# **Bachelor of Education – Elementary Unit Plan Template**

		Number of		Time		
<b>Unit Title:</b>	Biodiversity in Kamloops, BC	<b>Lessons:</b>	8	(in weeks):	2	
Name:	Josslyn Ryan & Melissa Green	Subject(s):	Science	Grade(s):	4	

#### Rationale

This unit is important because it supports students in feeling connected to the natural world around them. This unit will also help students understand how the natural world relates to them and how the different species and plants are connected. By learning about how living and nonliving things interact with each other, students can understand how natural components contribute to the health of the environment. When students understand how sensitive the natural world is (as it relies on multiple living and nonliving components to sustain life), students will become more aware of how one resource can affect another. As this unit focuses on the students' local biome, students will be able to identify themselves as active participants in their local environment. Students will get to choose which local species they would like to research and learn more about throughout this unit. Through this, students will have the opportunity to explore their interests and "wonders" about the natural world.

#### **Overview**

Through this unit, students will be learning about the biodiversity in Kamloops. They will first be introduced to the scientific vocabulary within this topic by doing a placemat and carousel activity. This activity will be an opportunity for the teacher to learn about any misconceptions and previous knowledge that the students may have on the subject of biodiversity. By knowing these preconceptions, the teacher can then facilitate the teaching to meet the students' needs. The next two lessons will focus on the living and nonliving components that make up the Kamloops biome (known as the Semi-arid Desert), such as the climate, animals, plants, insects, etc. This will be done through brainstorming activities and games as the students learn how these components interact together. Towards the middle of the unit, students will begin to focus their learning on one particular species of their choice local to the biome of Kamloops. They will have the opportunity to explore their curiosity about the species they have chosen to learn more about and possibly observe it outside as the class explores McArthur Island. The students will research their species in a teacher-facilitated activity as they will need to focus on their species habitat, food sources, characteristics, etc. The students' will share their learning on a final poster where they will be able to provide a picture or drawing of the species they are learning more about and provide information about what that species needs to survive in the Kamloops region. At the end of the unit, students will have the opportunity to learn from one another as they review each other's posters. Throughout this unit, students will be assessed in various ways, including participation, research, detail, and collaboration with their peers.

#### **CORE COMPETENCIES**

Communication	Thinking	Personal & Social
Communicating	Creative Thinking	<ul> <li>Personal awareness and</li> </ul>
	Creative thinking is very	responsibility
Throughout the unit students	apparent within this unit	Because this unit includes
are communicating in a variety	because students are	inquiry-based learning, the

of ways. Students will have the opportunity to research and gather information on a species of their choice and present it to their peers. Throughout this unit, students will also have to learn how their peers' species of choice interacts with their species. This will require effective and efficient communication skills as they will be collaborating and sharing their ideas and findings. Students will be asking questions, listening to responses, and sharing their learnings, wonderings and ideas with other people.

## Collaborating

Throughout the unit students will have the opportunity to work with partners and as a class to learn and discover more about biodiversity. The learning in this unit would not be fulfilled without the opportunities for students to share how their species interacts with the environment and with other species. Students will be working with partners and have opportunities to collaborate with their class during their research. Students will be expected to work together and respond to one another's ideas and contributions.

encouraged to engage in their "wonders" and curiosity about the natural world around them. They are constantly developing ideas, naming their wonders and then refining those things in their research and observations. One goal in this unit is to ignite the students' curiosity which will hopefully lead to a personal sense of wonder about the world around them for the rest of their lives!

 Critical and reflective thinking This unit includes inquiry-based learning which encourages the students to question and investigate on their own while the teacher facilitates the lessons. Critical and reflective thinking can look different for each student as everyone uses different methods to research and search for answers. Students will be participating in reflecting and critical thinking as they examine and express what they learn about their chosen species.

students are required to take responsibility for their own learning while the teacher guides and facilitates the lessons. Students will then need to self-regulate and manage their time effectively in order to reach their goal in their learning. This unit also involves a few trips outside of the classroom including a visit to McArthur Island, students will be expected to be representing their school and classroom through respectful behaviour outside of the school space.

• Social awareness and responsibility
Students have an opportunity to become aware of how their actions can affect the environment through learning about the needs of each species and their interactions with the world around them. This will hopefully encourage students to respect the environment around them and make choices that are positive not only for themselves but for the world around them.

