describe how the floe-edge changes with the tides and wind.
Label the ice types and mark in the wind directions.

DAY 10

Aulajuq and the tides cont.

Listen to Louis Alianakuluk talk about paying attention to the ice conditions.
What observations is he telling us to make?

Make a chart showing the ideal conditions for hunting at the floe-edge in your area.
Mark in the moon phase, the wind conditions and the tidal phase.

Look for photographs of floe-edge activities.
Identify the different ice features.
Label these ice features.

DAY 11

Aulajuq and the tides cont.

Listen to Aipilik Innuksuk talk about paying attention to the ice conditions.
What observations is he telling us to make?

Develop a brochure about safety on moving ice.
Develop a brochure about safety at the floe-edge.

DAY 12

Aulajuq and the tides cont.

Invite an elder to come to class to talk about his experiences at the floe-edge.

Write up the important massages you learned.

Look at the glossary of ice terms. Add some to your dictionary.

If possible, arrange for a trip to the floe-edge with an elder. Keep a journal of observations documenting the ice conditions at the floe-edge. Include photographs and descriptions of the ice features. Label all the ice formations you encountered.

DAY 13

Elder's interviews

Gather and review the elder's interviews about sea ice and the floe-edge.
Divide the class into groups. Let each group choose some to listen to and review.
Write up the information you learned from these interviews.
Each group will then present this information to the whole class.

DAY 14

Presentations

Students will take turns presenting their Sea Ice and the Floe-edge projects to the class.

SEA ICE PROJECTS GRID

	LANGUAGE Reading, Writing & Speaking	**MATHS/LOGIC** Science	**VISUAL/SPATIAL** Painting, Drawing & Visualizing	**MOVING/ MAKING** Hands-on	**MUSICAL** Making rhythm & Listening	**SOCIAL** Working with others	**INDIVIDUAL** Working Independently	**NATURE** Observing nature
KNOW 10	Learn the different sea ice terms.	Chart the freeze-up and break-up process.	Collect photographs of sea ice and sea ice formations.	Learn how to use a harpoon to determine the thickness of sea ice.	Record sea ice sounds.	Play games traditionally played while camping on the sea ice.	Keep a journal of freeze-up and break-up.	Map traditional camping sites on the sea ice.
UNDERSTAND	Listen to other elder's interviews or interview an elder or about Ice and the floe-edge.	Explain the change in size of the tunguniq with the distance from the viewer.	Animate the freeze-up process in your area.	Make a model of a traditional camp on the sea ice.	Record songs and chants sung at sea ice camps.	Research the games played while families were camped on the sea ice.	Interview elders about being caught on moving ice.	Make a map of the floe-edge, cracks, and danger spots in your area.
APPLY 20	Make a dictionary of ice terms.	Experiment with freezing sea water and fresh water. Note their properties and write up your observations.	On photographs of floe-edges, identify and label ice formations.	Make a model of the floe-edge showing a variety of ice forms.	Create a jingle to help you remember ice terms.	Organize a games day featuring traditional games.	Contact people in town who keep track of freeze-up each year. With this information, make a chart and indicate the average date of freeze-up.	Make a map of the travelling routes across sea ice.
ANALYZE	Write an article comparing life at the floe-edge today with life in the past.	Contact other settlements and find out the average date of freeze-up. Make a poster to display your data. Make a statement about the variation between settlements.	Make a diagram with labels of ice formations from land fast ice to the floe-edge.	Make a model of the floe-edge showing how the ice changes with the tides, moon phase and wind.	Make a song or chant about caution at the floe-edge.	Survey the class about knowledge of the traditional games played at the sea ice camps.	Write about your experiences on sea ice and at the floe-edge.	Make a brochure about safety on sea ice.
CREATE 30	Create a story for a child about camping on the sea ice in the old days.	Design a chart to indicate the risks for hunting at the floe-edge in the coming winter and spring. Include wind, tide and moon phase information.	Design an illustrated ice dictionary.	Create a puppet play to describe life at the floe-edge in the past.	Create a throat singing song to imitate the freeze-up and break-up.	Create a board game about hunting at the floe-edge.	Imagine you were living in the elder's time, write an email to a friend describing your typical day.	Create a poster about the ideal times for hunting seals and hunting walrus safely.
EVALUATE	Write a report about changes in freeze-up and break-up these days compared to the past.	Contact people in town who keep track of freeze-up each year. Evaluate the data and make a statement about climate changes.	Make a collage illustrating ice formations and processes that lead to dangers found at the floe-edge.	Perform a dance or play to describe life in camps on the sea ice.	Perform a play or drum dance to tell a story about life in camps on the sea ice in the past and the situations today.	Present a review of a trip to the floe-edge on the community radio.	Research camping on the sea ice vs camping on the land. Write up your evaluation.	On a map of the sea near your settlement, evaluate the areas of low to high risk of danger due to ice formations and cracks.

