

Earth & Space

Kindergarten

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A framework for Inquiry

Significant Content: A focus on important knowledge and concepts derived from standards. Students should find the content to be significant in terms of their own lives and interests.

A need to Know: Activate learner curiosity. Engage student interest and initiate questioning with an entry event: this could be a story, a video clip, a photograph...

A Driving Question: A question that captures the heart of the inquiry in clear, compelling language, giving students a sense of purpose and challenge.

Authentic Purpose: Establishing an authentic purpose for the tasks we invite our learners to explore, enriches learning opportunities.



Voice and Choice: Guided by the teacher, learners have voice and choice in terms of design, what resources they will use and how they structure their time.

Revision and reflection: Learners go through a process of seeking feedback from their peers to think in-depth about their inquiry. Students learn that revision and reflection are frequent features of real-world work.

In-depth Inquiry: Learners follow a trail that begins with their own questions, leading to a search for resources and the discovery of answers and ultimately leads to generating new questions, testing ideas and drawing their own conclusions.

21st Century Competencies: Collaboration, communication, creativity, critical thinking, problem solving and social responsibility.

Adapted from: Larmer, J. & Hargrave, J. (2012). *Essentials for project-based learning*.

Suggested Ways to Engage Students in Science Inquiry:

What daily and seasonal changes can you see or feel? (In-depth Inquiry)

Daily Changes: Observe weather patterns by using thermometers, rain gauges, sky and weather cards in the kit. Record and look for patterns in our local weather and sky. Wind, rain, shadow and sunny day play for creating real life experiences. Related Kit Book: *What is Today's Weather?* Jennifer Boothroyd

Seasonal Changes: Engage students by going on I Wonder Walks in the local area as seasons change (local swamp, airpark, river, creek, forest, field). Look for signs for each season. Have students describe things they notice using their senses. Students can sketch the local area. This could be done as seasons change and children should review and compare previous sketches. Notice which creatures and plants are observable during each season.

How are plants and animals affected by daily and seasonal changes? (A Driving Question)

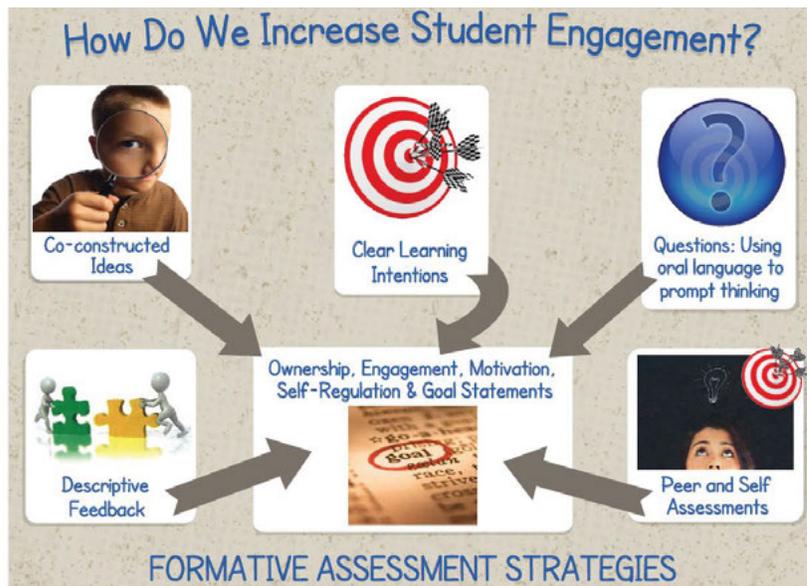
On a rainy day, go on a walk to your local area and watch where rain water goes and what it does. Students can observe puddle formations, what happens when you dam the water (relate this to beavers, natural dams in rivers and streams due to logs/sticks, human made dams for electricity). Go for walks during windy days, sunny days, etc. and observe the affects of the weather on our clothing, on animals we are able to observe. Use magnifying glasses, binoculars to make observations as well.

Look at a variety of clothing. Sort clothing based on season and draw conclusions about why we dress as we do for daily weather patterns and seasons. You may want to use the sorting map provided in the kit.

