



**Indigenous Knowledge and
Cultural Weather Perspectives:
Lessons to Support
Science 10**

**by
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S106.3

**Teaching Materials
from the
Stewart Resources
Centre**



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These units were developed by the following team of teachers, Elders, and cultural advisors: Yvonne Chamakese, David Hlady, Anna-Leah King, Duane Johnson, Marcia Klein, Lana Lorensen, Sally Milne, Joseph Naytowhow, Lamarr Oksasikewiyin, Stuart Prosper, Ron Ray, Ted View, John Wright, and Laura Wasacase.

All resources used in these lessons are available through the Stewart Resources Centre:
http://www.stf.sk.ca/services/stewart_resources_centre/online_catalogue_unit_plans/index.html

Information regarding the protocol when inviting Elders into the classroom can be found in the document: *Elders in the Classroom* by Anna-Leah King (see Appendix E). Further information can be found in the Saskatchewan Learning document: *Aboriginal Elders and Community Workers in Schools*.

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Overview

This series of lessons incorporates four of the foundational objectives from the unit entitled Earth and Space Science: Weather Dynamics (WD) in the *Science 10 Curriculum Guide*. These lessons examine cultural perspectives on weather and weather predictions, and are designed to be an introduction to the topic of weather.

Foundational Objectives

WD1 Explore the causes and impact of severe weather in Canada.

WD2 Analyze meteorological data.

WD3 Explain the principles of weather.

WD4 Forecast local weather conditions.

Source: These and other objectives are found in the following document:
Saskatchewan Learning. (2005). *Science 10 curriculum guide*.
Regina: Saskatchewan Learning.

Timeframe

Approximately 4 in-class hours, plus an ongoing journal for 5 days.

Resources

Nelson Science 10 and *Sciencepower 10* can be used as supplemental resources, but are not necessary for these activities.

These titles are available for borrowing from the Stewart Resources Centre of the Saskatchewan Teachers' Federation.



Indigenous Knowledge and Cultural Weather Perspectives

Key Understandings

- Knowing what the weather would bring was important to those who lived off the land, and is important to a variety of people today.
- All cultures had ways of determining what the weather would be prior to technology.
- Weather patterns can be identified using cultural knowledge as well as by using technology.

Essential Questions

1. Why is it important to predict weather?
2. How do we predict weather?
3. How does weather dictate outdoor activities?
4. What is the impact of weather forecasts on various segments of society?
5. What are the essential characteristics of your local weather patterns?

Learning Objectives (LO)

Students will be able to:

- WD1** LO1 Identify and explain those characteristics that distinguish weather from climate.
- WD2** LO6 Analyze meteorological data for a given time span using appropriate methodologies and technologies.
- WD2** LO7 Identify commonly used symbols on meteorological and news weather maps.
- WD3** LO1 Identify weather-related questions that arise from practical problems and one's previous life experiences.
- WD3** LO3 Explore cultural and historical views on origins and interpretations of weather.
- WD4** LO1 Examine the principles of weather prediction and predict local weather conditions, using qualitative and quantitative methods.
- WD4** LO2 Determine the accuracy of local weather predictions for a given period.
- WD4** LO5 Explore various cultural and historical perspectives related to weather forecasting.
- WD4** LO7 Understand the benefits and limitations of technological tools used to predict weather.

Assessment Evidence

1. Performance Task - weather forecasting
2. Weather journal

Notes to the Teacher

Day 1: Introduction

This lesson is an introduction to the weather. Students will learn the basic difference between weather and climate. Students will help derive the need for weather forecasting. Students will learn the historical need for weather prediction. All cultures have developed methods of translating weather. Locally, the First Nations people have passed down this information through oral history. Students will make notes based on the oral history document provided in Appendix A. Students will be given other cultural sayings related to weather. Once they have this background, they are ready to starting conducting their own weather sayings research.