SEA ICE PROJECTS CONTRACT

Name:_____ **Date:**_____

Examine the Project Grid. You may add extra ideas in any category, providing you confer with the teacher first.
Choose projects from a variety of categories.

Knowing and Understanding have a value of 10
Applying and Analyzing have a value of 20
Creating and Evaluating have a value of 30

Projects that total 80 to 100 points add up to a possible	A
Projects that total 70 to 80 points add up to a possible	B
Projects that total 60 to 70 points add up to a possible	C
Projects that total 50 to 60 points add up to a possible	D

Include these project summaries in your final wind portfolio.

Project Name:	**Value:**
1_____	_____
2_____	_____
3_____	_____
4_____	_____
5_____	_____
6_____	_____
7_____	_____
8_____	_____
9_____	_____
10_____	_____

SEA ICE PROJECT MARK SHEET

Name:_____ **Date:**_____

Name of project:_____

Things the teacher will take into consideration:

Planning
- Evidence of careful planning

Research
- Evidence of careful research
- Evidence of careful referencing of sources

Design
- Evidence of originality and creativity

Quality
- Evidence of good use of equipment and materials
- Evidence of care taken in finishing the project
- Evidence of clear labeling

Presentation
- Evidence of clear written, oral or visual presentation

Rating Scale:
0 - no attempt, absent.
3 - incomplete work, only outline
4 - incomplete work, some details
5 - completed work, minimum details and poor presentation
6 - completed work with minimum of details
7 - completed work with moderate details but poor presentation
8 - completed work with moderate details
9 - completed work with excellent details
10 - completed work with exceptional details

Comments:

Mark:____/10 **Value:** 10 20 30

For value 10 multiply by 1 for Final Mark
For value 20 multiply by 2 for Final Mark
For value 30 multiply by 3 for Final Mark

Final Mark:_____

SEA ICE PROJECTS SUMMARY

Name:_____ **Date:**_____

Project Name:	**Mark:**
1_____	_____
2_____	_____
3_____	_____
4_____	_____
5_____	_____
6_____	_____
7_____	_____
8_____	_____
9_____	_____
10_____	_____

Final Project Mark: _____

SEA ICE INTERVIEW COVER SHEET

Name:_____ **Date:**_____

Attach Sea Ice interview questions.

Date of interview:_____

Name of interviewer:_____

Name of person interviewed:_____

Other people present:_____

Attach write up of the interview.

Date of report to the class:_____

Rating Scale:
0 – incomplete work, unable to assign any mark
1 – completed work with minimum of details
2 – completed work with moderate details
3 – completed work with exceptional details

Comments:

Mark:_____

SEA ICE REFLECTION SHEET

Name:_____ **Date:**_____

What were the most interesting things you learned about sea ice and the floe-edge?

What do you want to learn more about?

How have your observation skills changed?

Who in your community could help you learn more about sea ice and the floe-edge?

SEA ICE PORTFOLIO COVER SHEET

Name:_____ **Date:**_____

Each student is required to make a portfolio of their work.

The following are to be included:

1. Sea Ice Projects Summary Sheet

2. Choose three best or favourite projects

- _____
- _____
- _____

3. Interview sheets

4. Reflection sheet

Comments:

Mark:_____

SEA ICE EVALUATION STRATEGIES

The following are evaluation strategies that will be helpful for the teacher to determine the student's progress while participating in the Sea Ice activities. These strategies are ongoing throughout the theme and are integrated with the teaching plans. They cover teacher's observations and student's work from a variety of sources that have been collected over the length of the theme. Students are also involved in choosing their work and reflecting on their skills gained.