Why do we have seasons? (In-depth Inquiry)

Related Kit Book: *Changing Seasons* Bobbie Kalman (pg. 8 and 9) Using flashlight and a ball, model how the Earth's movements around the sun create the seasons. This provides a key understanding of why we have seasons in our local area.





Suggested Ways to Embed Assessment *for* Learning Strategies:

Learning Intentions:

I can observe and investigate daily and seasonal changes in my local environment.

Use *I Wonder Walks* described previously and keep an *I Wonder Journal*. You can take photos of an area and re-take the exact area throughout the seasons to make comparisons.

I can describe the affects of daily and seasonal changes on living things.

Adopt a tree in the neighbourhood and observe and draw changes seasonally.

Using the Learning Map, compare how animals, humans and plants are affected by seasonal changes.

I can experience and interpret the local environment.

Record experiences in an *I Wonder Journal*.

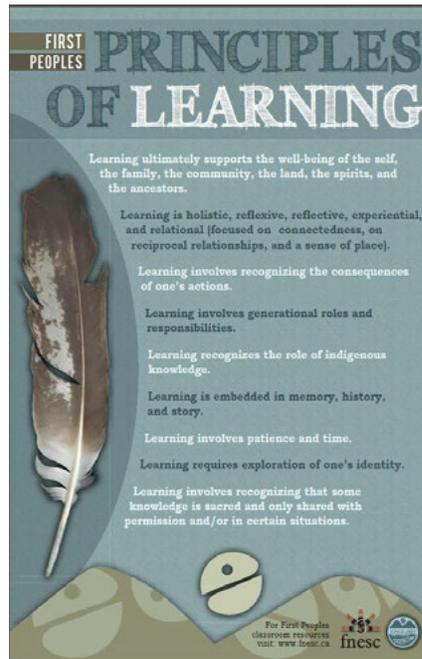
I can observe and interpret the seasonal changes and share my observations orally.

Kit Book: *What Forest Knows* George Ella Lyon *Fraser Bear* Maggie de Vries

I can ask questions about familiar objects and events.

Kit Book: *Changing Seasons* Bobbie Kalman *Fraser Bear* Maggie de Vries





Suggested Ways to Weave Aboriginal Ways of Knowing within this unit:

How do daily and seasonal changes affect First People's use of plants and animals ? (e.g. seasonal food sources, hunting resources, changes in their clothing, changes in shelter)

Strong Learners Sort and Categorize Cards from Strong Nations

Skytellers DVD: Seasons by Lunar and Planetary Institute

Kit Book: *My Seasonal Round* , *Solomon's Tree* Andrea Spalding

Teacher background knowledge: www.sacredrelationship.ca (short video clips that really help show this aboriginal world view in relation to science)

Stewardship: sustainably gathering of plants and hunting/fishing in response to seasonal changes and animal migration patterns; sustainable fish hatchery programs run by local First Peoples.

Kit Books: *Lessons From Mother Earth* Elaine McLeod *Fraser Bear* Maggie de Vries

Mouse Celebrates Winter Solstice

<http://www3.sd71.bc.ca/School/abed/resources/staffresources/elementary/Pages/Mouse-Celebrates-the-Winter-Solstice.aspx>

Seasons Lesson Plans on our School District website.

<http://www3.sd71.bc.ca/School/abed/resources/staffresources/elementary/Pages/Seasons-Lesson-Plan.aspx>



Other Resources:

A great resource for a variety of hands on science activities and printables.

education.com

A short video song identifying the seasons and giving kids clues to guess and name each season.