#### **BIG IDEAS**

(multiple subject areas for integrated unit)

Subject Name: Social Studies Subject Name: Subject Name:

All living things sense and respond to their	N/A	N/A
environment.		

## LEARNING STANDARDS

Curricular Competencies	Content
Science	Science
Questioning and predicting	C1 - Sensing and responding: animals, plants
CC1 - Demonstrate curiosity about the natural	C2 - biomes as large regions with similar
world	environmental features
<ul> <li>CC2 - Observe objects and events in familiar contexts</li> </ul>	
CC3 - Identify questions about familiar objects	
and events that can be investigated scientifically	
<ul> <li>CC4 - Make predictions based on prior knowledge</li> </ul>	
Planning and Conducting	
CC5 - Suggest ways to plan and conduct an	
inquiry to find answers to their questions	
CC8 - Make observations about living and	
non-living things in the local environment	
Processing and Analyzing Data and Information	
CC10 - Experience and interpret the local	
environment	
<ul> <li>CC12 - Sort and classify data and information using drawings or provided tables</li> </ul>	
CC14 - Compare results with predictions,	
suggesting possible reasons for findings	
Communicating	
CC23 - Represent and communicate ideas and	
findings in a variety of ways, such as diagrams	
and simple reports, using digital technologies as	
appropriate	
CC24 - Express and reflect on personal or	
shared experiences of place	

## **Prerequisite Concepts and Skills**

- Understanding of living and non-living components of the natural world.
- Experience in collaborating with others.
- Basic knowledge of how to use the chrome books to research ideas.
- Knowledge of classroom expected behaviours, specifically when leaving school grounds, including safety.

# **Teacher Preparation Required**

Losson 1	Have materials ready: model poster, etc.
Lesson 1	Have popsicle sticks with names on them for random grouping (groups of 5)

	Prepare questions and topics in advance
	Have online timer ready on projector
	Chrome book cart
	Have materials ready (Video, guided research questions, journals, presentation)
Lesson 2	Prepare questions in advance
	Chrome book cart
	Necessary documentation and signed forms for going outside
Lesson 3	Have materials ready: clipboards, handouts, baggies
	Formulate questions for inquiry process
Locop 4	Have materials ready (poster paper for webs, chrome books, journals)
Lesson 4	Model a "deer" web of habitat/food, etc. in advance
Losson E	Necessary documentation and signed forms for going to McArthur Island
Lesson 5	<ul> <li>Make Observation Books (folded paper with a cover, stapled)</li> </ul>
Losson 6	Book Chrome Cart
Lesson 6	Prepare research questions and response sheet
	Book Chrome Cart
Lesson 7	Prepare a sample completed poster
	Prepare and print poster template
Losson C	Get book: "When God Made the World" by Matthew Paul Turner
Lesson 8	Pick up heart and star sticky notes

## **Cross-Curricular Connections**

This unit incorporates English Language Arts as students will be engaging in a vocabulary acquisition activity, writing their "I wonders" about their species, while also recording facts from their research on their final project. Outdoor education is also a major component within this unit as students will be outside gathering information on species and habitats.

## 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).

This unit incorporates this First Peoples Principle of Learning as students will be experiencing the outdoors and local habitats that they will be learning about. Each lesson is geared towards having the students connect their learning to the local biome of Kamloops, which will provide students with a sense of place. The students will be relating their learning to their personal experiences with the outdoors, making this unit both reflective and relational. Overall, the students will be engaged in learning about nature and local species that the Indigenous Peoples have been using and interacting with for thousands of years. There is much to learn from local Indigenous peoples about the land, our connectedness to the land, and the relationships within nature. This unit will help students begin to make those connections.

## **Universal Design for Learning (UDL)**

• Visual learners will connect with opportunities to draw their species etc., and observe the outdoors.

