

Integrating First Nations and Metis Content and Perspective

Grade 2 Science

Earth and Space Science: Air and Water In the Environment

Name of Teacher: Claire Bazylak

Name of School: Stobart Elementary Community School

School Division: Prairie School Division No. 246

Address of School: 616 Front Street Duck Lake SK. S0K 1J0

Rationale:

The goal of this unit is for students to gain a better understanding of air and water and how it plays a major role in our environment. The students will explore air and water through activities, legends and sharing ideas. The goal of this unit is for the students to become aware of how air and water are connected to everything in the environment through the Medicine Wheel and the values taught within the Tipi Teachings.

This unit includes Aboriginal content so Aboriginal students can feel connected to their culture and so Non-Aboriginal students can be exposed to a different culture.

Many of the activities in the unit are taught using Aboriginal Ways of Knowing and Experiential Learning. It is important to use activities where students learn through observation and interactions. This will result in a deeper and more meaningful understanding of air and water and in turn influence their behaviours toward air and water.

Incorporating Medicine Wheel Philosophy

Spiritual

Students will value the importance of air and water in the environment and how it plays an important role in everyday life. The students will understand how air and water are interconnected in the world.

Physical

Students will experience, collect and demonstrate through many activities to enhance their knowledge and understanding of air and water. The activities will influence their daily practices of using air and water and how that affects the environment.

Emotional

Students will analyze their practices and their family's practices towards air and water. The students will develop an understanding of the importance of air and water in relation to Mother Earth, the Medicine Wheel and the values of the Tipi Teachings.

Mental

Students will understand the nature of air and water in the environment. The student will be able to respect and understand how air and water are important to the all living and non-living things.

Curriculum Outcomes

AW2.1 Investigate observable physical properties of air and water (in all three states of matter) within their environment. [SI, TPS]

AW2.2 Assess the importance of air and water for the health and survival of living things, including self, and the environment. [CP, DM]

Important Understanding

All of Creation is the universe (the sun, moon, stars) and Mother Earth. Mother Earth encompasses that physical embodiment of Earth or the land and all it entails. (Trees, plants, rivers, animals and Man). All the elements of Mother Earth and all life forms are believed to have a spirit similar to Man. All life forms depend on the provisions of the Creator; the sun, wind, the water, and food are derived from nature. All life forms are interrelated. The hierarchy of existence on this planet: Creator, Mother Earth, Plants, Animals, Man. Man is totally dependent. Man and Nature are interrelated. Man and all Life in nature are subject to the same environmental conditions. Man and all Life forms depend on Mother Earth for survival. Mother Earth is composed of many things including food, water, shelter, space etc. and these are all arranged to accommodate everything. The Grand Design is such that it accommodates and encompasses everything. The existence of man and all Life forms depends on the quality of Mother Earth. Any change in Mother Earth affects all Life forms. Aboriginal people, traditionally, were conscious as to how their activities would affect all life forms. Aboriginal people studied and know the interactions that took place within Nature. They merged into these interactions with as little disturbance as possible. They knew the impact man's activities had on Nature.

The Sacred Tree (produced collaboratively by Phil Lane & Goodall, 2004)

Wind is important because it cleanses the Earth by breaking up all of the toxins in the air, before any harm can come to Mother Earth. (SR, 2009)

Earth, Water, Air, Sun/Fire and Rocks as Living Factors in an Ecosystem

Many Aboriginal cultures recognize four basic elements which sustain life: air, water, earth, and fire. The ancient Greeks also identified these four basic elements of life. These elements often have a spiritual significance. Each may be represented by a special colour and a particular direction. These vary among different people.

(Miller-Schroeder, 2005)

It is because of the belief of their spiritual significance that the elements are considered living factors. Aboriginal People have ceremonies that celebrate the elements. These celebrations/ceremonies are believed to help with the survival of their nation. For example, the sundance, rairdance and other songs like the 'stone spirit song' were opportunities for First Nations People to communicate with the spirits and ask for guidance and seek prayer.

In this view, there is no distinction between living and non-living (biotic and abiotic) factors in an ecosystem. All four elements and their countless organizations into life forms are part of life. For example, a rock is sometimes thought to be abiotic(non-living). But, as the rock breaks down, particles and minerals are absorbed by plants or animals. The rock becomes part of the plant or animal and contributes to the health and life of the organism.

(Miller-Schroeder, 2005)

The elements

It is good that you never forget about the Creator, Grandfather Moon, who watches over us from above and Mother Earth, who we all survive from. Everyday the Father Sun watches over us as he travels around this earth. The wind also protects us. Everything that is not good is blown away. This is what is going to take us a long ways. A person should not dislike the wind; he is there to protect us, that is his work. Each new day, Father Sun watches over us as we walk along Mother Earth's surface. At night Grandfather Moon comes out, he looks after us the whole night.

