

# ki?lawna? GRIZZLY BEAR

## LESSON PLANS AND TEACHER RESOURCE GUIDE BC CURRICULUM CONNECTIONS TO SYILX OKANAGAN PEOPLES' WAYS OF KNOWING, DOING, AND BEING

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AS EDUCATORS WE RESPECTFULLY ACKNOWLEDGE THAT WE TEACH, LEARN, AND PLAY ON THE TRADITIONAL,  
UNCEDED TERRITORY OF THE SYILX OKANAGAN PEOPLES.



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## GRADE 2 | ARTS EDUCATION

### GRIZZLY BEAR ART USING MEDIUMS FROM NATURE

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#### BC CURRICULUM CONNECTIONS

Big Ideas: Creative expression develops our unique identity and voice **and** inquiry through the arts creates opportunities for risk taking and making informed choices.

Curricular Competencies:

#### Exploring and creating

- Explore elements, processes, materials, movements, technologies, tools, and techniques of the arts.
- Create artistic works collaboratively and as an individual, using ideas inspired by imagination, inquiry, experimentation, and purposeful play.

Students will be able to...

- Explore art elements and the creative process with their community.
- Use art mediums from nature to achieve a desired brush-stroke effect.
- Respectfully harvest and share miscellaneous items from the natural world, while improvising to support the collaborative, creative process.
- Design visual image making technology (paintbrushes) from art mediums in nature.
- Purposefully play and experiment as individuals to achieve intended artistic effect (image of a Grizzly Bear).

Content:

#### Visual Arts and Elements of Design

- Lines, 2-D shapes, texture, principles of design, and colour.

#### Technologies, Tools, and Techniques to Support Art Activities

- Various materials, art mediums, and visual image making technologies from nature.
- Includes the improvisational use, imagination, creativity, choice, and miscellaneous tools from the natural world.

#### Personal and Collective Responsibility Associated with Creating, Experiencing, and Sharing

- Ensuring the physical and emotional safety of self and others when engaging in the creative process.

- Being considerate of sensitive content, such as the community and living beings in nature (i.e., plants, animals, habitats, etc.)
- Practicing respect and reciprocity toward the plant/animal/school community and sharing art resources with classmates.

## SYILX CULTURAL CONSIDERATIONS

For the Syilx Okanagan peoples, *kiʔlawnaʔ* (Grizzly Bear) is a significant part of their laws, protocols, and creation stories. Like other species, Grizzly Bear is an important part of our natural world, and its existence reminds us of our responsibilities to the *tmuxlawx* (land). Grizzly Bears and the Syilx people forage and hunt the same foods; therefore, the continued presence of Grizzly Bears is a strong indicator of healthy land and healthy people.

## INTRODUCTION

In the interior region, Grizzly Bears forage at a variety of elevations, from valley bottoms to alpine meadows. On the coast of BC, they feed mostly in estuaries and wetlands.

**Foraging:** to search widely for; a search over an area in order to obtain something, especially food.

Grizzly Bears' diets consist of a wide variety of green vegetation, herbaceous plants, many types of berries, roots, small ground animals, insects, and salmon. In British Columbia, Grizzly Bears move large distances to find seasonal foods, mates, and denning sites. A Grizzly Bear always makes use of whatever it may find along the journey.

## LESSON

### PART ONE: FORAGING FOR PAINTBRUSH MEDIUMS IN NATURE



1. Take students on a nature walk within your surrounding community or a nearby park.

2. Have students respectfully harvest various plants such as pine needles, flowers, weeds, long grasses, or leaves.

3. Also have the students collect sticks ranging from 15-20 cm in length (about the size of a pencil or paintbrush).



Note: emphasize the *Syilx* values of respecting the land and practicing reciprocity. Ensure that your students understand the importance of only taking what is needed, and if possible, return the collected items back to the environment. It may also be a good idea to suggest that students share the various plant mediums (i.e., only harvest enough pine needles for one paintbrush that can be shared amongst 2-3 students).

Items to Harvest:

Ponderosa Pine Needles



Bush Clippings



Shrubs



Leaves



Long Grass



Flowers and Weeds



PART TWO: MAKING THE PAINTBRUSHES

1. Using the plants/leaves/clippings and sticks the students collected, it is now time to construct the paintbrushes.
2. Using scissors, have the students cut their medium from nature (i.e., pine needles or bush clippings) into an approximately 5cm long bundle.
3. Using tape or twine, have the students (with help) secure their bundle/brush to the stick.



## PART THREE: CREATING GRIZZLY BEAR ART

### Supplies Needed:

- Brown/black/white paint
- Self-made paintbrushes
- White cardstock paper
- Googly eyes or buttons
- Black/brown paper for ears, paws, and nose (optional).



1. Create demo similar to example pictures. Show students the different strokes each paintbrush creates. Try to produce strokes that mimic the texture of Grizzly Bear fur.
2. Explain to students that Grizzly Bears' fur ranges in color, from cream, light brown, dark brown, silver tipped, to black. Most often they are light brown.
3. Let students explore and share the paintbrushes they created as a classroom community. Offer choice in which brush they choose to use to create their Grizzly. Create opportunity for discussion and rationale for why students chose the brush. Which brush worked best? Which medium from nature created the best fur-like strokes?
4. Students create their Grizzly Bear paintings.

