Kiiwetinoong Diabetes Strategy education

Prevention Curriculum for Living the Good Life

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Table of Contents

Kiiwetinoong Diabetes Initiative Introduction…….……2-4

Curriculum composition

Part One: Plant-Based Education ……..……5-6

Oji-Cree Cookbook…..……..7-13

Curriculum Activities: …… 15-32

Appendix 1……..33-35

Part Two: Introduction to Youth Exercise Program…….……36-49

Curriculum……..50-96

Appendix 2……..97-106

Introduction

Kiiwetinoong Diabetes Initiative

The Kiiwetinoong Diabetes Initiative was developed to reach more communities with our Land-based strategy. Interest has circulated throughout the service providers and community members in the Kiiwetinoong district. The Shibogama RDS, termed here as the *Kiiwetinoong Diabetes Initiative,* has *Nishnawbe Aski Nation's* ***Heath Transformation*** at its root, offering traditional food and plant knowledge to exercise self-determination and take responsibility of Health Care in our communities, as well as to integrate our lifestyles and practices into our chosen healing modalities.

The initiative was developed due to the increased need of access and organization of Diabetes services in the Shibogama communities of Northern Ontario, and the requested access to information and teachings regarding wholistic healing modalities. This initiative is meant to suit all peoples and to engage the entire community (Elders, youth, children, and community workers), whether choosing contemporary or traditional methods for living with and recovering Type II Diabetes including other associated illnesses.

Diabetes mellitus and associated illnesses in the Shibogama First Nation Communities (SFNC) have increased since prior to the 1990's. The medical community at large have started acknowledging the epidemic nature of the disease and its relation to urbanization, increased population, and associated changes. Researchers have shown that Diabetic patients

living in urban areas have a higher prevalence of Depression [1]. Mental health issues and Diabetes are both greatly affected by lack of physical activity and individual eating patterns, which I would argue is directly correlated with the effects of urbanization and through continued colonization. The benefits the Shibogama communities have is that they are further away from heavily urbanized areas, having a better chance of healing the disease due to better access to traditional foods and the absence of highly manufactured foods (i.e. fast food, sugary foods as offered in abundance throughout urban centres).

Foods that contribute to inflammations in the body leading to illness, noting sugary drinks and food, is an effect of urbanization that can be remediated by utilizing ***traditional lifeways***. Hunting, fishing, trapping, netting, and foraging are excellent sources of physical activity. This activity provides very nutritious foods as well as body movements that will help to recover and heal numerous illnesses. Health of the land and the health of the people are synonymous, health being nurtured by the relationship to the physical environment [2].

Included in the effects of urbanization is the promotion of sedentary lifestyles through the over-use of smart and mobile devices. This behaviour contributes to a lack of physical movement which may contribute to increased incidence of Type II Diabetes. The curriculum presented in this document provides a framework to enable SFNC to move back to the traditional way of living and away from these effects of colonization. Establishing best practices for First Nations individuals and communities based on traditional ways and values are the priority of this curriculum of

the Regional Diabetes Strategy (RDS) Program. This program is created for everyone, most of all, the child inside all of us. When we are in a constant state of learning, being educated from the consistent stimuli of our environment, then growth is ceaseless, and we are forever young at heart.

A supplementary website was developed is to house the curriculum for this initiative (included in the following document), which is to be available and implemented into the community's structure. This KDI website provides immediate access to documents for the community Diabetes workers so that they can utilize available training modules, and videos, as well as to be able to access a Diabetes service workers Directory. This Directory will enable access to communities for booking Traditional and non-traditional Healthcare workers such as Medicine people, Healers, Nurses, Dietitians, Foot-care specialists, Chiropodists, and Diabetes educators.

Part 1: Plant Medicine Curriculum-Stage 1 learning

Land-based Healing Education: Plant Medicine Knowledges The models available at ***Appendix 1*** are to frame understanding of traditional and contemporary methods for implementing learnings into teaching activities. This includes descriptions of the Gardens and Ecosystems and Plant Harvesting Protocols. The plant protocol teachings are to be supplemented with the RDS manual available on the Kiiwetinoong Diabetes Initiative website.

Nutrition from the land

The following section, the **Oji-Cree cookbook**, was compiled by Kelly McIntosh in 2006 and the recipes were contributed by Shibogama community members. The importance of the recipes cannot be over-stated. The traditional practices of harvesting and preparing animal foods and the integration of the practices into current teaching systems are invaluable for the next generation.