Elder Albert Morningchild

(Millar, 2006) taken from Voice of Our Elders Compiled by Marlene Millar

Water

Water is one of the four elements in the medicine wheel. It provides life for all living things. It is life-giving and life-sustaining. Water is therefore an important part of many ceremonies such as sweat lodges.

- The following resources teach about the importance of water for all living things.
 - Kumak's Fish (Bania, 2004)
 - Aboriginal Caretaker of Canada (Hadubiak, 2007)
 - Let's go Fishing (Stewart, 1988)
 - Water (Bruchac, 1988)
 - Spear Fishing With Dad (Adams, Spear Fishing With Dad, 2006)
 - The Fishing Trip (Adams, The Fishing Trip, 2003)
 - Dean's Fish (Adams, Dean's Fish, 2006)
 - Brother Eagle, Sister Sky (Seattle, 1991)
 - A Promise is a Promise (Kusugak R. M., 1988)
 - Wesakejack and the Flood (Ballantyne, 1995)
 - The Bulrush helps the pond (Carriere, 2002)
 - The Beavers Big House (Whitford, 2004)
 - Canada's Animals and their Aboriginal Caretakers p.10 (Hadubiak, Canada's Animals and Their Aboriginal Caretakers)
- Water is life sustaining in many ways. These stories are about how water can be used as a mode for transportation.
 - Aboriginal Caretakers of Canada (Hadubiak, 2007)
 - Wilson's Canoe Ride (Adams, Wilson's Canoe Ride, 2009)
- Water can also be used for pleasure. Many of the following books depict Aboriginal people playing with water.
 - The Water Toys (Adams, The Water Toys, 2003)
 - At the Beach (Adams, At the Beach, 2009)
 - The New Boats (Adams, The New Boats, 2009)
 - The Picnic (Adams, The picnic, 2003)
 - Northern Lights The Soccer Trails (Kusugak, Northern Lights The Soccer Trails, 1993)
- Water can reflect things that we need or want. The following stories deals with reflections.
 - Nanbosho and the Cranberries (McLellan J. &., 1998)
- The following website explains symbolism and meaning of water.
 - http://www.shannonthunderbird.com/symbols_and_meanings.htm accessed on (04/05/11)

Wind

The wind is here to protect us. Things that are not good are blown away. It is important to our lives and needs to be recognized as our protector.

- Wind can cause many events in our environment. The following books deal with the causes and benefits of wind as well as the importance of wind in each season.
 - The Wish Wind (Eyvindson, The Wish Wind, 1987)
 - Brother Eagle, Sister Sky (Seattle, 1991)
 - Wind and Weather p. 67-75 (Bruchac, 1988)
 - Byron and His Balloon (Friends, 1984)
 - How we Saw the World The First Tornado (Taylor, The First Tornado, 1993)
 - The Big Storm (Pelietier, 1992)
 - Giving Thanks (Swamp, 1995)

Outcomes and Indicators

AW2.1 Investigate observable physical properties of air and water (in all three states of matter) within their environment. [SI, TPS]

AW2.2 Assess the importance of air and water for the health and survival of living things, including self, and the environment. [CP, DM]

Materials

- Circle of Life Chart
- Chart paper – one labelled air, one labelled water
- Magazines to cut up
- Exploring and Investigating – chart
- Globe
- Picture book – Brother Eagle, Sister Sky by Susan Jeffers

Background Information

The Circle of Life teachings describe the 4 elements – earth, air, water, fire as part of the physical world we live in. These parts are to be respected for their life giving gifts. Although the focus is on air and water, we will keep in mind the interconnection between the 4 elements.

The book, Brother Eagle, Sister Sky, gives Chief Seattle’s beliefs of our connection to the world. In this picture book, the author gives us Chief Seattle’s message that we do not own the sky, wind, water, or earth. We are a part of the Earth’s family. We must always respect all parts of the Earth because it does not belong to us. We are all connected and whatever we do to the Earth, we do to ourselves. In the end, all that we do will be passed on to the people that come after us (Jeffers, 1991).

Procedures

- Read the picture book Brother Eagle Sister Sky. Discuss what he says about air, water and the Circle of Life.
- Where do we find air and water? Use globe to show how the Earth is more water than land and how the air blankets the Earth.
- Students cut out pictures of air and water from magazines to glue on the charts during sharing circle.
- In a class sharing circle, each student chooses a picture and decides where it goes - air or water chart –, and explains their choice, glues it on the chart.
- Record any questions students may have, and later record on “Exploring and Investigating” chart to be displayed beside the Circle of Life chart.
- Closing - What did we learn about air and water today?

