siwłkʷ, Water Curriculum

K–12 TEACHER'S RESOURCE GUIDE

syilx
Okanagan Nation Alliance

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"Our Relationship with Water in the Okanagan – Exploration in Outdoor Education to Support the B.C. Curriculum".
This included:

"Introduction" module
https://www.okwaterwise.ca/resources/Our-Relationship-with-Water-Introduction.pdf

"Okanagan Watershed and Climate" module
https://www.okwaterwise.ca/resources/Our-Relationship-with-Water-Okanagan-Watershed-Climate-Module.pdf

"Building Outdoor Learning Spaces" module
https://www.okwaterwise.ca/resources/Our-Relationship-with-Water-Building-Outdoor-Learning-Spaces-Module.pdf

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Getting Started: A Note for Educators

Who are the Syilx People?

The Syilx people of the Okanagan Nation are a trans-boundary tribe separated at the 49th parallel by the border between Canada and the United States. The Nation is comprised of seven member communities in the Southern Interior of British Columbia.

Syilx Nation members share the same land, nsyilxcən language, culture, and customs. They are a distinct and sovereign Nation.

Being Mindful

As all of us continue along the journey of reconciliation and decolonization, mindfulness is important. Be intentional with the language you use and the tenses that you speak in. There has been a historic tendency to discuss indigenous peoples in the past tense. This resource guide will refer to the Syilx people in the present tense to honour the vibrant contemporary Syilx community. Be careful of the image being presented for the next generation. Lastly, be aware of your role as an educator in your learning journey. It is important to recognize your role as a learner. It is okay not to have an answer for everything but rather celebrate the curiosity that leads to self-led learning.

There are many resources available to help you.
First Voices: https://www.firstvoices.com/

Syilx Okanagan Territory and siyaʔ, Saskatoon berry

Introduction

"One of the key values in our Indigenous Syilx approach to learning is that we must create relationships for learning and teaching to occur. We create new understanding by gathering bits of old and current knowledge and engaging in a continual process of dialogue, action and reflection. The steps of this process recur like an upwards spiral, lifting us towards greater understanding and ability."

— Dr. Bill Cohen

limlemt, thank you, for taking the time to expand your view of siwłkʷ.

Syilx community members engaging in a cultural ceremony.

This curriculum is designed with the goal of supporting educators to understand and incorporate Syilx values of siwłkʷ, water into their learning and teachings. Water is vital to all of our existence and we believe that this curriculum will support the process of relationship-building between classrooms and the tmixʷ (most closely translated as 'ecology').

As you will see, valuing siwłkʷ does not solely take place during planned activities. Rather, it's a living part of the classroom community, honouring Syilx values daily.

Youth learn by watching us. As a result, any revitalization and healing of our own relationships has a profound ripple effect through the interconnected web of our existence. Educators are gifted the responsibility of leading by example. Thus, by honouring and upholding siwłkʷ in their own practice, educators will impact the way current and future generations understand their relationships to the land and waterways.

The intent is to share learnings about Syilx history and culture as they pertain to siwłkʷ. The Okanagan Nation Alliance is committed to ensuring that our captikʷɬ (collective, embedded oral Syilx culture, laws, responsibilities to the land and our culture, natural laws and protocols), and our nsyilxcən language continue to shape our path forward.

We have designed this curriculum around the First Peoples Principles of Learning

https://www.fnesc.ca/first-peoples-principles-of-learning/

and BC Curricular and Core Competencies

https://curriculum.gov.bc.ca/competencies

Activities are suggestions but can be modified and expanded upon for a variety of learning experiences.

siwłkʷ, Water

siwłkʷ is the nsyilxcən word for water.

The meaning comes from (siw) and (łkʷ).

The (siw) comes from siwst – to drink (human).

The (łkʷ) comes from łkʷitkʷ – to lap (animal).

Together the two parts identify the Syilx ethic that the right to water is equal for animals and humans. siwłkʷ is sacred as the source of all life on the tmxʷulaxʷ (land).

Syilx Water Declaration

The Syilx Water Declaration serves as a living document on the Syilx relations and values to water. This document communicates the importance of water and responsibilities we have as Syilx people. The importance of water in Syilx communities and governance is related through captikʷł and the natural laws. Syilx governance systems have always sustainably and respectfully managed water.

> "The Okanagan Nation has accepted the unique responsibility bestowed upon us by the Creator to serve for all time as protectors of the lands and waters in our territories, so that all living things return to us regenerated. When we take care of the land and water, the land and water take care of us. This is our law."
>
> — Syilx Water Declaration excerpt

Illustration: from *How Coyote Broke the Salmon Dam* by Spirit Peoples

Syilx Water Declaration

iʔ̓ siwɬkʷ sxʷl̓xʷal̓tət.

WATER IS OUR RELATION.

iʔ̓ l̓ ʏaʏát stim siẇɬkʷ iʔ̓ ẏlmixʷm̓tət.

WATER BONDS US TO OUR ANCESTRY, OUR DESCENDENTS AND OUR LAND.

kʷu ʏaʏát iʔ̓ kʷu sqilxʷ kscpútaʔstm
áɬiʔ ẏlmixʷmtət iʔ̓ siwɬkʷ.

WATER MUST BE TREATED WITH REVERENCE AND RESPECT.

áɬiʔ íʔ n̓xʷl̓xʷl̓taṅtət lut kstaṅmúsm̓tm,
áɬiʔ ksctxt́stim ʏaʏat iʔ̓ stim.

OUR RELATIONSHIP WITH WATER IS NOT TAKEN LIGHTLY, WE ARE RESPONSIBLE TO ENSURE THAT OUR RELATION CAN CONTINUE TO MAINTAIN THE HEALTH AND RESILIENCY OF OUR LAND AND ANIMALS.

Iʔ̓ siwɬkʷ n̓xʷl̓xʷl̓taṅs iʔ̓ tm̓xʷúlaʔxʷ uɬ ʏaʏát iʔ̓ stim

WATER IS THE LIFEBLOOD OF OUR LAND AND OUR ANIMALS AND WE AS SYILX PEOPLE

kscsuxʷstm iʔ̓ siwɬkʷ x̌aʔx̌áʔ knaqs ckʷiskʷsts ʏat aʔ̓ cxʷl̓xʷal̓t.

RECOGNIZE WATER AS A SACRED ENTITY AND RELATIVE THAT CONNECTS ALL LIFE.

iʔ̓ siwɬkʷ ʏat taʔkín k̓l̓ kscxʷl̓xʷal̓ts iʔ̓ tm̓xʷúlaʔxʷ uɬ k̓l̓ tmixʷ.

WATER COMES IN MANY FORMS AND ALL ARE NEEDED FOR THE HEALTH OF LAND AND FOR THE ANIMALS.

mipnúntm iʔ̓ sx̌aʔx̌áʔs iʔ̓ siẇɬkʷ k̓l̓ ʏaʏát iʔ̓ stim.

WATER IS OUR MOST SACRED MEDICINE, WATER NOURISHES, REPLENISHES, CLEANSES AND HEALS.

ɬaʔ̓ ck̓ʷul̓mstm iʔ̓ siwɬkʷ kschaʔstím uɬ ksctxt́stim.

ANY USE OF WATER SHOULD BE AN ACT OF REVERENCE AND A COMMITMENT TO OUR RESPONSIBILITIES.

ʏaʏát iʔ̓ sxʷl̓xʷal̓tət, ʕapnáʔ uɬ cm̓
t̓ spn̓kin, áɬiʔ kʷu sʔukʷnaʔqínx.

OF ALL LIFE. NOW AND TO COME, AS SYILX PEOPLE.

iʔ̓ siwɬkʷ cxʷuy t̓l̓ tm̓xʷúlaʔxʷ t̓l̓ wist uɬ lut kscwsn̓cuts t̓l̓ stim.

WATER COMES FROM THE SKY AND THE HIGHEST PLACE YET IT NEVER WILLFULLY RISES ABOVE ANYTHING.

iʔ̓ taẏxʷút mi ctɣap, naẋm̓ɬ t̓l̓ ʏat t̓l̓ stim̓, misk̓ʷək̓ʷact.

IT WILL ALWAYS TAKE THE LOWEST PATH IN ITS HUMILITY. YET OF ALL THE ELEMENTS, IT IS THE MOST POWERFUL.

kʷu scúnmaʔstm iʔ̓ siwɬkʷ kʷu k̓ʷcək̓ʷact uɬ qm̓qam̓t.

OUR SACRED WATER TEACHES US THAT WE HAVE GREAT STRENGTH TO TRANSFORM THE HIGHEST MOUNTAIN WHILE BEING GENTLE, SOFT AND FLEXIBLE.

iwá łə̓ tqəqip ksksx̌nmíxaʔx itíʔ. k̓ɬʔułxʷ, tqil̓tkm̓s, km ml̓xʷuẏm̓s.

WATER WILL ALWAYS FIND A WAY AROUND OBSTRUCTIONS, UNDER, OVER AND THROUGH.

kʷu kscún̓maʔstm kssk̓ʷl̓l̓nustm xiʔmíx stim.

IT TEACHES US ANYTHING IS POSSIBLE.

ɬaʔ̓ ctɣap iʔ̓ siwɬkʷ lut stim t̓aʔ̓ ctil̓xʷsts uɬ kʷu ksx̌ilaʔx itíʔ.

WATER MOVEMENTS, PATHWAYS RESILIENCY AND POWER TEACH US WHO WE ARE AND WHO WE CAN BE AS PEOPLE.

Use the Syilx Water Declaration as a framework for lessons

Water Declaration:
https://www.syilx.org/about-us/syilx-nation/water-declaration/

> "Declarations do not just hang on the wall.
> They are documents that empower us".
>
> — caylx Richard Armstrong, Syilx Knowledge Keeper

There are many sacred aquatic areas and systems within Syilx territory that contribute to the physical, spiritual, and cultural health of the Syilx Okanagan people and sustain all tmix^{w} (all living things). Spiritual practices are rooted in the land and waters of our territory. The tmix^{w} and tmx^{w}ulax^{w} (the land and life force of the land) are the connecting threads between our ancestors and each new generation. As part of this connection, the Syilx Nation recognize water as a sacred entity and family member that connects all life. The relationship to water is embedded in the language, in the bodies, and in the ways of Syilx. Water has the capacity to bring all people together through gatherings, feasts, and ceremonies.

Syilx Okanagan oral history provides teachings about the past, and being in those places reinforces memories, connections to the land, and instills the importance of ceremony. Sacred sites such as those for fasting, praying, medicine preparation, and burial grounds are spread throughout Syilx Territory and each has a long held spiritual and physical significance to the Syilx Nation. Children learn from the land, and thus when taken to places near water, they learn how to care for the waters.

LISTEN as c̓ris Jordan Coble reads the Syilx Water Declaration
https://www.syilx.org/natural-resources/water/water-declaration/

How can you contribute and uphold the Syilx Water Declaration?

LEARN Read, understand and share the importance of our roles as caretakers of the land and water.

SHARE this declaration with your class, colleagues and community.

ACT Be mindful of your water consumption and usage – water is to be shared, not something we own.

Young Syilx water protectors

Role of Water "Our Relation"

From a Syilx perspective water is seen as a relation and as the first source of all life. It is our inherent responsibility to care for water and ensure our watersheds can continue to function in perpetuity (use "The Language of Water" booklet as a framework for these lessons).

SOURCE "nsiwłkwcn, The Language of Water"
ONA Bookstore
https://www.syilx.org/shop/

Indigenous worldview acknowledges that water is a living being with its own spirit. Water is life, and as such is sacred.

> "Our relation to siwłkʷ, our most sacred medicine, must be kept healthy to restore and hold its relationship to tmixʷ to ensure the resiliency of our Mother for the good of all, for all time."
>
> — Syilx Okanagan Natural Resources Committee, 2018

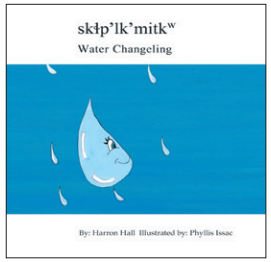
ks_kəɬqayxʷntimiʔ siwɬkʷ – We Will Protect the Water

The Syilx People continue to honour and respect the water by hosting traditional ceremonies and advocating for the water.

Water sustains us, flows between us, within us, and replenishes us. Water is the blood of Mother Earth and, as such, cleanses not only herself, but all living things. Water comes in many forms and all forms are needed for the health of Mother Earth and for our health.

Subjects that can be explored with students include:

- snow as the most important water source
- Syilx knowledge of hydrological cycle



https://www.theytus.com/Books/S/sk-p-lk-mitkw-Water-Changeling

- importance of lake turnover or skɬp'lk'mitkʷ (seasonal mixing of layers of water in a lake when the water temperature and dissolved oxygen becomes similar from top to bottom)
- high elevation streams and wetlands
- importance of wetlands
- natural function of watersheds

Learn more in the companion module to this guide "Our Relationship with Water in the Okanagan – Watershed and Climate" here:

https://www.okwaterwise.ca/resources/Our-Relationship-with-Water-Okanagan-Watershed-Climate-Module.pdf

and, try the "Build a Watershed Model" activity on page 18.

Syilx History

From time immemorial, the Syilx People have been self-reliant and been well-provided for through their own ingenuity and sustainable use of the land and its resources. Syilx members are united as a nation within a holistic economy, travelling throughout their territory. Members have sustained themselves through hunting, fishing, growing, harvesting, and trading.

> "The traditional territory of the Syilx was fiercely protected and defended as the major water systems were recognized as being central to all life. The survival of the Syilx depended on their ability to control these water systems and they made it abundantly clear to other tribes that it was their right to distribute and share the food resources. The ability to protect and defend these resources ensured the survival of future generations of Syilx."
>
> — Dr. Marlowe Sam, Syilx scholar

> "Water governance in this valley is a Syilx right and responsibility that existed for thousands of years. Trends of water management practices have transformed the local environment here in the Okanagan Valley since settlement first began in the nineteenth century. Transformation and the rapid deterioration of our regional ecosystems are a result from a number of factors, the introduction of cattle; settler population growth; evolution of modern agri-industries; and the policies and laws associated with the colonization process."
>
> — Dr. Marlowe Sam

The Syilx perspective on water rights is understood in a vastly different manner than the European concept of rights, which is tied to exclusionary property and ownership that lie vested in principles of control and domination. Syilx rights are viewed as an ethical responsibility that allows for the regeneration of all life forms. The Syilx people have long been the caretakers and stewards of our natural world, for all that might share in its abundance.

Captikʷɬ is the intergenerational history and oral record of the Syilx People. There are specific captikʷɬ that teach the laws and protocols around taking care of the water and ensuring it has a voice.

> "There needs to be a shift for all of us to see water as more of a relation and not just a resource used for human benefits. Change the whole perspective to 'What can we do for water?' versus 'What can water do for us?'"
>
> — Tessa Terbasket, Syilx member

Protecting Peachland watershed

Taking Care of the Land

The ability of Syilx to survive upon the land for thousands of years is based on the principle of reciprocity. Syilx people manage the tmix^{w} through such practices as controlled burning on the lands to enhance the productivity and abundance of plant resources as well as providing forage for deer and other game. Additionally, Syilx members prune berry bushes to make them more productive and gather plants selectively to make them more bountiful.

Traditional Ecological Knowledge

Traditional Ecological Knowledge (TEK) references deep knowledge obtained by Indigenous peoples from time immemorial through close contact with the environment. This knowledge relates to specific locations and involves knowledge of relationships between plants, animals, natural landscapes and the timing of events that are used to make decisions, including knowledge that helped determine successful outcomes for tasks such as hunting, fishing, food and medicine gathering, trapping and forestry.

