



Winter Adaptations

COMPILED BY ALEX KING,
TEACHER IN SD68 AND
WILDBC FACILITATOR

GRADE(S): K-3

CATEGORY: Science, Social Studies,
Language Arts

SETTING:

SUBJECTS:

KEYWORDS:

Overview of unit topic / theme

- Why do we experience winter? (Earth is orbiting the sun. When the Northern hemisphere is tilted away from the sun we experience winter.)
- What are the characteristics of winter? (Leaves off deciduous trees and shrubs, colder temps, shorter days/longer nights).
- How does human behaviour change in winter?
- How do animals survive winter? (Animals must migrate, hibernate, or adapt.)

Rationale for Unit

In this unit students will consider why we experience winter, and then think about how human behaviour changes in the cold, dark season. Students will then research how local animals respond to winter and understand that animals use a variety of strategies to survive.

Resources

- Growing Up Wild; Exploring Nature with Young Children. Project WILD, "What's Wild?" activities
- <http://mrsmyerskindergarten.blogspot.ca/2013/02/animals-in-winter-inquiry-investigation.html>
- <https://greenacorns.wordpress.com/2014/02/03/hibernate-cluster-burrow-freeze-how-animals-survive-winters-chill/>
- *Winter's Coming, Don't You Know?* by Georgian Bay Biosphere Reserve, acquired from Resources for Rethinking <http://resources4rethinking.ca/en/resource/winters-coming-dont-you-know>
- Grade 2/3 summative assessment - Information Quilt activity description: www.litcircles.org/Extension/storyquilt.html
- *The Shortest Day – Celebrating the Winter Solstice*, by Wendy Pfeffer
- *Why do Animals Migrate?* by Bobbie Kalman
- *Animals Migrating - How, When, Where and Why Animals Migrate* by Etta Kaner
- *Bugs and Bugsicles: Insects in the Winter* by Amy S. Hansen and Robert C. Kray
- *Winter Dance* by Marion Dane Bauer
- *Peter and the Winter Sleepers* by Rick de Haas
- *The Snow Knows* by Jennifer McGrath
- *Snow Rabbit, Spring Rabbit, A Book of Changing Seasons* by Il Sung Na

Big Ideas

Big Ideas What students will understand (https://curriculum.gov.bc.ca/curriculum)	Questions to Support Inquiry
Science <ul style="list-style-type: none"> ▪ Daily and seasonal changes affect all living things. (K) ▪ Living things have features and behaviours that help them survive in their environment. (1) ▪ Observable patterns and cycles occur in the local sky and landscape. (1) 	<ul style="list-style-type: none"> ▪ What daily & seasonal changes can you see or feel? ▪ How are plants & animals affected by daily & seasonal changes?
Social Studies <ul style="list-style-type: none"> ▪ Stories and traditions about ourselves and our families reflect who we are and where we are from. (K) ▪ The local environment shapes who we are and how we live. (1) 	<ul style="list-style-type: none"> ▪ What is a winter tradition in your family? ▪ How can we learn from each other?
Language Arts <ul style="list-style-type: none"> ▪ Everyone has a unique story (K – 3) ▪ Language and stories can be a source of creativity and joy (K – 3) ▪ Stories can be told through pictures and words (K/1) ▪ Through listening and speaking, we connect with others and share our world (K – 2) ▪ Curiosity and wonder lead us to new discoveries about ourselves and the world around us. (K – 3) 	

Learning Standards

What curricular connections will be addressed? <https://curriculum.gov.bc.ca/curriculum>