Tipi Teachings Discussions

- Reviewing charts of air and water ask; Do the pictures we chose show respect for air and water?
- Thankfulness – Using the chart pictures give one reason you are thankful for air and water and why?
- Respect – Give one way to show respect for air and water?
- Faith – Air and water are a gift from the Creator.
- Review the Circle of Life connection with air and water. Discuss how air and water are life giving and therefore an important part of our world.

Evaluation

KWL (Know – Want to Know – Learned) sheet – Complete 1 to 2 ideas each about air and water.

Use the “Want to Know” ideas to record on the “Exploring and Investigating” chart

Outcomes and Indicators

AW2.1 Investigate observable physical properties of air and water (in all three states of matter) within their environment. [SI, TPS]

AW2.2 Assess the importance of air and water for the health and survival of living things, including self, and the environment. [CP, DM]

Materials

- Legend about wind ex. *Gluscabi and the Wind Eagle* from *Keepers of the Earth*.
- Balloon one per student
- Pinwheel or anemometer materials for students to build
- Wind chart (optional) or journal

Background Information

Gluscabi and the Wind Eagle – Gluscabi cannot paddle as strong as the wind can blow so he decides to do something about it. When he learns from Grandmother Woodchuck where the Wind Eagle lives, Gluscabi schemes to stop the wind. He tricks the Wind Eagle, but once the wind stops Gluscabi learns that the wind also brings some good things with it that he had not thought about before. Grandmother Woodchuck tells him of the many ways that life would not be good without wind. Gluscabi listens and goes to free the Wind Eagle. He pretends to be someone else the Wind Eagle recognizes him but still he listens to Gluscabi's advice. To day the winds blows sometimes and doesn't blow at other times. (Bruchac, 1989)

Wind is important because it cleanses the Earth by breaking up all of the toxins in the air, before any harm can come to Mother Earth. (SR, 2009)

Procedures

- Go for a walk and observe all the different things the wind moves. Can you see the wind? How do you know there is wind if you can't see it?
- Read an Aboriginal legend that discusses the importance of wind such as; *Gluscabi and the Wind Eagle* from *Keepers of the Earth*.
- Discuss the legend using a +/-/interesting chart on the board about wind (+ the benefits of wind) (- how wind can hurt us?) (interesting - how wind is created from the Aboriginal perspective).
- Making wind with students by blowing a balloon and letting it go. Let them feel the air rushing out of the balloon. Explain that moving air is called wind.
- Tell the students that we are going to make an anemometer or pinwheel to show wind speed (find directions on how to make in science project books and/or internet).
<http://www.leslietryon.com/3dcolorcutout/makepinw/makepinwheel.html>
<http://inventors.about.com/od/lessonplans/ht/anemometer.htm>
- Have the students take their project outside and test the speed of wind, decide if it is calm, breezy or windy.
- Record wind speed for a week using the pinwheels or anemometer for a week – observing if the wind is calm, breezy or windy. (Record on a daily bases on a chart or in journals).

Tipi Teachings Discussions

In a sharing circle, refer back to the Legend and discuss the benefits wind. Relate the benefits in our own lives ex. Using wind to dry clothes and for enjoyment (flying kites). Also discuss the damage wind can cause ex. Tornados and breaking branches etc.

Thankfulness - Why are we thankful for wind?

Humility - Why is the wind important in our lives? How can it affect our lives?

Cleanliness - How does the wind keep clean and/or help the Earth? (Cleans the air of pollution, cleans the oceans, spreads seeds)

Evaluation

Wind log – keep track of the wind speed for a week. In journal/notebook have them find pictures of wind examples and tell how the wind is working and whether it is harmful or helpful.

Outcomes and Indicators (5 Properties of Water)

AW2.1 Investigate observable physical properties of air and water (in all three states of matter) within their environment. [SI, TPS]

AW2.2 Assess the importance of air and water for the health and survival of living things, including self, and the environment. [CP, DM]

Materials

- Chart paper
- Story about the life cycle of a raindrop
 - for example *Birth of a Raindrop* from [Keepers of the Earth](#) (Bruchac, 1989)
- Water cycle chart from science activity books for from webpage
<http://www.teachervision.fen.com/ecosystems/printable/39807.html>
- Making rain activity from science activity book or from webpage
<http://www.weatherwizkids.com/rain2.htm>