Indicator Plants

Syilx people use indicator plants to predict the diversity of other species, harvesting predictions, the state of other species life cycle, and certain ecosystem processes within an area.

Examples of indicator plants:

- mulx, black cottonwood
  Spring flood waters begin to recede as mulx release their cottony fluff containing seeds.

- siyaʔ, Saskatoon berry
  The first blooms indicate that sp̓iƛ̓əm (bitterroot) is ready for harvest.

- tə̓lt̓ə̓ltiɬp, smooth sumac
  When the leaves turn red the sockeye salmon are spawning and also turning red.

For more information on indicators, visit the companion module to this guide
"Our Relationship with Water in the Okanagan: Watershed and Climate" page 15.
https://www.okwaterwise.ca/resources/Our-Relationship-with-Water-Okanagan-Watershed-Climate-Module.pdf

Colonization and Present Day Governance

Since Time Immemorial

The Syilx Okanagan people have always governed their land according to principles that are embedded in traditional knowledge, stories, teachings, ceremonies, medicines, dances and the arts. These principles carry with them a sacred, inherent responsibility to care for the tmxʷulaxʷ (the land).

Stłtałt – the inherent rights and responsibilities to care for siwłkʷ has governed the Syilx People since they were brought into being. These responsibilities were given to the Syilx by kʷuləncutn (the creator and arranger of the world) and they have been upheld since the beginning of time. The sovereign, unceded right to self-governance and self-determination is affirmed within Syilx Okanagan laws and customs as dictated by captikʷɬ.

Colonization and Present Day

From first contact, the influx of settlers was slow but steady, with both Syilx and settlers working towards a living arrangement. However, over time and through colonization, they were divided from one another and from their way of life. They were also dispossessed from the resources they relied upon, and their self-sufficient economy collapsed.

Many people are unaware of the long history of denial of Syilx Okanagan Title and Rights, including siwłkʷ rights and responsibilities. Much work is required to educate, inform, and build greater understanding.

Syilx People have generations of knowledge that embodies successful siwłkʷ stewardship prior to colonization which remains important to this day. Syilx perspectives on all living things look at the long term view and work forward, learning from past experiences and knowledge still held by members.

The colonial practice of dam construction and channelization of rivers, urban encroachment, industrial agriculture, pollution, and harmful water management practices have all contributed to depletion and extinction of fish stocks within the Okanagan River basin. siwłkʷ systems are mismanaged through the colonial practice of channelization and pollution.

The Okanagan Nation Alliance (ONA) provides technical fisheries assistance for the Nation and its member communities and acts as a liaison between federal and provincial fisheries agencies, local governments and non-government organizations (NGOs). They are also actively involved in the conservation, protection, restoration, and enhancement of fish stocks, and in particular with Okanagan River sockeye salmon.

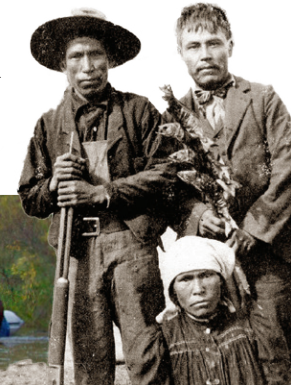
Salmon has always been central to Syilx culture — one of the main foods of the nation. Colonization, especially the construction of hydroelectric dams, meant the loss of fisheries, and pushed salmon to the brink of extinction.

kł cp̓ əlk̓ stiḿ is a dedicated initiative to re-establish a sustainable population of Okanagan sockeye salmon.

The ONA is committed to bringing the salmon back by creating partnerships and integrating modern science with traditional practices.

Years of hard work and dedication are starting to pay off, where we now see sockeye runs in the 100s of 1000s.

ONA's goal is to protect, enhance, conserve and continue to restore salmon stocks to ensure a healthy salmon population for generations to come..



Above left: ONA Fishery broodstock management
Above: Historic Syilx salmon people

Syilx Today

Today the Syilx People continue to assert their jurisdiction and responsibility over the stewarding of their land, resources and quality of life for their citizens. The nsyilxcən language and Syilx culture honour the natural laws of the tmixʷ – that which gives us life. Syilx people throughout the Nation continue to actively manage siwłkʷ across the territory.

WATCH The suknaʔqíńx Okanagan is Beautiful
https://www.youtube.com/watch?v=ky8ftLMyvXw

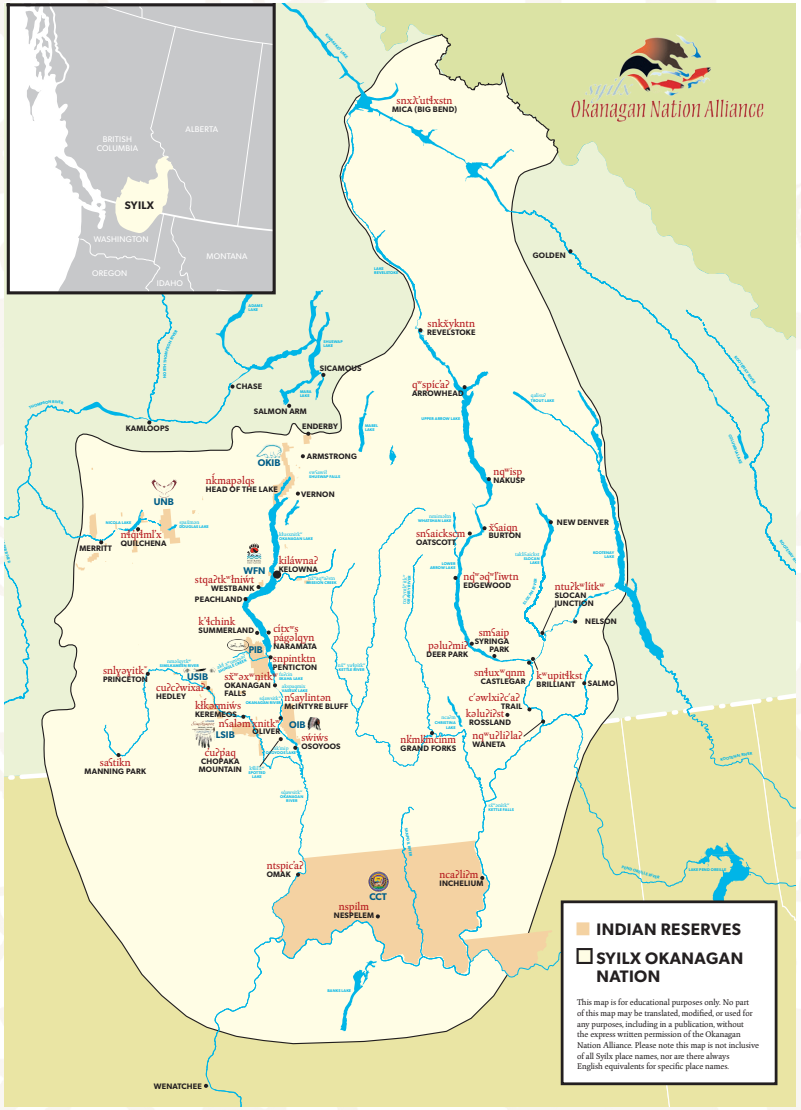
Syilx traditional ecological and cultural knowledge holders (left to right):
Grouse Barnes, caylx Richard Armstrong, xwestk'n Chris Eneas

The Syilx People have been guided by the fundamental principle of water-centric planning – a place-based stewardship approach – for 1000s of years. Those with the most knowledge and understanding of siwłkʷ within a specific region of the territory are responsible for ensuring that proper measures of respect for water are carried forward. The Syilx People envision a sustainable territorial land, culture, and way of life hundreds of years into the future. By managing land responsibly, the Syilx People aspire to entrust future generations with a healthy land base, supported by healthy waterways.

Shrub steppe above Okanagan Lake

Begin each lesson with a land acknowledgment:

"I would like to begin this lesson by acknowledging that we live and learn on the unceded, ancestral land of the Syilx Okanagan People."



Syilx Okanagan Territory

Syilx Worldview

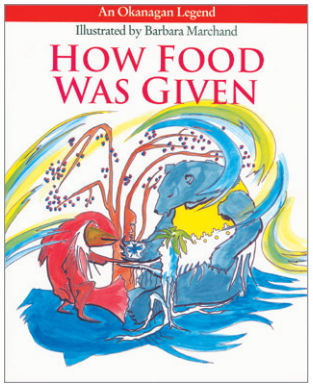
Four Food Chiefs

The Four Food Chiefs represent a "cultural practice that is used in order to include all views in the discussions that lead to resolving conflicts, making decisions, and developing plans for taking action as a collective with all perspectives represented and considered."

How Food Was Given

In this captikʷɬ, kul'nchut'n, creator sent senk'lip, Coyote to prepare for the future of the stelsqilxʷ (People-to-Be). The Four Chiefs: skəmxist (Black Bear), siyaʔ (Saskatoon Berry), sp'iɬəm (Bitterroot), ntytyix (King Salmon) then came together and made a plan for how to feed stelsqilxʷ. Differing perspectives of the Four Chiefs were brought together to inform the discussion, the problem solving, the decision-making and the action plan.

ylmixʷəm skəmxist	Chief Black Bear
ylmixʷəm ntytyix	Chief Salmon
ylmixʷəm siyaʔ	Chief Saskatoon Berry
ylmixʷəm sp'iɬəm	Chief Bitterroot



SOURCE
Okanagan Elders Council
Illustrated by Barbara Marchand
Kou-Skelowh/We Are The People
Penticton, Theytus Books Ltd, 1984
Also called *How Food was Given*
Also called *Four Food Chiefs*

WATCH an animated video of the story here:
https://www.youtube.com/watch?v=wfF-XR_DxJw&t=2s

The Power of Language: Syilx Vocabulary for Classrooms

> "The laws related to our territory, lands, water, and resources are held in our nsyilxcən language."
>
> — Article 3, Syilx Okanagan Language Declaration

https://www.syilx.org/wp/wp-content/uploads/2018/07/Syilx-Okanagan-Language-Declaration.pdf

Nsyilxcən is an integral part of Syilx Okanagan culture. The language holds and defines the moral standards, expectations, and teachings for individuals and for the collective. Nsyilxcən has been the medium for Syilx Okanagan accumulated knowledge, governance, care taking, teaching, and learning since the beginning of time. Having emerged from this land, nsyilxcən is expressive of the land and is a virtual storehouse of information about all living things, reflecting the web of life found in Syilx Okanagan ecology. Over thousands of generations, the nsyilxcən language has bound the Syilx People to the territory. Syilx Okanagan laws came from an understanding of the tmix^{w} itself and nsyilxcən is the language that rose from this learning. The language is embedded in the land and siwłk^{w} and carries thousands of years of deep intergenerational knowledge.

> "If you know your language, you are more empowered."
>
> — Delphine Derrickson, Syilx Knowledge Keeper

Nsyilxcən words, when broken down in translation provide key natural laws and descriptions. Learning nsyilxcən water words not only gives youth an awareness to Indigenous language but also important environmental considerations.

That Which Gives Life

swstitk^{w} . . . . . fresh water
siwłk^{w} . . . . . water

That Which Moves

nʔaʕx̌^{w}t . . . . . swamp
cnq^{w}ʔip . . . . . bay
nx^{w}yaʔłpítk^{w} . . . . . Kettle River
kłusxənitk^{w} . . . . . Okanagan Lake
syəxwmitk^{w} . . . . . waterfall
cnxaʔcnitk^{w}s təl
tqalqaltikn . . . . . headwaters
xwʔitkwm. . . . . water is high
ńqwast. . . . . deep water
sq'wut . . . . . across the water
tətɣap . . . . . little stream
kłpukwmnitk^{w}nt . . . on the surface
saʔtitk^{w} . . . . . river
sʔacqʔitk^{w} . . . . . spring of water
snʔiwlm. . . . . wave
nx^{w}ulmiʔst. . . . . whirlpool
skłmullaʔx^{w} . . . . . dew on the branches

That Which Falls

sʕwap. . . . . drop of water
sq̓it . . . . . rain
smik'^{w}t. . . . . snow on the ground
smq^{w}aq^{w} . . . . . snow falling
scə̓cs̓əl'usnt. . . . . hail
sx^{w}uyant . . . . . ice
sk'^{w}iylaʔx^{w} . . . . . hoar frost
sp'əp'aʕt'n̓t . . . . . sleet
sk^{w}mkvimcxn . . . . rainbow
sx^{w}ʔul'. . . . . steam

That Which Lives

qwilqn . . . . . porcupine
sqilx^{w} . . . . . people
ʔarsik^{w} . . . . . turtle
ntytyix. . . . . salmon
cə̓ mtus . . . . . sturgeon
stunx . . . . . beaver
ʔak^{w}ʔak^{w}tílx . . . . . insects
qaqx^{w}əlx̓ . . . . . fish

Find recordings of these words at https://www.firstvoices.com/nsyilxcen. Search for the words in English to hear the words in nsyilxcən.

Reminder: Educators are also learners of the nsyilxcən language. It is important to communicate that they are learning alongside their students.

On-the-Land Learning Opportunity

Alevin for release

Participate in the kł cp̓əl̓ḵ stiḿ Hatchery Tour

The kł cp̓əl̓ḵ stiḿ Hatchery in Penticton is a testament to the perseverance of the Syilx People to realize their dream of restoring the ntytyix (Salmon) – one of the Four Food Chiefs – to their original habitat and rightful place in their territory. This hatchery represents a critical stage in the Nation's effort to restore the historical range of sockeye in the upper Okanagan watershed, (including the Skaha and Okanagan Lake systems) and a portion of the Columbia River Basin.

Best time for a tour: November–June
To book a tour:
www.syilx.org/events/hatchery-tours/

kł cp̓əl̓ḵ stiḿ Hatchery tour

Interconnectedness: Syilx Okanagan Peoples' Worldview

The Syilx Nation's worldview embraces interconnectedness. Essential understandings of nature are based on a relational view of the world with no distinction between animate and inanimate beings (land, animals, people). Water is at the root of the Syilx existence.

siwłkʷ flows through people and all living things. Ancient siwłkʷ flows around us, under us, and through us, connecting us to one another and our ancestors. By going to siwłkʷ, it knows who we are and creates the connection that reaches through generations. This ancient and inherent bond has sustained the Syilx People for countless generations and is a cornerstone of their material, cultural, and spiritual identity.

> "We stem from the water and the Earth."
>
> — Pauline Gregoire, Syilx Elder

Syilx gathering to honour the water

On-the-Land Learning Opportunity

Take your students to the closest water source and read to them.

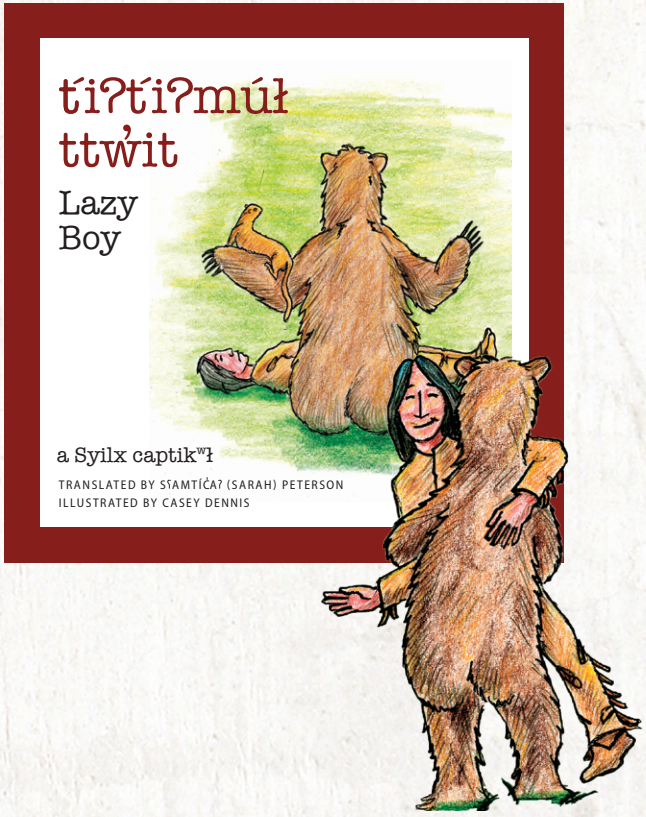
Suggestion: *Lazy Boy* which is about a journey of a boy who learns about self-care, wellness and giving back to community (available at ONA's bookstore).

