Bachelor of Education (Elementary) & Bachelor of Education (Secondary) STEM/BETT Lesson Plan

Lesson Title: ___Everything is One___   Lesson # ___1___   Date: ___Oct. 11, 2023___

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Rationale:

The purpose of this lesson is to introduce students to the concept of interconnectedness in Indigenous worldviews and its relevance to climate change. By viewing the natural world using this holistic lens, students will be able to better understand their connection to the environment, how climate change affects the world around them, and the importance of keeping ecosystems healthy and balanced.

Core Competencies:

Communication	Thinking	Personal & Social
The lesson plan connects to the communication and collaboration core competencies because it encourages students to talk, work together, and share ideas when discussing the ecosystem and creating an ecosystem web. This helps them practice and improve their communication and teamwork skills, which are important not only for science but also for their overall education and future.	The lesson plan connects to the critical and reflective thinking, and creative thinking core competencies because it encourages students to think deeply about the consequences of ecosystem changes and to use creative thinking to visualize and understand the interconnections in nature.	The lesson plan connects to personal awareness and responsibility by making students think about their impact on the environment. It also introduces them to different cultural perspectives, helping them understand diverse worldviews.

Big Ideas (Understand)

- Evolution by natural selection provides an explanation for the diversity and survival of living things.
- Earth and its climate have changed over geological time.

Learning Standards

(DO)	(KNOW)
Learning Standards - Curricular Competencies	Learning Standards - Content

Processing and analyzing data and information
- Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information
- Use scientific understandings to identify relationships and draw conclusions
Communicating
- Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate
	- organisms have evolved over time
	- survival needs
	- evidence of climate change over geological time and the recent impacts of humans:
	  o physical records
	  o local First Peoples knowledge of climate change

Instructional Objectives & Assessment

Instructional Objectives (students will be able to…)	Assessment
SWBAT: ● Apply First Peoples worldviews regarding interconnectedness, to understand how "everything is one" ● Apply what they know to identify ways they are connected to the environment around them. ● Communicate their connections with their peers.	● Assess journal entries for students' ability to apply First Peoples worldviews regarding interconnectedness, and identify ways they are connected to the environment around them (product, formative) ● Check for participation in web activity (observation, formative)

Prerequisite Concepts and Skills:

1. Basic knowledge and awareness of Indigenous content:
   a. Students should understand that Indigenous cultures often have unique worldviews, that the land and natural environment is an integral aspect of Indigenous cultures, and they should have some knowledge of the local Indigenous cultures (Secwepemc if in Kamloops) in the area in which they live for context.
2. Basic ecosystem understanding:
   a. Students should know what an ecosystem is and how living and non-living elements interact within it.
3. Basic biological knowledge:
   a. Students should understand different organisms and their roles in ecosystems, like knowing what animals and plants are and basic food chain concepts.
4. Language and communication skills:
   a. Students need the vocabulary and social skills to discuss ecosystem concepts and interact with peers.

Indigenous Connections/ First Peoples Principles of Learning:

Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).
● The lesson encourages holistic and reflective learning by having students contemplate the concept of interconnectedness and how it relates to their own lives. The ecosystem web activity also fosters experiential and relational learning by physically demonstrating connections in the natural world.

Universal Design for Learning (UDL):

1. **Multiple Means of Representation**:
   ● **Multicultural Perspectives**: By including First Nations' perspectives and languages, the lesson respects diverse cultural backgrounds, making it more relatable and engaging for students from various cultures.
2. **Multiple Means of Engagement**:
   ● **Varied Activities**: The lesson includes both a class discussion and a hands-on activity (building the ecosystem web), providing different ways for students to engage with the material.
   ● **Interpersonal Engagement**: The group activity fosters interpersonal engagement as students work together to create the ecosystem web, promoting collaboration and social interaction.
3. **Multiple Means of Expression**:
   ● **Journaling**: Allowing students to express their thoughts and reflections through journaling accommodates various ways of processing information and expressing ideas.

> - **Discussion**: The class discussion offer opportunities for students to express themselves verbally, catering to different communication preferences.

Differentiate Instruction (DI):

To differentiate instruction for a student with autism you could:
1. Offer Visual Supports:
   - Use visual schedules or visual instructions to help the student understand what is expected during the activity. Visual supports can provide predictability and reduce anxiety.
2. Offer Choices:
   - Allow the student to choose between different activities or tasks related to the lesson.
3. Incorporate Interests:
   - Incorporate the student's interests into the lesson or activity. The student may be more likely to participate if it aligns with their interests.
4. Use Positive Reinforcement:
   - Use positive reinforcement to motivate and reinforce the student's participation in the activity.