The recipes provide nutritional support that is a challenge to acquire with foods that come from urban centres. Teaching the recipes and hunters knowledge provides self-knowing and independence and also preserves the teachings from the Elders.

Nutrition is inherent in providing healing for the body. We are made of the minerals and vitamins that are readily available from the land. The

teachings to acquire the foods must be taught by community hunters and those who know how to gather and prepare the foods.

THE COOKBOOK

In the spring of 2006, a group of elders and people came together to discuss diabetes, food, and the way of life of people in the communities.

When the conversation turned to traditional foods, the group realized that there were enough different recipes out there to fill a book. And such a book could be a guide to give young families and people ideas and a link to their past in their journey to health and happiness.

After an afternoon of talking and laughing about recipes, we had to stop. But, as one elder stated, "the recipes could have kept coming if we had all night!" The section that follows is certainly only the tip of the iceburg. Every household must have its own recipes, every community must have its own piece of the puzzle.

We hope this book encourages people to think about the recipes that their families have always enjoyed.

Sheila Childsforever

Roger Cook

Nancy Anderson

Joan Winter

Joyce Begg

Mattias Sainnawap

David Sainnawap

Joan Keewasin

Moose Nugahekan

(Pennican using Moosemeat)

-Smoke moosemeat and then boil it. You will need big pans to dry meat
-Put it in the oven if you don't have a teepee, get the moose first, smoke the meat (four hours) and slice it thin and hang it over the fire (3-4 feet up). After it is done, you boil the meat to tenderize it and then dry it (abondbateegan- a metal thing that covers- after it boils, you put it on top.) (Homemade pan – like a cake pan)
-Pound it or shred it and then dry it up.

ᒍᓱ ᓄᒃᑲᐃᒃ

ᒍᓱᐦᐃᔨᑎ ᐊᐢᑕᑐ ᑲᓄᒃᑲᐦᐃᑲᓄᐦᐊᑊ

ᓂᑎᑕᑦ ᓀᑐᑕᒪᑐ ᒥᐊᐦᑲᕐᒪᑐ ᒍᓱᐦᐃᔨᑎ ∇ᐦᑲ ᐊᐱᑐ ᒥᒥᐸᐦᑲᑕᒪᑐ ᑭᒥᐸᓇᑭᑯᑊ ᐊᐢᒥᐦᐃᕐᑊ ᓀᐃᔨᐢᐸᖏᒪᑐ ·ᐃᔨᑎ ᐊᐦᑲᑌᖏᐃᑲᑐ ᐱᑕᐱᑲᖏᐃᑲᓂᑊ ᐃᔨᐱᑕᐱᑲᖏᐊᑐ ᑭᵘᐱᑐ ∇ᑲ ᐊᐢᔨᑐ ᒪᑎᐦᑲᑐ ᐱᓇᒪ ᑕᵘ ᓇᓇᑕᐦᐃᒍᐦᓴᑐ ∇ᐦᑲ ᐊᐱᑐ ᐃᵘᐦᑲᓂᒃ ᒥᐊᐦᑲᕐᒪᑐ ·ᐃᔨᑎ ᓂᐅᐦᐊᑲᓴ ᒥᑯᐦᑊ∇ᐦᑲ ᐊᐱᑐ ᒥᐸᐦᐊᓂᔨᒪᑐ ᐊᐱᑐ ᒥᐃᔨᐢ ᐸᑭᑕᑯᓯᑐᑐ ᒐᐸᔨᵘ ᐳᑕᐦᐊᓂᖖᒥᓯᐟ ᐊᑯᓇᑊ ᓂᐅᒥᓯᐟ ᒥᐊᐱᒥᐃᵘᐸᑯᑐᐢᐱ ᑕᵘ ᐃᵘᐦᑲᐸᒪᑐ ᒥᐸᐦᑕᑐ ᒥᓄᑲᒥᐦᐊᒪᑐ ∇ᐦᑲ ᐊᐱᑐ ᒥᓇ ᐃᒪ ᒥᐃᔨᐸᒪᑐ ᐊᐦᐸᓂᐸᑌᐃᑲᓂᑊ ᑐᑲᑐ ᐱᐦᐊᑊ ᐃᵘᐦᑲᒥᐦᐃᒍᓄᐦᐊᑊ ᐊᐱ ᐃᵘᐦᑲᒥᐦᐃᑲᑐ ᒥᐸᐦᑕᑐ ᐃᒪ ᑕᵘ ᒥᐃᔨᐦᐊᑭᑕᐱᑲᑐᐢᐸᒥᐦᑊ ᑐᑲᐦᐸᒥᐦᐊᑊ ᑲᑲᑐ ᑲ ᑲᑲᑫᐊᐱᑭᓯᐦ ᑲᐃᔨᑭᑭᓯᐦᓴᓄᒃᑲᐦ ᐊᓇძᓇ ᑭᐱᵘᑲᑕᑊᐊᑐ ᒥᓇᑐ ᐊᐱᑐ ᒥᐸᐦᒪᑐ