Day 2: Cultural Weather Sayings Research

This lesson directs students to conduct their own weather sayings research. Students are guided to look to their family, friends, or other sources to find out cultural weather sayings. Students will look for specific weather indicators from animals, wind, clouds, and other signs. Students are encouraged to find and to record their own resources.

Day 3: Cultural Weather Sayings Sharing

This lesson is designed to share the students' research. It will allow students to share their sources, their knowledge, and to fill in gaps. After the sharing is done, students will work on a performance task for testing their comprehension of the cultural teachings. Students will complete the five-day scenario, choose an option, and explain their choice based on what cultural saying they used to make their choice. When they are finished, students can work in small groups to compare and to share their choices and reasons.

Day 4: Weather Forecasting Journal

This activity is to be completed as a performance task to show students' understanding and application of cultural sayings. This journal assignment can be completed immediately after the introduction activities or it can wait until students have learned more about modern forecasting techniques. This task takes place over the course of five days as a homework project. It involves the students in weather observation and data collection. Students will collect personal weather data (temperatures, wind, clouds, animals, etc.), as well as the meteorological forecast for the day. Students are encouraged to add in weather observations as the day progresses. They are also required to write a summary at the end of the day, discussing how the predictions worked, missed, and what observations may have been omitted.

Lesson Plans

Day 1 – Introduction

Explain to students that identifying the seasonal cycles and patterns was important to First Nations and Métis peoples. They observed the moon and animal behaviours to determine how much food should be prepared and stored for the winter months. Refining one's sensory perceptions helped to establish a knowledge base of the local environment and to prepare adequately for the weather. Seasonality provided the time framework for communal and personal activities.

Students will make notes on the following terms:

- *Weather* - the day-to-day environmental conditions in a location.
- *Climate* - the weather conditions of an area averaged over many years.

Students will then explore these concepts by discussing the following questions:

1. When you wake up in the morning and you think about going outside, what are you thinking about - weather or climate? How does this affect your day?
2. When you plan what you are going to do during the Easter holiday, are you thinking about weather or climate?
3. If you plan to travel to the mountains during Easter, are you thinking about weather or climate? Would you have the same plans if you stayed at home?
4. List some occupations that are weather dependent and some that are climate dependent.

Students will then make notes on oral history from the information contained in Appendix A. Make special emphasis on the daily weather translations that could be used in the upcoming days.



Day 2 – Cultural Weather Sayings Research

Students will now conduct their own weather research. A day in the library or computer lab is recommended. Students can spend the day finding answers to the guided questions and are encouraged to find new or alternate sources.

After the day of research, students are asked to supplement their information at home. Ask students to share their research with their family and friends, and ask them to share any other information they might have.

See Appendix B for a student worksheet entitled Cultural Weather Research and an answer key containing possible responses to the worksheet questions.

Listed below are some websites that have enough information to provide answers to the student research questions:

- <http://www.cmos.ca/weatherlore.html> (Environment Canada ranked reliable)
- <http://www.dcrafts.com/weathersayings.htm>
- <http://www.metoffice.gov.uk/education/primary/students/sayings.html>



Day 3 – Cultural Weather Sayings Sharing

This day is designed for the students to share their research results. Students will have the opportunity, either in small groups or through a teacher-directed discussion, to share their information and to ask for clarification. When students are satisfied they have a complete weather sayings resource, students can complete the summary activity.

This activity is an opportunity for students to apply the cultural weather sayings they have researched. Students are given possible scenarios for a typical summer situation. Each student is asked to choose a course of action for the upcoming day's activity. He/she must choose and then explain his/her choice, including what cultural knowledge has been used to make the decision. When students have presented their choices individually, they may form small groups to discuss their choices.

See Appendix C for a Weather Forecasting Performance Task student handout and an answer key.

