

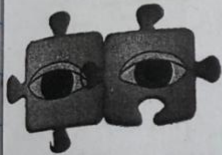
Learners looked through Sophie Thomas' book for different examples of local TEK

- Local examples:
1. Poplar: bark is chewed and applied to a wound to stop the bleeding
 2. Sage: placed in hot water and the vapours are inhaled (coughs)
 3. Fireweed: core of stems eaten raw, roots are dried, cooked, and used as medicine
 4. Chickcherry: stems are boiled to make tea as medicine.

Science is...

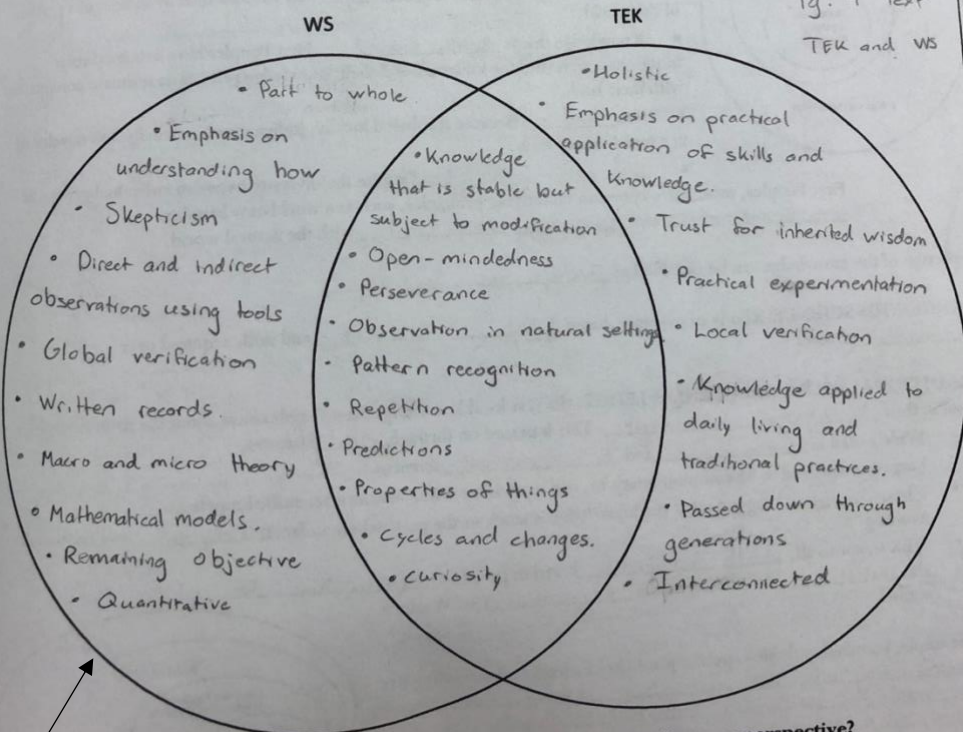
- A global human endeavor
- Continually refining and expanding our knowledge of the universe; how things work today, how they worked in the past, and how they are likely to work in the future.
- Science consists of observing the world by watching, listening, observing, and recording. Science is curiosity in thoughtful action about the world and how it behaves.

Etuaptmunk



- A term developed to describe a way of using the strengths of both Indigenous knowledge and Western Scientific Knowledge to understand the world
- A guiding principle for intercultural collaboration, Two-Eyed Seeing provides the gift of multiple perspectives.

Pg. 9 text
TEK and WS



Why is it important to see the natural world from more than one perspective?

Using their textbook, class notes, and discussion points, learners compared and contrasted TEK and WS

INTRO

Gratitude for the Land & the Interconnectedness of the World

Story: "Asters & Goldenrod" from *Braiding Sweetgrass* by Robin Wall Kimmerer

What stuck with you from this reading?

The imagery was so beautiful, I loved how the contrast between the asters + goldenrods and western science + traditional knowledge.

What do you think it means to see the world as a gift? How might we give gifts back to the world?

We need to take care of the world, as it's taken care of us.

What is meant by the term "reciprocity"?

The earth gave us the gift of being alive, and could easily take it away. We need to take care of her. give + get

Video 2: "How Wolves Change Rivers"

Using some (or all) of the following key words, explain what happened to Yellowstone National Park after the reintroduction of wolves:

- | | | | | | | |
|--------|---------|------------|-----------|--------------|---------------|---------|
| Rivers | Deer | Vegetation | Erosion | Wolves | Behaviour | Bears |
| Trees | Beavers | Stabilized | Geography | Mice/rabbits | Eagles/ravens | Coyotes |

The wolves hunted the deer, which helped vegetation grow, there were more trees + berries for beavers and bears. The wolves killed the coyotes, which brought back mice + rabbits which brought predatory birds.

If ecosystems are THIS interconnected, what happens when we interrupt ONE component of an ecosystem?