Fish Oil

(Seenekumsegun)

First, prepare and clean the fish guts.
Take out the swim bladder (looks like an inflatable balloon) and put it in the pot of water. Just boil it on low heat (a slow boil) and you will see the oil on the surface.
Scoop the oil out and then put it in a frying pan.
Cook the oil to remove the water, cool the oil and then put it in the fish flask.

ᓯᓂᒃᒥᓯᒃᑐᓄᑦ

ᓂᕆᑕᕐ ᖃᑐᑕᒪᓄᑦ ᐊᐱ ᐃᐩᓂᐅᐅᔪᖏᐊᓕᑕ ᑭᓄᖓᑦ ᑲᓯᓪ ᑭᓄᖓᓄᐃᓇᑭᔪᓄᑦ
ᒪᓂᐱᑐᓄᑦ ᐅᓪᓇᑭᔪᓄᑦ ᒥᓪ ᐅᐱᓂᒃᑭᑕᒋᓯᕐᓂᒃᓪᓄᑦ ᐃᔪᓪᓚᓂᒃᐅᖅᓂᒃ ᑎᐸᓂᒃᓇᑭᑯᑦ ᐃᔪᐊᓯᓕᐊᑐᓄᑦ ᒥᓪ
ᓂᐱ ᐃᒪ ᑎᐊᓯᓕᐊᑐᔪᓄᑦ ·ᐊᑭᑕᐱᒃᑐᓄᑦ ᐯᒃᓴ ᑎᐊᓂᐅᓄᑌᑦ ᒃᓚᐃᓄᑦ ·ᐁᖃ ᑭᑭᑎᐅᖃᒪᓄᑦ ᐁᒃ ᒃᓴᐊᐸᑕᓄᑦ ᐱᒥᑌ
ᑎᐊᓂᓴᐊᑭᑕᑎᐊᑌᑦ
ᐊᓴᒃᖏᐊᓄᑦ ᐱᒥᑌ ᐁᒃ ᐃᒪ ᐊᓂᔪᓯᑭᓇᓄᑦ <ᓇᑭᑯᑦ
ᐅᖃᓄᑦ ᐱᒥᑌ <ᓇᑭᑯᑦ ᒃᑭᐊᑐᔪᓄᑦ ᑭᓯᓂᒃᒥᖃᒪᓄᑦ ᐃᔪᓴᒃ ᐅᖃᒪᓄᑦ ᑕᔪ ᑕᑭᒃᒥᓯᑐᑐᓄᑦ ᐁᒃ ᐊᐱᓄᑦ ᑭᓄᖓᐱᒥᑌ
ᐊᓯᓴᑭᒃᓂᓚ ᐃᔪᐊᓯᓴᑐᓄᑦ

Wiis kway

Wiis kway is a container for fish oil.
You first need to skin the fish (use a Big Northern).
Then you blow into it and inflate it like a balloon and tie it.
Once it has dried, you use it as a flask to store the fish oil.

·ᐃᑎ·ᒃᑲ

ᐊᒥᑊᐅ·ᐁ ·ᐃᑎ·ᒃᑲ ᒃᐃᑭᒃᑌᓚ ᐃᓇᓯᑭᑭᒃᑌ ᐁᔪᐱᓇᑊᐃᒃᑌᓚ ᑭᓄᖓ·ᐃᐱᒥᑌ ᒃᐃᔪ·ᒃ ᓯᓂᒃᒥᓯᒃᑌᓚ
ᒥᑕᔪ ᓂᕆᑕᕐ ᖃᑕᒪᓄᑦ ᑭᓯᑯᓇᖅ ᑭᓂᓯᐊᓕᔪᔪ ᑐᒃᓄ ᑭᑭᐊᓀᓚᐱ ᑭᐊᓯᑭᑊᐊᖅ
ᐁᒃ ᐊᐱᓄ >ᑕᑕᓄ ᑭ>ᑕᑭᓚᓚ ᒥᓇ ᑭᓯ·<ᐱᓕᔪᓄ ᐊᑯᑐᓄ ᑭ<ᑌᓚ
ᐊᐱ ᐃᔪ·ᒃ<ᑌᓚ ᒥᑕᔪ ᐃᒪ ᖃᐃᔭ ᐱᓇᑊᐊᒪᓄ ᑭᓯᓂᒃᒥᓯᒃᑐᓄ ᑭᓇᑊᐁᓂᒪᔪᓄ

Sassiibiiman

This technique can be used on any fish (suckers or walleye).
Take the swim bladder (bagwagiin) that you have previously boiled and cut it into pieces.
Mix gizzard and these pieces of the bladder and fish eggs together.
Fry it or cook it with the fish oil.
Then add blueberries, strawberries or raspberries for a healthy dessert!