Possible Extension Activities

- *Nelson Science 10: Concepts and Connections* Blackline Master 4.1 “Nature’s Weather Forecasts – or Not?” – 4-4 BLM Chapter 4.
- *Nelson Science 10: Concepts and Connections* Student Record of Learning 4.1 “Forecasting the Weather, Try This Activity” – Forecast Sayings, p. 308.
- *Nelson Science 10: Concepts and Connections* Student Record of Learning 4.1 “Forecasting the Weather, Try This Activity” – Weather Explanations, pp. 309-310.
- *Nelson Science 10: Concepts and Connections* Student Record of Learning 4.1 “Forecasting the Weather” – Questions pp. 311-312.
- *Sciencepower 10* – Guide to the Sky, pp. 490-492.
- *Sciencepower 10* – Play the Part activity, p. 517; Collecting Weather Data, pp. 518-521.
- *Sciencepower 10* – Forecast the Weather, pp. 539-540.
- *Sciencepower 10* – Past, Present and Future, pp. 534-545.



Day 4 – Weather Forecasting Journal

This activity is to be completed as a performance task to show students' understanding and application of cultural sayings. This journal assignment can be completed immediately after the introduction activities or it can wait until students have learned more about modern forecasting techniques. This task takes place over the course of five days as a homework project. It involves the students in weather observation and data collection. Students will collect personal weather data (temperatures, wind, clouds, animals, etc.), as well as the meteorological forecast for the day. Students are encouraged to add in weather observations as the day progresses. They are also required to write a summary at the end of the day, discussing how the predictions worked, missed, and what observations may have been omitted. An appropriate format to be used in the journal each day should be discussed. This will ensure that all the observations and analysis will be completed on a daily basis.

See Appendix D for a Journal Handout, Checklist, Rubric, and possible Journal Format.

Supplemental Resources

- *Nelson Science 10: Concepts and Connections* Student Record of Learning 4.2 “Activity Build a Weather Station” – Observations, pp. 313-314. (Note: This set-up could be useful with the weather journal.)
- *Sciencepower 10* – Chapter 16.



APPENDICES

APPENDIX A

Oral History

Predicting Weather

Weather forecasting is not an exact science.

European Forecasting

European cultures, including Germans, have used animal oracles to predict weather for centuries. Europeans watched many hibernating animals, such as bears, badgers, and hedgehogs, for signs of spring. In Europe, the hedgehog was used to predict the coming of spring. On February 2nd, the hedgehog was brought out of hibernation to predict spring. If the day was cloudy and no shadow was cast by the hedgehog, it meant that spring was coming early. A sunny day on February 2nd meant that the hedgehog saw its own shadow and that there would be six more weeks of winter.

The Europeans brought this type of weather forecasting to North America. The hedgehog was replaced with the groundhog because the groundhog was found in Canada. February 2nd was used because it was halfway between the winter solstice and the summer equinox. In Canada, an albino groundhog named Wiarton Willie is used to predict the coming of spring. The ceremony begins with a foot stomping that transfers vibrations to the earth and awakens the animal. Willie is then brought out of his cage to predict the spring.

Oral History

First Nations and Métis people have been translating weather for their entire existence. They have used the physical factors available to them, such as the moon, animals, and plants, to translate weather. The Cree and Anishinabek Nations identify thirteen moon phases that affect the seasons on Mother Earth. This teaching comes from the back of a turtle because it has thirteen spheres or circles on its shell.

Saskatchewan has five different First Nations who each have a different perspective on the topic of weather. Knowledge about Aboriginal weather translations was the spoken contribution of advisor Anna-Leah King, and elders Stuart Prosper and Yvonne Chamakese, and advisor Ron Ray by interview in Saskatoon on March 16, 2007. Teachers may wish to consult elders from their community to see if these examples apply or if there are other indicators specific to their area.



