How to use Place-Based Learning Examples For K-9 Science

Overview

This series of Place-Based Learning Examples focuses on BC's science curriculum. Whether the Example is done in part or in its entirety is a matter of choice. Any one of the Big Ideas and science disciplines (**B Biology,** **C Chemistry,** **E Earth Sciences** and **P Physics**) can be investigated in more depth on their own. Some examples, particularly at the higher grade levels, may only deal with one of the science disciplines.

The Examples offer activities for authentic learning in a local place in nature. Activities are experiential and support inquiry-based learning. (Please see HCTF's, *A Primer on Inquiry-Based Learning).* First Peoples Principles of Learning (FPPL) are incorporated into the various examples, in particular: learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).

Science is broken up into four disciplines (Biology or Life Sciences, Chemistry, Physics and Earth Sciences) in order to help with understanding various principles of science and associated skill development. We know that life itself, which is what we are learning about, is integrated. An integration of learning reflects a system thinking approach. It is inherent in FPPL and serves us as a model for keeping learning holistic. We encourage the integration of the science disciplines as much as possible, recognizing that sometimes it is not possible, particularly in the higher grades.

Beyond the integration of the science, disciplines are of course the integration of the learning with the learner's life and community. By situating the examples in local place, there is a relationship to the learner that integrates the learning with them personally. Focusing on the natural world in the local place offers the opportunity to lay a foundation to develop a sense of place. The sense of place refers to our interconnectedness with the world around us, connecting us to each other, our community and the natural world around us. Described through the lens of First Peoples, "beyond the physical space... it includes ... the memories, emotions, histories, and spiritualities that bind the people to the land."[1] We encourage the implementation of FPPL in and as the science learning. To keep the context of First Peoples learning local to your region and for correct protocol refer to Science First Peoples, **http://www.fnesc.ca/wp/wp-content/uploads/2015/08/PUBLICATION-61496-Science-First-Peoples-2016-Full-F-WEB.pdf,** consult your local Aboriginal Education coordinator for assistance with resources, FNESC's Authentic First Peoples Resources, as well as your own sources.

1 - Science First Peoples Teacher Resource Guide
http://www.fnesc.ca/wp/wp-content/uploads/2015/08/PUBLICATION-61496-Science-First-Peoples-2016-Full-F-WEB.pdf

Using these Examples

The place-based learning examples are established with time spent outside in nature. By going outside in local place, this brings in a strong relational aspect to the learning for the learner. We have tried as much as possible to keep the time outside nearby and often right in the school yard or school garden, meaning, it's not a field trip. It doesn't have to be a field trip to get students outside in a local place to learn.

Within the examples, it's a matter of choice whether to address all the big ideas or only 1 or 2 in particular. Some big ideas will need to be fleshed out further in other directions, i.e. going beyond the nature examples. We have structured the examples in alignment with the science skills and processes of the curricular competencies (questioning & predicting, planning & conducting, processing & analyzing data & information, evaluating, applying & innovating, and communicating) with the one addition of "Experience Place". This is the cornerstone of each place-based learning example.

1 Experience Place

TONE: open-minded, unburdened, curious, playful

The Examples suggest experiencing the place in an open exploration with the inquiry. Experiencing Place can be used as an opportunity to allow students to explore with minimal instruction and minimal preparation so that the magic of engagement can occur. This may mean there is very little agenda of the teacher's with the initial experiencing place, other than perhaps a direction of broad focus, e.g., the soil, the forest, the creek, the field, the schoolyard, the garden, and sometimes not even this. Instruction from the teacher would refer to any safety precautions, skills, and/or the use of equipment useful for investigations.

During the process of "Experiencing Place," the intent is for students to engage with place and to formulate their own questions and wonderings, drawing them into the place in a personal, meaningful and memorable way. Many of the generated questions may lead immediately to the focus of the Big Ideas, or take the inquiry out beyond these areas. Including the provision of tools or equipment can serve to deepen the active curiosity and inquiry.

HCTF's *Exploring Place with Inquiry* is an example activity to get outdoors for nature inquiry, to set the stage for further outdoor investigations and student inquiry.

We use the term TONE for the different processes of science inquiry to establish an atmosphere for learning. The tone ranges from playful and unburdened on initial inquiry, to other stages requiring reflection and more focus, or collaboration or expressive interpretation. We have adapted and applied these tones from the work of T. Heick, 4 Phases of Inquiry-Based Learning: A Guide for Teachers (2008), **http://www.teachthought.com/pedagogy/4-phases-inquiry-based-learning-guide-teachers/.**

2 Questioning and Predicting

TONE: more focused, curious reflective

A sample of questions are offered within the Examples that can be used to ignite student engagement and inquiry within the Big Ideas, and/or may be formulated by the students. This can

be done following personal student exploration while out in a place or back in class. Depending on the collective class inquiry, a compilation of the questions may reveal the need to insert some additional questions. The questions will ultimately serve for exploration and understanding of a science Big Idea. Questions for investigation need to be testable or solvable.

Predictions serve as a benchmark of understanding and are part of the planning and conducting of investigation around the testable question(s).

We invite you to use these Examples to support your facilitation of learning. Please enjoy, and adapt as needed.