- Auditory learners will benefit from this unit through the opportunities to possibly hear their species in the outdoors, and having music playing during some activities.
- Students who learn best while they are moving will benefit from this unit as there are opportunities for moving outside and during carousel activities etc.
- The teacher will use a variety of assessments in order to reach each student.
- Wherever possible, instructions will be provided in both written and verbal form.
- Why of Learning Engagement:
  - o Lesson Three, Outside Collection. Students will engage in learning outside as they collect and examine living and non-living things.
  - o Lesson Five, McArthur Island. This hands-on walk is a time for students to connect with what they have learned and engage in further wonders.
- What of Learning Representation:
  - Lesson Two, Video. Using a video to communicate information and knowledge sharing will
    provide a different way for learning than a teacher talking model and will hopefully connect with
    different learners.
  - Lesson Eight, Poster Sharing: Students will share information and feedback both through conversations with one another and on the sticky notes provided.
- How of Learning Action & Expression:
  - Lesson Seven, Poster. Students have choice in what their poster looks like... draw their species or have a photo printed or cut out from a magazine.

## Differentiated Instruction (DI)

- Students who need it will have opportunities to use "speak to text" on a chrome book during some writing activities
- Certain students will benefit from group work as they will be able to communicate their ideas rather than writing
- Body and brain breaks
- Fidget tools
- Flexible seating
- Standing tables
- Headphones
- Inside outside learning learning is not limited to the classroom, ie: visit to McArthur Island
- Students who need a challenge or who finish aspects of the unit quickly will be provided with and extension of the work.
- Students who are struggling will be provided with further assistance from the teacher or EA and when required will have certain expectations of the lessons reduced to meet their individual learning goals.

## **Overview of Lessons:**

Name & Time (Minutes Allotted):	Placemat and Carousel Activity: 40 minutes
Learning Standards: Curricular Competencies	CC1, CC4
Learning Standards: Content	C2

Instructional Objectives	TSWBAT define, and visually represent the scientific vocabulary within
	the topic of biomes
	TSWBAT share their definitions of the vocabulary within the topic of
	biomes with their peers
	TSWBAT connect the scientific vocabulary within the topic of biomes
	to their local environment
Assessment:	Formative <i>for</i> learning
	What: The students will draw and write their definitions on their
	placemat for their given word, and circulate/add to the different chosen
	words in the class.
	<b>How</b> : Each group of students will share their ideas on their vocabulary
	word with the class and contribute to the other placemats during the
	carousel activity. The teacher will collect and review each group's
	poster.
	Formative <i>as</i> learning
	What: Students will share their poster
	<b>How</b> : Teacher will observe how well the students understand the
	concept of their vocabulary word by how they describe it to the class
	Formative as learning
	What: The students understanding of the vocabulary words
	<b>How</b> : The teacher will ask how the students feel about the vocabulary
	words, thumbs up, sideways, or down. The teacher will allow for time
	for questions or further comments
Teaching Strategies:	The teacher will circulate to ensure students are engaged and on topic
	during discussions
	The teacher will use various classroom management skills such as
	raising her hand, flickering the lights, and having a timer for each
	activity.
	The teacher will play music during carousel
Materials:	- 5 large blank posters
	<ul> <li>5 large posters with the words</li> </ul>
	- Markers
	- Tape
	- Online timer
	- Projector
	- Cut out letters for each word
Lesson Activities:	·
Introduction/Hook:	-The teacher will randomly group the students in groups of 4 (5
	groups)
	-The teacher will assign each group to a table with a scrambled word
	on the desk (cut out letters for words: biome, weather, climate, living,
	non-living)
	-The students will unscramble their words and raise their hands when
	done
	-The teacher will have each group share their words
	The teather will have each group share their words

Body:	The teacher will explain the rest of the activity
	Vocabulary word poster
	<ul> <li>Each table will have a large poster paper with 4 markers</li> </ul>
	<ul> <li>The teacher will ask students to fold the paper into 4 to create 4</li> </ul>
	quadrants, and then draw a circle, with their word they
	unscrambled, written in the middle.
	<ul> <li>Quadrant #1 will be for visually representing their word</li> </ul>
	- Quadrant #2 will be a space for writing their word in a sentence
	<ul> <li>Quadrant #3 will be a space for defining their word</li> </ul>
	<ul> <li>Quadrant #4 will be a space for connections of their words to</li> </ul>
	Kamloops
	<ul> <li>The teacher will then explain that once students finish in</li> </ul>
	quadrant #2, the teacher will hand out a chrome book for them
	to look up their word so they can fill in quadrant #3
	<ul> <li>While the students are working, the teacher will place posters</li> </ul>
	with the vocabulary words on the walls of the classroom.
	- Each group will share their word
	Teacher will explain next activity (carousel)
	- Each group will start at their given word and write their
	definition of the word
	- Each group will have 2 minutes at each poster, and will rotate
	clockwise to the next poster and add any further ideas or
	related words they have to the poster
	- Students will return to their original word and review the
	contributions
	- Students will return to their seats
Closure:	- The teacher will ask the students if they have any further
	comments or questions, and how they feel about the words
	(thumbs up, sideways, or down).