## CONCLUSION

- Return to the concept of foraging; make the connection between Grizzly Bears' process of foraging for food and the improvisational nature of art and the creative process.
- Emphasize the importance of respecting the land and only taking what is needed.
- Highlight the values of community, diversity, and sharing. Each students' preference for which paintbrush medium they chose and how their final art piece looks will vary – diversity is a strength in classroom communities, as well as plant and animal communities. Afterall, no Grizzly Bears look exactly the same!

## GRADE 4 | SCIENCE

### ANALYZING GRIZZLY BEAR POPULATION UNITS

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#### BC CURRICULUM CONNECTIONS

Big Idea: All living things sense and respond to their environment.

Curricular Competencies:

#### Processing and analyzing data and information

- Experience and interpret the local environment
- Identify First Peoples perspectives and knowledge as sources of information.
- Sort and classify data and information using an interactive map

#### Evaluating

- Identify some simple environmental implications of their and others' actions.

#### Communicating

- Express and reflect on personal or shared experiences of place.

Students will be able to...

- Understand the impact human development has on local and regional Grizzly Bear populations
- Analyze information and communicate/record the data collected while exploring the interactive map of BC's Grizzly Bear Population Units.
- Acknowledge Syilx Okanagan perspectives and knowledge to gain deeper understanding of the relationship between human development, environmental implications, and population.
- Reflect on their own positionality and experiences in relationship to place.

Content:

- Grizzly bears' sensing and responding to human actions.
- Biomes as large regions and their environmental features.
  - o Grizzly Bear Population units (GBPU) as regions.



## INTRODUCTION

In 2018, the Grizzly Bear population estimate for British Columbia was approximately 14,925 bears. Before European settlers arrived in British Columbia, about 25,000 Grizzly Bears roamed throughout the province. Grizzly Bear populations have declined primarily in the Lower Mainland and the Thompson-Okanagan regions due to high human population densities. To prevent further loss of Grizzly Bears throughout British Columbia, we need limit development and human population density, secure suitable Grizzly Bear habitats, prevent potentially harmful land use, and carefully manage human-related Grizzly death rates.

## SYILX CULTURAL CONSIDERATIONS

Although Grizzly Bears are occasionally sighted in the southern Interior and the Okanagan, their populations are considered extirpated (non-existent). The Syilx Okanagan people consider *kiʔlawnaʔ* (Grizzly Bear) as one of their relatives, who guides them in the ways of living in respect with the land and all living things. The Syilx people have a responsibility to maintain a harmonious, co-existing relationship with Grizzly Bears within their territory. However, the decline in Grizzly Bear populations severs these cultural connections and responsibilities, while causing imbalance within our natural ecosystems. From the Syilx perspective, the well-being and existence of Grizzly Bears are deeply connected to the well-being of the land and all living things.

## LESSON

### BACKGROUND INFORMATION

#### Grizzly Bear Movement within British Columbia's Biomes

The Grizzly Bear has a unique habitat that includes valleys, meadows, forests and even mountains. On the coast of British Columbia, they mostly feed in estuaries and valley bottom wetlands, where generous amounts of grasses, skunk cabbage, and green vegetation are available to them. In the Interior, Grizzly Bears congregate in moist-low elevations during the Spring; however, they forage from a variety of elevations throughout the year.

Studies have shown that Grizzly Bears are creatures of habit and will usually return to the same seasonal food sources and areas throughout their lifetime, unless their food resources become sparse or unavailable. Their foraging strategies are somewhat flexible and adaptable, as they are capable of covering vast ranges.

**Home range** sizes for a Grizzly are dependent of the food quality, availability, and distribution. If development or human populations have disrupted the food sources in the region, Grizzly

Bears will travel to other areas to accommodate their needs. Sow (female) Grizzly Bears have home ranges of 25 to 200km<sup>2</sup>, and adult males have ranges of 60 to 700 km<sup>2</sup> or more. The large range sizes of male Grizzly Bears are often related more to breeding than food availability, while female bears navigate smaller ranges at their convenience, while caring for their cubs.

### Biodiversity in British Columbia and the Okanagan Valley Biome

The province of British Columbia is known for its abundance of biodiversity and life. The unique qualities of the province are shaped by the Pacific Ocean and the mountainous terrain that spans most of the land, while simultaneously providing life to a rich abundance of organisms. These organisms, such as towering trees, migrating birds, marine animals, insects, amphibians, reptiles, fungi, flowering plants and more all make up the web of ecosystems throughout our province. British Columbia's climatic variation has also contributed to the diversity within these ecosystems, which vary from intertidal areas to forests to grasslands to alpine ice and snow.

### Okanagan Valley: Climate within a Temperate Coniferous Forest Biome

The Okanagan Valley region is known for its dry, sunny climate and landscape, which vary depending on latitude. The north end of the valley receives more precipitation and cooler temperatures than southern areas. Typically, Kelowna acts as a transition zone between the south and north Okanagan.