Curricular Competencies	Content
<p>Students are expected to do the following:</p> <p>Science</p> <p>Questioning and predicting</p> <ul style="list-style-type: none"> ▪ Demonstrate curiosity and a sense of wonder about the world ▪ Ask simple questions about familiar objects and events <p>Planning and conducting</p> <ul style="list-style-type: none"> ▪ Make exploratory observations using their senses ▪ Process and analyze data and information ▪ Discuss observations ▪ Represent observations and ideas by drawing ▪ Experience and interpret the local environment <p>Communicating</p> <ul style="list-style-type: none"> ▪ Share observations and ideas orally ▪ Express and reflect on personal experiences of place <p>Social Studies</p> <ul style="list-style-type: none"> ▪ Explain why people, events, or places are significant to various individuals and groups (significance) <p>Language Arts</p> <p>Comprehend and connect</p> <ul style="list-style-type: none"> ▪ Use sources of information and prior knowledge to make meaning ▪ Use age-appropriate reading, listening, and viewing behaviours and strategies to make meaning from texts (through story engagement) ▪ Engage actively as listeners, viewers, and readers, as appropriate, to develop understanding of self, identity, and community ▪ Use personal experience and knowledge to connect to text and make meaning ▪ Recognize the importance of story in personal, family, and community identity (K/1) <p>Create and communicate</p> <ul style="list-style-type: none"> ▪ Exchange ideas and perspectives to build shared understanding ▪ Plan and create a variety of communication forms for different purposes and audiences 	<p>Students are expected to know the following:</p> <p>Science</p> <ul style="list-style-type: none"> ▪ Basic needs of plants and animals (K) ▪ Features of local plants and animals that help them meet their basic needs (K) ▪ Weather/seasonal changes, local patterns of Earth/sky (K - 1) ▪ Changes that living things make to accommodate daily and seasonal cycles (K – 1) ▪ First Peoples knowledge of seasonal changes ▪ Life cycles of different plants/animals (grade 2) ▪ Biodiversity, characteristics of local plants and animals (grade 3) <p>Social Studies</p> <ul style="list-style-type: none"> ▪ Personal and family history and traditions (K) ▪ Key events and developments in the local community, and in local First Peoples communities (celebrations, holidays, cultural events) (Grade 1) ▪ How people’s needs and wants are met in communities (different needs and wants depending on the climate) (Grade 2) <p>Language Arts</p> <p>Strategies and processes</p> <ul style="list-style-type: none"> ▪ Oral language strategies ▪ Metacognitive strategies ▪ Writing processes

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Aboriginal Views and Perspectives/First Peoples Principles of Learning

<https://firstpeoplesprinciplesoflearning.wordpress.com/>

First Principles of Learning

- Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors. (Environmental stewardship/conservation)

Rich Culminating Task

(Summative assessment)

K/1

- Work with small groups and have students make winter scenes with story bowls, or draw an animal in winter and describe its adaptations/behaviour. Photograph and interview students about their thinking/rationale. Learning will be documented throughout the unit with observations and photographs.

Grade 2/3

- Each student chooses one piece of information from their group's research to represent on a quilt square (drawing and writing).
- Teacher tapes pieces together to make a winter quilt that demonstrates the class learning.

Learning Outcomes

Learning Outcomes	Description of Learning / Activities and Strategies	Assessment Method/Tool	Assessment Criteria
<p>Language Arts</p> <p>I can use personal experience and knowledge to connect to text and make meaning.</p>	<ul style="list-style-type: none"> ▪ Show weather forecast, and sunrise/sunset times. ▪ Show toque, jacket, mittens, scarf... compare to summer clothing. ▪ Ask students to think, pair, share, "What does winter feel like, look like, smell like...?"(K/1) "How would you describe winter?"(2/3) ▪ Ask students to think, pair share, "Why do we experience winter?" Think for a minute about why you think the seasons change. Talk to one or two friends near you about your ideas. Teacher scribes ideas on a chart. ▪ Read: <i>The Shortest Day – Celebrating the Winter Solstice</i>, by Wendy Pfeffer. Stop at the demonstration of how the Earth orbits the sun. Demonstrate why we experience winter with Earth Ball (globe beach ball) and lamp. ▪ Have students stand up and demonstrate the path the sun travels in the sky in summer (overhead) versus winter (along the horizon) with their arms. ▪ Add to KWL chart - What is special about winter? (Temperature, hours of daylight, clothing, human behaviour changes, special occasions, less fresh food available.) 	<p>Formative assessment:</p> <ul style="list-style-type: none"> ▪ Compile KWL chart about winter. Include ideas about how we experience the season where we live, and why we experience winter. 	<ul style="list-style-type: none"> ▪ n/a
<p>Language Arts</p> <p>Create and Communicate</p> <p>Social Studies</p> <p>I can explain why events and places are significant to me.</p>	<ul style="list-style-type: none"> ▪ Homework – with help from family, research and present a special winter tradition. 	<ul style="list-style-type: none"> ▪ Students draw a picture of a winter tradition and share a story with the class about it (show and tell). ▪ Write a description of the activity (either a few words or a sentence). 	<ul style="list-style-type: none"> ▪ Oral language strategies – speaking and listening. ▪ Age-appropriate criteria for writing/drawing.
<p>I can compare the needs and behaviour of wild and domestic animals.</p>	<ul style="list-style-type: none"> ▪ Kindergarten – prepare students to think about animal needs, and to compare wild vs. domestic animals with "What is Wild?" activities from Growing Up Wild resource. 	<ul style="list-style-type: none"> ▪ Playful inquiry with pretend animals, felt story "A Day in the Life", class discussions, and drawings. 	<ul style="list-style-type: none"> ▪ Wild animals take care of themselves; humans care for pets.