ᓴᓯᐱᒪᓕᐣ

ᐱᑯ ᖃძᓂ ᑭᓄᒃᐃᓇᑭᔪᓐ ᐊᐸᒋᒋᑲᑌᐧᐊᐣ ᑲᐅᔪᒋᗷᕒᕒᐧᓀᒣᐱᓇᓕᐧ ᓇᐣᑕ ᐅᑲᐦᐧᐦ
ᐊᐸᒋᑐᐣ ᑲᑭᐃᐧᑲᐅᕼᒪᐣ ᐅᐱᐧᑲᒋᐣ ᐁᐧᑲ ᐊᐱᐣ ᒋᑭᐱᐧᑭᓄᒪᓂᓂᐣ
ᐊᔪᒋᐧᐊᓂᐧᖮᐦᐊᓂᐣ ᐅᓇᑭᔪᓐ ᒥᓇ ᐅᐱᐧᑲᒋᐣ ᑲᑭ ᑭᐱᐧᑭᓄᒪᐣ ᐊᔪ⁻ ᒥᓇ ·ᐊძᓇᐧ
ᐁᐧᑲ ᐊᐱᐣ ᒋᕼᕼᐱᐧᑲᑕᒪᐣ ᓇᐣᑕ ᒥᓇ ᑭᓄᒃᐃᐱᒌᑌ ᒋᐊᔪᒋ ᕼᕼᐱᐧᑲᒋᑫᕽᐣ
ᐊᐱ ᐃᐧᑲᑭᓂᑌᐧ ᐊᒥ ᐁᐧᑲ ᐊᐱᐣ ᒥᓂᓄᐣ ᒋᑭᓂᑲᐧᐁᐱᓇᒪᐣ ᑐᑲᐣ ᐅᓄᐧᐊᐧᑯᒥᓇᓕᐣ ᐳᑌᐧᐁᒥᓇᓕᐣ
ᒥᑫᑯᒥᓇᓕᐣ ᒥᑐᓂ ᑲᒥᓄᐧᑲᑯᐣ ᐅᐧᐁ ᒥᒋᕽᐣ

Odiisgus
(moose guts – intestines)

Turn it inside out.
Dry it.
Boil it with moose meat.
Put bannock in the tube (after cleaning the tube)
Put cinnamon, and nutmeg and raisins in there too, tie up each end and bake it like that.
Some people boil it, it does not matter how you cook it – it turns out really good.

ᐅᒋᐣᑭᐣ ᒪᓯᓇᑭᐣ

ᐊᐳᒋᐱᑐᐢ ᒪᓯᓇᑭᐣ
ᐊᓀᑐᐢ ᒋᐸᖏᒐᒪᐢ
ᒋᐸ·ᑲᑕᐢ ᐊᔑᐨ ᒪᓯ·ᐃᔭᑊ
ᑭᑕᓇᓀᓇᑲᐢ ᐃᔑᐸᐱᓇᖥᐅ ᐅᓀᐦᐯᔑᐅᐳᑎ ᐃᐣ·ᑲᑭᓯᓇᒪᒪᐢ
ᐊᔑᑎᓇᐢ ᑲᒥᓄᒪ·ᑲᑭᐢ ᐊᔑᒋᑲᓯᑲᓇᐢ ᑐᑲᐢ ᓯᓂᒪᐢ ᓇᐟᒣᑊ ᒥᓇ ᐱᓀ ᓂᒥᓂᔑᓂᑊ ·ᕫ·ᕮᑭᑌ ᑕᐣ
ᒋᓯ·ᐸᐱᑐᔭᐢ ᐊᐱᐢ ᒋᐃᔑᐱᑕᐱᑲᖥᐊᒪᐢ ᒋᑭᔑᑌᑊ
ᐊᑎᐟ ᐊ·ᐃᔭᑊ ᐅᒥ·ᓄᑕᓇ·ᐊ ᐯᒋᐸ·ᑲᑕᒧ·ᐊᐨ ᐊᓂᐢ ᐃᓀ ᐊ·ᐃᔭ ᑲᐃᔑᒪᒥᓄᐱᑕᑊ ᐅᑎᔑᑲᔪᐢ ᐯᑲ
ᐊᓀ ᓇᐱ⁻ ᐯᔑ·ᐃᐢᑭᐸᓀᑊ

Oseganane Pemete

Take the joints of the animal, and crush them (they are made of cartiledge and fluids).
Slow cook the crushed bones and boil them, and you will see the film again on top of the liquid.