Checklist of skills

Presentations in class

Anecdotal observations of class participation

Quizzes and class tests

SEA ICE RESOURCES

Anijaarniq: Introducing Inuit Landskills and Wayfinding, CD-ROM

Internet sites

Environment Canada:
www.msc.ec.gc.ca/education
Select "Weather" for Project Atmosphere Canada: Precipitation, Wind.

Select "Climate" for CRYSYS: Snow, Ice, Photo gallery of snow and ice.

Geophysical aspects of sea-ice nomenclatures
www.gi.alaska.edu/~eicken/he_teach/GOE561icenom/icenom_intro.htm

Photographs and information on sea ice.
www.southport.jpl.nasa.gov/polar/iceinfo.html

Sea Ice Glossary with photographs
www.antcrc.utas.edu.au/aspect/seaiceglossary.html

Books and references

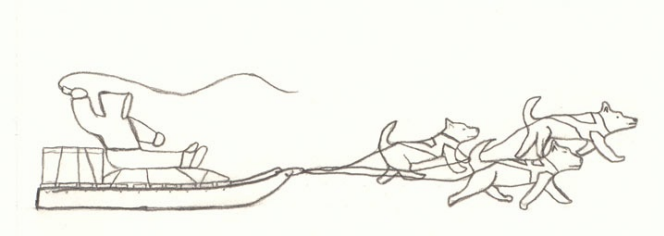
Bennet, John and Rowley, Susan, editors. *Uqalurait – An Oral History of Nunavut*. McGill-Queen's University Press: Montreal, Quebec. 2004.

Krupnik, Igor and Jolly, Dyanna. Editors. *The Earth is Faster Now. Indigenous Observations of Arctic Environmental Change*. Arctic Research Consortium of the United States: Fairbanks Alaska. 2002.

MacDonald, John. *Arctic Sky. Inuit Astronomy, Star Lore and Legend*. Royal Ontario Museum/Nunavut Research Institute: Toronto, Ontario. 2000.

Oozeva, Conrad, Noongwook, Chester, Noongwook, George, Alowa, Christina and Krupnik, Igor. *Watching Ice and Weather Our Way*/Aluki, Tapghaghmii, Mangtaaquli, Sunqaanga, Igor Krupnik. Sikumengllu Eslamengllu Esghapalleghput. Edited by Igor Krupnik, Henry Huntington, Christopher Koonooka and George Noongwook. Washington, DC: Arctic Studies Center, Smithsonian Institution. 2004.

TRAVEL



LEARNING OUTCOMES

- Students will be able to make observations of the land and horizons.
- Students will be able to connect their observations with the IQ of their elders.
- Students will be able to prepare for travelling on the land safely.
- Students will gain an appreciation of traditional wayfinding skills.

MAJOR UNDERSTANDINGS

Nunavusiutit

- Inuit have traditional ways to view the land and horizons
- Inuit have traditional ways to prepare for travelling on the land

Iqqaqqaukkaringniq

- Inuit use observations of landforms and horizons to mark trails
- Inuit classify landforms

Uqausiliriniq

- Inuit tell stories about travelling to places
- Inuit have songs about travelling on the land

Aullaajaaqtut

- Inuit traditionally were encouraged to observe the landforms and horizons while journeying on the land

TRAVEL COMPETENCIES

NUNAVUSIUTIT

Demonstrating

- Able to recount a traditional story about travelling on the land

Practicing

- Able to Anijaarniq - observe the weather first thing each morning

TRAVEL COMPETENCIES

IQQAQQAUKKARINGNIQ

Investigating
- Able to investigate landforms and horizons

Observing
- Able to observe landforms and horizons

Predicting
- Able to begin to predict traditional trails from horizon observations

Classifying/Categorizing
- Able to classify landforms
- Able to categorize safe and unsafe routes

Relating/Connecting
- Able to connect the observations on the land with features on the maps
- Able to relate observations to direction names

Manipulating
- Able to use a map

Synthesizing/Calculating
- Able to match features on the land to features on a map
- Able to organize information to draw a trail on a map

Measuring
- Able to estimate time needed to travel via a certain traditional trail

TRAVEL COMPETENCIES

UQAUSILIRINIQ

Listening
- Able to listen to elder's interviews
- Able to listen to elder's stories and instructions
- Able to relate to the new information

Speaking
- Able to ask questions of elders
- Able to share information gathered
- Able to make a presentation

Reading
- Able to read the information in the CD
- Able to read information from class hand-outs