SOURCE Lazy Boy
https://www.syilx.org/shop/

Messages in the story include the skills and values important to the Syilx community. Students can make lists and then discuss with partners to see what are the similarities and differences in their understanding of the story.

Find the audio story as read by Paul Alexis at https://www.youtube.com/watch?v=Ow-Zakh4VEs.

Find a version of the story told in nsyilxcən on the ONA website at https://syilx.org/shop/the-boy-and-the-grizzlies-2/.



Clean and Cool Water for ntytyix

Syilx People are also called Salmon People.

ntytyix, Salmon is a primary food of the Syilx People and central to their culture and trade traditions. A myriad of Syilx cultural practices demonstrate snxaʔlʔiwlem (honouring the sacredness of the river) while reinforcing strong cultural and spiritual ties between Syilx communities and the salmon.

As one of the Four Food Chiefs, and central to many Syilx captikʷɬ, salmon are not only a form of sustenance, they are considered a relative, and an essential part of the continued resilience of the tmixʷ. As such, salmon are central to a wide range of connections between generations, communities, humans and non-humans, as well as terrestrial and aquatic species. Additionally, salmon is a link within the trans-boundary watersheds between Canada and the U.S., including Indigenous tribes along the Columbia River systems.

ylmixʷəm ntytyix (Chief Salmon) represents the siwɬkʷ and all tmixʷ, the traditions and cultural practices related to all lifeforms and our responsibility as sqilxʷ (people). Chief ntytyix is related to the duty to carry out actions, to protect, provide and preserve. This chief exemplifies the process of preparing or readiness, determining the objective, and then taking action. Traits of Chief Salmon are perseverance, logic, finding the tools needed to overcome obstacles, linearity, and directionality.

WATCH We are Salmon Warriors on Vimeo
https://vimeo.com/792745566/8bac7830e7

Salmon is a Keystone Species.

Keystone species are a species on which other species in an ecosystem largely depend, such that if it were removed the ecosystem would change drastically.

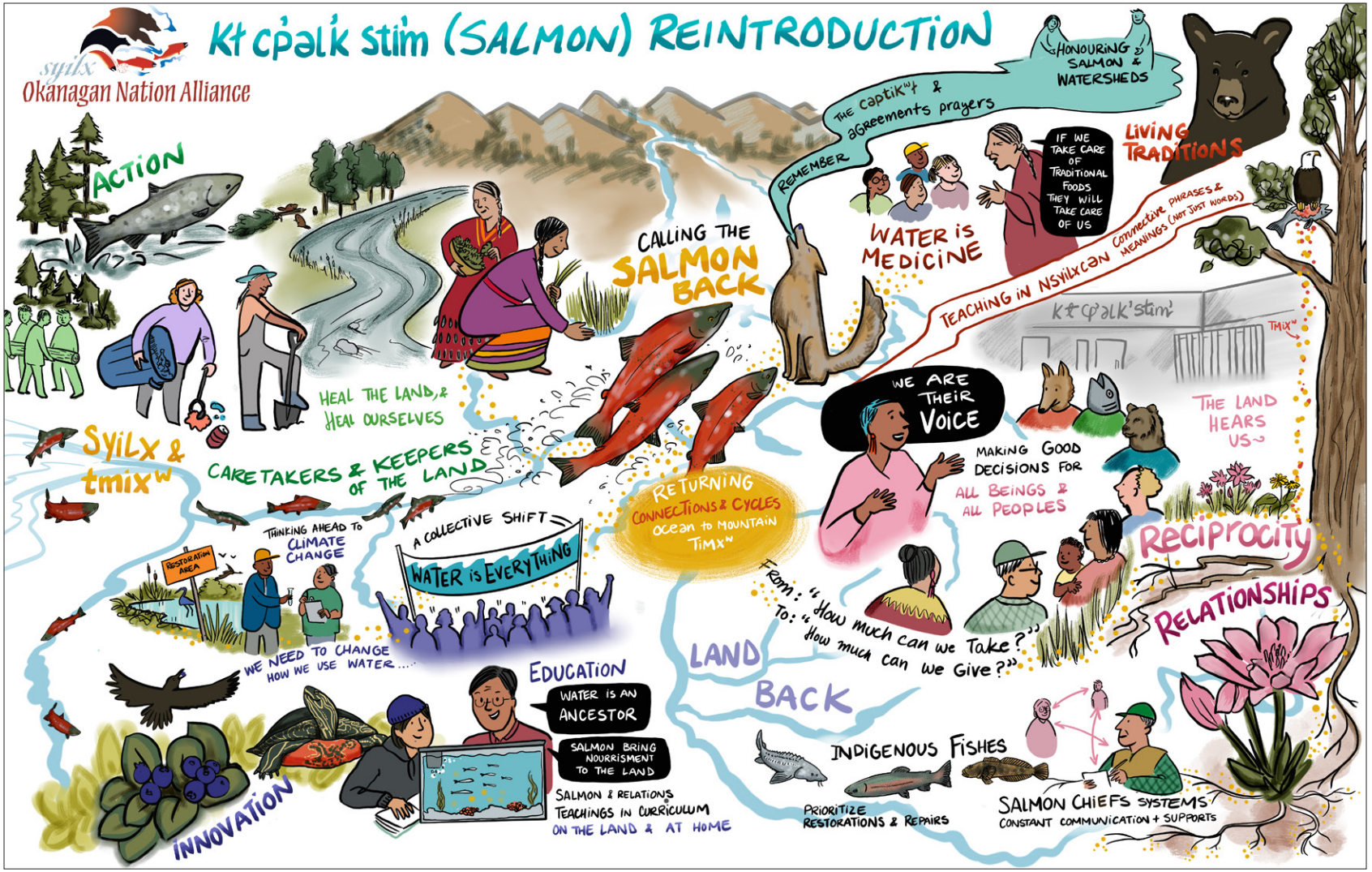
Salmon have always been a central part of Syilx culture and a main food source for the community since well before European settlers arrived in what is now known as British Columbia.

Salmon are a versatile food which can be eaten fresh from a catch, or dried in a smoke house for the winter months, providing year-round sustenance.

Salmon are not only consumed by humans. According to the Pacific Salmon Foundation, salmon are a vital part of the food chain, on which 127 other species rely. Wild salmon carry nutrients from the river to the sea and back again, and fertilize much of B.C.'s forest ecosystems.

https://pacificwild.org/pacific-salmon-species-spotlight/

Left: osprey with salmon catch
Above: spawning salmon



This illustration represents Syilx views of reciprocity and shows how everything is interconnected.

Historic Species of Salmon in the Okanagan

Most salmon are anadromous fish, meaning they reproduce in freshwater but spend a good portion of their adult life in an ocean environment before returning to their natal home to spawn.

skəlwis	spring salmon
sc'win	early sockeye salmon
tʕanyaʔ	fall sockeye salmon
ntytyix	chinook – now endangered
kisuʔ	coho – now locally extinct or "extirpated"
kəkniʔ	land-locked salmon – kokanee

Salmon drying on racks

VIEW & DOWNLOAD Pacific Salmon Life Cycle poster

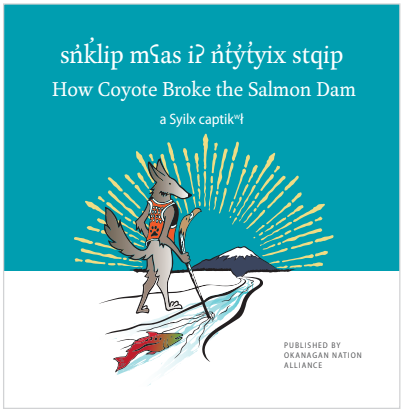
https://columbiariversalmon.ca/fisheries-and-oceans-canada-pacific-salmon-life-cycle-poster/

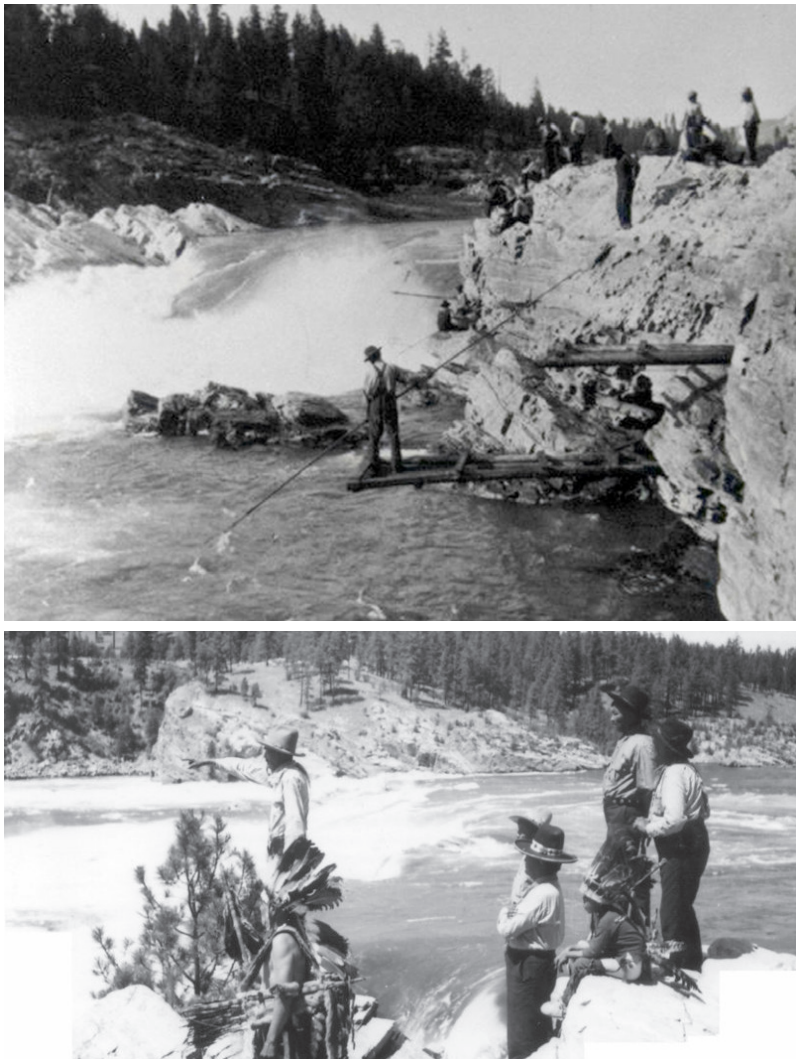
Unfortunately, the effects of colonization are still influencing our salmon. Colonial threats, such as the development of hydroelectric dams have severely impacted the salmon, bringing them closer to extinction.

The construction of Grand Coulee Dam on Columbia River at Kettle Falls, completed in 1942, stopped all salmon migration for thousands of kilometers of spawning river in Canada.

Additionally, a fish ladder was left inoperable after the Penticton dam was built in the 1950s. In the case of the Penticton dam, in 2019 Okanagan Nation Alliance and Fisheries and Oceans Canada used a crane to remove a wooden gate that was blocking off the narrow concrete passage, thus opening the way for fish to get through the dam.

READ *How Coyote Broke the Salmon Dam* (available for purchase at ONA Bookstore). Also, find an accompanying audio version, read in nsyilxcən at https://www.syilx.org/shop/





Chief Jim James of the Colville Tribe, and others view fishing sites at Kettle Falls during the Ceremony of Tears – a three-day gathering in 1940 to eulogize the impending loss of the falls, and an important Indigenous fishing site. Learn more at https://www.nwcouncil.org/reports/columbia-river-history/ceremonyoftears/.

Photo: L85-143.380, Northwest Museum of Arts & Culture, Spokane

After years of effort by the Syilx Okanagan Nation to reintroduce salmon back to the region, sc'win (sockeye) and ntytyix (chinook) salmon are now returning and spawning in many of the rivers and creeks throughout the Okanagan.

kɬ cp'əlk' stim'

is an nsyilxcən term that roughly translates to "to cause to come back."

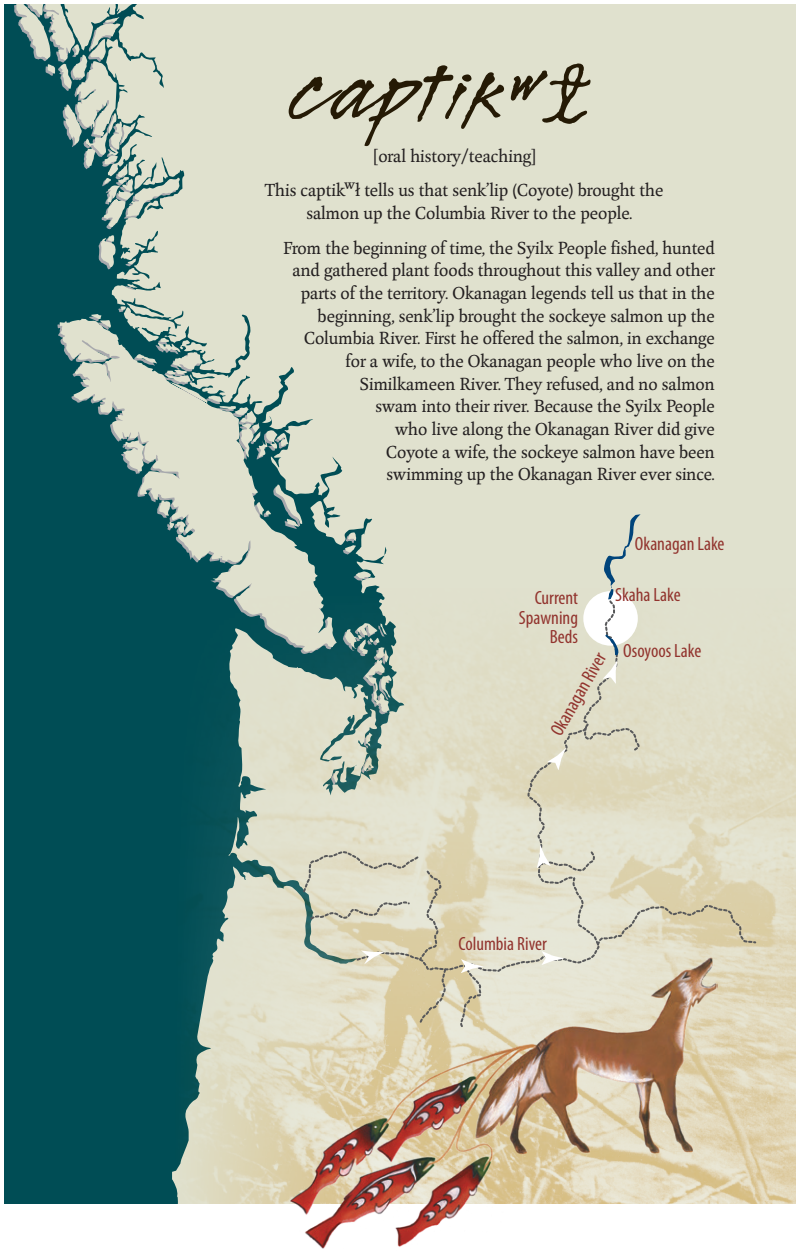
Salmon spawn by laying their eggs in gravel nests (redds) in the riverbeds of various waterways. It is critical that people and dogs to stay out of the water in these areas during the fall to protect the salmon's eggs and thus enable their ability to reproduce.