ᐅᓯᒃᓇᓂ

Lᐧᐊᑐᓇᓪ ᑕᓯᑐ ᑲᐊᖅᖅᑐ ᐊᐧᐃᕆᔪᔪ ᐊᓂძᑲᓇᓪ ∇ᐧᒃ ᐊᐱᑐ ᑭᑭᐱᐧᑲᑕᑊᑲᐊᒪᒃᓂᖅᐧᐊᑐ ᒥᓇᐅᑐᓯᐱᐊᒃᓇᓇᓪ
ᐯᒃᑕᑭᐧᐊᓴᑐ ᐅᒃᓇᓪ ∇ᐧᒃ ᐊᐱᑐ ᓇᕐ ᒃᐧᐊᐸᑕᑐ ᐱᒥᑌ ᑭᐊᓂ ᐧᐊᑭᑕᒪᒪᑭᐧᐊᑌᑊ

Bagasawn

Eating the bone marrow will help with your digestive system.
You do not cook the bone marrow, as it will disintegrate if you cook it.
Just crack the bone, and take the marrow out. It will help with your digestive system!

ᐸᒃᐧᓴᑐ

ᐧᐃᑭᑊᐃᐧ∇Lᒃᑐ ᒥᓇᑭᔪᑊ ᐧᒃᓴᑊ ᑭᐧ∇ᐱᒃᓂᐧᐊᑊ ᒃᒥᑭᒃᑌᑊ ᐅᐧ∇ ᐸᓴᑊᐃᒃᓇᓪ
ᒃᐧᐃᓂᑐ ᑭᑭᓯᓯᒃᑌᑊ ᐃᐧ∇ ᐸᓴᑊᐃᐱᒪᑐ ᐊᒥ ᐱᐞ ᐊᐱᑐ ᑭᑭᐱᐧᑌᓴᑊ ᑭᑌᑐ ᒃᑭᓯᓓᑌᓴᑊ
ᐸᓴᑊᐊᑐ ᐃᐧ∇ ᐅᒃᑐ ∇ᐧᒃ ᐊᐱᑐ ᑭᑭᑎᓇᒪᑐ ᐸᓴᑊᐃᐱᒪᑐ ᒥᐃᔪᑭᒥᑭᓴᑐ ᒃᐧᐃᑭᑊᐃᐞᑐ ᑭᓇᓯᓚᑊ ᐧᒃᓴᑊ ᑭᐧ∇ᐱᓂᑫᓴᑐ

Bii mil ka nii gun Pemmican

Smoke the fish and then dry it and then put it in a bit pan (cast iron).
Shred the fish and take the big bones out.
And then stir it over the fire, until it becomes flaky (you can tell when it is done).

ᐱᒥᑲᐦᐃᑲᐣ

ᐱᓇᒪ ᓂᑲᐣ ᐸᓴᒪᓂᐠ ᑭᓄᘁᐠ ᐁᐧᑲ ᐊᐱᐣ ᒋᐸᐣᐧᑲᐱᑲᐦᐅᐧᑕ ᐊᔨᓂᐧᐃᐸᓇᑭᑯᐠ
ᑭᐱᐡᑭᐱᓂᐠ ᑭᓄᘁᐅᐢᑲᐧᐊᐠ ᒥᓇ ᒋᒪᐧᐊᑐᑲᓀᓇᒪᐣ ᑭᒋᐅᑲᓇᐣ
ᐳᑕᐧᐊᓂᐠ ᐃᔑᐧᐊᑭᑕᐱᑭᔑᐨ ᐸᓇᑭᐠ ᐁᐧᑲ ᒋᐧᐊᓂᐧᓀᐦᐊᒪᐣ ᐸᓂᒪ ᐱᑯ ᐊᓂᐱᐧᓴᓴᐨ ᒋᐳᓂᐧᐊᓂᐧᓀᐧᐊᐨ
ᑲᑭᑫᑕᐣ ᐊᐱ ᑭᑭᔑᐦᐊᐨ

Nokahiiganabo

Cut up salt pork into small pieces. Add pemmican and mix it with water and flour and boil it for 10 minutes.