Writing
- Able to write up projects and reports
- Able to write up interviews
- Able to keep a journal
- Able to keep records of observations

Viewing
- Able to gather travelling and wayfinding information from the CD
- Able to gather travelling and wayfinding information from the elder's field trips

Creative
- Able to create questions for an interview
- Able to create a map of surrounding area

TRAVEL COMPETENCIES

AULLAAJAAQTUT

Demonstrating

- Able to find features on the landscape and horizon
- Able to perform a play, chant or song about travelling
- Able to pack a sled for different types of hunting trips

Helping and Socializing

- Able to work in a group setting

Reflecting

- Able to choose activities from a variety of categories in the Travel Projects Grid
- Able to reflect on choices of work
- Able to choose pieces of work to go in the Travel portfolio

TRAVEL COMPETENCIES NUNAVUSIUTIT CHECKLIST

Name: _____

Date: _____

Demonstrating	Needs improvement	Good	Very good	Excellent	**Comments**
Able to recount a traditional story about travelling on the land					
Practicing					
Able to Anijaarniq - observe the weather first thing each morning					

TRAVEL COMPETENCIES IQQAQQAUKKARINGNIQ CHECKLIST

Name: _____

Date: _____

Investigating	Needs improvement	Good	Very good	Excellent	Comments
Able to investigate landforms and horizons					
Observing					
Able to observe landforms and horizons					
Predicting					
Able to begin to predict traditional trails from horizon observations					
Classifying/Categorizing					
Able to classify landforms					
Able to categorize safe and unsafe routes					
Relating/Connecting					
Able to connect the observations on the land with features on the maps					
Able to relate observations to direction names					
Manipulating					
Able to use a map					
Synthesizing/Calculating					
Able to match features on the land to features on a map					
Able to organize information to draw a trail on a map					
Measuring					
Able to estimate time needed to travel via a certain traditional trail					

TRAVEL COMPETENCIES UQAUSILIRINIQ CHECKLIST

Name: _____

Date: _____

Listening	Needs improvement	Good	Very good	Excellent	Comments
Able to listen to elder's interviews					
Able to listen to elder's stories and instructions					
Able to relate to the new information					
Speaking					
Able to ask questions of elders					
Able to share information gathered					
Able to make a presentation					
Reading					
Able to read the information in the CD					
Able to read information from class hand-outs					
Writing					
Able to write up projects and reports					
Able to write up interviews					
Able to keep a journal					
Able to keep records of observations					
Viewing					
Able to gather travelling and wayfinding information from the CD					
Able to gather travelling and wayfinding information from the elder's field trips					
Creative					
Able to create questions for an interview					
Able to create a map of surrounding area					

TRAVEL COMPETENCIES AULLAAJAAQTUT CHECKLIST

Name: _____

Date: _____

Demonstrating	Needs improvement	Good	Very good	Excellent	Comments
Able to find features on the landscape and horizon					
Able to perform a play, chant or song about travelling					
Able to pack a sled for different types of hunting trips					
Helping and Socializing					
Able to work in a group setting					
Reflecting					
Able to choose activities from a variety of categories in the Projects Grid					
Able to reflect on choices of work					
Able to choose pieces of work to go in the Travel portfolio					

SUGGESTED PLAN OF DAILY ACTIVITIES

Day 1
Introducing travel

Day 2
Preparing for going out

Day 3
Packing a qamutik

Day 4
Place names

Day 5
Learning landmarks

Day 6
Horizons

Day 7
Horizons and maps

Day 8
Place names in the Igloolik area

Day 9
Using trails

Day 10
Remembering trails

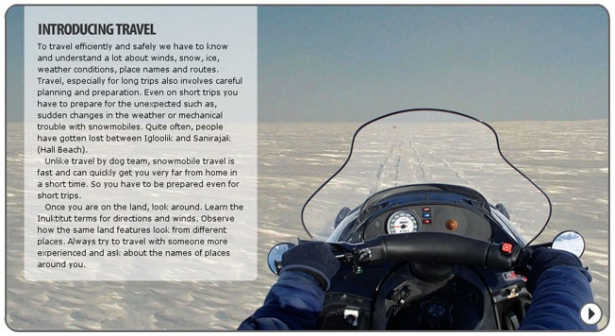
Day 11
Finding your way

Day 12
Elder’s interviews

Day 13
Presentation

TRAVEL

DAY 1



Introducing travel

Look at the introduction.
What cautions are you given about travelling on the land?