Name & Time (Minutes Allotted):	Weather and Climate in the Semi-arid desert (40 minutes)
Learning Standards: Curricular Competencies	CC1, CC8, CC10
Learning Standards: Content	C2
Instructional Objectives	TSWBAT define the difference and relationship between weather and climate
	TSWBAT describe the elements of weather
	TSWBAT describe the climate of Kamloops
Assessment:	Formative for learning
	What: KWL chart
	<b>How</b> : the teacher will collect this and review the preconceptions that the students may have had and where they are currently at in their learning.
	Formative as learning
	What: quiz at the end of video

	How: The students will mark themselves on the test to reflect on how
	they listened to the video
Teaching Strategies:	Formative as learning What: students share their findings How: observe the students learning through discussion and collaboration Use thunderstorm method to get attention of students Speak clearly and formulate effective questions for students
	Don't hand out worksheets or other materials until needed
Materials:	-KWL chart x 23 -video -worksheet x23
Lesson Activities:	
Introduction/Hook:	KWL chart about weather and climate (fill in the know and wonder section)
Body:	Watch video on weather and climate <a href="https://www.youtube.com/watch?v=XirAUvS_29l&amp;t=132s">https://www.youtube.com/watch?v=XirAUvS_29l&amp;t=132s</a> Informative quiz at the end of video Inquiry on each element of weather: precipitation, wind, temperature Have groups of 4 research the 3 weather elements of Kamloops using website: <a href="http://www.kamloops.climatemps.com/">http://www.kamloops.climatemps.com/</a> Have students share their findings
Closure:	Brain Break (if needed) - weather sounds Fill out what they have learned on their KWL chart Write any questions they may have (also on KWL chart)

Name & Time (Minutes Allotted):	Semi-Arid Desert - living and non-living things,
Learning Standards: Curricular Competencies	CC1, CC2, CC8
Learning Standards: Content	C2
Instructional Objectives	TSWBAT categorize living and non-living things in the Semi-arid Desert biome.
	TSWBAT understand the difference between terrestrial and aquatic biomes within the semi-arid desert (Kamloops) TSWBAT describe the characteristics of a Semi-arid desert biome
Assessment:	Formative as learning What: The students will write their predictions of what they can find outside that is living and non-living and categorize it How: The teacher will go through each item and ask students where they placed it, and why (observing
	Formative as learning  What: Students will collect living and non-living things outside  How: The teacher will circulate and observe whether the students have collected and categorized their items in the right section

mative <i>as</i> learning
nat: The students will share what they have collected by answering
questions: name of object, living or nonliving, what does it connect
n the Kamloops area? uses?
w: The teacher will observe and listen to the students speak about
ir findings and take note.
mmunicating with seat partner, outdoor activity, handouts to check
where each student is at
stic bags to collect outdoor items in x23
cemat for categorizing collected items x23
rome books x23
oboards x23
te paper x23
now images of different biomes with certain characteristics, and
ve students choose which one belongs to the Kamloops region
k about what "semi-arid" means
ve students research semi-arid desert with seat partner on 2
erent websites - take notes in journals and share one thing they
nd.
oduction to living and non-living components in biomes
scussion with seat partner about what students think
ng/non-living means
acher mini lesson on living and non-living on land and in water
udents each write in their journals what they think they can find
side that is living and non-living (leave bugs and critters outside,
e notes or draw instead, plants, rocks, sticks etc. only)
udents each grab a plastic bag to collect items outside
udents collect items outside, or take notes of things they are unable
collect (as much as they can find in 15 mins)
udents come inside and categorize items on placemat
ing/non-living
acher observes items and asks the class if anyone else found a
tain item, and where they placed it, "did anyone else find something
erent?"
<u> </u>