ᓄᑲᐦᐃᑲᓇᐳ

ᑭᐱᐡᑭᔐ ᔑᐧᐃᑕᑲᓂᑯᑯᐡ ᒥᑐᓂ ᐱᑯ ᒋᐊᔦᑲᔨᐱᔨᐧᔓᐨ ᐁᐧᑲ ᐊᐱᐣ ᒋᐃᔑᐊᔑᒋᐸᑭᑎᓇᐨ ᓄᑲᐦᐃᑲᐣ ᒥᓇ ᓂᐱ
ᒥᓇ ᐸᐧᑫᔑᑲᐣ ᒋᐅᓴᒪᐣ ᓇᐣᑕ ᒥᑕᔨ ᑎᐸᐦᐃᑲᓀᐡ ᒥᓂᑯᐠ

Omow - Blood Pudding

Take the blood from the stomach of the caribou. Mix it with a bit of flour…boil it for 10- 15 minutes (just use a little bit of water).

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Omow Stomach

This looks like a book or a bible. You don't clean it, just cook it as it is…it is full of nutrients from the land that are healthy for you. You can either roast it, broil it or bake it…in the oven.

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ᐅ·∇ ᐅᒥᖏ′ ᑕᐱᐢᑯ⁻ ᒪᓯᓇ"ᐃᑲᓂᑊ ᐃᔑᓇ·ᑲᐣ ᑲ·ᐃᐣ ᑲᑕ⁻ ᐱᓇᒪ ᒋᑭᓯᓂᑲᑌᑊ ᐊᒥ ᐱᑯ ∇ᔑᑭᓯᓯᑲᑌᑊ ᐃ·∇ ᑲᐃᔑᓇ·ᑲᑊ ᒥᔑᐣ ᖃᑯᓇᐣ ᐃᒪ ᐊᖏᒪᑲᓄᐣ ᑲᒥᓄᐢᑲᖃᑲᑭᐣ ᐃᒪ ᐊᐪᑭᑲ ᐅᒋᒪᑲᓄᐣ ᑲᒥᓄᑐᑕᖃᑲᑭᐣ ᐊᓂᓂᓇ ᑭᑕᐃᔑᑲᖏᐣ ᐱᑕᐱᑲ"ᐃᑲᓂᑊ

Waakonisk kitanaabo

Mix rock "lichen" with fish head or fish eggs. Peel them off the rock and boil them.

(There is a legend about this "lichen". A man with sores on his butt rubs it on the rock to feel good again!)

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Boreal Forest Activity Overview:

Each season in the Boreal forest has different teachings regarding ***identification, collection, preservation,*** and ***preparation***. Below are activity samples of summer season learnings for the first stage of learning.

Sample Summer Activities
Recognizing Forests: Knowing different plant growing areas

Activity 1: Recognizing Forest ecosystems
Activity 2: Recognizing Muskegs
Activity 3: Recognizing Pine Forests
Activity 4: Recognizing Deciduous Forests

Recognizing tree education

Activity 5: Seeds and seedlings of Pine trees
Activity 6: Trunks of Pine trees
Activity 7: Branches, Leaves and Cones
Activity 8: Medicine and Nutrition of Pine trees

*The purpose of the following activities is to give context to the plant world so students of any age can learn “why” plants make medicines. This work is meant to be supplemented with the manual located on the Kiiwetinoong Diabetes website.

Recognising Forests: Knowing different plant growing areas

Activity 1: Recognizing forest ecosystems

<table>
<tr><td colspan="2">Expectations: The students will learn to recognize patterns in different areas of the forest including swamps, pine and deciduous areas. 60 min outdoors.</td></tr>
<tr><td colspan="2">Materials: Appropriate clothing for outdoors, transportation</td></tr>
<tr><td>Teaching Strategy: Boreal biome introduction</td><td>Introduce Forest knowledge and common areas in:
-Pine forest
-Muskeg
-Deciduous forest
Discuss differences between forests</td></tr>
<tr><td>Body</td><td>Learning to look:
Guide students to each forest area

Visit a Pine forest
Ask students what kind of plants are found in the Pine forest -
Are they tall plants?
-Do they have an odour?
-Do you think they like the sun?
-Are the plants for food?
Have students collect a sample of a plant for later discussion.