Brainstorm what information you will need if you are going on a trip.

Divide into groups. Each group will discuss a question.

What are some problems you might encounter?
How is travelling by dog team different from snowmobile?
What observations will you need to be aware of when you are on the land?
Think of some of the details you learned while working through the Wind, Stars, Snow & Snowdrifts, and Sea Ice sections.

Each group will share their discussions with the group.

Each student will think of a trip on the land they would like to take.

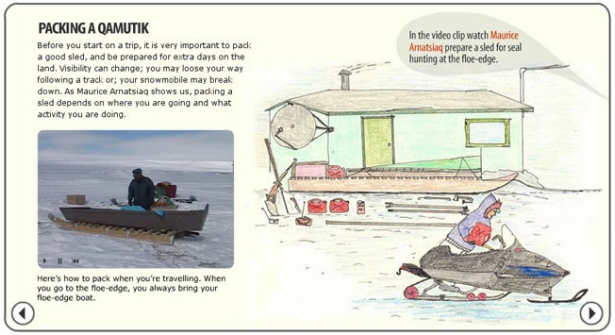
DAY 2

Preparing for going out

Listen to Maurice Arnatsiaq talk about preparing for going out on the land.
What is he cautioning us about?
How did he learn about travelling on the land?
What are some of the important things you need to remember when travelling on the land?

How will you learn about travelling on the land safely?
Write down your plan.

DAY 3



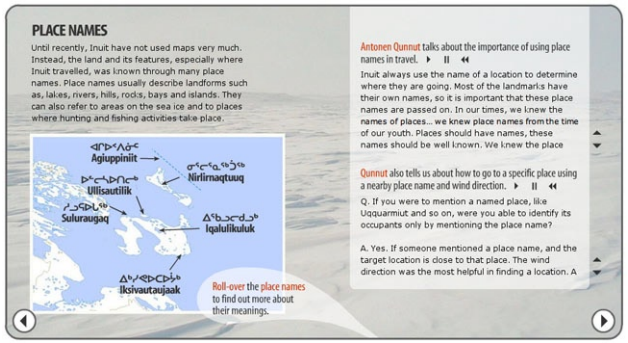
Packing a qamutik

Listen to Maurice Arnatsiaq talk about packing a sled if you were going on a trip to the floe-edge.

Make a list of everything you will need to bring if you are going to the floe-edge.
What would you need to bring if you were going on a fishing trip?
What would you need to bring if you were going on a caribou hunting trip?

Demonstrate the packing of a sled for each type of trip.

DAY 4



Place names

Look at the information on the screen. Roll over the place names on the map.

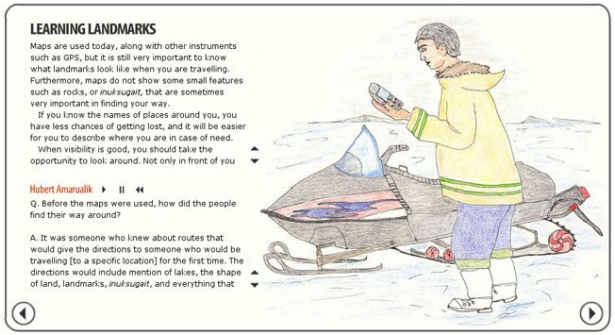
Think of other place names in your area.
Make a list of place names and their meaning.

Listen to Antonen Qunnut talk about using place names in travel.
What is important about knowing place names?

Listen to Antonen Qunnut talk about going to a place using a nearby place name and wind direction.

Using this knowledge and process, give directions to someone to go to a specific place nearby.

DAY 5



Learning landmarks

Read the information on the screen.
Why is it important to learn the names of landmarks in your area?

Listen to Hubert Amarualik talk about finding your way on the land.
How did he learn to find his way?

Practice visualizing routes to a place in town. Take turns giving oral instructions to a classmate to find an object at a certain place. Then have a turn following oral instructions given by someone else.