Name & Time (Minutes Allotted):	Species' interactions
Learning Standards: Curricular	CC1, CC5, CC10
Competencies	
Learning Standards: Content	C2

Instructional Objectives	TSWBAT choose a living species (plant, animal, insect) and research
	it's characteristics online
	TSWBAT describe how their species connects and interacts with other
	components of nature
	TSWBAT create a web of their species' food chain and habitat
Assessment:	Formative <i>for</i> learning
	What: Students (in partners) will choose a species and begin
	researching.
	<b>How</b> : The teacher will circulate and check in with each pair and take
	notes on what they are researching and provide input if needed
	Formative as learning
	What: students will circulate the room with other pairs and write notes
	on clipboards of how their species relates with others
	How: The teacher will facilitate discussion after circulation activity
	about something they have learned from other species
	Formative <i>as</i> learning
	What: students will brainstorm and make a web of their species food
	chain and habitat
	<b>How</b> : The teacher will have each pair meet with another pair to explain
	their specie's web
Teaching Strategies:	Have students work in pairs of choice, facilitate guided discussion,
Materials:	Poster paper x12
	Markers
	Chrome books x12
	Journals
Lesson Activities:	
Introduction/Hook:	Make a web for a deer as a class
Body:	-Students will research and choose their own species in pairs
	-Students will circulate with other pairs and see how their species
	interacts with others'
	-Students will discuss how their species interacted with other species
	-students will formulate their own species' web: food, habitat, predators
Closure:	-students will write an "i wonder" about their species in their journal.

Name & Time (Minutes Allotted):	"I Wonder" and Observations at the Park (40min +)
Learning Standards: Curricular	CC1, CC2, CC4
Competencies	
Learning Standards: Content	C1
Instructional Objectives	TSWBAT communicate their "I wonders" about the natural world around them.
	TSWBAT document their observations at the park through writing and/or drawing.
Assessment:	Formative for Learning & Formative as Learning

	What: Students will share their "I wonders" and their observations.
	<b>How:</b> Students will share their "I wonder" with their seat partner and
	then with the class. Observation books will be collected and reviewed
	by the teacher at the end of the lesson.
Teaching Strategies:	Talking with seat partner, brainstorming, outdoor learning
Materials:	Photos for hook, sticky notes for "I-wonders", observation books, extra
	writing utensils for while the class is outside, clipboards (if accessible)
Lesson Activities:	
Introduction/Hook:	Show images of the local/natural environment and invite the creation,
	as a class, of an "I wonder" for each image.
Body:	"I Wonders": Working with their seat partner, students will each write
	on a sticky note an "I wonder" about the environment that we might
	see at McArthur Island and the animals and birds that we might see or
	hear there. Students will share their "I wonder" with the class while
	putting it on the whiteboard.
	Observation: Students will be taken to McArthur Island where they will
	be guided to different parts of the park to pause and look and pause
	and listen. They will document what they see, hear, continue to wonder
	about, and discover in their Observation Books.
Closure:	Ball Pass: Students will stand in a circle and a ball will be passed in
	random order. When a student receives the ball they will share one
	thing they observed while at McArthur Island and one thing they still
	wonder about. Students will sit down after they've shared.

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Name & Time (Minutes Allotted)	: Learning and Research (50 min)
Learning Standards: Curricular	CC1, CC5, CC12
Competencies	
Learning Standards: Content	C1
Instructional Objectives	TSWBAT research on chrome books to find the required information
	about the species they have chosen to learn more about.
	TSWBAT take notes about what they are learning.
Assessment:	Formative as learning
	What: Ticket Out
	<b>How:</b> Students will share one thing they have learned about their species with a partner and learn from one another as they take turns sharing.
	Formative <i>for</i> learning
	What: Use of chrome books for research
	<b>How:</b> Teacher will circulate the classroom and make observations and
	notes about student work.
	Formative for learning
	What: Question & Response Sheet