The whole ecosystem will change + can fall apart and die completely.



scientific questions.

What do you think it means to see the world as a gift? How might we give gifts back to the world?

I think it means that the world was given to us and that it is special and should be taken care of. We can give back to the world with our understanding of how it works and use our knowledge for good.

What is meant by the term "reciprocity"?

Reciprocity is meant to be the complementing of one thing by another in an equal relationship.

Video 2: "How Wolves Change Rivers"

Using some (or all) of the following key words, explain what happened to Yellowstone National Park after the reintroduction of wolves:

Rivers	Deer	Vegetation	Erosion	Wolves	Behaviour	Bears
Trees	Beavers	Stabilized	Geography	Mice/rabbits	Eagles/ravens	Coyotes

When the wolves were reintroduced to the park, they limited the deer population, which allowed the plants in some regions to regrow. This made the land stronger and less susceptible to erosion. The new vegetation attracted birds and mice, which attracted other predators like foxes, badgers, coyotes, bears and eagles.

If ecosystems are THIS interconnected, what happens when we interrupt ONE component of an ecosystem?

When we interrupt one component of an ecosystem, all other components are likely to be impacted, especially if the component being removed is important to a working ecosystem. Some components may be negatively impacted while others may benefit, but the ecosystem is not balanced.

Video 3: "Salmon and the Forest" - David Suzuki

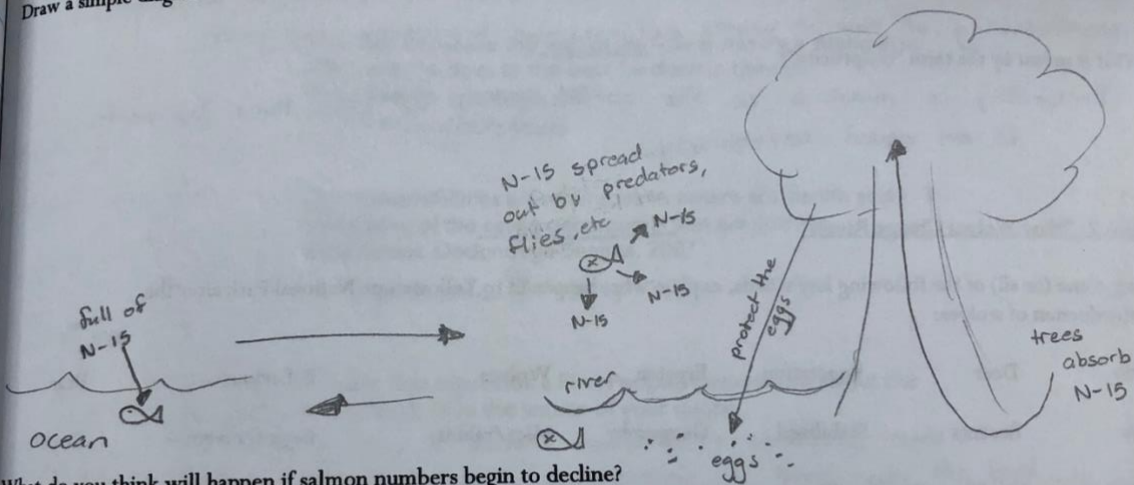
In what ways do salmon need the forest?

The trees keep the water cool for the salmon eggs and prevent erosion

In what ways do forests need the salmon?

In the ocean, the salmon gain large amounts of nitrogen-15 in their bodies. The predators take the fish out of the river and all the nitrogen-15 from the fish is spread through the forest which is great for tree growth.

Draw a simple diagram of the interaction between salmon and BC's coastal rainforests.



What do you think will happen if salmon numbers begin to decline?

If the salmon numbers begin to decline, I think that the trees will not grow as much because they will not be receiving the amounts of N-15 that they need to grow.



Salmon and the Forest - David Suzuki

What ways do salmon need the forest?

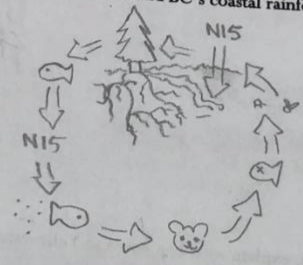
the canopy of the trees, as well as the stability of the banks, preventing erosion

What ways do forests need the salmon?

they carry nitrogen, and when eaten by animals, their nitrogen is spread across the forest

Draw a simple diagram of the interaction between salmon and BC's coastal rainforests.

N14 - Forest
N15 - Ocean



What do you think will happen if salmon numbers begin to decline?

The trees may start dying, which will provide less shade for the fish, which will cause the bears to have less food and they'll start dying. There won't be as many bugs feeding off the carcasses, which means the migrating birds won't have the food they need to survive



Blackline Master 1-4
Responsibilities to the Land

1. Here are three quotes from First Nations leaders about our responsibilities to the land. As you read them, annotate the quotes by highlighting key words. Add comments and questions in the margins.

