eld Study Planner

North Vanco
School Dis
the natural place

Overview			
tudy:	Pond bioblitz	**Conceptual Lens:**	Senses
ew:	In this field study, students will participate in a bioblitz, an event that focusses on finding and identifying as many organisms as possible within a certain time frame. First, students will explo pond ecosystem and search for interesting organisms. Next, students will use a Pond ID Card identify which organisms are in the pond. Then, each student will select an organism to study a questions that can be answered through observation alone. They ask simple questions about t organism's obvious structures, then move onto questions about organism's behavior, habitat a relationships to other organisms. Students share out with partners and then the whole group h pond *organisms sense and respond to their environment* (Reference: Beetles). Finally, student participate in citizen science by sharing their data with other field study groups.		
	4		
on:	2 hours	**Season:**	Spring

Stage 1 – Desired Results

Big Ideas

s sense and respond to their environment (Science 4).

Cheakamus Centre Principles

he field study reflect Cheakamus Centre Principles (Place, Community, Inquiry, Personal Connections, and First Peoples' Perspectives

ents will explore and make observations about organisms within the pond ecosystem.

udents will ask questions that can be answered through observation.

: Students participate in citizen science by sharing data with other field study groups.

Alignment Check:

Are your concepts, unit understandings, transfer goals, and essential questions connected and supportive of your Big Idea?

Curricular Competencies	Content
ill be skilled at… ate curiosity about the natural world nd pose questions that lead to investigations e appropriate tools to make observations and measurements ervations about living & non-living things in the local environment nple data e & interpret the local environment me simple environmental implications of their & others' actions e to care for self, others, & community through personal or ive approaches reflect on personal, shared, others' experience of place	**Students will know that…** -the ways organisms in a pond ecosystem sense and respond to their en –structure and functions of body parts associated with each of the 5 sens -environment: interdependence and adaptation: structural (e.g. how orga adapt to pond ecosystem); behavioural adaptation (e.g. response to light, water etc.); response to changes in habitat (e.g. pollution, water levels); a worldview with respect to the environment (e.g. interconnectedness of all things & responsibility to care for the environment).

Stage 2 – Evidence: Assessing for Understanding

Assess: Field Study

Formative: ints for students to show their knowledge and skills during the field study	Summative: Final assessments of knowledge and skills at the end of the Field
s should consider how formative assessment in outdoor learning is informal, varied, and ongoing throughout the field study.	Teachers should consider how summative assessments revisit ess questions, involve self-reflection, and builds towards Final Tas
prior knowledge: s Mind-map alk to pond: hat is a pond? Bigger than _____, smaller than _____ hat are some questions you have about ponds & the organisms that e there? ill demonstrate their knowledge, skills & understanding by: organism samples he pond in a sensory way (smell, hearing, sight)	Final group circle question options: 1. What is a pond? 2. How did I notice (observe) the pond organisms? 3. What did I notice (observe) in this field study? 4. How do pond organisms sense and respond to their environme 5. What questions do I still have about ponds and the organisms t them?

Stage 3 – Executing the Learning Plan

ning events/activities are suggested activities. Teachers should add, revise, and adapt based on the needs of their students, their own personal p
for resources, and a variety of instructional techniques.

g the lesson

ve senses Mind-map

sk students to think about their senses and the important information they provide. The following sequence of questions and discussion is a guide:

- What senses do you have? What sense organs do you use for each one?
- Why is it important to have these senses?
- Living things use their senses to survive. What are some examples of animals using their senses?
- Do all these animals use their senses in the same way?
- Pond organisms are animals too. How do pond organisms' senses compare with your own senses?

g the Pond Bioblitz!

hat is a bioblitz?

BioBlitz is an event that focuses on finding and identifying as many species as possible in a specific area over a short period of time.

l the students that today we will find and interview an organism. We will learn about how some pond organisms sense the world around them. We
cuss how their sense organs are different than ours and what this tells us about how the organism lives.

g to be interviewers (15 minutes)

oday, we'll find and interview an organism. Tell students they're going to explore and check out a bunch of pond organisms in the Pond bioblitz
e that they're going to "interview" to learn more about it. That means asking the organisms questions that can be answered by looking more close
ganism, since it can't talk!

odel an interview of a person in which person can't talk. Choose a student volunteer (or counsellor) and explain that you're going to show sor
estions that can be asked by "interviewing" this volunteer. The person won't answer back verbally. Instead, you'll observe the volunteer closely a
ur own questions. For example,

hat colour eyes do you have? I see you have greenish brownish eyes.

ow tall are you? Let's see, you're about one foot shorter than me.

hat are you doing? Hmmm…you seem to be standing still, fidgeting a little bit, you keep looking over at the wall, interesting…

hat are you thinking? Oops! That's not a question that can be answered.

xplain the difference between simple and deeper questions – both are useful in an interview.