Learning Outcomes

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<p>(See Science and Language Arts curricular competencies)</p> <p>Critical Thinking</p> <ul style="list-style-type: none"> I can explore new things that I am curious about. I can add things I know to things I am learning about. I can ask questions and gather information about things I am curious about. 	<ul style="list-style-type: none"> Read “<i>Winter’s Coming, A Story of Seasonal Change</i>” by Jan Thornhill Compose KWL chart about animals in winter. Questions: <ul style="list-style-type: none"> “What are some wild animals that live around here?” “What do they do in winter?” “Why do they act differently?” <hr/> <ul style="list-style-type: none"> Watch Brain Pop, Jr. video about winter. Look at non –fiction texts about local animals (ex. beaver, racoon, frog, birds, deer). What could these animals be doing? Model how to use non-fiction text to research, then write information on chart/documentation wall. <hr/> <ul style="list-style-type: none"> Read <i>Why do Animals Migrate?</i> by Bobbie Kalman and/or <i>Animals Migrating - How, When, Where and Why Animals Migrate</i> by Etta Kaner Model how to use non-fiction text to research, then write information on chart/documentation wall. <hr/> <ul style="list-style-type: none"> Read sections of <i>Bugs and Bugsicles: Insects in the Winter</i> by Amy S. Hansen and Robert C. Kray. Talk about insects in winter. What do bugs eat? (Pollen, nectar, plants, and other bugs.) Since their food isn’t available they must adapt - lay eggs that will overwinter, or hide where they won’t freeze. Monarch butterflies migrate incredible distances. Add information to chart/documentation wall. 	<ul style="list-style-type: none"> KWL chart, to be revised and edited as understanding develops 	<ul style="list-style-type: none"> Oral language strategies – speaking and listening. Contribute new ideas or agree with ideas of others.
<p>I can draw a local wild animal and describe hwo its behaviour changes in winter.</p>	<ul style="list-style-type: none"> As a class, on chalkboards or whiteboards, practice directed drawing the animals that you’re researching. Students draw a picture of their animal and write a word or sentence beneath it to describe what it does in winter. 	<ul style="list-style-type: none"> Formative assessment to evaluate where children are in their understanding of the unit goals. 	<ul style="list-style-type: none"> Show behaviour change (migrate, hibernate, adapt)

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	<ul style="list-style-type: none"> ▪ Go on a walking field trip and describe the environment (less food, colder temps, long shadows because sun is at an angle to the Earth, fewer birds and bugs). ▪ Outdoor Activity - Winter's Coming, Don't You Know? from http://resources4rethinking.ca/en/resource/winters-coming-dont-you-know <ul style="list-style-type: none"> ▪ Hibernate – Invite students to nestle down into (pre-raked) piles of leaves like squirrels or frogs. ▪ Adapt – Prepare a “blubber mitten” of 2 zip-loc bags with lard between the layers, and a bowl of ice water. Invite students to put the mitten on one hand and plunge both hands in the ice water. ▪ Migrate –Mark off an area in the sunshine and another area in the shade. Pretend to be migrating birds or butterflies moving between summer and winter habitats. Extension: WildBC activity - Migration Headache. 	<ul style="list-style-type: none"> ▪ Pretend to be an animal in winter – make a den, store up some food, go to sleep. 	<ul style="list-style-type: none"> ▪ n/a
	<p>Grade 2/3</p> <ul style="list-style-type: none"> ▪ Print pictures of local animals and glue them on card stock. Cut each picture into 4 – 6 puzzle-shaped pieces. Distribute the puzzle pieces and ask student to put the puzzles together to form “research groups”. ▪ Give students resources and time to research their animal and draw/write information about how their animals survives winter. 	<ul style="list-style-type: none"> ▪ Students will create individual quilt squares. See summative assessment description. 	<ul style="list-style-type: none"> ▪ What part of the animal’s life cycle happens during winter? What features allow the animal to survive seasonal change?