Visit a Muskeg
Ask students to find what kind of plants live in the muskeg.
-Are they tall plants?
-Do they have an odour?
-Do you think they like the sun?
-Are the plants for food?
Have students collect a sample of a plant for later discussion.

Visit a Deciduous forest</td></tr>
</table>

	Ask students what kind of plants live in the Deciduous forest -Are they tall plants? -Do they have an odour? -Do you think they like the sun? -Are the plants for food? Have students collect a sample of a plant from the deciduous forest. Have all the students organize the plants they collected for each region that was visited. -What is the same about the plants in each region visited? - What is difference about the plants in each region visited? - Are some plants mixed throughout all the regions visited? *Discuss how different each region is and discuss why a plant would want to live in one area over the other *Discuss which animals would like to live in each region.
Resources: **Boreal forest ecosystem, https://hww.ca/en/wild-spaces/borealforest.html** **Boreal trees, https://www.pc.gc.ca/en/pnnp/nb/fundy/nature/plantes-plants/arbres-trees** **Boreal Bogs, https://untamedscience.com/biology/biomes/taiga/**	

Activity 2: Recognizing Muskegs

Expectations: The students will learn patterns of plants and animals that live in the Muskeg. **60 minutes outdoors.**	
Materials: Appropriate clothing for outdoors, transportation	
Teaching Strategy: Muskeg introduction	Introduce trees and plants, water loving plants can survive in the water without rotting. Discuss which plants and animals may live in the area, why would they love to live here?
Body	**Learning to feel:** Guide students to a Muskeg area. *Talk about **safety** when walking in a Muskeg area-Peat bogs can have peat moss that can be up to **30 feet deep.** Plants like sphagnum moss fill the pond to create a peat layer in the Muskeg. Caution when stepping on the moss, choose tufts of grass to walk on for safety. Have the students pick different plants from the outer edge of the muskeg then again from the middle of the muskeg. -Ask the students what kind of animals would eat the plants from the edge? -Ask the students what kind of animals would eat the plants from the middle of the Muskeg? **Learning to look:** Ask students what would the purpose of the Muskeg have for cleaning water? -What can they see that promotes clean water?

	-What would the plants need to survive in the Muskeg? Show students that the Muskeg is like a **sponge and filters water** to make sure that it will stay healthy for the suture. Plants that live in the Muskeg **need medicines in their bodies** to help them survive in the environment. -What kind of trees live in the Muskeg? **Learning to smell:** Have students find plant leaves (and needles) that have a smell. The plants that have an odour have a lot of medicine in their bodies. -What kind of animals would like the smell of the plant? Which would like to eat it? Caribou? Moose? Ducks and Geese? List the animals and discuss the patterns of water cleaning, of animal foods and plant medicines.
Resources: **Muskeg information:** **https://www.thecanadianencyclopedia.ca/en/article/muskeg#:~:text=Muskeg%20ecosystems%20support%20the%20threatened%20woodland%20caribou%2C%20beavers,coniferous%20trees%20%28e.g.%2C%20black%20spruce%20and%20tamarack%20%29.** **Muskeg patterns: https://www.sciencedirect.com/topics/agricultural-and-biologicalsciences/muskeg**	

Activity 3: Recognizing Pine forests and plants

<table>
<tr><td colspan="2">Expectations: The students will learn that the Pine forest produces plants that can survive in acidic soils and produce medicines that are pain relieving and drying in the body. 40 min outdoors, 20 minutes indoors.</td></tr>
<tr><td colspan="2">Materials: Appropriate clothing for outdoors, notebook, transportation</td></tr>
<tr><td>Teaching Strategy: Pine forest introduction</td><td>Introduce trees and plants and recognize the pattern of acidic soils and plant growth. Plants that grow on the ground that live in soil with many pine needles tend to be drying and help to relieve pain in the body.</td></tr>
<tr><td>Body</td><td>Learning to look:
Guide students to an area that is predominantly pine, though there will be deciduous trees living there as well, but mostly Pines. -
What plants do you see that are familiar?
-What do you see that you do not recognize?
-Pick the most familiar plant, what can you tell everyone about this plant?

Search for Labrador tea,
Rhododendron groenlandicum sp.