The North Okanagan has a humid continental climate with warm, sometimes hot summers and cold winters. Dry forests with Ponderosa Pine and low grasses are prominent throughout the valleys and mountains in this region.

The South Okanagan has a semi-arid climate with hot, dry summers and cool winters. The average annual precipitation in this region is the second driest in Canada; areas near Osoyoos and Oliver claim to be part of Canada's only desert.

### What is a Grizzly Bear Population Unit (GBPU)?

Grizzly bears are divided into 55 **Grizzly Bear Population Units (GBPU)** in British Columbia. These regions range in area from approximately 2,700km<sup>2</sup> to 50,000km<sup>2</sup>

These distinct units help manage and identify local conservation concerns, track Grizzly Bear population trends, and apply specific management practices.

GPBUs are rated from low to extreme conservation rankings and are based on 1) population size and isolation 2) population trend, and 3) level of threat to bears or habitat. There are 7

threat subcategories: Residential, Agriculture, Energy, Transportation, Biological Use, Human Intrusion, and Climate Change.

Human development is the greatest threat to Grizzly Bear populations in British Columbia. Development can impact bears directly by increasing the frequency of bear and human conflicts, and indirectly by reducing habitat and food availability. The expansion of human settlements and agriculture can lead to the isolation of Grizzly populations, which reduces the movement of bears into the local area.

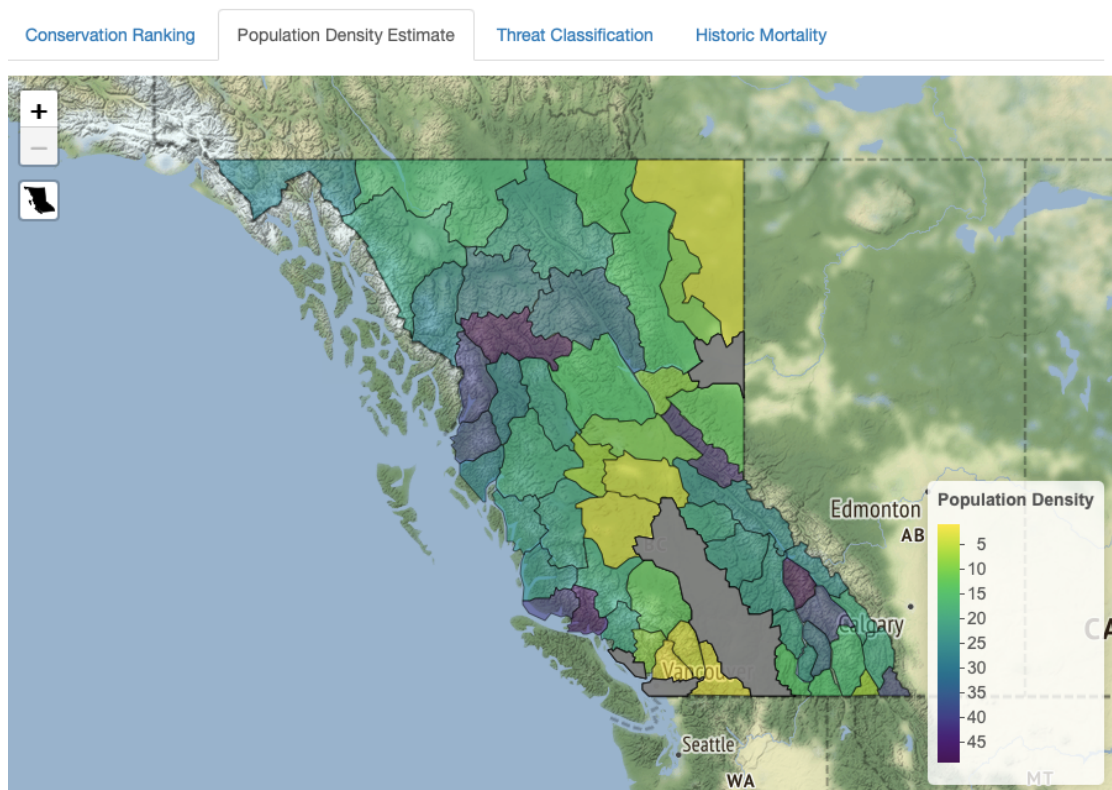
## PART ONE: ANALYZING GRIZZLY BEAR POPULATION UNITS (GBPU)

1. Have your students (independently or in groups of 2-3) explore the interactive map of BC's 55 GBPUs.

Link to Interactive Map: Government of British Columbia | Environmental Reporting BC

<https://www.env.gov.bc.ca/soe/indicators/plants-and-animals/grizzly-bears.html>

2. Students will be expected to analyze and record data reflecting conservation rankings, population density estimates, and threats facing Grizzly Bear populations. (See data recording sheet attached).



## PART TWO: PERSONAL REFLECTION

1. After students complete *Data Analysis Recording sheet*, have them further reflect on their learning with the guiding questions provided on the *Critical Thinking and Reflection sheet* (see attached).

Note: The critical thinking questions are intended for the students to reflect on local First Peoples perspectives, as well as their personal relationship/experiences with place and the environment. The data analysis recording sheet emphasized the curricular competencies, while the reflection is an opportunity for students to situate themselves in their own learning.