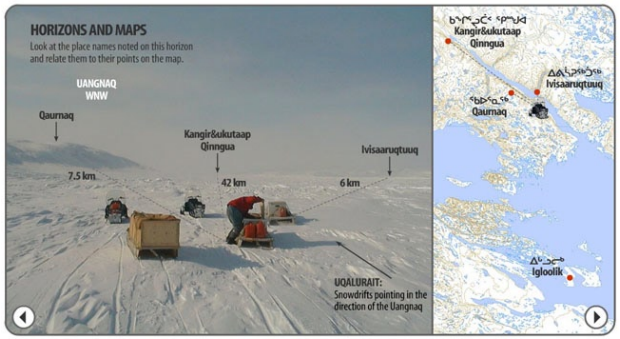
DAY 6

Horizons

Read the screen and then scan the horizon.
Notice all the key landmarks that are named.

Go outside and scan your horizon.
What key landmarks can you see?
Make a sketch of your horizon.
Label all the landmarks you can see.

DAY 7



Horizons and maps

Look at all the details on the horizon of the photograph.
Look at the section from the topographic map of the same area.
Notice how the horizon features can be located on the map.

Look at horizon photographs from your area.
Find the map for this area and locate the horizon features from the photograph on the map.

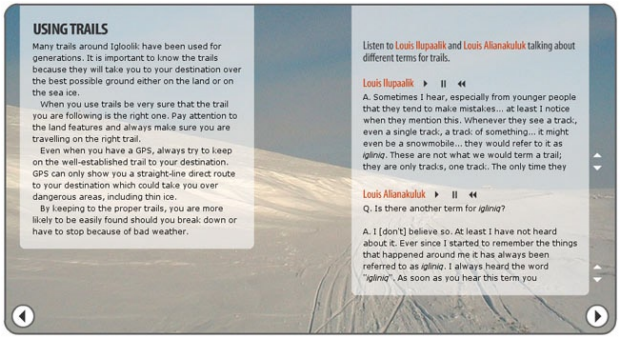
DAY 8

Place names in the Igloolik area

Look at all the place names on Igloolik Island.
Look at the photograph of each place.
List any special features you can notice at each location.

Make an illustrated map of your area.

DAY 9



Using trails

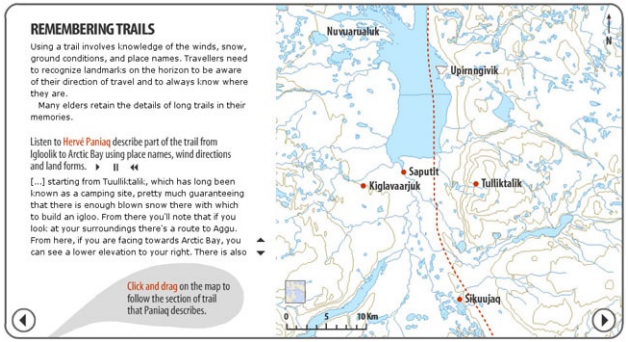
Read the introduction on the screen.
Why is it important to use traditional trails?

Listen to Louis Ilupalik and Louis Alianakuluk talk about trails.

How are tracks and trails different?
Why is it important to use traditional trails?

Research traditional trails to nearby camping, hunting or fishing spots.

DAY 10

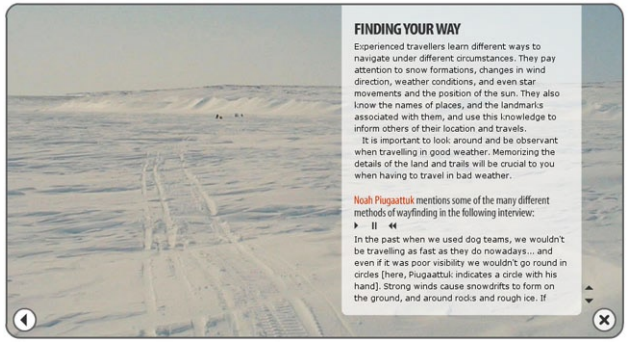


Remembering trails

Listen Hervé Paniaq describe part of the trail to Arctic Bay from Igloolik.
Move the mouse along the trail as he is describing the journey.

List the different features he describes and the different strategies he recommends to follow in order to keep to the trail.

DAY 11



Finding your way

Listen to Noah Piugattuk talk about finding your way.
How is travelling today different from travelling in his day?
What are some of his recommendations for travelling in poor conditions?

Interview elders about travelling to different places in your area.