- Stepping on a redd can immediately damage up to 47% of eggs
- Dead eggs will infect the others and often kill the whole nest

Together we can make sure that salmon have a safe home for their eggs and continue to return for generations to come!

If you or your dogs want to go in the water, please consider going to locally designated human or dog beaches, since these most often do not contain salmon spawning grounds.

Salmon eggs



On-the-Land Learning Opportunity

Participate in a Broodstock Tour

As part of the kɬ cp̓əl̓k stiḿ Hatchery initiative, ONA has been beach seining (a fishing technique) and collecting eggs and milt from Okanagan River adult sockeye for rearing and release into Skaha Lake. Since 2004, ONA has stocked Skaha and Osoyoos Lake with hatchery-reared fry and monitored their growth, survival, and impacts on the Skaha Lake food-web and effects on kokanee populations. Results so far have been very promising. Beginning in 2014, ONA has been rearing the fry in the new kɬ cp̓əl̓k stiḿ Hatchery.

As part of our dedication to promoting education and awareness around Okanagan sockeye and other fish species in the region, ONA provides free school tours to classes from K–12 of the broodstock site and activities. Tours usually take place over the first two weeks of October.

WATCH kɬ cp̓əl̓kstiḿ (Cause to Come Back) – Catching Salmon for Egg Collection
https://youtu.be/mcX_C2-_Sak

Book a tour at
http: www.syilx.org/events/hatchery-tours/

Broodstock definition: Mature individuals are used in aquaculture for breeding purposes.

Left: seining for adult salmon during spawning season
Centre: taking eggs from females
Above: utilizing the milt from males to fertilize the eggs to produce the next generation of salmon

K–4

Key Understandings on Water and Salmon:

- Water is essential for life. tmix^{w} – all living things – plants and animals – depend on water, and water connects all life.
- Water should be treated as a relative, not a resource to be used and abused. Instead, like a dear relative, water should be treated with respect and reciprocity, acknowledging the importance of upholding a reciprocal relationship where if we take care of it, it will take care of us.
- The Okanagan's waters flow south through the Okanogan, in the U.S., where it connects to the Columbia River and into the Pacific Ocean.
- All water passes through a water cycle as it moves continuously around the Earth, on, above and below the surface of the planet. The cycle includes liquid water (e.g. found in creeks, lakes and oceans) evaporating into water vapour which condenses to form clouds, and precipitates back to our planet as rain or snow. Although the cycle is ongoing, clean water is finite and must be taken care of and respected.
- Humans use more water than any other living thing on Earth. Some human activities and uses can be harmful to the water supply and the aquatic environment.
- Contaminants and toxins within the water can cause harmful effects on all life, especially our salmon.
- Salmon are a central part of Syilx culture and provide nutrients to the local ecosystem.
- Invasive species can be a threat to our salmon.
- The well-being of the salmon is a reflection of our well-being as a society.

Syilx community youth and Elder honouring the water

Key Terms on Water and Fish:

Okanagan shoreline

Term	Definition
Migration	Movement of an animal from one habitat to another. Salmon spend their whole lives doing this. This is the journey that the Okanagan salmon goes on, down the Columbia River to the ocean and back again.
School	A group of fish swimming together.
Nutrients	A substance that provides nourishment essential for growth and the maintenance of life. Fish provide plenty!
Dorsal	This part of a fish refers to the surface running along the backbone of the fish.
Gills	The respiratory organ of aquatic animals that breathes oxygen through water.
Broodstock	A small population of any animal maintained as a source of population replacement or for the establishment of new populations in suitable habitats.
Plankton	Plankton are a collection of tiny, microscopic organisms that live at and beneath the surface of lakes, rivers, ponds, and oceans across the planet. They provide a crucial source of food to many small and large aquatic organisms, such as bivalves, fish and whales.
Algae	A plant-like group of microscopic organisms called protists found in water. Algae produce chlorophyll which helps them create their own food, and are important since they produce much of the Earth's oxygen which humans and other animals need to breathe. Some algae types produce toxins which can be stimulated by light, temperature, salinity, pH, and nutrient levels (e.g. fertilizer runoff from farms or homes). Harmful algal blooms can deplete oxygen in water which can kill fish and other aquatic life, and harm people and animals.
Invasive Species	An invasive species is a non-native introduced plant or organism without natural predators that negatively alters its new environment. Some examples in the Okanagan include Eurasian watermilfoil, and even goldfish!

Syilx Territory Watersheds

Term	Definition
Pollution	Presence of a harmful substance in the environment, on land and/or in water.
Prey	An animal or species that is being hunted.
Predator	An animal that naturally preys on others.
Endangered	At serious risk of extinction
Extinct	The name of the condition of a species, or population of a species, which no longer exists.
Threatened	Any species which is likely to become an endangered species within the foreseeable future.
Okanagan Watershed	A narrow region (20km wide and 200km long) that spans from Armstrong, B.C. in the north, to the Canada-U.S. border at Osoyoos, B.C. in the south. The watershed includes six main lakes: Okanagan, Kalamalka, Wood, Skaha, Vaseux and Osoyoos, plus all headwaters – the creeks that flow down the mountains and into the lakes. The Okanagan River drains the lakes and flows south across the international boundary as a small tributary that joins with the much larger Columbia River, which then flows past the city of Portland, and into the Pacific Ocean.
Okanagan Lake	Local body of freshwater where fry are released in the late spring.
Columbia River	This body of water flows from British Columbia, down through Washington State, and connects to the Pacific Ocean through Oregon. It's the largest river flowing into the Pacific Ocean from North America. This is how the Okanagan sockeye salmon migrate to the ocean and then return to our valley to spawn in Canada. The Columbia River is the largest hydroelectric power-producing river on the entire continent of North America. Fourteen different hydroelectric dams span the width of the river and produce power.
Pacific Ocean	The largest and deepest of Earth's five oceanic divisions.

Sockeye Life Cycle

Illustration:
Ron Hall

1. OCTOBER: EGGS
After choosing a mate, the female sockeye digs a nest or redd in the gravel with her tail and lays her EGGS. Once the male has fertilized the eggs with milt, the female covers them with gravel. She may dig more than one redd with different mates. The eggs incubate over the winter months.

2. FEBRUARY to APRIL: ALEVIN
Once hatched, the tiny sockeye alevin remain in the gravel feeding from their large yolksacs until they emerge as fry in the spring.

3. MARCH\APRIL: FRY JUVENILES
After leaving the gravel, the sockeye fry migrate downstream into Osoyoos Lake where they spend a year as juveniles, feeding on small organisms along the shore.

4. SMOLTS
At the end of their first year, the sockeye smolts migtrate down the Columbia River and out to sea. Smolts are young salmon making the changes needed to adapt to salt-water life.

5. 1 to 2 YEARS LATER: ADULTS
Adult sockeye spend between one and two years maturing in the North Pacific Ocean and in the circular current of the Alaskan Gyre.

6. JULY to OCTOBER: SPAWNERS
In summer, two and three year old sockeye spawners begin their long journey back up the Columbia, entering the Okanagan River in September to spawn in October. Their life cycle is now complete and once they have mated and spawned, the exhausted sockeye swim quietly away to die.

Term	Definition
Egg	Female reproductive material.
Milt	Male reproductive material.
Alevins	This term is usually reserved for newly hatched fish that have not yet absorbed the entire yolk sac that they were born with. In many cases, larval fish still have to undergo additional changes before they resemble their adult life history stage. (Alevin is the second stage of a salmon life who spend their days in the gravel nest.)
Fry	This term is reserved for newly hatched fish, fingerlings or fish that are less than a year old.
Smolt	For one to two years the salmon grows in fresh water. It has scales and fins and can feed itself. Its gills and kidneys begin to change during this stage to prepare the salmon for salt water.
Adult Salmon	The stage the salmon is at when the salmon is matured in the ocean.
Spawning	Female fish release eggs into the water and male fish fertilize eggs by releasing milt. Not all eggs are fertilized. This typically occurs after four years for our Okanagan sockeye salmon, and the salmon will die shortly after.
Caudal Fin	Also known as a tail. This is what the female uses to dig and prep her “nest”.
Redd	The nest of fish eggs.
Sockeye	The type of salmon that Okanagan Nation Alliance releases with community members into Okanagan Lake every May.
Hatchery	A controlled area for fish eggs to hatch before the salmon are released as fry.

Water Cycle

Will we ever run out of rain? Why is the ocean never empty? How do waterfalls flow down and not up to replace the water? Where is the water coming from?

- Evaporation
- Condensation
- Precipitation
- Collection

All water on Earth is connected and part of a water cycle as it moves continuously around the planet, changing from liquid, to vapour to solid.

Water falls as rain and, if it's cold enough, it falls as snow. In freezing temperatures, snow will accumulate and turn solid (e.g. that found in glaciers).

With warmer temperatures, snow and ice will melt back into water. Some of this will seep into the earth and become groundwater. Some will melt and run into creeks and lakes. If it's warm enough, some of the water will evaporate and become vapour.

Snowpack-Dependent: The Okanagan is often referred to as "snowpack dependent." This is because melting snowpack on Okanagan mountains is the primary source of water in the valley.

In the summer, when we have less precipitation and more water being used by agriculture and residents, the Okanagan is dependent on snow melt.

Without sufficient snowpack in the winter months, drought conditions are likely.

Headwaters: Headwaters, such as springs, creeks and streams, are the water source for rivers and lakes.

Runoff: Runoff occurs when there is more water than land can absorb. The excess liquid flows across the surface of the land and into nearby creeks, streams, or ponds. Runoff is a major source of water pollution. As the water runs along a hard surface, it picks up litter, petroleum, chemicals, fertilizers, and other toxic substances. This can degrade water quality and can negatively affect aquatic life and salmon.

Storm Water Runoff: Storm water runoff is rain and melting snow that flows off rooftops, driveways and yards, streets and parking lots. As it runs off these areas it picks up debris, chemicals and other pollutants. The water then drains into storm sewers that drain directly into the closest creek, or other waterbody, impacting the water for local aquatic life and local drinking water.

Impermeable Surfaces: Surfaces that can't absorb water increase runoff. Roads, sidewalks, roofs and parking lots are impervious surfaces. When runoff from these areas collect materials like car washing products, litter, and spilled gas from a gas station along the way, it can pollute the waterway it drains into.

Permeable Surfaces: Also known as porous or pervious surfaces, these surfaces allow water to percolate into the soil to filter out pollutants and recharge the water table.

Groundwater: Groundwater is the water found underground in the cracks and spaces in soil, sand and rock.

Aquifers: An underground reserve of water. An aquifer is an underground layer of rock/sediment that holds groundwater. Groundwater from aquifers can be extracted using a water well. Groundwater can also be connected to surface water. In such cases, during a drought – when water supplies are low, it is important to be aware that extracting groundwater can impact a stream and the ecosystem dependent on it.

Riparian: A riparian zone or riparian area is the interface between land and a river or stream. Plant habitats and communities along the river margins and banks are called riparian vegetation, characterized by water-loving plants.

kłwist | Upland
Upland is the drier, terrestrial land above the riparian buffer zone.

ncqut | Riparian
Riparian areas are defined as the transition between land and water and are subject to periodic or occasional flooding.

k'emcnitkʷ | Foreshore
The foreshore is the land that exists between the high and low watermarks.

yʕayʕat aks snyliʔtn i l siwłkʷ | Aquatic
Aquatic areas are the water bodies (lakes, rivers, etc.) and all living things contained within it.

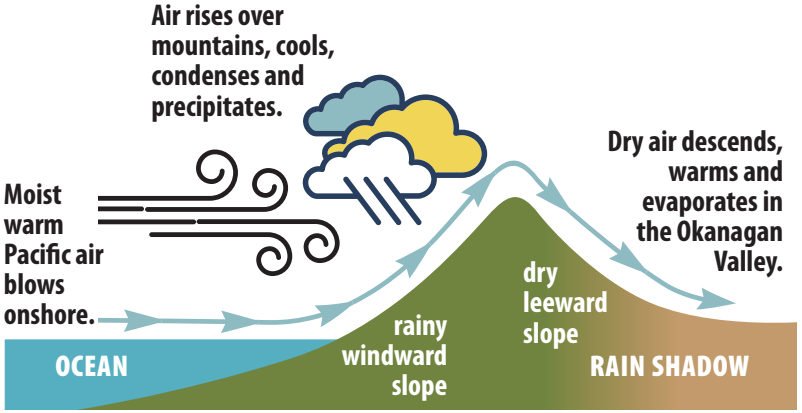
Rain Shadow: A rain shadow is an area of significantly reduced rainfall behind a mountainous region, on the side facing away from prevailing winds, known as its leeward (downwind) side. The Okanagan is in the rain shadow of the Coast Mountains.

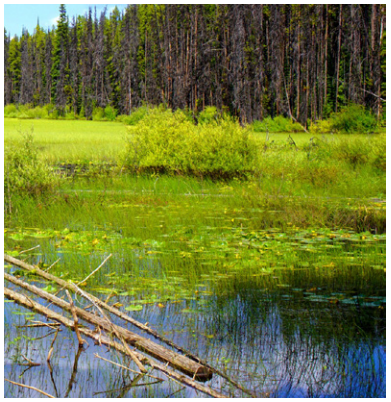
Semi-arid Desert or Shrub Steppe: The Okanagan is a semi-arid desert or shrub-steppe. Semi-arid deserts are cooler and have more precipitation than arid (dry) deserts.

Wetlands: An area of land that is either saturated by water or covered with water either permanently or during parts of the year.. The wetland water can be groundwater, seeping up from an aquifer or spring or can come from a nearby river or lake.

At one time, wetlands and riparian areas covered a large portion of the Okanagan's valley bottom. Today, more than 85% of its wetlands and natural riparian areas have disappeared with remaining areas at risk of loss.

Wetlands are an important part of our valley. They act like giant sponges during storms, soaking up extra storm water which prevents flooding. They also act as giant filters, absorbing pollutants and dissolving them over time. They're also home to a diverse ecosystem with many rare and endangered plant and animal species.





Top: rain shadow
Middle: semi-arid desert
Above left: riparian zone
Above right: wetland

Black Cottonwood Riparian Forests

Mulx is the Okanagan word for black cottonwood. This species is the foundation tree and anchor of the Okanagan's rare and endangered wetland ecosystems.

These wetlands of green in an otherwise semi-arid environment provide crucial habitat for several endangered land and water species. Benefits include structure for nesting habitats, organic matter for microorganisms and invertebrates, cool shade for fish, and erosion control.

A single mature mulx tree can transpire 500 – 600 litres of water per day through its leaves, thus perform as natural air conditioners. These deep-rooted trees pump and translocate water during floods and yield water to neighbouring plants during droughts. These ecosystems were widespread before colonization. Now, many have been completely cleared or significantly altered by settlers' development.

For thousands of years, the Syilx have made thorough use of mulx's resources and continue to do so today. Historically, in spring, the cambium beneath the bark was harvested for food. The stripped bark was used to make buckets. Trunks provided fungi both edible and medicinal, and buds were used to make skin salve. Cottony seed fluff were used to stuff pillows. Sticky resin was used as medicine and for making paint. The ashes were used to make soap.