Tools for Predicting Weather

Indicators of Early Spring

1. Animals:
 - a. Fur – Animals have the ability to change colour to blend into their environments. For example, rabbits change their fur colour to brown before the snow begins to melt (Ron Ray).
 - b. Birds – The returning of birds from the south will indicate that spring is about to arrive (for example, horned larks and crows). Redpoles begin to sing in the trees (Stuart Prosper).
 - c. Skunks – Skunks are one of the first animals to return in the spring. One elder stated “you know spring is here when the skunks are out” (Yvonne Chamakese).

Indicators of the Length of Winter

1. Animals:
 - a. Beehives – Wild beehives are built to a height so that they will not be covered by snowfall. A beehive built high above the ground will indicate above-normal snowfall and most likely slower melting in the spring and a longer spring (Stuart Prosper).
 - b. Beaver food stash – Beavers will store large amounts of food for a long cold winter (Ron Ray).
 - c. Muskrat lodge – Muskrats will build their lodges higher and fuller if they believe it will be a longer winter. A higher lodge will help with ice cover and storage (Stuart Prosper).

Indicators of Storms

1. Trees & Birds:
 - a. Leaves – The leaves on black poplar trees will turn upward to show their shiny side when rain is approaching (Ron Ray).
 - b. Birds – Most birds will disappear when storms are approaching (Stuart Prosper). The common tern, a shore bird similar to a seagull, will make more calls when weather is changing or precipitation is approaching. Their call sounds like a “yeah” as if they are agreeing with something (Stuart Prosper).
 - c. The grey squirrel – Found in coniferous forests, the grey squirrel makes a whistling call when weather is changing or precipitation is approaching. You can hear this rising, whistling call more often with a weather change (Stuart Prosper).
2. Moon:
 - a. Shape – The shape of the moon will predict a storm the next day:
 1. Warning of storm – The moon will appear as a cup where the bottom is full and the top is curved.
 2. Rain or snow – The moon will tilt to give the impression that the cup will spill its contents.
 3. Storm – The moon will appear as an upside down cup. All the contents will appear to be pouring out of the cup.

4. Nice day – A half-moon shape will appear with no curvature present. It does not matter which half of the moon appears (Yvonne Chamakese).

Indicators of Wind

1. Sunset and sunrise:
 - a. Colour – There is an old saying that the colour of the sky will indicate the amount of wind present the next day: red sky at night – sailor’s delight; red sky at morning – sailors take warning. First Nations culture views the red sky in this same context (Yvonne Chamakese).
2. Birds:
 - a. Birds can help determine the direction of the wind. Birds will always face the wind so they are able to escape faster if they are in danger. They will get more lift from the wind if they face the same direction (Stuart Prosper).
3. Direction:
 - a. East – Winds from the east will be interpreted as a storm approaching (Stuart Prosper).
 - b. West – Winds from the west will suggest a change in the weather or sunny weather is approaching (Stuart Prosper).
4. Sundogs:
 - a. A sundog will predict that the weather will be cold and windy. Sundogs also indicate that there is moisture in the air (Stuart Prosper).

Long-Term Weather

1. White buffalo:
 - a. Lakota, Dakota, and Cree people understand the white buffalo as a legend (Anna-Leah King). According to a version of the legend, a white buffalo, disguised as a woman wearing white hides, appeared to two men. One treated her with respect, and the other did not. She turned the disrespectful man into a pile of bones, and gave the respectful man a pipe and taught his people rituals and music. She transformed into a female white buffalo calf and promised to return again.
<http://www.crystalinks.com/prophecyanimals.html>
 - b. The white buffalo is understood to appear on the plains before a major change in the weather patterns of that region. Native American prophecies say that a white buffalo will reunite all races of man and restore balance to the world. <http://www.crystalinks.com/prophecyanimals.html>
 - c. Another story tells of the white buffalo changing to the colours of the medicine wheel. The colours were white (north), red (south), blue (west), and yellow (east). Research suggests a white buffalo appeared in 1933 – this appearance was followed by the Depression. Other white buffalos were born in 2004, 2006, and 2007. Could this suggest that global warming is coming after the white buffalo? (Note: Climate change has affected the weather systems including animal behaviour.)