# GRIZZLY BEAR POPULATION UNIT (GBPU) DATA ANALYSIS RECORDING SHEET - PART ONE

NAME: \_\_\_\_\_



*ki?lawna?* (Grizzly Bear)

1. How many GBPU's are there in British Columbia?

\_\_\_\_\_

2. Name three GBPU's in BC that have an *extreme* conservation ranking:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

3. Find the name of the GBPU for the region where you live:

a) Name of GBPU \_\_\_\_\_ b) Conservation Ranking \_\_\_\_\_

c) Threat Ranking \_\_\_\_\_ d) Most serious threat \_\_\_\_\_

4. Name the GBPU that has the *highest* threat ranking \_\_\_\_\_

a) What are the top 3 threats in this GBPU?

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

5. Name the GBPU that has the *highest* population density \_\_\_\_\_

a) What is the population density for this region? \_\_\_\_\_ adults/1000km<sup>2</sup>

6. What is the population density for the Central Monashee GBPU?

\_\_\_\_\_ adults/ 1000km<sup>2</sup>

7. Across all GBPU's, what was the *most common* threat?

\_\_\_\_\_





## GRADE 1 | ENGLISH LANGUAGE ARTS

### STORYWORK WITH SYILX *captikʷt: tʼiʔtʼiʔmút twit* (Lazy Boy)

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#### BC CURRICULUM CONNECTIONS

Big Ideas: Language and story can be a source of creativity and joy **and** stories and other texts help us learn about ourselves and our families.

#### Curricular Competencies:

##### Comprehend and Connect

- Engage actively as listeners, viewers, and readers to develop understanding of self, identity, and community.
- Recognize the importance of story in personal, family, and community identity.
- Use personal experience and knowledge to connect to stories and other texts to make meaning.
- Show awareness of how story in First Peoples cultures connects people to family and community.

##### Create and Communicate

- Exchange ideas and perspectives to build shared understanding
- Identify, organize, and present ideas in a variety of forms (orally and on community wall)

Students will be able to...

- Reflect on their personal roles/jobs/responsibilities within their home and classroom communities.
- Orally communicate their roles and responsibilities to their classmates.
- Actively listen to the Syilx *captikʷt*, "*tʼiʔtʼiʔmút twit* (Lazy Boy)" while making connections to self (personal experience) and community.
- Represent their oral discussions in written form

#### Content:

- Oral language strategies
  - o Making personal connections
- Language features, structures, and conventions
  - o Concepts of print, letter formation, and sentence structure.

## SYILX CULTURAL CONSIDERATIONS

*captikʷ* are a collection of teachings about Syilx Okanagan laws, beliefs, values, and principles that holistically reflect their rights and responsibilities to the land, as well as their culture. These stories provide insight and instructions on how to live in harmony with the land and others. *captikʷ* serve as a reminder of the natural laws and protocols that need to be respected, so that future generations can live in balance with each other, their communities, their families, and with the *tmixʷ* (all living things). These stories are embedded within Syilx language and culture; therefore, processes of cultural renewal and revitalization are sparked each time they are shared.

Note: The story *tʼiʔtʼiʔmúʔ ttwit* (Lazy Boy) has been translated by Sʔamtícaʔ (Sarah Peterson), an Okanagan Nation Elder from the Lower Similkameen Indian Band. This story is an adaptation of the *captikʷ* of Lazy Boy – a story about a boy who learns about self-care, wellness, and giving back to the community. For thousands of years, Syilx people have been passing down their history through oral narratives, from one generation to the next. This story has been translated and published with the intent of keeping Syilx language, culture, and values alive for the future generations.

## LESSON

### PART ONE: INTERACTIVE READ ALOUD - *tʼiʔtʼiʔmúʔ ttwit* (Lazy Boy)

#### Engagement

1. Mention to the students that we are all a part of stories, because we all have our own stories. In order to actively listen and engage with *captikʷ* with our whole bodies, we need to activate them by becoming a part of the story.
2. Have students stand up! Read the title of the book and show them the cover. Ask the students to show you what a Grizzly Bear **looks** like (express through their body language – fingers sprawled, arms bent upwards, hunched back, crawling etc.) Then, ask the students to show you what a Grizzly bear **sounds** like.
3. You can take this movement and engagement activity further by referring to the Grizzly Bear on the books cover. Ask the students, how do you think this Grizzly Bear **feels**? Then ask the students to demonstrate their different responses (i.e., show me what an angry Grizzly Bear looks like, or what a lazy Grizzly Bear looks like).

#### Transition into Storytime

1. Have the students sit back down to prepare for story time. Now that they engaged their senses, emotional awareness, and moved their bodies, it is now time to be respectful listeners.

2. Before you start reading, tell the students that there are hidden messages (deeper meaning) hidden in the story – so they must listen carefully with their whole bodies (hearts, body language, and minds) to find them.