Carved cottonwood dugout canoes were once the main method of water transportation. Today the master artform of canoe carving is in revival.

The significance of mulx continues to be taught today.

mulx (black cottonwood) ecosystem, dugout canoe, Inset: seed fluff

This activity allows students to observe the many different forms water presents itself in our lives.

ACTIVITY Walk the Natural Land

Grades: K–4

Subjects: Science

The majority of this planet is made up of water. Water is consumed by all living things (plants and animals, including humans). It is a part of the climate. It provides habitat for many animals and plants. It cleanses us, and it can be a lot of fun to swim in during the summer, or to skate on during the winter.

Water holds deep cultural significance to the Syilx. Water connects all things living and gives life. Water is everywhere and can take on many different forms.

Walking the land in a natural area allows students to observe the many different forms water presents itself in our lives.

Schoolchildren on a tour of the mulx (black cottonwood) ecosystem in Penticton

Big Ideas

- Daily and seasonal changes affect all living things. (K)
- Observable patterns and cycles occur in the local sky and landscape (Gr. 1).
- Water is essential to all living things, and it cycles through the environment (Gr. 2).
- Wind, water, and ice change the shape of the land (Gr. 3).
- All living things sense and respond to their environment (Gr. 4).

Curricular Competencies

- Make exploratory observations using their senses.
- Demonstrate curiosity and a sense of wonder about the world.
- Observe objects and events in familiar contexts.
- Identify First Peoples perspectives and knowledge as sources of information.
- Experience and interpret the local environment.

K–4

First Peoples Principles of Learning

- Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).
- Learning recognizes the role of Indigenous Knowledge.

All living things sense and respond to their environment.

sʔanix^{w} (muskrat) nest in the middle of the pond

Content

- Basic needs of plants and animals (K)
- Seasonal changes (K– Gr. 1)
- Classification of living and non-living things (Gr. 1)
- The knowledge of local First Peoples of ecosystems (Gr. 3)
- Observable changes in the local environment caused by erosion and deposition by wind, water, and ice (Gr. 3)
- Sensing and responding: humans, other animals, plants (Gr. 4)
- First Peoples concepts of interconnectedness in the environment (Gr. 4–5)

Materials

- Weather-appropriate clothing and footwear
- Clipboard
- Pencil
- Paper
- Graphic Organizer (optional)

What to Do

- In groups (Gr. 3–4). Ask students to explain water to each other using their five senses (review the five senses with younger students). What does it smell like, taste like, feel like, sound like, and look like?
- Tell students that we will be going for a walk and looking for signs of water. Encourage students to be creative! Water can take many forms after all. If students are familiar with the water cycle suggest that they look to the sky as well, or maybe to the mountain tops. Encourage students to also note down any life they see relating to water (earth worms, flowers, birds, berries, fellow students, plants, fish, squirrels, etc.). They can write or draw.
- Prior to departure, go over safety protocols as a class and have a first aid kit.

mulx (black cottonwood) seedlings

Safety Protocols

- Walk in pairs/have a "buddy."
- Wear appropriate jacket/shoes.
- Do not walk on the road, stay on the sidewalk. If we need to cross the road, wait until the teacher has given the go ahead and everyone has checked the road in both directions.
- Remain close to teacher/supervisor (do not stray, do not walk ahead).
- Do not throw sticks or rocks.
- Do not disrupt any habitats or life of plants or animals.
- Do not approach other people or their animals (e.g. dogs).
- Do not walk or swim in the water.
- Do not touch glass or needles. If you see something that you are unsure of, ask the teacher for assistance.

Encourage students to be creative!

Assignment

- Assign each student a clipboard, paper, and pencil so they can write or draw everything they see. A graphic organizer that encourages students to draw "what I see, hear," etc. may be helpful for younger students. (This could also be done in pairs or small groups).
- While on the walk ask students to consider the seasons. What does water look like in the winter compared to the spring? What does it feel like?
- After returning from the walk, have students share their findings with the class. How many signs of water did they find? Document it on a white board or a poster board. Is there anything missing that we could add? Anything that they expected to see? Why is that, do they think?
- Put students into the same groups of 3–4 and repeat the first activity. Have them explain water to each other using their 5 senses. What does it smell like, taste like, feel like, sound like, and look like?
- Discuss how their learning has changed from the first time doing this activity. Did they have more to say the second time?
- Wrap up with a discussion about Syilx water perspectives and the interconnectedness of everything that was seen/discussed during this activity. The Syilx perspective is that water is life and connects every living thing, plants and animals. It is a relative, not a resource, and deserves our respect.

Possible Extensions

- Depending on grade level this could be an introduction to a water cycle unit if that has not already been taught.

The Syilx perspective is that water is life and connects every living thing.

School children on a tour of the mulx (black cottonwood) ecosystem along the Similkameen River

Grade 5–7

Many Factors Impact our siwłkʷ Including:

- Increased population
- Urban growth and residential development (habitat loss)
- Flood control (loss of cottonwood trees, loss of foreshore habitat)
- Docks
- Agriculture (irrigation, pesticides, nutrient build-up)
- Hydroelectric dams
- Forestry practices
- Fishing practices
- Mining practices
- Recreational use (including in headwaters)
- Aquatic invasive species
- Wastewater treatment
- Climate change
- Illegal garbage dumping
- Pet feces and other pollutants

Urban development along the foreshore

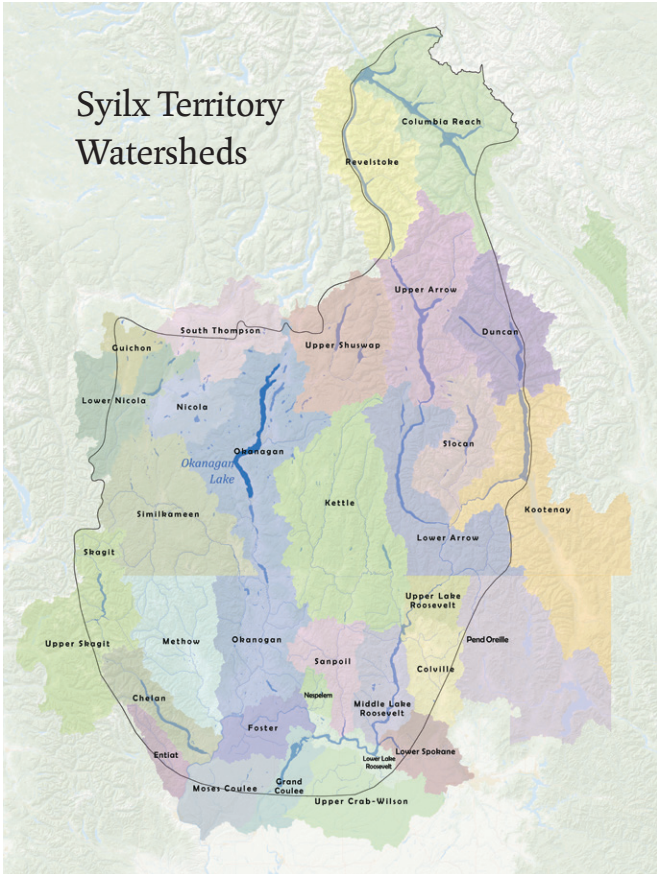
Syilx Territory Watersheds

The Okanagan River sockeye population is one of only two remaining populations of sockeye salmon in the Canada-U.S. Columbia River Basin. Historically, chinook, coho, chum and steelhead were also indigenous salmon species in the Columbia River system, including the Okanagan Basin, but today they are either extinct or found in very low numbers.

There is an ongoing systematic effort to research, document and transmit the traditional knowledge that the communities still hold, while documenting Traditional Ecological Knowledge with new scientific methods and understandings. The Okanagan Nation Alliance (ONA) has begun to receive regional and national recognition for their efforts to rehabilitate sockeye salmon stocks. As such, they are poised to play an integral role in contributing to various public dialogues including, but not limited to, Indigenous food sovereignty, food security, sustainable fisheries, and Indigenous grassroots development.

A significant amount of siwłkʷ within Syilx Okanagan territory is controlled by dams that are predominantly used for the production of hydroelectricity and flood control. It is hard to find a river system within the territory that has not been dammed or subjected to a water control structure. There are over 21 watersheds within Syilx Okanagan Territory. Each of these have their own personality, needs, and ways of being.

The Syilx People recognize the personalities and needs of each of their siwłkʷ relatives within the various landscapes that are under Syilx Okanagan responsibility. A place-based approach has been used for thousands of years to ensure that those with the most knowledge and understanding of siwłkʷ within a specific region of the territory, or watershed, are responsible for ensuring proper measures of respect and ceremony are employed if any requests are made of our siwłkʷ.



Grade 5–7

Captikʷɬ Teaching Opportunity

How Coyote Broke the Salmon Dam provides an opportunity to understand and discuss the living land, and to teach each generation how to become a "part of it." This lesson is the only way Syilx People have survived on these lands for thousands of years.

SOURCE You can purchase the book and find the nsyilxcən audio at:

www.syilx.org

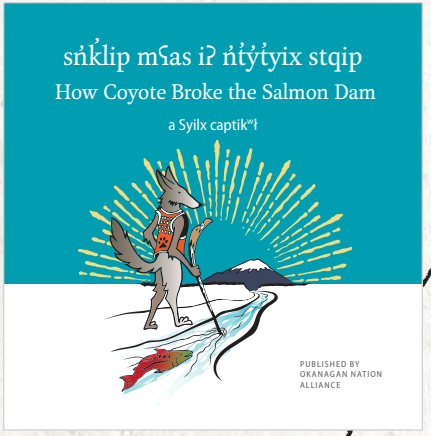


Illustration: Spirit Peoples

ACTIVITY Taking Care of Water and the Meaning Behind "Ogopogo"

Grades: 5–7 (Adaptable for K–Gr. 9)

Subjects: Language Arts/Social Studies

This activity emphasizes the Syilx people's sacred relationship with water. Students will gain a respect for Syilx ways of knowing, specifically regarding what has been culturally appropriated. Discuss the name "Ogopogo."

ṅxaʔxˇʔitkʷ is the spirit of the lake

kɬusxnitkʷ, Okanagan Lake

ṅxaʔxˇʔitkʷ (in-ha-ha-itk-hoo) is considered sacred by the Syilx People and is, in fact, translated as "Sacred Being of the Water."

Broken down, ṅxaʔxˇʔ means sacred, and itkʷ is for water. But European settlers misappropriated ṅxaʔxˇʔitkʷ and renamed the being "Ogopogo." The being has been demonized as a monster, but has also been made a mascot for the Okanagan and commodified.

To the Syilx ṅxaʔxˇʔitkʷ is the spirit of the lake and represents sustainability. We are nothing without the water. If we treat it with respect and in the right way, the spirit of the lake will thrive on and provide for future generations.

Cultural Appropriation

Cultural appropriation is the term used to describe the taking over of creative or artistic forms, themes, or practices from one cultural group by another. Generally it is used to describe Western appropriations of non-Western or non-white forms, and carries connotations of exploitation and dominance (Oxford dictionary, 2020).

WATCH "The Real Story of the Ogopogo"
https://www.youtube.com/watch?v=SjCGlSMiT6g

Grade 5–7

Illustration: Spirit Peoples

Big Ideas

- Stories and other texts connect us to ourselves, our families, and our communities. (K– Gr. 3)
- We shape the local environment, and the local environment shapes who we are and how we live. (Gr. 1)
- Learning about Indigenous peoples nurtures multicultural awareness and respect for diversity. (Gr. 3)
- Interactions between First Peoples and Europeans led to conflict and co-operation, which continue to shape Canada's identity. (Gr. 4)
- Exploring stories and other texts helps us understand ourselves and make connections to others and to the world. (Gr. 4–9)
- Exploration, expansion, and colonization had varying consequences for different groups. (Gr. 8)

Grade 5–7

Curricular Competencies

- Recognize and appreciate the role of story, narrative, and oral tradition in expressing First Peoples perspectives, values, beliefs, and points of view. (Gr. 6–9)
- Social and community health
- Explain why people, events, or places are significant to various individuals and groups.
- Explore different perspectives on people, places, issues, or events in their lives. (K–Gr. 3)

First Peoples Principles of Learning

- Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.
- Learning is holistic, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).
- Learning involves recognizing that some knowledge is sacred and only shared with permission and/or in certain situations.

Content

- Relationship between humans and their environment (K–3)
- Cultural and social awareness: achieved by exploring self-identity, acknowledging cultural differences, honouring Indigenous traditions, etc. (K–5)

Materials

- White paper and drawing utensils
- Plastic shopping bags for garbage collection
- Plastic/rubber gloves (enough for every student to have a pair)
- Paper
- Graphic organizer (optional)

What to Do

- Ask students what they know about "Ogopogo". Where did the name come from? Where does it live? Can you see Ogopogo? Is it scary? Ask students to draw what they think the Ogopogo looks like and share with a partner. Note how similar drawings are to one another. Why do we think that is? Could it be because that's what we have been told? How would anyone actually know for sure?

- Tell students the history of Ogopogo (see above).

- Listen to the n̓xaʔx̌ʔitkʷ song: https://www.youtube.com/watch?v=zXRI8pnJSiA

- Touch on what cultural appropriation is. Accommodate the depth you go with this depending on how old the students are. Make sure it is student-friendly/ comprehensive. Ask students if they can think of any examples of cultural appropriation.

- As a sign of respect to what has come to be known as "Ogopogo," plan for a beach clean up with students (or pond, or marsh – whatever is accessible for students, depending on where your school is located).

- Give gloves and garbage bags to each student.

- Review all safety protocols and bring a first aid kit.

Metal sculpture depicting n̓ xaʔx̌ ʔitkʷ was created by Syilx Nation's artist Clint George. The sculpture is located on the Westbank First Nation Reserve.

Grade 5–7

Safety Protocols

- Walk in pairs/have a "buddy."
- Do not walk on the road. Stay on the sidewalk. If you need to cross the road, wait until the teacher has given the go-ahead and everyone has checked the road in both directions.
- Remain close to teacher/supervisor. Do not stray, do not walk ahead.
- Do not throw sticks or rocks.
- Do not disrupt any plants or animals, or their habitat.
- Do not approach other people or their animals (e.g. dogs).
- Do not walk in the water.
- Do not touch glass or needles. If you see something that you are unsure of, ask the teacher for assistance.
- Keep gloves on.

Assignment

- Discuss how this beach cleanup is helping keep our siwłkʷ clean and how it benefits n̓xaʔx̌ʔitkʷ (in-ha-ha-itk-hoo), us, the salmon, and all other life.
- Students could be rewarded based on how much garbage they are able to collect as further incentive.