DAY 12

Elder's interviews

Gather and review the elder's interviews about travelling and wayfinding.
Divide the class into groups. Let each group choose some to listen to and review.
Write up the information you learned from these interviews.
Each group will then present this information to the whole class.

DAY 13

Presentations

Students will take turns presenting their travelling and wayfinding projects to the class.

TRAVEL PROJECTS GRID

	LANGUAGE Reading, Writing & Speaking	**MATHS/LOGIC** Science	**VISUAL/SPATIAL** Painting, Drawing & Visualizing	**MOVING/ MAKING** Hands-on	**MUSICAL** Making rhythm & Listening	**SOCIAL** Working with others	**INDIVIDUAL** Working Independently	**NATURE** Observing nature
KNOW 10	Learn the traditional names of important places in your area.	Graph the number of students who have gone on trips to different fishing and hunting places in your area.	Draw the horizon that you see from your window. Label the features.	Assist in packing a sled for a journey to the floe-edge, fishing or hunting.	Learn a song from elders that was sung while travelling by dog team.	Find out the traditional camping areas of each classmate's family.	Find your area on "Google Earth" computer program and explore the area around your settlement.	Go outside and photograph the horizon in town and around your town.
UNDERSTAND	Interview an elder about what can be found at the important places in your area.	Locate traditional hunting, fishing and camping spots on the maps of your area.	Draw and label equipment you would need to take on a land trip.	Go outside with elders and learn all the important horizon landmarks that you can see from the settlement.	Make a chant or song to help you remember the steps to follow when packing a sled.	List the equipment and supplies you would need for a class fishing trip.	Make a list of things you would need to bring if you were to go on a fishing trip.	Find photographs of important landmarks in your area and label them with the traditional name and brief description.
APPLY 20	Write an article about the importance of learning landmarks along trails when travelling to hunting and fishing places	Measure the distances from town to traditional camping, fishing and hunting areas near your settlement.	Make a poster about being prepared for travelling on the land.	Make a play about a journey on the land to a fishing or hunting place.	Write a rap or ayaya song to help you remember the trail to a favorite hunting or fishing place.	Plan a class trip to a fishing place nearby.	Make yourself a list of the important things to remember about how to store equipment and pack up your sled.	Link the photographs of important places with their position on the map.
ANALYZE	Write comments about the differences between travelling by dog team and snowmobile.	Research different routes to a fishing or hunting place.	From looking at the maps of your area, find the spots where dangers or hazards are found.	Inspect a sled that is being packed to go on a fishing or hunting trip. Report on how well it was packed and if all the necessary equipment was included.	Write a rap or chant to tell of the importance of learning landmarks along trails.	Divide the class into 2 teams. Each team hides a "treasure" on the land nearby. Each team then gives the other team instructions to find the treasure.	Examine the route to the fishing or hunting area you will be going to. Mark areas you need to find more information about. Interview an elder about the route.	Make a poster telling about all the observations you need to be making when travelling along trails.
CREATE 30	Write a book to explain how to make sure you are travelling in the correct direction.	Make a chart showing the time needed to travel the different routes to popular fishing and hunting places.	Design a box or case to keep your equipment in when travelling on the land. Make sure the equipment will be safely stored.	Construct a box or case to keep your equipment in when travelling on the land. Make sure the equipment will be safely stored.	Perform the rap or ayaya song to help you remember the trail to a favorite hunting or fishing place.	Make a board game about travelling to a traditional fishing or camping spot. Include good planning, common mistakes and bad choices.	Design a handy checklist for travelers to help them remember everything necessary for packing on their sled if they are going on a fishing or hunting trip.	Create a map marking the traditional trails to other settlements nearby or traditional hunting and fishing places.
EVALUATE	Ask classmates and community members to direct you to a traditional fishing or camping place. Evaluate the detail and accuracy of their directions.	Rank the safety of the different routes to popular fishing and hunting places in your area.	Compare the various designs for sled boxes for storing equipment. Rate them on their practicality, ease of access to equipment and safe storage.	Go on a class outing on the land. Evaluate the effectiveness of your planning, journey to your destination and ability to follow the traditional trail.	Have a song and chant competition. Choose the best song and chant. Explain your choice.	Play the board game with classmates and students from other classes. Make a statement about what knowledge you think students learned.	Evaluate different proposals for class trips and choose the one you would like to take. Justify your choice.	Make an illustrated brochure telling about the trail to a favorite hunting or fishing spots. Mark danger areas and places where mistakes can be made.