### While Reading

#### Discussion Questions and Prompts:

- Everyone in the village has a special job, what are they?
- What does it mean to be lazy? What could this look like at school? At home?
- How do you think the boy's family feels when he doesn't help?
- How do the mother Grizzly Bear and cubs help the boy?
- Why are the Grizzly Bears and the boy considered family?
- What did the Grizzly Bears teach the boy?
- How does the boy help the Grizzly Bears in the end of the story?

## PART TWO: AN OPPORTUNITY TO MAKE CONNECTIONS AND REFLECT ON PERSONAL EXPERIENCES THROUGH SHARING CIRCLE

### After Reading

1. Once you have read the book and worked through the discussion questions as a class, revisit the concept of *everyone in the village has a special job*.
2. Pose the questions “do we have special jobs or responsibilities in our classroom?” and “do you have special jobs at home?”
3. Extend students connection making and reflection on personal experience further by asking “do we have special jobs when we are in nature, when we take care of plants and animals, or when we play with our friends?”

### Gather in Circle

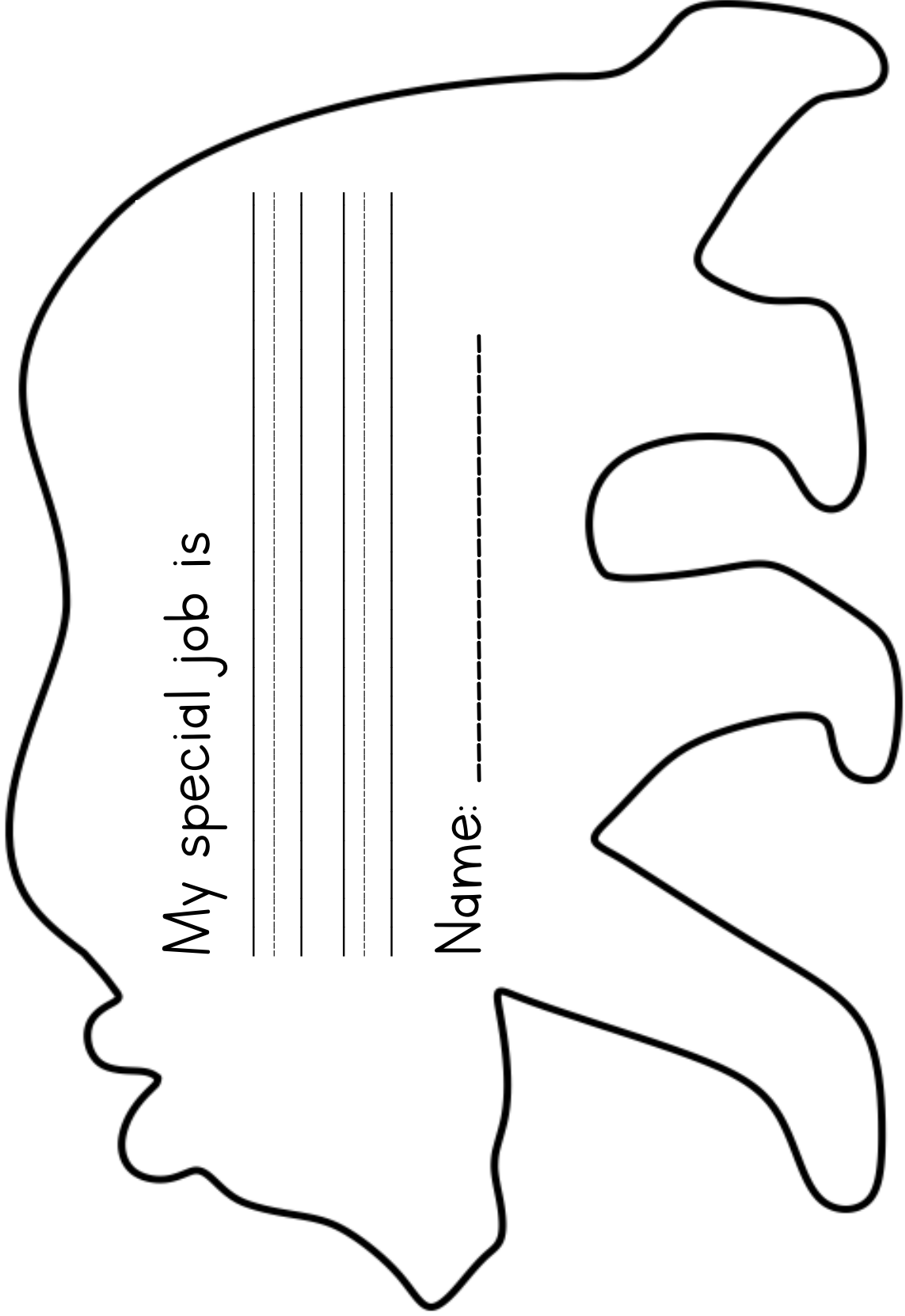
1. Gathering in a circle is a significant part of Syilx protocol when members of community get together to problem solve, when ideas are being shared, and in ceremony. A circle is symbolic of many things, but for the purpose of this lesson we gather in circle to highlight a sense of community, as well as the fact that all voices are to be heard.
2. There are certain protocols for sharing circles, such as standing up straight, only talking when it is your turn, and to show respect by actively listening to the speaker. These are important skills to have; however, we acknowledge that in Grade 1, these skills are still a work in progress. It is important for your students to be aware of these protocols and to try their best to respect them.
3. Going around the circle, have each student share a special job they have at home, at school, or in their community.