Summary

There are many connections that can be made between weather translations in oral history and present day methods.



APPENDIX B

Cultural Weather Research

Now it's your turn!

Check with your family, friends, and the internet to see what you can find out about cultural sayings. Use a search for "weather sayings," or follow these links:

<http://www.cmos.ca/weatherlore.html> - Environment Canada

<http://www.dcrafts.com/weathersayings.htm>

<http://www.metoffice.gov.uk/education/primary/students/sayings.html>

Record the addresses of your top three websites here:

1.	
2.	
3.	

Animal behaviour that predicts weather:

Bees:

Cows:

Seagulls:

Other:

Wind that predicts weather:

East:

West:

Fishing:

Other:

Clouds that predict weather:

High clouds:

Tall clouds:

Other:

Other weather predictors:

A person's joint pain:

Chimney smoke:

Storms that come up fast:

Rainbow afternoon:

Dew:

Other:



Cultural Weather Research Answer Key

Animal behaviour that predicts weather:

- Bees: If bees stay at home, rain will soon come;
If they fly away, fine will be the day.
- Cows: Face the wind, cows face away.
A cow's tail to the west is weather coming at its best; a cow's tail to the east is weather coming at its least.
- Seagulls: Seagull, seagull, sit on the sand. It's never good weather while you're on the land.
- Other: Dogs can act up, go calm, or get excited when a storm approaches.
You can tell the temperature by counting a cricket's chirps.
Flies will swarm before a storm.

Wind that predicts weather:

- East: When the wind is in the east, 'tis neither good for man nor beast.
- West: Normal weather. The southeast wind was changing to a westerly so we knew blue skies were on the way and we could dry out the dampness in our gear.
- Fishing: When the wind blows from the west, fish bite best; when it blows from the east, fish bite least.
- Other: North wind means cold coming; south win warm.

Clouds that predict weather:

- High clouds: The higher the clouds, the better the weather.
- Tall clouds: In the morning mountains, in the evening fountains.
When clouds appear like rocks and towers, the earth's refreshed by frequent showers.
- Other: Mackerel sky, not three days dry.
When the stars begin to huddle, the earth will soon become a puddle.
When clouds look like black smoke, a wise man will put on his cloak.

Other weather predictors:

- A person's joint pain: Rain is on the way when people with joint or muscle problems such as rheumatism or arthritis have stiffness and discomfort.
- Chimney smoke: Chimney smoke descends, our nice weather ends.
- Storms that come up fast: Storms that come up fast never last. Rain long foretold, long last; short notice, soon will pass.
- Rainbow afternoon: A rainbow afternoon, good weather coming soon.
- Dew: Dew on the grass, rain won't come to pass. When grass is dry at morning light, look for rain before the night.
- Other: When the ditch and pond offend the nose, then look out for rain and stormy blows.
When a rainstorm is coming, dandelions close their blossoms tightly.

Whether the weather be hot,
Or whether the weather be not,
We'll weather the weather, whatever the weather,
Whether we like it or not!



APPENDIX C

Weather Forecasting Application

You have just started your summer vacation. You are at a Saskatchewan lake with your family and you can't wait to start having fun. Your parents know you have been studying weather in class, so they have asked you to help decide what to do each day, based on your weather predictions. You don't have access to meteorological reports, so you must base your decisions on the culturally-based weather predictors you learned about in class.

Day 1

You wake up early in the morning and notice that there is dew on the grass. Your parents say that means there is lots of moisture in the air and there will be rain. What should you do?

- a. Plan a day of indoor activities.
- b. Plan for a day outdoors.

Explain your choice:

Day 2

You have discovered a beehive near your camp. You go to investigate it again this morning. You see that there is a lot of activity, with bees flying in and out of the hive. You come back to your family and tell them that this indicates:

- a. They should have a good day for outdoor activities.
- b. They should stay indoors today.