Background Information

First Nations cultures have told legends for many of years. Legends may come from different cultures, living in different areas but they share common teachings. First Nations used water for cooking and washings, and as an essential ingredient in remedies and cures. They also used water to manipulate leather, wood, and used water to soften porcupine quills. All First Nations looked upon water as a vital, living element in their environment. Water, as a living entity, occupied an important place in the oral histories and sacred stories of each First Nation. (Minister of Public Works and Government Services Canada, 1999)

Procedures

- Have a discussion around what the student know about water. Record responses on chart paper. Tell student to be aware of how water looks, behaves and how it is used when they are taking part in the activities.
- Review where we find water from the introductory lesson (chart on water) and/or go for a water walk to identify water in the environment.
- Read a story about the life cycle of a raindrop, for example *Birth of a Raindrop* from *Keepers of the Earth*. Have the student close their eyes during the fantasy story and imagine becoming a raindrop. Provide opportunities to discuss what they imagined and ask them to give their own conclusions to the story.
- Create a water cycle chart with students according to the fantasy (or use your own water cycle chart/material). (Extra attention to AW2.1 k)
<http://www.teachervision.fen.com/ecosystems/printable/39807.html>
- Activity – Make clouds and rain. See science activity books or webpage for example. Discuss the properties of the water you have made.
<http://www.weatherwizkids.com/rain2.htm>
Discuss how rainfall is measured and add a rain gauge to the weather chart started in previous lesson to measure rainfall.
- Conclusion – water properties. Discuss what properties we have noticed in water through our activities such as; invisible, takes the shape of the container, smell, and taste. Record these properties on the chart paper from above and have the students compare water properties to air properties.

Tipi Teachings Discussions

In a sharing circle discuss:

Thankfulness – Why are they thankful for water?

Circle of Life connection – discuss the importance of air and water and how we are all interconnected and how we must care for air and water.

Evaluation

In small groups create a web of water properties.

In journals have the students draw a water cycle or they can create a water cycle diorama (Art connection).

In journal have the students draw a diagram of making rain and label the parts.

Extension Activity

Art – rain sticks http://www.exploratorium.edu/frogs/rain_stick/index.html

Art s Ed. – rain making – create a rainstorm using hands or rhythm instruments

Keepers of the Earth – Rain Making page85

<http://www.lessonplanspage.com/MusicDynamicsCreateRainstormIdeaK3.htm>

www.bronxriver.org/puma/images/usersubmitted/file/015_CreateARainstorm.pdf

Outcomes and Indicators

AW2.2 Assess the importance of air and water for the health and survival of living things, including self, and the environment. [CP, DM]

Materials

Stories about the importance of water such as;

Raven Returns the Water by Anne Cameron

Water is a Treasure kit <http://www.ainc-inac.gc.ca/ach/lr/ks/gam/wtr/wtr-eng.asp>

- Maze activity

Background Information

Raven Returns the Water – in this story the water began to disappear. People didn't have enough water for their daily life activities, and animals and plants were dying. Raven goes looking for the water over mountains, plains, prairies and forests. All was dry and the Earth was beginning to die. She finally finds a green valley where she finds Frog who has swallowed all the water. Raven carefully sips water that has dripped from Frog's mouth and wakes up Frog. The Frog and the Raven have an argument over the water. Frog believes that the water is his and Raven says that the water belongs to the world and that nothing can live without the water. Raven cannot reason with him and knows that force will not work with Frog. Raven realizes that Frog needs to learn how to respect the water and that it belongs to everybody. Raven tricks Frog into swallowing a stone that makes Frog's stomach hurt because he has swallowed one thing too many. Raven explains that he must let go of the stone or the water to help his stomach. Frog wants to keep the water but Raven won't help him take out the rock and tells him he is greedy. Raven bargains with Frog that he will not get angry if some of the water spills as she helps him remove rock. She pokes his belly and tells him she needs to do that to find the rock. Water spills out each time she pokes and soon a river begins to flow. Raven finally says she has found the rock and gives a last poke and all the water rushes out through the hole. Frog feels better once the water is released and Raven tells him to remember how he feels now that the water is released. Frog thanks Raven and Raven carries the water back home under her wing. On her way home drops of water fall to fill in all the dry areas. Plant and animals are grateful that Raven has saved the world (Cameron, 1987).

Procedures

- Read a story that discusses the importance of water such as;
Raven Returns the Water by Anne Cameron
- Watch a video like *The Magic School Bus At the Waterworks* to show how water gets to your home.
- Take the students on a trip to the local water treatment plant. Observe how water is treated for safe drinking.
- Maze activity from Water is a Treasure kit – the students will trace a path from the treatment plant to house in a community.
- Conclusion - Discuss the safety of drinking clean water.