TRAVEL PROJECTS CONTRACT

Name:_____ **Date:**_____

Examine the Project Grid. You may add extra ideas in any category, providing you confer with the teacher first.
Choose projects from a variety of categories.

Knowing and Understanding have a value of 10
Applying and Analyzing have a value of 20
Creating and Evaluating have a value of 30

Projects that total 80 to 100 points add up to a possible	A
Projects that total 70 to 80 points add up to a possible	B
Projects that total 60 to 70 points add up to a possible	C
Projects that total 50 to 60 points add up to a possible	D

Include these project summaries in your final wind portfolio.

Project Name:	**Value:**
1_____	_____
2_____	_____
3_____	_____
4_____	_____
5_____	_____
6_____	_____
7_____	_____
8_____	_____
9_____	_____
10_____	_____

TRAVEL PROJECT MARK SHEET

Name:_____ **Date:**_____

Name of project:_____

Things the teacher will take into consideration:

Planning
- Evidence of careful planning

Research
- Evidence of careful research
- Evidence of careful referencing of sources

Design
- Evidence of originality and creativity

Quality
- Evidence of good use of equipment and materials
- Evidence of care taken in finishing the project
- Evidence of clear labeling

Presentation
- Evidence of clear written, oral or visual presentation

Rating Scale:
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10 - completed work with exceptional details

Comments:

Mark:____/10 **Value:** 10 20 30

For value 10 multiply by 1 for Final Mark
For value 20 multiply by 2 for Final Mark
For value 30 multiply by 3 for Final Mark

Final Mark:_____

TRAVEL PROJECTS SUMMARY

Name:_____ **Date:**_____

Project Name:	**Mark:**
1_____	_____
2_____	_____
3_____	_____
4_____	_____
5_____	_____
6_____	_____
7_____	_____
8_____	_____
9_____	_____
10_____	_____

Final Project Mark: _____

TRAVEL INTERVIEW COVER SHEET

Name:_____ **Date:**_____

Attach Travel interview questions.

Date of interview:_____

Name of interviewer:_____

Name of person interviewed:_____

Other people present:_____

Attach write up of the interview.

Date of report to the class:_____

Rating Scale:
0 – incomplete work, unable to assign any mark
1 – completed work with minimum of details
2 – completed work with moderate details
3 – completed work with exceptional details

Comments:

Mark:_____

TRAVEL REFLECTION SHEET

Name:_____ **Date:**_____

What were the most interesting things you learned about wayfinding and travelling on the land?

What do you want to learn more about?

How have your observation skills changed?

Who in your community could help you learn more about wayfinding and travelling on the land?

TRAVEL PORTFOLIO COVER SHEET

Name:_____ **Date:**_____

Each student is required to make a portfolio of their work.

The following are to be included:

1. Travel Projects Summary Sheet

2. Choose three best or favourite projects

- _____
- _____
- _____

3. Interview sheets

4. Reflection sheet

Comments:

Mark:_____

TRAVEL EVALUATION STRATEGIES

The following are evaluation strategies that will be helpful for the teacher to determine the student's progress while participating in the Travel activities. These strategies are ongoing throughout the theme and are integrated with the teaching plans. They cover teacher's observations and student's work from a variety of sources that have been collected over the length of the theme. Students are also involved in choosing their work and reflecting on their skills gained.

Presentations in class

Anecdotal observations of class participation

Quizzes and class tests

TRAVEL RESOURCES

Anijaarniq: Introducing Inuit Landskills and Wayfinding, CD-ROM

Topographic maps of your area

Internet sites

Google Earth: http://earth.google.com/

Books and references

Bennet, John and Rowley, Susan, editors. *Uqalurait – An Oral History of Nunavut*. McGill-Queen's University Press: Montreal, Quebec. 2004.

Krupnik, Igor and Jolly, Dyanna. Editors. *The Earth is Faster Now. Indigenous Observations of Arctic Environmental Change*. Arctic Research Consortium of the United States: Fairbanks Alaska. 2002.

MacDonald, John. *Arctic Sky: Inuit Astronomy, Star Lore and Legend*. Royal Ontario Museum/Nunavut Research Institute: Toronto, Ontario. 2000.