Explain your choice:

Day 3

You had a wonderful day yesterday with swimming, hiking, and a campfire at night. At the campfire, you noticed the stars were very clear and bright. You also noticed that the smoke was not rising very quickly from the fire. With these observations, you announce to your family that tomorrow is a good day to:

- a. Spend another day at the beach.
- b. Plan for a day of indoor activities.

Explain your choice:

Day 4

Today you wake up and notice high clouds overhead. You see that the birds on the ground tend to be facing west. It had rained all day yesterday and most of the night. Your parents look at the clouds and say that it is going to be a bad day and we should go for a road trip. You:

- a. Agree another day stuck inside is the only other option.
- b. Say the day will be alright and a good day to go fishing.

Explain your choice:

Day 5

Last night you had another campfire. The wind suddenly started to blow from the east and you saw that the moon had a halo effect around it. You also noticed that the leaves on the trees were turning upside down as you headed to bed. You told your parents that this meant there was going to be rain. They said that it was too bad, for tomorrow was your last day. They said you should all pack up in the morning and head home early. You said:

- a. Yes, we should head home early.
- b. No, this weather would be gone by morning.

Explain your choice:



Weather Forecasting Application Answer Key

Day 1

You wake up early in the morning and notice that there is dew on the grass. Your parents say that means there is lots of moisture in the air and there will be rain. What should you do?

- a. Plan a day of indoor activities.
- b. **Plan for a day outdoors.**

Explain your choice:

Because cultural knowledge says: “Dew on the grass, rain won’t come to pass.”

Day 2

You have discovered a beehive near your camp. You go to investigate it again this morning. You see that there is a lot of activity, with bees flying in and out of the hive. You come back to your family and tell them that this indicates:

- a. **They should have a good day for outdoor activities.**
- b. They should stay indoors today.

Explain your choice:

Because oral history says: “Animals act strange with a weather change.”

Because cultural knowledge says: “If bees stay at home, rain will soon come; If they fly away, fine will be the day.”

Day 3

You had a wonderful day yesterday with swimming, hiking, and a campfire at night. At the campfire, you noticed the stars were very clear and bright. You also noticed that the smoke was not rising very quickly from the fire. With these observations, you announce to your family that tomorrow is a good day to:

- a. Spend another day at the beach.
- b. **Plan for a day of indoor activities.**

Explain your choice:

Because oral history says: “East wind means storm approaching.”

Because cultural knowledge says: “Chimney smoke descends, our nice weather ends.” “When stars shine clear and bright, we will have a very cold night.”

Day 4

Today you wake up and notice high clouds overhead. You see that the birds on the ground tend to be facing west. It had rained all day yesterday and most of the night. Your parents look at the clouds and say that it is going to be a bad day and we should go for a road trip. You:

- a. Agree another day stuck inside is the only other option.
- b. **Say the day will be alright and a good day to go fishing.**

Explain your choice:

Because oral history says: "Birds show wind direction. West wind change in weather and sun approaching."

Because cultural knowledge says: "The higher the clouds, the better the weather." "When the wind blows from the west, fish bite best; when it blows from the east, fish bite least."

Day 5

Last night you had another campfire. The wind suddenly started to blow from the east and you saw that the moon had a halo effect around it. You also noticed that the leaves on the trees were turning upside down as you headed to bed. You told your parents that this meant there was going to be rain. They said that it was too bad, for tomorrow was your last day. They said you should all pack up in the morning and head home early. You said:

- a. Yes, we should head home early.
- b. **No, this weather would be gone by morning.**

Explain your choice:

Because oral history says: "When leaves show their undersides, rain is coming."

Because cultural knowledge says: "A ring around the sun or moon means rain or snow is coming soon." "Storms that come up fast never last."