## Closing the Circle

1. Acknowledge each student's contribution to the circle and offer positive encouragement for all of the help they provide within their communities.
2. Connect back to the story by mentioning that just like everyone in the village had a special job, we all have special jobs too.
3. To emphasize the value of your students' personal experiences, courage to share, and special contributions, express to them that you are going to make a *Community Wall* to make their special jobs and contributions visible.

## **PART THREE: MAKING THE CONNECTIONS AND LEARNING VISIBLE (COMMUNITY WALL)**

1. After having students orally share their home and community contributions, have them write down (on the Grizzly Bear template provided) their special job. This can be something they do to help out at home, or a special role they hold in your school community.
2. Make the students learning and contributions visible! Create a bulletin board in the hallway or in your classroom to display their writing. You could title this board "Our Community Wall" or "Our Community of Helpers."
3. While students look at this wall, they will be reminded of the special role they have in their community or at home, which contributes to a positive sense of identity development. This collective visual also supports a strong feeling of community, and provides an opportunity for students to learn more about each other (relationship building).



My special job is

Four sets of horizontal lines for writing, each consisting of a solid top line, a dashed middle line, and a solid bottom line.

Name: -----

## GRADE 3 | SCIENCE AND SOCIAL STUDIES (CROSS-DISCIPLINARY LESSON)

### FIRST NATION TERRITORY MAPS AND ECOSYSTEM MINDMAPS

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#### BC CURRICULUM CONNECTIONS (SOCIAL STUDIES)

Big Idea: Learning about Indigenous peoples nurtures multicultural awareness and respect for diversity.

#### Curricular Competencies:

Students will be able to...

- Make value judgements about decisions/actions in regard to types of maps and the colonial history of mapping.
- Recognize the causes and consequences of these decisions (i.e., Why was the decision made to not include Indigenous territories on our physical and political maps? What does this say about Canada's history with Indigenous peoples? What are some of the consequences of excluding Indigenous representation on our maps?)
- Explain why it is significant to include and acknowledge First Nation territories.

#### Content:

- Aspects of life shared by and common to peoples and cultures (mapping is a universal technology and there are many different kinds of maps used globally).
- Relationship between humans and their environment (protocols around the world for respecting and acknowledging the land; methods of visually representing and labeling the land; different place names).

## LESSON

### PART ONE: WHAT ARE MAPS?

- A map is a visual representation of an area of land or water showing the physical features, cities, climate, elevations, and roads.



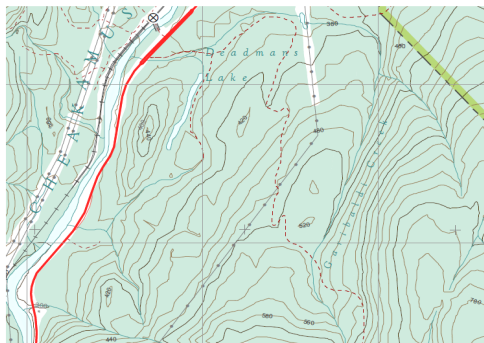
There are many different types of maps:



Political maps: show the provincial and national boundaries, capitals, and major cities.



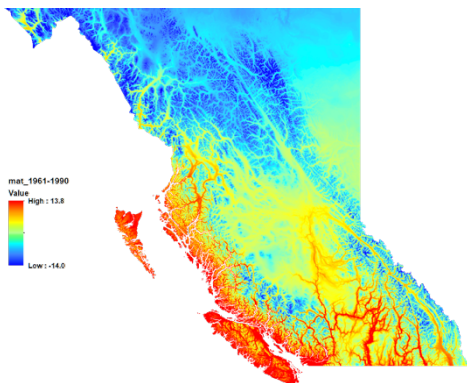
Physical maps: illustrate the physical features of an area, such as mountains, rivers, and lakes.



Topographic maps: include contour lines to show the shape and elevation of an area.



Road map: show different roads, highways, or railways in the area; very detailed and generally used for direction.



Climatic map: show the climate (precipitation and temperature) of different areas; typically uses color to show types of climate.