	How: Teacher will review the Question and Response Sheet to know
	where students have gotten in their research and where they may
	need more support during next class.
Teaching Strategies:	Direct instruction, chrome books, ticket out, documentation sheet
Materials:	Guess the animal photos, Chrome Books, research questions and
	response sheet, tickets out
Lesson Activities:	
Introduction/Hook:	Guess the Animal: Show pictures of parts of species for students to
	guess the correct species. I.e.: feathers of a swan, fur of a gopher,
	scales of salmon, feet of a goose, etc.
Body:	Teaching & Instructions: Explore topics connected to our research
	such as, habitat, life expectancy, food, etc.
	Research: Students will use the Chrome Books to research the
	following pieces about the species they have decided to learn more
	about. Some pieces on the handout: What is the species name?
	Where do they live? What do they eat? One fun fact. What is their Life
	Expectancy? Feathers, fur, or scales? What is their average weight?
	At the end: what is one thing you still wonder about?
Closure:	Ticket Out: Students will write one thing they learned about their
	species and share that with a partner before handing it in.

Research & Poster Making (40 min)
CC1, CC5, CC23
C1
TSWBAT: complete the research on their assignment.
TSWBAT: complete a poster showing what they have learned
Formative <i>for</i> learning
What: Completion of research and poster
<b>How:</b> Teacher will circulate and observe to notice students progress.
Technology, poster creation with words and colour/images
Chrome Books, sample poster, blank poster templates
Poster Sample: Teacher shares sample of a completed poster to
model expectations and engage interest.
Research: Students will continue with the research they started
yesterday.
Poster Making: When students have completed the "question and
response sheet" they will begin making their poster using the
information they have gathered and the template as a guide.
Sentence Starter: Students will be provided with a slip of paper with
the two sentence starters which they will complete and hand to the
teacher:
1) I feel
2) I'd like more time to complete on my poster.

Name & Time (Minutes Allotted):	Poster Share (40 min)
	CC1, CC24
Learning Standards: Curricular	UC 1, UC 24
Competencies	
Learning Standards: Content	C1
Instructional Objectives	TSWBAT show their learning through a completed poster. TSWBAT demonstrate their curiosity to learn more by including one thing on their poster that they still wonder about. TSWBAT give feedback through "stars" and "wishes" on other students' posters.
Assessment:	Summative of learning What: Completed poster about their species of choice How: Students will be marked on the relevance of their learning on the poster for each labeled section.  Formative as learning What: Students will provide feedback to one another through "stars" and "wishes". How: Students will receive the feedback from their peers and learn
	from it.
Teaching Strategies:	"Gallery walk", white board, giving feedback, story
Materials:	Star sticky notes, heart sticky notes, painters tape for hanging student posters, "When God Made the World by Matthew Paul Turner
Lesson Activities:	
Introduction/Hook:	<b>Read</b> : "When God Made the World" by Matthew Paul Turner (this unit has been created in anticipation of teaching at a Christian school)
Body:	Instructions: Let students know that their posters have been posted around the classroom and that we are entering into a time where we will go around the room and look at one another's posters. As we learn from one another we will give stars and wishes on the wall near the poster with our sticky notes (heart notes are for wishes). Review "Stars and Wishes":  Stars: I really like / I enjoyed reading the part about / You did a great job at / It was interesting how / You grabbed my attention when  Wishes: How do you feel about adding / Maybe you can come up with a different way to / What do you think about changing / A recommendation would be to  Poster Share: Students have time to look at one another's work, give feedback, and engage in conversation about what they are learning.
Closure:	Sentence Starter: As the "Poster Share" comes to an end students will be invited to complete the following sentence and write their answer on the board: "One connection I saw to the species I learned about was"

## Resources

http://www.cotf.edu/ete/modules/k4/biomes/Boverview3.html

https://ucmp.berkeley.edu/exhibits/biomes/deserts.php#semi

https://sciencing.com/animals-semiarid-desert-biome-7218102.html

https://www.answers.com/Q/What biome is kamloops

http://www.kamloops.climatemps.com/

https://www.youtube.com/watch?v=XirAUvS 29I&t=132s

#### **Extensions to Unit**

- This unit could be extended to include traditional Indigenous teachings and beliefs. Have an Aboriginal Education Worker (AWE) or local Indigenous person come to the class, or meet at an outdoor location, to talk about the Indigenous connection to the land.
- This unit could be extended into a poetry or writing unit for English Language Arts parallel to the teaching of this topic in science.

## **Reflections and Revisions**

N/A