APPENDIX D

Weather Journal Handout

Your task is to make your own record of the weather for one week. Here is what you need to do:

1. Record weather signs that you notice every day. (Note: Some signs like wind and dew are best observed early - before 8:00 a.m. - or after dark. At these times the effect of the sun's heat is not a factor.)
2. Use your cultural weather predictors to help make a prediction for what to expect for today and tomorrow.
3. If you see other signs during the day, make note of them and any changes in the weather that they could produce.
4. Record the daily forecast from the newspaper, TV, or internet. Include the temperature, wind, precipitation, and cloud/sun.
5. Record the five-day forecast from the newspaper, TV, or internet. Include the temperature, wind, precipitation, and cloud/sun.
6. Make a daily summary of the actual weather events of the day, and how the predictions could have been improved for the future. What signs were missed?
7. This journal must have entries for five days.
8. This journal must include two days in which you took observations throughout the day.



**The journal will be due in one week!
Get started tomorrow!**

Weather Journal Checklist

Criteria	Dates	Task Completed
Record weather signs that you notice every day for five days.		
Use cultural knowledge to make predictions each day.		
Make note of any changes in the weather.		
Record the daily forecast from the newspaper, TV, or internet, including the temperature, wind, precipitation, and cloud/sun.		
Record the five-day forecast from the newspaper, TV, or internet. Include the temperature, wind, precipitation, and cloud/sun.		
Make a daily summary of the actual weather events of the day, and how the predictions could have been improved for the future.		
Two days of observations taken throughout the day.		



Weather Journal Rubric

You will be marked based on the following:

NAME: _____

Category	5	4	3	2	1
Journal days	Five weather days observed.	Four weather days observed.	Three weather days observed.	Two weather days observed.	One weather day observed.
Signs	Recorded more than two weather signs each of the five days.	Recorded more than two signs for at least three days.	Recorded two or more signs for all days.	Recorded one weather sign for each day and two weather signs for three days.	Recorded one weather sign each day.
Use of cultural predictors	A cultural predictor was referenced in the forecast for all days, with multiple predictors used in three or more days.	A cultural predictor was referenced in the forecast for all days, with multiple predictors used in at least two days.	A cultural predictor was referenced in the forecast for four days.	A cultural predictor was referenced in the forecast for three days.	A cultural predictor was referenced in the forecast for two days.
Media forecasts	Reported the daily media weather and long-term forecast for all days.	Reported the daily media weather for all days, with the long-term forecast for at least three days.	Reported the daily media weather for all days.	Reported the daily media weather for at least three days.	Reported the daily media weather for one day.
Summary	There is a report of the actual weather compared to the personal and media forecasts, with suggestions of missed signs or confirmation of correct signs.	There is a report of the actual weather compared to the personal and media forecasts.	There is a report of the actual weather compared to the personal forecast, with suggestions of missed signs or confirmation of correct signs.	There is a report of the actual weather compared to the personal forecast.	There is a report of the actual weather for each day.
Full day of observation	There are two days of all-day observation. (2 marks)	There is one day of all-day observation. (1 mark)			

Weather Journal Format

NAME: _____ Date: _____

Time: _____

Time: _____

Time: _____

Observation 1:

Observation 2:

Observation 3:

Personal Predictions:

The weather today should be:

The reason I predict this is:

Media Predictions:

Today: Temperature high:
 Temperature low:
 Cloud cover:
 Precipitation:
 Other:

Long-term:

	1 Day	2 Days	3 Days	4 Days
Temp high				
Temp low				
Cloud cover				
Precipitation				
Other				

Summary: (Be sure to include: What weather happened today? How did you do? How did the media do? What is correct? What was missed?)

APPENDIX E

Elders in the Classroom

by
Anna-Leah King

It is the Elders' responsibility to guard sacred knowledge and to maintain the ceremonial oral tradition of knowledge transmission. In Saskatchewan, the territory is home to four First Nations, namely Cree, Saulteaux, Dene, and Ojibwe - Dakota/Nakoda/Lakota.