Possible Extensions

- Lesson on appropriation versus appreciation

Youth touring the mulx (black cottonwood) riparian forest in Penticton

ACTIVITY Watershed Threats

Grades: 6–7

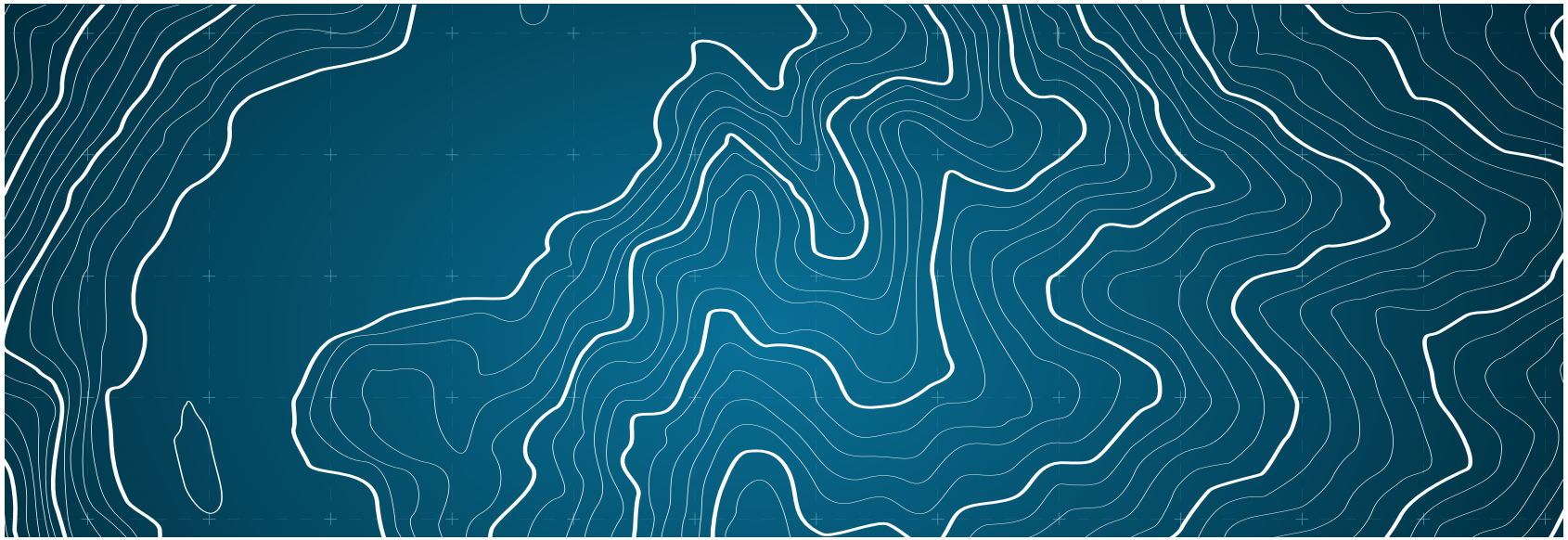
Subjects: ADST/Science

Number of lessons/time: 3 lessons

Private property owners can make a positive change to land and water management.

When Syilx think of a watershed, there is no separation between creeks, streams, rivers, lakes, wetlands, aquifers, headwaters and snowpack, which we understand are all connected.. If one is impacted they all feel a ripple of effect. So, when managing a watershed, focus and deep consideration needs to be given to the whole system (Syilx Water Responsibility and Planning Methodology, 2017).

There are many threats our watersheds face, and many are within our control. This activity allows students an opportunity to look at what threats our local watersheds face, the extent of harm, and what can be done about it.



Topographical contours within a watersded

With a Few Simple Steps We Can All Protect Our Water

1. Hard Surfaces = Big Consequences
Retaining walls (rock, wood or concrete) increase erosion in adjacent areas. Walls break down over time and are expensive to maintain. Soften your shoreline by replacing hard surfacing with native rocks, gravel and plants to decrease erosion.

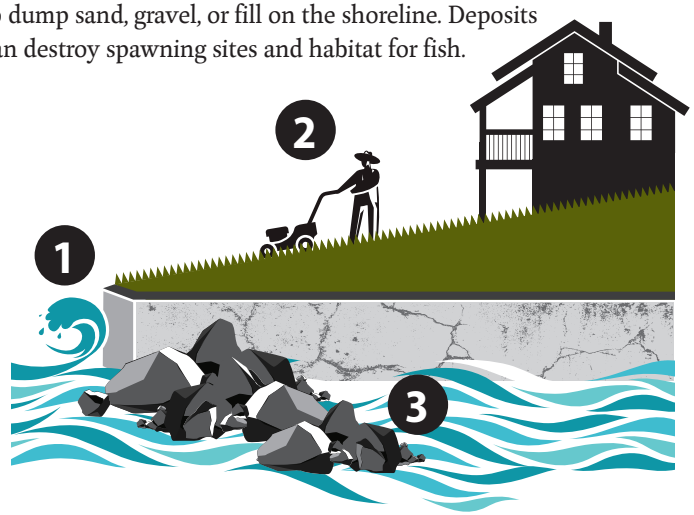
2. Filter instead of Fertilize
Manicured lawns allow water and pollutants to move quickly into the lake. Fertilizer causes excessive weed and algae growth. Planting and retaining native vegetation naturally filters storm water and protects water quality from pollution.

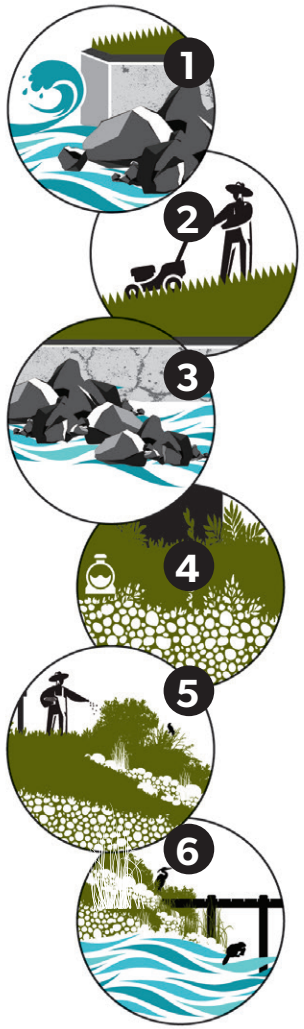
3. Protecting the Shore
Clearing rocks on the beach and creating rock piles into the water is known as a 'groyne'. Groynes force young fish to swim into deeper water where they are in greater risk of being preyed upon. It is prohibited to dump sand, gravel, or fill on the shoreline. Deposits can destroy spawning sites and habitat for fish.

4. Maintain your Septic System
A properly designed septic system can keep your water safe for drinking and swimming. Need an inspection or maintenance? Contact Interior Health Authority.

5. Use the Power of Plants to Combat Erosion
Frame your view with trees, and retain as many native plants as possible. Deep plant roots are great for holding soil together and stabilizing the shoreline. Trees and plants also provide food and shade for fish.

6. A Dock Dilemma
Docks are easily damaged with high water levels and can cause harm to fish and fish habitat. Construct a pile-supported dock following provincial regulations or consider sharing a dock with your neighbour. Want to learn more? Contact FrontCounter BC.





Grade 5–7

Big Ideas

- Design can be responsive to identified needs.
- Earth and its climate have changed over geological time.

Curricular Competencies

- Collaboratively and individually plan, select and use appropriate investigation methods, including fieldwork and lab experiments to collect reliable data.
- Evaluate personal, social, and environmental impacts and ethical considerations.

First Peoples Principles of Learning

- Learning involves recognizing the consequences of one's actions.
- Learning involves patience and time.

Content

- Internet safety
- Legal and ethical considerations including creative credit and copyright, and cyberbullying.
- Search techniques. How search results are selected and ranked, and criteria for evaluating search results.
- First Peoples knowledge of changes in biodiversity over time

Materials

- Computers/ipads
- Library/books
- Camera, if desired
- List of watershed threats
- Poster board

Grade 5–7

Potential Topics to Explore

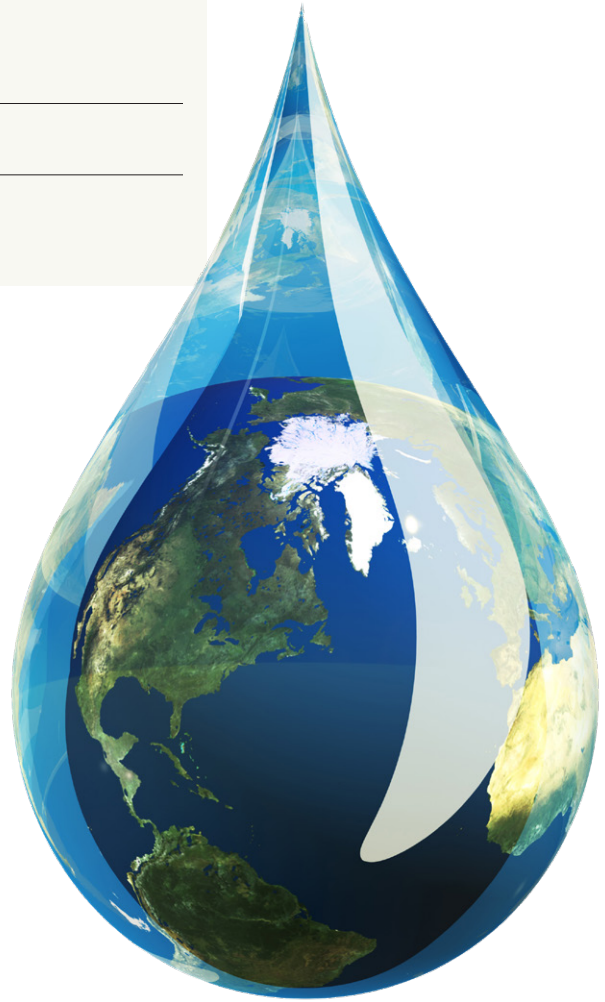
- Agriculture and agricultural run-off
- Boat traffic
- Global warming
- Liquid waste disposal and sewage
- Logging and deforestation
- Multi-point source pollution
- Non-native vegetation
- Poor land and water management
- Recreation
- Residential, commercial and urban development
- Over-consumption of resources
- Sale of water

What to Do

- Access a map of Okanagan watersheds and look it over with students. Define watershed and discuss the connectivity of all water.
- Provide students with a list of local watershed threats.
- Ask students to research and explore one of the listed threats to local watersheds.
- To ensure that there is a variety of presentations, encourage students not to double up on a topic if it has already been chosen by someone else. Use a sign-up sheet and choose a manner that works for your class so that students can alternate selecting at random.
- Review what are the appropriate websites to be looking at, and discuss how to tell if websites are credible.
- Review copyright and plagiarism. Request that students submit a reference page of links to where they found their information.
- Allow students a research class: why is their chosen topic considered a threat to our watershed? What can be done about it, if anything? What species is this impacting?

What to Do, continued

- Show learning though a PowerPoint, skit, poster, presentation, or short film regarding the chosen threat.
- Bring awareness to fellow classmates by presenting to each other.
- Create a personal "pledge for change" relevant to the chosen threat and include it at the end of the presentation.



Grade 8–12

ʔtiḱt, Floods

A Deep Dive on Watershed Issues

There are several issues that can impact the health of the Okanagan watershed. Some of these include:

- flooding
- forestry
- climate change
- government decisions
- aquatic invasive species.

The Okanagan has always experienced flooding. It is a valley that was carved by water and ice. However, the Okanagan Basin is experiencing increasingly intense ʔtiḱt and debris-flow hazards. Most recently, the Syilx Okanagan territory was heavily impacted by extreme flooding, on and off reserve, in 2017 and 2018.

Since European contact, the population on Syilx Okanagan territory has settled largely in the valley bottom, filling in 85% of natural wetlands, with homes, businesses and institutions, adjacent to water or on floodplains.

Based on current climate change research, the magnitude of extreme spring freshet (runoff) is projected to increase, and conditions similar to those experienced in 2017 and 2018 are expected to become the norm. Further, there is limited knowledge as to how these flood hazards interact with exposed communities and ecosystems, nor is there a consistent basin-wide approach to flood risk management.

However, efforts are being made to address this issue and develop solutions. In 2018, the Okanagan Nation Alliance (ONA) began a flood risk assessment. Find more information on this project here.

https://syilx.org/projects/t%CC%93ik%CC%93t-flood-adaptation-project/

The ONA has also worked with the Okanagan Basin Water Board to create flood maps for the valley. Find the maps and more information here.

https://storymaps.arcgis.com/stories/81b982cbfe1b4115ac3d7a655b119a9c)

Flooding

Forestry

The forestry sector is causing some of the most detrimental impacts to siwłkʷ in the Okanagan watershed. There are 31 different forestry companies with 64 different forestry licenses operating in Syilx territory[1] and they range from major corporations to small independent companies. Approximately 6,613,547 m^3 of trees can be harvested per year within the territory.

Severe deforestation has altered ecosystems to the point where they are not functioning naturally or properly. Without trees, there is significant loss of habitat for key species. Without trees, there are no roots to stabilize the land, making it prone to erosion and allowing siwłkʷ to flow wildly over the land.

Syilx Elders know that water is in the wrong place at the wrong time now, with no trees to hold the siwłkʷ. The result has been more severe droughts and floods. We have been witness to this in recent years, especially with climate change.

Aquatic ecosystems have been severely impacted by all these factors and more.

Log booms on Okanagan Lake near Kelowna

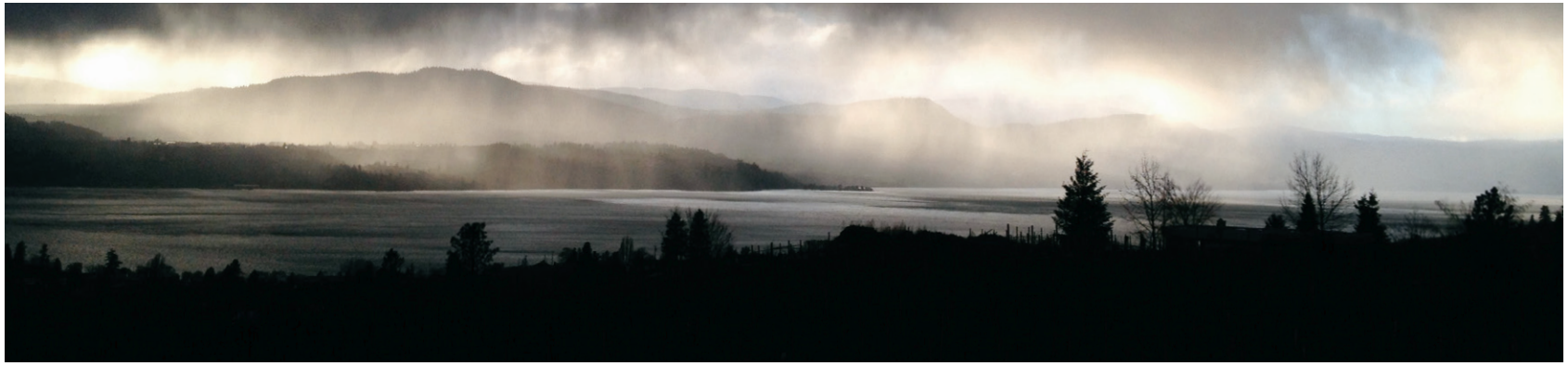
1 BC Ministry of Forests, Lands, and Natural Resource Operations, 2018

Climate Change Impacts

Climate change presents complex problems and reality – in its nature and in what it asks of us by way of response. Climate models show a strong warming trend for the Syilx territory, particularly in the summer. Precipitation is expected to decrease in the summer, and increase in the winter, with a marked decrease in the amount of snowfall. Changes to temperature, precipitation and wind patterns will:

- affect runoff, groundwater recharge, and river systems, resulting in less predictability and increased variability in the timing and volume of water flows;
- result in more frequent and more severe extreme weather events such as flooding, drought, increased runoff, erosion, and uncontrolled wildfire;
- change and increase pest populations (insects, diseases, weeds, and invasive species)
- contribute to seasonal and long term changes in both water quality and quantity; and
- result in higher rates of evapo-transpiration that will increase demand for irrigation and put pressure on water storage[2].

In 2024, the Okanagan Basin Water Board launched an "Okanagan Climate Indicators Dashboard" which shows changes in the last 100 years to valley temperatures, precipitation types and patterns, streamflows and lake inflows. Find more on the dashboard at: https://obwb.ca/indicators/.