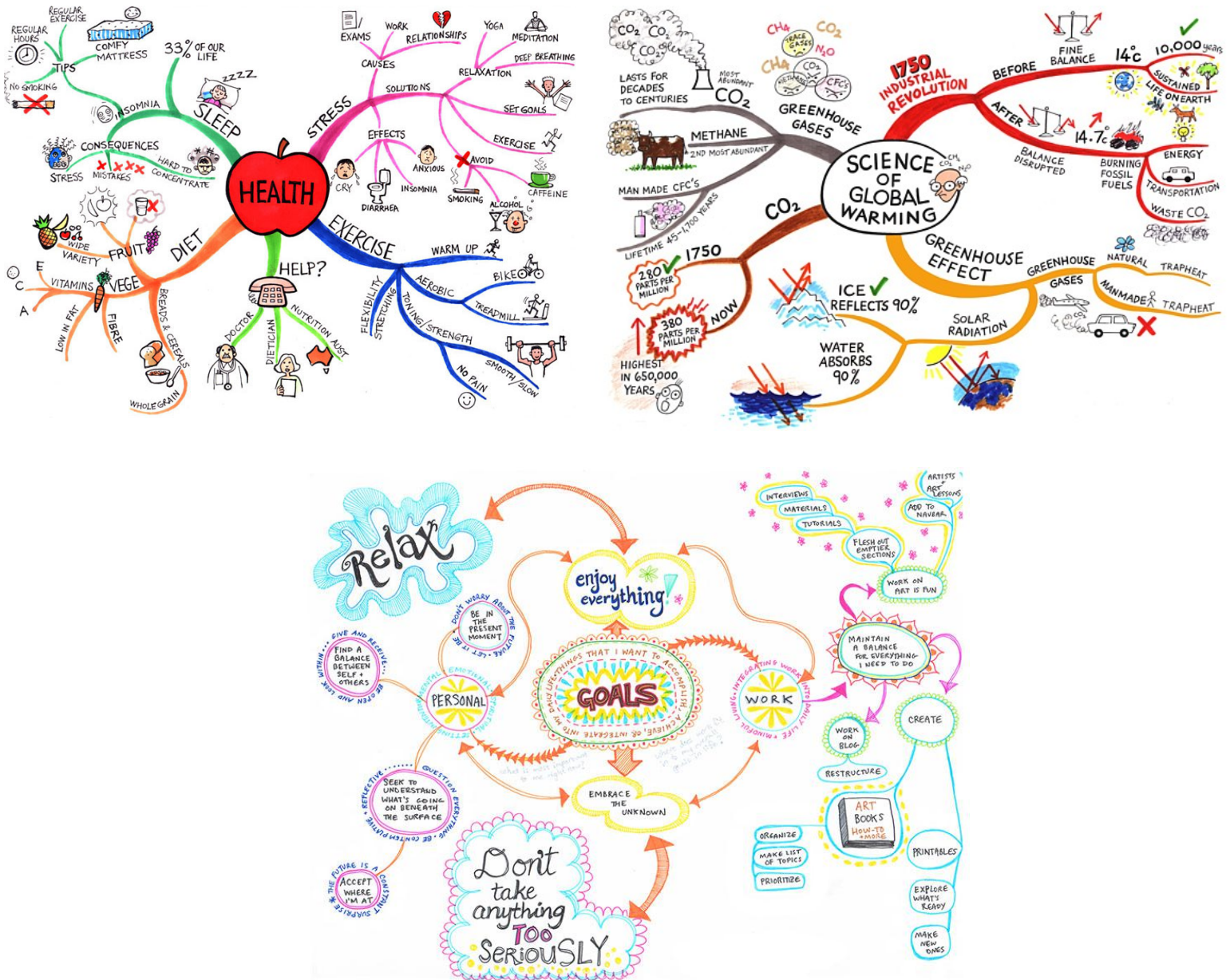
First Nation Territory map: show the various First Nations groups and territories in the area.

1. Show your students a map of British Columbia. Ask them to locate where you are on the map.
2. Ask your students what First Nation territory you are currently learning on (i.e., Syilx Okanagan territory). Ask them to locate it on the map.
  - Why are cities like Kelowna, Penticton, and Vernon labeled on the map but the names of the First Nations territories are not?
  - Is that fair? Why is it important to acknowledge First Nations territories?
3. Show your students a First Nations territory map of BC.
  - These interactive BC maps are great resources  
<https://maps.fpcc.ca>  
<https://www.bcafn.ca/first-nations-bc/interactive-map>
  - Locate the local First peoples' territories in your surrounding area. If your students are not from the area, locate the names of the territories and First Nations groups from their hometowns.
4. Discuss the cause and consequences of excluding First Nations territories from Canada's and British Columbia's political map.
  - Why are we expected to know the provinces and capital cities, but not the boundaries of the First Nation territories?
  - Have you seen a First Nations territory map before? Do you think your parents or grandparents studied a First Nations territory map in school?
  - If the government of Canada is working towards a reconciled relationship with Indigenous peoples, how could their relationship to place, their languages, cultures, and territories be better represented in the maps we use?
5. Orally acknowledging the territory we reside on is important, and so is knowing our location in relation to place. It is also important to be aware of the various First Nation bands in your local area, because multiple First Nation bands can coexist in a single territory.
  - For example, the Syilx Okanagan territory includes the Okanagan Indian Band, Osoyoos Indian Band, Penticton Indian Band, Upper Nicola Band, Upper and Lower Similkameen Indian Bands, and Westbank First Nation.

## PART TWO: WHAT IS A MIND MAP?

A **mind map** is a diagram used to visually organize information or relationships. It shows the interconnectedness or parts within a whole. It may illustrate a single concept or demonstrate how multiple concepts/thoughts/ideas intercept. Images are often drawn, painted, or glued onto a blank page, to which associated or related ideas, images, words, or concepts are added.