*mple questions can be answered immediately through observation, and don't have very long answers, e.g. what colour is it? How big is it? What a
ain structures of its body? (have students brainstorm some more simple questions)*

*eeper questions need more time for observation, and include the organism's relationship to its habitat and to other organisms, e.g. what is it doing
any are here? Do they hang out together? What is the climate like in its habitat? (Have students brainstorm some more deep questions).*

ing the Bioblitz toolkit

range students in teams of 2-3. Give each team a net & a small bucket. Tell students that we are going on a short walk to the Canoe Pond, where
nduct the bioblitz.

to the Canoe Pond (10 minutes)

sk students walk & talk questions while walking to the pond. e.g. What is a Pond? Bigger than a _____, smaller than a _____. What are son
estions you have about ponds and the organisms that live there?

udents record questions & answers as they observe organisms. Circulate as students conduct their interviews, and make sure they are asking bo
ıd deep questions. If students are having trouble coming up with questions, remind them to consider the organisms' habitat and surroundings. Ma
udents use both drawing and writing to record information.

dividuals share observations and questions with each other. When students have had time to do an in-depth interview, call the groups together, a
ıch team share their questions and observations with another team.

oup sharing & discussion: Ask a few students to share an interesting question or observation. Depending on what they say, consider leading a di
out the difference and similarities between organisms, or make some observations together as a group.

iefly discuss what adaptations aquatic organisms have to survive in the pond (relate to how living things sense and respond to their environment)
ense Trivia:

hat are some of the things insects need to do to survive? (Avoid predators/enemies, find food and water, find a mate.) Are these the same as us?

an you think of an example of a pond organism using its sense of seeing/hearing/touch/smell/taste?

ond organisms have evolved different sensory organs to do the same job as ours. So insects use the same senses as we do, but do they have the
nsory organs? (Yes and no.)

- A male mosquito can tell the difference between a female who is looking for a mate and one who has already laid her eggs by listening to
  wingbeat!
- Have you ever been to a 3D movie? Some 3D movies, the ones with 3D goggles that look like sunglasses, take advantage of the fact that
  cannot see the polarization of light, but many insects can. This helps them to navigate.
- Most insects and spiders taste with their feet. That is why flies like to walk around on your food.
- Water striders gliding on the surface of a pond use their sense of touch to detect ripples from predators or prey, much like a spider uses he
- Insects can use their antennae as feelers, but the main function of antennae is smell! Many insects also have olfactory receptors (a fancy
  "noses") on their feet.
- Insect ears are all over the place! For example, grasshoppers have ears on their knees, praying mantises have them on their bellies, and
  have them at the base of their antennae.
- An insect's eyes are called compound eyes. They are made up of many little lenses, instead of one big lens (like our eyes have). They car
  detail as well as us, but they have some advantages: butterflies can see more colors than us, bees can see something called the polarizati
  and horseflies can respond to movements much, much faster than people can!
- Insects can taste with their mouth, just like us, but most also taste with their feet. Would you want to taste the inside of your shoes?

the Organism (to be completed before or after interview)

ell students they'll use the Pond ID card to identify their organism.

emonstrate how to use the Pond ID card.

udents use the cards in teams to figure out what their organism is.

rculate, trouble-shoot, be a co-investigator, and ask questions.

g Findings

udents share what organisms they found. Write list of organisms on white board. Summarize results:

hat aquatic organisms live in the pond?

here do we find the organisms? –shallow zone, middle/open water, bottom sediment (mud or sand?), near shoreline

iversity: - what species were found in pond?

w does this compare to data collected by other field study groups (citizen science)?

ocus the discussion on the relationship between organisms

an we construct a food chain with organisms found (on whiteboard)?

it up

oday, we learned about how pond organisms use their senses in different ways, using some of the same sense organs and some different ones.
ll me one of the senses that's the same in you and a pond organism? One that's different?

evisit Essential Questions: Circle debrief. *What is a pond? How did I notice (observe) the pond organisms? What did I notice (observe) in this field*
ow do pond organisms sense and respond to their environment? What questions do I still have about ponds and the organisms that live in them?

ncourage students to keep interviewing organisms while at Cheakamus Centre. Emphasize to students that they now have skills they can use with
ganism anytime, and that scientists do this all the time. Ask students to think about simple and deep questions they could ask of organisms they e