Threatening weather

[2] https://soscp.org/wp-content/uploads/2020/02/OK_Climate_Projections_Report_Final.pdf.

Government

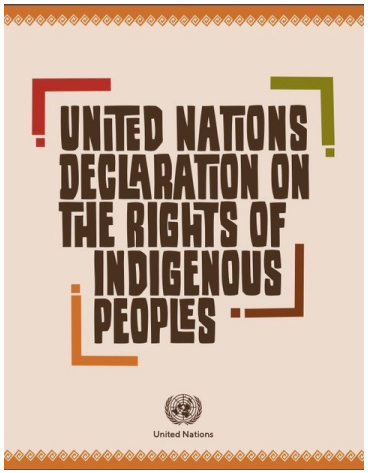
The federal government has a unique relationship with Indigenous People in Canada. The Constitution of Canada recognizes and affirms the existence of Section 35 Aboriginal Title and Rights. These rights lie in the practices, customs, and traditions that are integral to the distinctive cultures of Aboriginal Peoples. Syilx practices, customs, and traditions are directly tied to siwłkʷ, water and a responsibility to care for siwłkʷ as a relative.

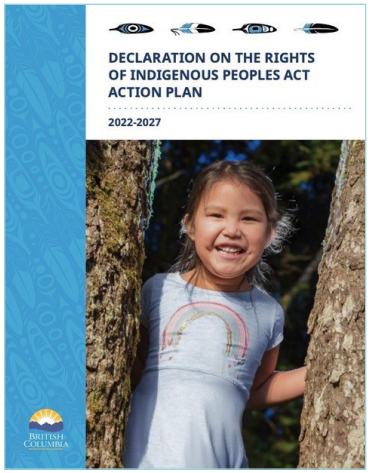
The Supreme Court of Canada, in the 2014 Tsilhqot'in decision, affirmed that Aboriginal title is real and meaningful and can exist over large areas. Aboriginal title includes vesting the full beneficial and economic interest in the land to the Aboriginal group. Where Aboriginal title exists, consent is required for the Crown or industry to use that land. Failing Aboriginal consent, the Crown has to meet the test of justifiable infringement. If the Crown authorizes activities on lands which are demonstrated to be Aboriginal title lands, then projects and permits may be cancelled with damages owing to the related Aboriginal group.

The Syilx People have never extinguished title to their territory in any manner. They have never ceded their lands, nor have they been conquered. The Syilx community continues to assert their Aboriginal rights to the tmxʷulaxʷ (land) and siwłkʷ within their territory and express their inherent right to self-determination. They are committed to upholding their rights and responsibilities, and to addressing the continued infringements on our Aboriginal Title and Rights.

Our inherent rights and responsibilities to siwłkʷ are also enshrined internationally in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which has been fully endorsed by the Canadian government. This includes the standard of free, prior, and informed consent which requires the creation of space for Indigenous perspectives and knowledge to be heard in a manner that is consistent with the honour of the Crown.

Read more on UNDRIP here:
https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf





The Syilx People have never extinguished title to their territory, nor ceded their lands, nor been "conquered."

Columbia River Treaty

The Columbia River Treaty (CRT) is a trans-boundary water storage treaty, between Canada and the U.S., that has two major components: holding back 15.5 million acre-feet (MAF) of water per year for flood control, while also optimizing hydroelectric energy production in the Columbia watershed every year. The CRT treaty, signed in 1964, resulted in the Province of B.C. storing a large amount of annual spring run-off behind three Canadian dams (Duncan Dam, Hugh Keenleyside Dam, and Mica Dam). This flooded the Slocan Valley (Arrow Lakes) and converted the Upper Columbia watershed into a massive reservoir system, flooding an estimated 270,000 acres, and forever altering the environment.

This storage of water has generated millions of dollars of revenue, the majority of which goes to the Government of B.C. as annual general revenue. However, it was developed and agreed upon by Canada and the U.S. without consultation, involvement or consent of the Syilx Okanagan Nation. This exclusion of the Syilx People in the original Columbia River Treaty process, alongside its dams and their impacts, represents one of the most significant and on-going infringements of Syilx Okanagan Title and Rights.

The current CRT negotiation represents the first time any First Nation has ever been at the table during international treaty negotiations. Our presence at these negotiations is ground-breaking and has set a precedent for Indigenous communities around the world to ensure that Indigenous rights and participation in treaty negotiations are recognized.

Chief Joseph Dam

Aquatic Invasive Species in the Okanagan

Aquatic invasive species (AIS) are species that are found outside of their native habitat and cause harm to their new environment. They are highly persistent and competitive.

LEARN MORE https://www.oiso.ca/species-category/fish

Invasive zebra and quagga mussels begin their lives as tiny swimming larvae, which are carried by water currents. As they mature, they attach themselves to hard substances like rocks, other mussels, logs, and boats. Mussels feed by filtering water and removing plankton (tiny plants and animals) from it. The problem is that they can filter out all the plankton from a lake or stream, leaving nothing for native animal species to eat. These mussels would be a serious threat to Okanagan salmon if entering our Okanagan waterways and lakes.

Additionally, invasive mussels promote toxic algae which pollutes our drinking water.

The Okanagan Basin Water Board (OBWB) and its Okanagan WaterWise outreach and education program has undertaken a massive campaign to educate everyone on how we can keep zebra and quagga mussels out of the Okanagan waterways.

VISIT https://dontmoveamussel.ca/

Goldfish are also sometimes released into Okanagan waterways. This may seem like a good idea, but goldfish can put our native fish at risk. Goldfish can out compete native fish species for food and prey on smaller ones. Additionally they can carry a disease called koi herpesvirus, which can harm native fish populations.

If you have a pet that you can no longer care for, find a new home for it (maybe a school, nursing home, office or fish club member), or contact your local pet store. And, if you have a fish that dies, it's best to bag it and put it out in the garbage. Do not flush your dead fish since they can spread disease.

LEARN MORE
https://www.okwaterwise.ca/waterwise-in-the-community.html.

Rocky Mountain Ridged mussel
Gonidea angulata

INVASIVE Zebra mussel
Dreissena polymorpha

INVASIVE Quagga mussel
Dreissena rostriformis bugensis

***Important Note:** Know the difference between the invasive zebra and quagga mussels and our indigenous endangered Rocky Mountain Ridged Mussel – sk'wuk'wr'inʔ.

ACTIVITY Invasive Species Inquiry Project

Grades: 6–9 (Adaptable for Grades 10–12)

Subjects: ADST/STEAM

Number of lessons/time: 3 lessons

https://www.pbs.org/newshour/extra/lessons-plans/lesson-plan-killer-robots-battle-invasive-species/

Invasive species:

An invasive species is a non-native introduced plant or organism without natural predators that negatively alters its new environment.

Native species:

A species that is within its known natural range, and occurs naturally in a given area or habitat, as opposed to an introduced species or invasive species. Also known as endemic species, indigenous species.

Invasive species spread rapidly and can negatively impact our ecosystem and native species. In the Okanagan there are both aquatic and terrestrial invasive species present.

The Syilx culture views water as a relative, not a resource, and when invasive species threaten the watershed and our salmon, it affects all of us. This design project will allow for students to inquire and develop a prototype of a device that will help with invasive species.

Purple loosestrife is a wetland plant that is native to Europe and Asia, but was brought to North America in the early 1800s and has become a problem in the Okanagan and beyond.

Grade 8–12

Big Ideas

- Design can be responsive to identified needs. (Gr. 6–8)
- Social, ethical, and sustainability considerations impact design. (Gr. 9).

Curricular Competencies

- Choose a design opportunity.
- Identify criteria for success and any constraints. (Gr. 6–8)
- Critically analyze and prioritize competing factors, including social, ethical, and sustainability considerations to meet community needs for preferred futures. (Gr. 9)
- Engage in a period of research and empathetic observation in order to understand design opportunities. (Gr. 9)
- Evaluate a variety of materials for effective use and potential for reuse, recycling, and biodegradability. (Gr. 9)
- Take creative risks in generating ideas and add to others' ideas in ways that enhance them. (Gr. 9)

First Peoples Principles of Learning

- Learning ultimately supports the well-being of the self, family, community, the land, the spirits, and the ancestors.
- Learning involves patience and time.

Content

- Technical drawing, including sketching techniques and manual drafting techniques
- Elements of plans and drawings
- Evolving consumer needs and wants

American bullfrogs are native to eastern North America. They were introduced to B.C. for frog leg farming and some escaped, causing problems for native frogs and other native species.

What to Do

1. Ask students to pair up and brainstorm what are invasive species (terrestrial and aquatic).

2. Define "invasive species" versus "native species" to students and discuss what constitutes an invasive species: fast growth, rapid reproduction, no natural predators, high dispersal ability, tolerance of a wide range of environmental conditions, able to change the soil or water conditions so native species can't grow, typically involving human interference.

3. Watch "Invaders! Invasive Species in BC" (1:42)
   https://www.youtube.com/watch?v=W4Ds8aFh8hM

4. Explain to students that there are invasive species in our Okanagan watershed. Can anyone think of any?

5. Watch the solution that was released in Florida in response to invasive species
   https://www.youtube.com/watch?v=gA2pFBE3ToM&t=20s and https://www.pbs.org/newshour/extra/lessons-plans/lesson-plan-killer-robots-battle-invasive-species/

6. Tell students that they will be designing a sketch, drawing, and prototype of their very own to help with local invasive species. It can be preventative or reactive (explain to students that what was seen in the YouTube clip was reactive). It can be a design like what has been seen in the YouTube clips, or it can be a campaign to raise awareness and prevent the spread.

Materials

Invite students to bring any project supplies that they would like from home or from the natural world. NOTE: Encourage students to first confirm supply list with you, the teacher, and ensure that when gathering supplies from the natural world they are appropriately collected. Provided supplies could include (modify with what is accessible for your class):

- Access to technology (laptops/ipads/wifi)
- Writing and drawing utensils (pens, pencils, pencil crayons, erasers, markers, etc.)
- Ruler
- Card stock
- Empty plastic water bottles/can/glass bottle
- Cardboard boxes
- Saran wrap
- String
- Paper clips
- Tin foil
- Balloons
- Scissors
- Glue (glue sticks, white glue/glue gun)
- Exacto knife
- Popsicle sticks
- Pipe cleaners
- Batteries (AA, AAA)

Eurasian watermilfoil is native to Europe, Asia and North Africa. It's believed that it was first introduced to North America in the 1940s, and made its way to B.C. in the mid-70s. Learn more about milfoil control in the Okanagan at https://obwb.ca/milfoil/.

What to Do, continued

7. The first lesson should be strictly research for the students. Allow them to identify what invasive species they are targeting and develop a plan. Students can use the Okanagan Invasive species website to research: https://www.oiso.ca/

8. Remind students about internet safety and copyright.

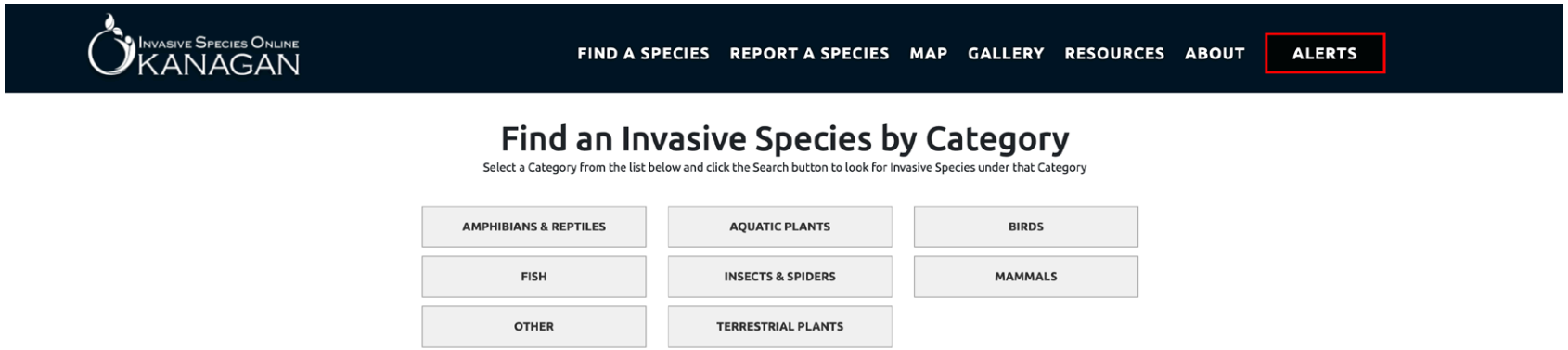
9. The following class, invite students to roam around the room "pitching" their product to each other. Instruct students to listen to at least three other pitches and pitch their own at least three times as well.

10. Collect their initial "pitches" as formative assessment, but allow students the opportunity to revise their plan if they wish.

11. Have students complete a material/supply list for their prototype that can be approved by the teacher.

12. Review safety protocols and success determinants and allow students ample time to work on their design.

13. Allow time for students to present their prototypes to their peers and identify strengths and areas for improvement.



Safety Plan

Students will not be allowed to use an Exacto knife or hot glue gun without supervision. This MUST be done with the teacher oversight.

- Personal protective clothing: ensure students are wearing closed-toed shoes.
- Review scissor safety and how to pass them properly/walk with them.
- Stay in work space as much as possible to avoid foot traffic and tripping hazards.
- Keep work space clean and clear of clutter.

Ecosystem protection warning

Success determinants

- A successful design/prototype will have been well thought out and will address a local invasive issue.
- The issue is clearly identified and the design presents a viable solution.

Possible Extensions

Ethical decisions behind killing off invasive species: write a persuasive paper based on the invention looked at in class (Florida's solution to lionfish) and decide whether killing invasive species is ethical or unethical. Defend your argument.

The Red-Eared Slider is native to southeastern U.S., Mexico, Central America and Brazil, but has been introduced to the Okanagan and other parts of B.C.

Grade 9–12

Captikʷɬ Teaching Opportunity

ACTIVITY Core Competency: Personal Awareness & Responsibility

Grades: 9–12 (Adaptable to Grades 6–8)

Subjects: Physical and Health Education (Grades 6–10)

Outdoor Education (Grades 11–12)

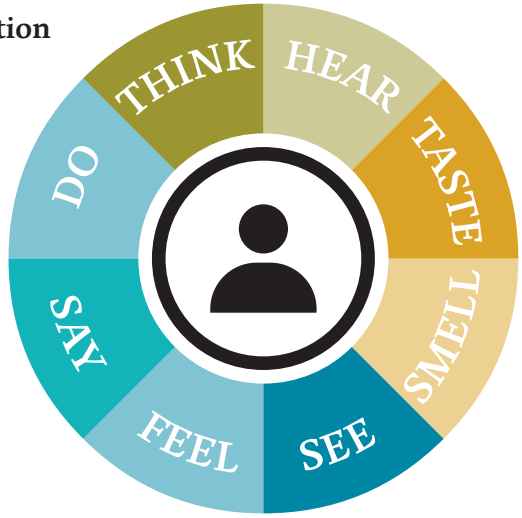
Number of lessons/time: 2–3 lessons

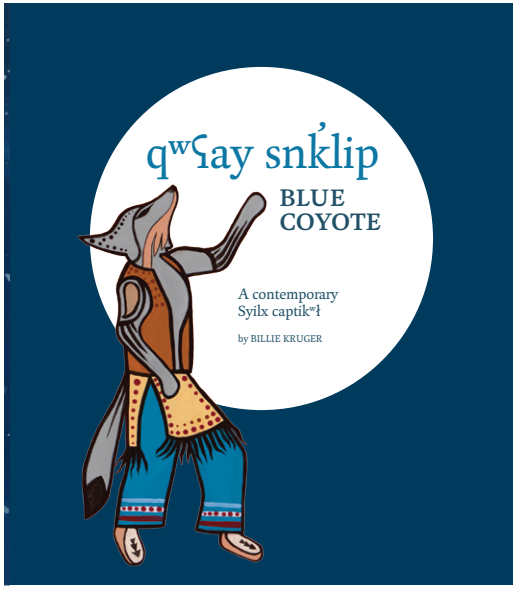
Big Ideas

- Advocating for the health and well-being of others connects us to our community. (Gr. 8–9)
- Healthy choices influence our physical, emotional, and mental well-being. (Gr. 6–10).
- Spending time outdoors allows us to develop an understanding of the natural environment and ourselves. (Gr. 11–12)

One of the many lessons in qʷʕay sn̓klip *Blue Coyote* is about the importance of water and how it is healing. The goal of this activity is to start a discussion about mental wellness and resilience. It challenges students to look inward and share their perspectives with their peers.