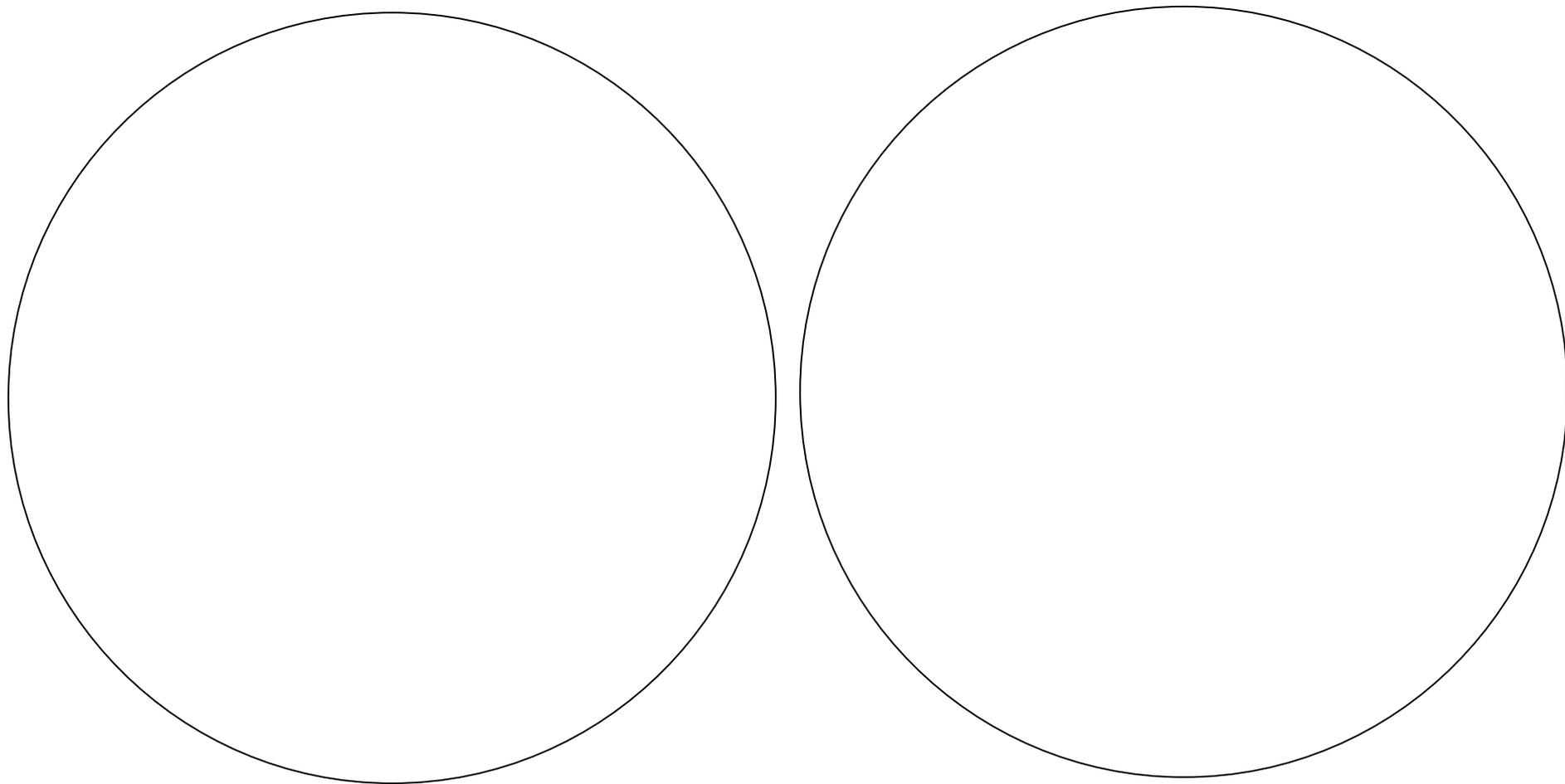
https://www.youtube.com/watch?v=_OzKV6j1MDg

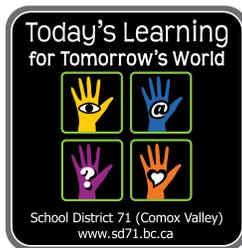
An interesting video to educate kids about the four seasons of the year. This video will help kids learn the names of each season, the weather patters inherent in each season and the time at which they come in the year.

<http://www.turtlediary.com/game/seasons.html>



Sorting Circles





An electronic copy of this teacher guide can be found on Learn71 at <https://portal.sd71.bc.ca/group/wyhzgr4/Pages/default.aspx>

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