Materials and Resources

- Copy of lesson plan
- "Everything is connected" game cards: https://www.canva.com/design/DAFufLx_5-k/2125KnIgELwOGAjd1I0Chw/edit?utm_content=DAFufLx_5-k&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton
- String, rope, or yarn
- Science notebooks or journals

Lesson Activities:

Teacher Activities	Student Activities	Time
Introduction (anticipatory set – "HOOK"): Present the phrase "Everything is One". Ask students to consider the phrase and think about what it might mean.	Students will whisper to their partner what they think it means.	2 mins.
Call on a few student pairs to tell the class what they think it may mean.	Students will share with the class.	3 mins.
Body: Activity 1: "Everything is One" Explain that the phrase "Everything is One" is a concept that is expressed in many First Nations languages. For example: - Nuu-Chah-Nulth (Central and Northern Coastal BC) say *Hishuk ish ts'awalk*, "everything is connected, everything is one" - Haida (Haida Gwaii) say *gina 'waadluxan gud ad kwaagid*, "Everything depends on everything"	Students will actively listen.	5 mins.

• Secwepemc (Shuswap, South-Central Interior) say *Kweseltnews* "We are all family"
Explain that interconnectedness is a fundamental part of First Peoples' worldviews.
 	
Activity 2: <u>Build an Ecosystem Web</u>
Explain to students that we will demonstrate this interconnectedness by using a ball of rope or yarn to display the connections between all species and non-living things.
  1. Give each student a game card. Each card will have a different species or non-living thing that is found in the local environment
  2. Have students gather in a large circle.
  3. Begin by demonstrating the activity. The teacher will hold the end of the yarn and identify a student that they are connected to.
      a. Consider the food chain (what eats the animal and what it eats) and its habitat needs (such as where it nests, shelters, or spends part of its life cycle). For example, the sun provides energy to the maple tree; the squirrel eats the maple seeds, the owl eats the squirrel, the fungus decomposes the tree, etc.
  4. While holding the end of the yarn, the teacher will describe how they are connected to the student they chose and pass them the ball of yarn.
  5. The student who now has the yarn will repeat this process, identifying a student that they are connected to, and passing the yarn to them.
  6. This process continues until everyone has been passed to (had a connection made to them) at least one time. Each student can be passed to (have a connection made to them) up to 3 times and then they can not be passed to again.
  7. Thank students for their participation and have them go back to their desks.
	Students will participate in the activity.	30 mins.

Closure: Discuss what would happen if one of these cards were taken out of the web (ex. salmon	When prompted, students will take an educated guess at what would happen.	5 mins.

removed from the web because of warming waters due to climate change). 　● Guiding question: How would this affect the other things in the system that are interconnected and interdependent? <u>Exit activity:</u> Have students write and illustrate their answers for the following questions: 　● How are you interconnected with other species/things in the environment? 　● What would happen if these were gone?	Students will answer the question in a few sentences, writing in their science notebooks or journals.	5-10 mins.

Organizational Strategies:

Visual Aids and Materials:
- Organize and prepare all necessary materials and visual aids in advance. Ensure that each student has a game card for the ecosystem web activity, and have the yarn or rope readily available. Having everything organized and accessible reduces disruptions during the lesson.

Timing and Transitions:
- Be mindful of the time allocated for the "Everything is One" discussion, the ecosystem web activity, and the exit activity. Ensuring smooth transitions between activities and staying mindful of the time will keep the lesson on track.

Clear Instructions and Expectations:
- Give students clear instructions and expectations (ex. how to move through the classroom when transitioning to the next activity, and how to respectfully participate in the activities). Be clear and positive about these expectations throughout the lesson.

Proactive, Positive Classroom Learning Environment Strategies:

Respect and Inclusive Language:
- Use language that respects everyone's opinions and backgrounds. Encourage open and respectful communication.

Active Participation:
- Ensure all students have a chance to participate and share their ideas. Celebrate their contributions.

Visual Displays:
- Display posters and other materials in the classroom that incorporate Indigenous ways of knowing and being.

Collaboration and Respect
- Promote teamwork, listening, and respect among students. Recognize and reward good behavior.

Extensions:

An extension to this lesson would be to discuss the threats to some of the species in the web that climate change presents (such as habitat degradation and loss) and ways that the web can be protected (conservation actions, local organizations and stewardship activities).

Reflections (if necessary, continue on separate sheet):

This lesson is one that I will be using in an integrated unit that focuses mainly on climate change. When discussing this topic, it is important to approach learning with a holistic view. This holistic view is prominent in Indigenous cultures, which is why it was fairly easy to incorporate Indigenous worldviews and ways of knowing into the lesson. The "everything is connected" activity and ecosystem web activity

came from the Invasive Species Council of BC, but I ended up changing up the discussions in the lesson to make it work for the climate change topic. While completing the lesson plan, I did find it a bit difficult to find "sources" for the language aspect, as I was not able to find what I was looking for on FirstVoices. Luckily, I was able to find a few sites that provided me with what I needed, and these sources are linked below. Overall, I really enjoyed Indigenizing a lesson that I was already really excited and passionate about.

Resources:

https://bcinvasives.ca/for-educators/activity/everything-is-one/
https://www.uvic.ca/news/topics/2016+convocation-fall-2016-educ+ring
https://www.haidanation.ca/because-gina-waadluxan-gud-ad-kwaagid-everything-depends-on-everything-else-a-summary-of-haida-gwaii-marine-protected-areas-virtual-open-house/
https://shuswappassion.ca/communities/the-shuswap-community-of-sexqeltqin/
https://www.erudit.org/en/journals/fpcfr/2020-v15-n2-fpcfr06311/1080810ar/