Examples:



## PART THREE: GRIZZLY BEARS' RELATIONSHIPS WITHIN OUR INTERCONNECTED ECOSYSTEM

### BC CURRICULUM CONNECTIONS (SCIENCE)

Big Idea: Living things are diverse, can be grouped, and interact in their ecosystems.

Curricular Competencies:

Students will be able to...

#### Processing and Analyzing Data and Information

- Experience and interpret the local environment and interactions between living and non-living things.
- Identify First Peoples (Syilx) perspectives and knowledge as sources of information
- Sort and classify ecosystem data and information using drawings
- Use a mind map to represent data and show simple patterns, trends, and relationships.

#### Communicating

- Represent and communicate ideas and findings of ecological relationships through a mind map.
- Express and reflect on personal or shared experience of place

Content:

- Biodiversity in the local environment (Grizzly Bear, Salmon, Saskatoon Berry, Bitterroot)
- The knowledge of local First Peoples of ecosystems (the interconnection between living and non-living things)

### SYILX CULTURAL CONSIDERATIONS

The *nsyilxcen* word commonly used to refer to all living things is *tmix*<sup>w</sup>. *tmix*<sup>w</sup> includes everything alive – the land, water, animals, people, plants, and so on. The Syilx Okanagan concept of land encompasses more than the physical geography of place, it includes the spiritual connections of everything living on and within it. The relationships among the *tmix*<sup>w</sup> are complex, interconnected networks. These networks, or ecosystems, are deeply interrelated, and what happens to one plant, animal, or organism will impact the whole system. From the Syilx perspective, the well-being and existence of *ki?lawna?* (Grizzly Bears) are deeply connected to the well-being of the land and all living things.



## BACKGROUND INFORMATION

Within our biodiverse ecosystems, *kiʔlawnaʔ* (Grizzly Bears) are known as a keystone species. Grizzly bears play important roles in these complex networks, as apex predators and population regulators. They also contribute to the maintenance of forest regeneration, clean water systems, pest control, seed dispersal, prevention of diseases, and climate regulation. Without keystone species, such as *kiʔlawnaʔ*, the health of our land and ecosystems would decline.

To develop a clearer understanding of the significant role *kiʔlawnaʔ* plays within our ecosystem, let's think about some of the relationships they have with other living and non-living things.

1. When Grizzly Bears eat **salmon**, they are regulating the salmon population. After consumption, the salmon's bones are dispersed into the ground through the bears' feces, which contributes to the process of **nutrient cycling** in the soil (decomposition → nitrogen).
2. Nutrient cycling supported by Grizzly Bears contributes significantly to **forest and plant growth**, which makes them more nutritious for other species that consume them.
3. Healthy **forest and plant systems** contribute to a stable **riparian area**, which is essential to a healthy salmon supporting water system. Large numerous trees prevent erosion, while contributing to sediment and **water temperature regulation**.
4. When Grizzly Bears carry salmon away from streams, **they prevent disease and fungal outbreaks** caused by too many carcasses accumulating near the riparian area.
5. **Ungulates (elk, deer, moose calves)**: Although Grizzly Bears diets are mostly omnivorous, they do seek out the carcasses of ungulates that have died in the winter or were left behind by another predator. The consumption of these carcasses contributes to nutrient cycling in the soil too, as well as an increase in plant biomass. Grizzly bears also prey on deer, moose, and elk calves in the spring, which helps regulate their populations.
6. Grizzly Bears also consume many **roots** (such as bitterroot) and **small rodents** that burrow in the ground. When the bears dig them up, it contributes to the process of **soil aeration**.
7. Grizzly Bears also like to eat **berries** (such as Saskatoon berries). After consumption, the seeds are dispersed into the ground through the bears' feces, which contributes to the process of **seed dispersal** over large areas.
8. **Human development** is the biggest threat to Grizzly Bear habitats and populations in British Columbia, followed by transportation, energy production, and mining. **Climate change** is also a significant factor that influences Grizzly Bears' migration patterns, as well as the availability of food sources, such as salmon.

## PART FOUR: CREATING GRIZZLY BEAR ECOSYSTEM MIND MAPS

1. Have your students focus on one or two of the relationships described above. Have them reflect on this relationship and think about further connections and impacts.
2. Perhaps you want to allow your students to have a brainstorm, or an opportunity to write down ideas, images, and words they would like to include on their mind map.
3. If students wish to pursue a different ecological relationship connected to Grizzly Bear, encourage their inquiry.
4. Creativity and diversity are encouraged during the mind map creation process. Students should have choice of the artistic mediums they use to construct their mind map. Some students may wish to create hand-drawn projects, collages, paintings, or digital versions of their thinking. However, it is important to ensure that **the ecological relationship** is clearly represented in their mind map.

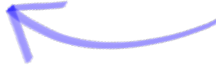
## GRIZZLY BEAR ECOSYSTEM MIND MAP EXAMPLES





ntytyix

Grizzly bears like to eat salmon.



ki?lawna?



Nutrients cycle through the soil.

Grizzly bears poop out the Salmon's bones.



Forests are healthy and they grow!

Forests animals are now happy and healthy!



# GRIZZLY BEAR'S RELATIONSHIP WITH SALMON