Source: Office of the Treaty Commissioner. (2002). *Teaching treaties in the classroom: Participants manual*. Saskatoon, SK: Office of the Treaty Commissioner.

All of these First Nations have a home here and it is entirely appropriate to represent any or all of these First Nations when approaching curriculum content. The Elders bring with them traditional knowledge and perspective passed down from generation to generation through the oral tradition. The reference to Elders' wisdom has lately been termed "Indigenous knowledge" or "traditional knowledge." Their traditional knowledge and wisdom will give insight to teachers willing to reshape curriculum and validating First Nations content and perspective.

Inviting the Elders

Protocol

The Elders would expect to be approached in the traditional way, respecting traditional protocol. They are given a small offering of tobacco in exchange for their commitment to invest their time and energy into the work at hand. They can be asked to lead the gatherings with prayer and ceremony. First Nations gatherings always begin with prayer and ceremony. It is entirely appropriate to ask this of them. It may not be what you are familiar with, but you will soon realize the benefits of respecting First Nations protocol and ceremonial practice. The Elders may want to begin with a smudge on the first gathering and offer prayer for the task at hand and the team that has been brought together. The Elders are well aware that any given group put together is there to learn from one another and so blessings towards this endeavour are prayed for. Sometimes, depending on the size of the project, a pipe ceremony may be requested. Each Elder may have a slightly different approach to opening and closing ceremony. Some may speak for a while. Others will ask you to share so they can become more familiar with everyone. Simply inviting them with an offering of tobacco and asking that they open and close the gatherings is enough. The Elder will take it from there.

Elder Expectation

When you invite Elders, it is important that you are clear on what you expect from them. If you are asking them to contribute with their knowledge, wisdom, and guidance, then say so. They may not all be familiar with education and what teachers and curriculum writers are trying to do, so explaining what curricula is and what is needed of them is essential to a good working relationship. You want them to contribute First Nations and Métis content and perspective. The Elders need to feel confident that they will be of assistance. Let them know that you see their role as wisdom keepers and they need to draw upon their personal experience, cultural knowledge, and teachings to contribute to the process. The Elders will share what is acceptable and give caution for what they view as sacred knowledge that is only to be shared in the context of ceremony.

Elders need time to think before they answer. Do not be impatient and feel they are not answering soon enough, as they will answer your questions in time. Some Elders are reflective, philosophical thinkers. They will review holistically what you have asked of them. A concept that you think is simple and straightforward has many different dimensions to a First Nations speaker, and they must put the concept into the context of the whole and analyze the dimension of its interrelatedness. Sometimes they translate what you are saying to themselves in their language. They think things out in their mother tongue first and then find the words of closest approximation in English. Not all words and concepts are readily translatable. That is why letting the Elder know what is expected of them beforehand is important because it gives them time to think it over and to find some area of common ground.

Elder Care

Elders do not expect anything but it would be nice to assign one person to see to their needs. Offer them a comfortable seat and debrief them on the expectations for the gathering. Introduce them to everyone and generally make them feel welcome. See to it that they have water, juice, coffee, or tea. It is good to have a snack for them at coffee break. Invite them to pray over the food before you eat. Allow them to be first in line for lunch or let them know you will serve them. This is an example of First Nations protocol. These are small things, but kind gestures go a long way with Elders. They appreciate when younger people make efforts to lighten their load. These gestures make the Elder feel welcome and cared for in a respectful way.

Gifts

It is appropriate to have a small gift for the Elders. If they are paid for their time, this would be considered the gift. Some give a small gift in addition to the honorarium, such as a basket of teas or jams.

- Further information can be found in the document: *Aboriginal Elders and Community Workers in the Classroom*, available from the First Nations and Métis Branch of the Ministry of Education.

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