Tipi Teachings Discussions

In a sharing circle discuss:

Cleanliness – Why is it important to keep our water clean? What does clean what mean for us?

Good Child Rearing – What have your parents taught you about how to keep the water clean?

Sharing – How do we share the responsibility of keeping the water clean (community)?

Evaluation

- Record students understanding during the sharing circle of how to keep the water clean and why it is important.

- Adams, L. (2009). *At the Beach*. Canada: EagleCrest Books.
- Adams, L. (2006). *Dean's Fish*. Canada: Eaglecrest Books.
- Adams, L. (2006). *Spear Fishing With Dad*. Canada: Eagle Crest Books.
- Adams, L. (2003). *The Fishing Trip*. Canada: Eaglecrest Books.
- Adams, L. (2009). *The New Boats*. Canada: Eaglecrest Books.
- Adams, L. (2003). *The picnic*. Canada: Eaglecrest Books.
- Adams, L. (2003). *The Water Toys*. Canada: Eaglecrest Books.
- Adams, L. (2009). *Wilson's Canoe Ride*. Canada: Eagle Crest books.
- Ballantyne, B. (1995). *Wesakejack and the flood*. Bain and Cox.
- Bania, M. (2004). *Kumak's Fish*. Portland: Alaska Northwest books.
- Bruchac, M. J. (1988). Keepers of the Earth. In M. J. Bruchac, *Keepers of the Earth* (pp. 41-47). Calgary: Fifth House.
- Bruchac, M. J. (1989). *Keepers of the Earth*. Saskatoon: Fifth House Publishers.
- Cameron, A. (1987). *Raven Returns the Water*. Madeira Park: Harbour Publishing Co. Ltd.
- Carriere, K. (2002). *The Bulrush Helps the Pond*. Saskatoon: Gabriel Dumont Institute.
- Dial Books. (1991). *Brother Eagle, Sister Sky A message from Chief Seattle*. New York: Dail Books.
- Eyvindson, P. (1987). *The Wish Wind*. Winnipeg: Pemmican Publications Inc.
- Friends, C. o. (1984). *Byron and his Balloon*. Edmonton: Tree Frog Press.
- Hadubiak, M. (2007). Aboriginal Caretakers of Canada. In M. Hadubiak, *Aboriginal Caretakers of Canada* (pp. 14, 23). SmartStartLearning.com.
- Hadubiak, M. *Canada's Animals and Their Aboriginal Caretakers*. SmartStartLearning.com.
- Indian and Northern Affairs Canada. (2007). *Water is a Treasure*. Retrieved March 25, 2009, from Indian and Northern Affairs Canada: <http://www.ainc-inac.gc.ca>
- Jeffers, S. (1991). *Brother Eagle Sister Sky*. New York: Dail Books.
- Kusugak, M. A. (1993). *Northern Lights The Soccer Trails*. Willowdale: Annick Press Ltd.
- Kusugak, R. M. (1988). *A Promise is a Promise*. Toronto: Annick Press.
- McLellan, J. &. (1998). *Nanabosho and the Cranberries*. Winnipeg: Pewmmican Publications Inc.
- Millar, c. b. (2006). *Voice of the Elders*. Meadow Lake, SK: Meadow Lake Tribal Council.
- Miller-Schroeder, P. (2005). *Boreal Forests*. New York, NY: Weigl Publishers, Inc.
- Minister of Public Works and Government Services Canda. (1999). Unit 3 - Water: Its Many Uses. In r. a. Development, *The learning Circle on First nationsin Canada: ages 8 to 11* (p. 12 and 14). Ottawa: Minister of Public Works and Government Services Canda.

Pelietier, D. W. (1992). *The Big Storm*. Regina: Gabriel Dumont Institute.

produced collaboratively by Phil Lane, J. B., & Goodall, f. b. (2004). *The Sacred Tree*. Lethbridge, AB: Four Worlds International Institute for Human and Community Development.

Seattle, C. (1991). *Brother Earth, Sister Sky*. New York: Dial Books.

SR, H. S. (2009, March 5). (K. S. Michelle Kavanagh, Interviewer)

Stewart, S. (1988). *Let's Go Fishing*. Yellowknife: Northwest Territories Renewable Resources.

Swamp, C. j. (1995). *Giving Thanks: A Native American Good Morning Message*. New York: Reading Rainbow Book.

Taylor, C. (1993). The First Tornado. In C. Taylor, *How We Saw the World* (pp. 24-26). Toronto: Tundra Books.

Whitford, J. P. (2004). *The Beavers Big House*. Saskatoon: The Gabriel Dumont Institute.