As long as the sun shines, the rivers are flowing and the grasses are green we will remember our **sacred responsibilities** to the lands as our **relatives**.
Chief Peguis, 1817.

In a way, referring to the lands as our relatives is technically not wrong, as all organisms are related.

Man did not weave the **web of life** - he is **merely a strand** in it. **What ever he does to the web, he does to himself.**
Chief Seattle, Susomich, 1854

This is a great way to perceive life, as totally interconnected, for it's important to understand how an action may affect everything.

Our **responsibilities** are **reminders** to ensure the health and well-being of the seven generations that are coming.
Oren Lyons, Ondondaga-Seneca, 2007

How much of an impact will the choices we've made now affect the future generations? How will they clean up our mistakes?

2. Find another quote that expresses a First Peoples perspective about our relationship with the land. Give the source of your quote.

"The land is our life. If they come and destroy our land... that takes away our life too. Without the land, we are nothing" - Djipirri?

Muringgiriviti. (source: www.australiatogether.org.au/discover/indigenous-culture/the-importance-of-land/)

3. What is your point of view? Add your own words that express something about our relationship with the land.

I believe it's imperative to understand the impact our actions have on the land, and to respect it, as we are all part of the same biosphere. Effects may not directly affect us at the start, but eventually, it will all come back in a full circle, influencing not only us, but the generations that follow and everything around us.

Why is it useful to think of life as a tree?

It is useful to think of life as a tree because this model shows the evolution paths and relationships between organisms from the very first common ancestor to the newest species being discovered. This model is also a good taxonomic representation because, like the taxonomic system, a tree's branches represent the broad category of a domain right down to the trunk, the more specific genus and species categories.

Does this model include WS and IS ways of looking at the world? Why?

This model does not include IS ways of looking at the world. IS looks at the world in a more holistic view and believes in the interconnectedness of all, and while the tree model of WS shows how we are all genetically connected to a common ancestor, IS is more concerned with the physical relationships organisms have with the people, the land, and other organisms. The IS ways of looking at the world are not included in the WS model likely because even though there are indigenous peoples all over the world, their knowledge is limited by the environments they live in and is therefore incomplete to a WS point of view, whose focus is more theoretical knowledge and perhaps not as focused on the practical applications like IS.

Does this model include WS and IS

What is TEK and how can it be useful to Western Science / How can the two work together?

TEK is Traditional Ecological Knowledge that is passed down through First Peoples. It focuses on how to exist in harmony with Nature. Combining it with Western Science can be useful as Indigenous peoples have extensive knowledge of the land, and how it interacts with everything.

Being more aware of TEK and making more of an effort to include it when making decisions.

It's useful to think of life as a tree, as it shows how all organisms started at the trunk, or from one common ancestor, and branched off into new species. I feel like it well represents Western Science, as well as Indigenous Science, as it shows the way all of life is connected and that everything works together as one.

Another memorable activity (of which I have no pictures) was during our taxonomy unit. Learners moved around the classroom and first sorted cards into the 6 kingdoms (western science classification), and after into categories more aligned with Indigenous ways of knowing. There was then an extension activity in which learners could choose to further explore classification using FNEC resources and the First Voices website:

<https://www.firstvoices.com/explore/FV/sections/Data/Athabasca/Dakelh/Dakelh%20%20So%20uthern%20Carrier/learn/words?category=d64b6325-5fd4-4783-9c56-3797cac00a33>

WS Classification	IS Classification
D: Eukaryota K: Animalia P: Chordata C: Mammalia O: Artiodactyla F: Bovidae G: Bos <u>Bos bison</u>	① Big Game → Bison "t'ok'ijere" Traditional Uses: - Food source - Warm clothes / Blanket - Horns for tools - Bones for tools - Bones for jewellery

Fostering stewardship on local issues

Ecology and Importance

- Many host diverse microbial communities
- Nutrient cycling in reef environments (P, N, C)
- Food source and/or protection for some animals
- Used for hygiene purposes since the Roman Empire
- Research being done on chemicals in sponges that discourage prey and prevent infection
- Used to treat cancer and HIV

Glass Sponge Reefs in BC (News Article)

1. Explain how sponges are able to "filter billions of ocean water daily". Why is this important?

Sponges pull in seawater through their pores from a current made by the flagella of the collar cells. Sponges do this to feed on organisms and get rid of waste. This is important because it cycles the nutrients in the water.

2. Name 2 other ways mentioned in this article that sponges are important to ocean ecosystems.

- Sponges provide a habitat for fish and other sealife
- Sponges are a food source for some marine animals

3. Name 4 ways these sponges are being threatened in BC.

- Trawling
- Climate change
- Prawn trapping
- Ocean acidification