Reflection Wheel





SOURCE qʷʕay sn̓klip Blue Coyote
https://www.syilx.org/shop/

Curricular Competencies

- Self-advocating
- Self-regulating
- Well-being
- Describe and assess strategies for promoting mental well-being, for self and others.
- Evaluate and explain strategies for promoting mental well-being.

First Peoples Principles of Learning

- Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.
- Learning involves patience and time.

Materials

- A copy of *Blue Coyote*
- Paper
- Pencils
- White board
- Projector

Illustration: Billie Kruger

What to Do

1. Watch *captikʷɬ is Medicine* by Madeline Terbasket: https://youtu.be/UHW-ZQ1mNRU.
2. As a class, analyze and discuss some of the lessons that are taught in Coyote and Eagle (be true to yourself). It's okay to make mistakes. Allow your foxes to support you, etc.
3. Read *Blue Coyote* out loud to the class.
4. As you read, have students draw images. The goal is to create visual reflection. Use the Reflection Wheel to guide their reflections. Read for 20 minutes each class.
5. Brainstorm some guiding questions/ideas for each reflection prompt on the wheel. Example:
   a. Think: What does this captikʷɬ lesson make you think of (self connection)?
   b. Hear: List key words that come to you.
   c. Taste: What does Coyote taste? What do you taste?
   d. See: What images come to mind as you listen, etc.?

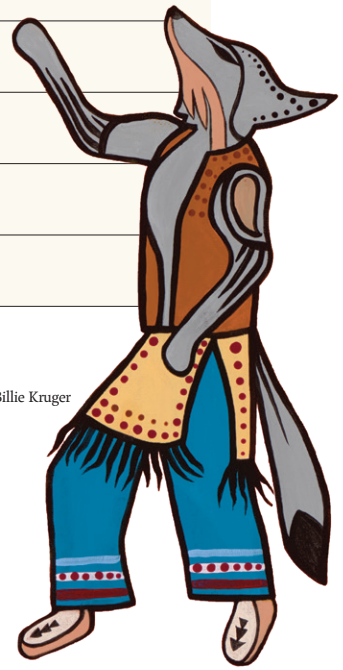


Illustration: Billie Kruger

What to Do, continued

*Move your class outside if possible, and sit on the grass or near a water source while you read.

6. After you finish reading, allow students some extra time to finish their visual reflections.

7. Host a gallery walk, get up and move! Ask students to look for similarities and differences in their visual reflections.

8. Sit in a circle and ask the class "How can we use the lessons in this captikʷɬ to help us fight our own monsters?"

9. Read this passage from *Blue Coyote* to the class "He listened to the flowing water. It splashed against the rocks, swirled around, and continued its course downstream. 'The water is so resilient,' he thought, 'no matter what stands in its path, it keeps flowing.'He wished to be more like the water. He wanted to be able to work through his problems and his fears and keep moving forward."
Prompts: Students can respond orally or written: What do you do when you feel like Coyote? What are some ways we can overcome our fears? What is the importance of water in *Blue Coyote*? How and who does water heal? How can we use or turn to water to support our mental wellness?

10. Use https://foundrybc.ca/info-tools/ or other mental health resources to facilitate conversations and learning.

The water is so resilient, he thought, *no matter what stands in its path, it keeps flowing.* He wished to be more like the water. He wanted to be able to work through his problems and his fears and keep moving forward.

Illustration: Billie Kruger

Resources

Syilx Intellectual and Cultural Request

In order to successfully engage with Indigenous communities, their terms (guided by Indigenous principles of respect and protocols) must be honoured and adhered to.

"Syilx Communities Cultural and Intellectual Principles and Fundamentals" implements appropriate ways of using ONA cultural materials, and connects with our peoples and communities. They support moral conduct and promote interaction based on integrity with mutual concern and respect. The continuing responsible use of ONA cultural knowledge and expression will ensure that our culture is maintained, protected and passed on to future generations.

Find more information here:

https://www.syilx.org/about-us/syilx-nation/syilx-intellectual-cultural-request/

For more on the nsyilxcən language and pronunciation, visit:

https://www.firstvoices.com/syilx

https://www.thelanguagehouse.ca/

http://www.interiorsalish.com/

kł cp̓əl̓kstiḿ Hatchery Tours

The kł cp̓əl̓k stiḿ Hatchery in Penticton is a testament to the perseverance of the Syilx People to realize their dream of restoring the ntytyix (salmon) – one of our Four Food Chiefs – to their original habitat and rightful place in our territory.

To book a tour:
https://www.syilx.org/events/hatchery-tours/

ONA's Broodstock Tours

As part of ONA's dedication to promoting education and awareness around Okanagan sockeye and other fish species in the region, ONA provides free school tours of the broodstock site and activities to classes from K–12. Tours usually take place over the first two weeks of October.

To book a tour:
https://www.syilx.org/events/broodstock-tours/

Resources

Fish in Schools (FinS) Program

ONA's Fish in Schools program is one of the key fish education programs for youth in the region, particularly the sockeye salmon, so that students may become future advocates for both salmon and their habitat. ONA provides a 29 gallon tank with cover, stand/cart, aquarium chiller, and start up supplies, gravel, filters, filter replacements, siphon, insulated cover, thermometer, and water conditioners, as well as the salmon spawn.

To book in mid-January:
https://www.syilx.org/events/fish-in-schools-fins/

nx̌ʷaqʷaʔstn – Mission Creek

nx̌ʷaqʷaʔstn (Mission Creek) Greenway Regional Park in Kelowna is a great place for classes to walk along the creek and observe the importance of water. There are many traditional plants to be identified along the trail.

Learn more about the importance of nx̌ʷaqʷaʔstn in this video:
https://www.youtube.com/watch?v=rvTNBTV_aCE

Other Learning Activities:

Grades 1–4
https://syilx.org/wp-content/uploads/2022/05/GrizzlyBearLessonPlans.pdf

Grade 2–3
https://syilx.org/wp-content/uploads/2022/05/LynxLessonPlans.pdf

Early years
https://www.syilx.org/wellness/resources/activities/

Okanagan Nation Alliance YouTube Channel

Slow Fish
https://www.youtube.com/watch?v=MgiH5nfWXB0

Water Declaration
https://youtu.be/EJBMmdeYdws

ʕán – Our Inherent Connection
https://youtu.be/3oq4CQdrolE

Impacting Change – The Columbia River Treaty
https://youtu.be/ui25H23PG8w

nx̌ʷntkʷitkʷ (Columbia River)// Our Inherent Connection
https://youtu.be/ABtp1daLIEw

kɬcp̓əl̓kstiḿ (Cause to Come Back) – Catching Salmon for Egg Collection
https://youtu.be/mcX_C2-_Sak

One River, Ethics Matter Conference 2021
https://youtu.be/6e50-6UWXTk

Salmon Feast
https://youtu.be/3H04SC660QI

Skaha Sockeye Rehabilitation Project – Penticton Dam
https://youtu.be/4pLBdsj3_30

Resources

Other Media:

Columbia Basin Trust: Basin Stories: Moving Lives – First Nations
https://youtu.be/nJt1EQocxBo

Salish Language School of Spokane
nsəlxcin iʔ‿sq̓ýq̓aýs snkʷənim (Colville-Okanagan Salish Alphabet Song)
https://www.youtube.com/watch?v=OE4gaXlDtHk

Okanagan Basin Water Board – Okanagan WaterWise:

A River Film (following the 2015 Osoyoos Lake Water Science Forum – looks at the complex relationship between people, fish and upland species in the Okanagan-Okanogan watershed)
https://www.youtube.com/watch?v=P6IzkUhDpC0&list=PLg7XjOZTdpR07eelO3jxbfE6WOMi7b4f_

- Focus on fisheries:
  https://youtu.be/kFBxgKO3Q00?si=eRMVbtiCre1D3-ua
- Focus on First Nations fishery:
  https://youtu.be/j4qFkv7QDX0?si=fSZFL9s4EFJnjgPL
- Focus on the 'temperature-oxygen squeeze' for fish:
  https://youtu.be/Npu2ywVErcE?si=DzOO60RadX6VujmZ
- Nk'Mip (Osoyoos) – The Heart of the Watershed (following 2022 Osoyoos Lake Water Science Forum):
  https://youtu.be/WuFsIBfnhrE?si=9dwdUvsb4fWvWtuY

Why We Have to Make Water Work Smarter... For all, including food, fish, and firefighting
https://youtu.be/2CM00a2ykwE?si=fkfvMwN20C1bu0_r

Resources

Books

ONA Bookstore
https://www.syilx.org/shop/

That Which Gives Us Life
This book describes the Okanagan People's relationship to the land and water. The Syilx community governs its land according to principles that are embedded in traditional knowledge, stories, teachings, ceremonies, medicines, dances, and the arts. These principles carry with them a sacred, inherent responsibility to care for the tmxʷulaxʷ (our land).

nsiwɬkwcn/The Language of the Water
For Syilx People, the ways of knowing water are embedded in the local language and bequeathed the community by their ancestors. Maintaining the integrity of water is essential to Syilx identity and is entrenched in the responsibility to care for their homelands. Water is considered the most sacred medicine. This booklet is both about the relationship that the Okanagan People share with water and an invitation to others to reflect on their relationship with this vital gift.

How Coyote Broke the Salmon Dam
This story is an adaptation of the captikʷɬ How Coyote Broke the Salmon Dam. Such publications provide an opportunity for understanding the living land and teaching each generation how to become a "part of it" as the only way the Syilx have survived on these lands for thousands of years.

Go Back to The Root
This learning resource is based on a workshop series designed by the Okanagan Nation Alliance in partnership with the En'owkin Centre. The workshops approached the subject of Syilx families from several perspectives. At the end of the series, participants said: "We can't keep these learnings to ourselves — we need to share them." This learning resource was created to do just that.

Theytus Books:
https://www.theytus.com/

Follow the Water K–Gr. 5 Curriculum Project
A series of four stories written by Harron Hall, a member of the Syilx and Nla'kapamux Nations. These stories focus on water and healthy ecosystems, and draw on local Indigenous traditional science perspectives and knowledge. The series also follows the prescribed learning outcomes for K–Gr. 5 students as set out in the B.C. curriculum.

iʔ siwɬkʷ nkwancinəm kʼəl suliʔ
The Water Sings to suliʔ: K–1

kəxntim sʕanixw kʼəl nixwtitkw iʔ acxwəlʼxwalt
We Go with Muskrat to Those Living Underwater: Gr. 2

skɬpʼlkʼmitkw / Water Changeling: Gr. 3

kwu_cʼəxwəntim təl stunx iscʼwuls
Lessons From Beaver's Work: Gr. 4–5

Resources

Kou-Skelowh/We are the People: A Trilogy of Okanagan Legends
A collection of original legends told in a strong rhythmic language, this new revised edition of *Kou-Skelowh/We Are the People* features the Okanagan language and uses stories to teach readers about the values of sharing, self-sacrifice and reverence for life in all forms.

Other Resources

Our Relationship with Water in the Okanagan Education Guide, including an Introduction, Okanagan Watershed and Climate Module, and Building Outdoor Learning Spaces Module
https://www.okwaterwise.ca/resources.html#educationguide

Indigenous Plant List
https://www.okanagan.bc.ca/sites/default/files/2021-03/indigenous_garden_plant_guide_full_pdf.pdf

Wetlands of the Okanagan
http://okanaganwetlands.ca/

Cottonwood Riparian Forests at Risk
https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/species-ecosystems-at-risk/brochures/cottonwood_riparian_ecosystems_southern_interior.pdf

Memorial to Sir Wilfred Laurier 1910 – Memorial to Sir Wilfred Laurier, Premier of the Dominion of Canada from the Chiefs of the Shuswap, Okanagan and Couteau Tribes of British Columbia presented at Kamloops, BC
http://www.skeetchestn.ca/files/documents/Governance/memorialtosirwilfredlaurier1910.pdf

Building Climate Resilience in the Okanagan: A Homeowner's Resource Guide
https://www.interiorrealtors.ca/files/BuildingClimateResilience.pdf

Glossary

Syilx. . . . . refers to the peoples who speak nsyilxcən

sqilxʷ . . . . . Indigenous people

səmaʔ. . . . . settler people

captikʷɬ . . . . . the intergenerational history and oral record of the Syilx People. Sacred texts; stories and oral traditions; creation stories that hold Syilx laws

nsyilxcən . . . . . the language of the Syilx Okanagan People

k̓ʷuləncutn. . . . Creator – everything, all of creation

stɬtaɬt . . . . . aboriginal rights, title and responsibilities – to follow the natural laws and live life in balance

tmixʷ . . . . . ecology – the land, water, insects, people, animals, plants and medicines.

tmxʷulaxʷ . . . . tmxʷulaxʷ is nsyilxcən for "the land." The territory of the Syilx People is a diverse and beautiful landscape of deserts and lakes, alpine forests and endangered grasslands.

siwɬkʷ . . . . . nsyilxcən word for water. The meaning comes from (siw) and (ɬkʷ). The (siw) comes from siwst – to drink (human). The (ɬkʷ) comes from ɬkvitkʷ to lap (animal). Together the two parts identify the Syilx ethic that the right to water is equal for animals and humans. siwɬkʷ is sacred as the source of all life on the tmxʷulaxʷ.

Hear the words pronounced here.

https://www.firstvoices.com/nsyilxcen

cnxaʔcnitkʷs təl tqalqaltikn Watershed

. . . . . When Syilx think of a watershed, there is no separation between connected creeks, streams, rivers, lakes, wetlands, aquifers, headwaters and snowpack. If one is impacted, they all feel a ripple of effect. So when managing a watershed, focus and deep consideration needs to be given to the whole system.

kʾəmcnitkʷ . . . . foreshore

kɬusxnitkʷ . . . . Okanagan Lake

sukʷnaʔqyn. . . Okanagan

nx̌aʔx̌əʔitkʷ . . . Spirit of the lake (colonial term: Ogopogo)

Traditional Ecological Knowledge (TEK)

Syilx knowledge gathered since time immemorial by the Syilx about the tmixʷ and the tmxʷulaxʷ (the land, water, animals, community, plants) and the relationships between all things.

limləmt . . . . . thank you

waiʾ. . . . . hello

Four Food Chiefs:

skəmxist . . Black Bear

ntytyix. . . . Salmon

siyaʔ . . . . . Saskatoon Berry

spʾiɬ̓əm . . . Bitterroot

siwłkʷ, Water Curriculum

K–12 TEACHER'S RESOURCE GUIDE

OKANAGAN waterwise
One valley. One water.

Okanagan Basin WATER BOARD

real estate foundation BRITISH COLUMBIA

syilx Okanagan Nation Alliance

WWW.OKANAGANNATION.COM