Have the students pick the tea leaves.
-What do you notice about the leaf?
-Is the leaf thick or thin? Is the leaf smooth or fuzzy?
-Does the leaf have an odour when it is crushed?
-What does it smell like if anything?</td></tr>
</table>

	Bring the leaves indoors and steep them in hot water for 10 minutes. -Have the students draw the leaf. *Labrador tea is **high** in vitamin C and if drunk in high amounts (1 Litre or more), it can cause urination and/or cramping because it clears the digestive system. *Pregnant women **should not** have this tea until after birth. **Questions for group discussion:** Can this plant be found in the winter? Do you think this plant food for animals? Why or Why not? Do you know if any stories about Labrador tea?
Resources: Pine Boreal Forest: https://globalforestatlas.yale.edu/boreal-forest/boreal-ecoregionsecology/boreal-forest-ecology **Boreal ecosystem map:** https://www.borealscience.org/boreal/ **Labrador tea:** https://www.ediblewildfood.com/Labrador-tea.aspx	

Activity 4: Recognizing Deciduous forest plants

Expectations: The students will learn specific plants live among deciduous trees. **40 min outdoors, 20 minutes indoors.**	
Materials: Appropriate clothing for outdoors, transportation	
Teaching Strategy: Deciduous introduction	Introduce plants that grow along side deciduous trees and why. Discover the **pattern** of plants that live with leafy trees. Many of the plants will like the **sunnier area** they live in.
Body	**Learning to look:** Guide students to an area that is predominantly deciduous leafy trees. The trees may be mixed with some pines but choose an area that has mostly leafy trees. -Have the students find Strawberry plants to observe. Strawberries grow close to the surface of the ground. They like sandy soils with good drainage. The roots grow as rhizomes (or creeping root stalks), snaking along the ground and attaching themselves to new places to grow. -Ask the students to pull the leafy part of the plant slowly and gently from the ground and follow the red roots to create a “ring” of roots. -Do you see any berries on the plant? What does this remind you of? What may it look like?

	Here, you will list the observations that the students will make. Compare the roots to the human circulatory system. The roots appear like a tiny heart with veins reaching out into it's larger body, which is the ground. -Ask the students what might the tea be used for? Brew the rings of roots in hot water for at least 10 minutes. This tea promotes blood flow and helps heart function.
Resources: **How Strawberries grow:** https://strawberryplants.org/strawberryplant-propagation/ **Deciduous trees:** https://biologydictionary.net/deciduous-trees/ **Human circulatory system:** https://www.dreamstime.com/anatomical-structure-human-bodycirculatory-system-arteries-veins-presented-detail-bloodbloodstream-cardiovascular-circulation-image138975771	

Photo: https://www.confederationcollege.ca/trees/jack-pine

Recognizing tree education

Activity 5: Seeds of Pine trees
Activity 6: Trunks of trees
Activity 7: Branches and Leaves
Activity 8: Medicine and Nutrition of trees

Activity 5: Seeds of Pine trees

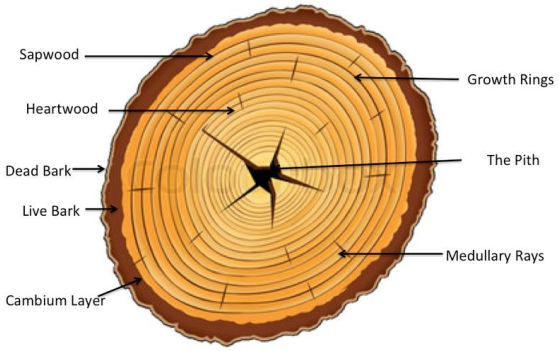
<table>
<tr><td colspan="2">Expectations: The students will learn about seeds from Jack pines 60 min outdoors.</td></tr>
<tr><td colspan="2">Materials: Appropriate clothing for outdoors, transportation, fire starter and wood.</td></tr>
<tr><td>Teaching Strategy: Many pines grow with the introduction of environmental pressures like fire and trees falling naturally. In this activity, we will learn about Jack Pines and fire.
  </td><td>Introduction to Pine trees: Pines create the acidic environment in the soil they live because of the needles falling from the tree as they age. Pines grow best in forests that have had fires. Fire is a healthy part of</td></tr>
<tr><td>Body</td><td>Learning to look:

Guide students to an area where Jack Pine trees grow. Pick seeds from the tree. It doesn’t matter how old they are, they can look grey or green, it doesn’t matter.

Guide students to a place where you can start a campfire. When the fire has many coals, put the seeds that everyone has picked into the fire near the coals but closer to the edge of the fire. The seed pods will open at about 50 degrees C and may take 10-30 minutes to open.</td></tr>
</table>

	Collect the seed cones once they start to open and show the students. Once the cones are cool enough to touch, collect the seeds to plant in an area where the Jack Pines grow.
Resources: **https://www.confederationcollege.ca/trees/jack-pine**	

Activity 6: Trunks of Pine trees

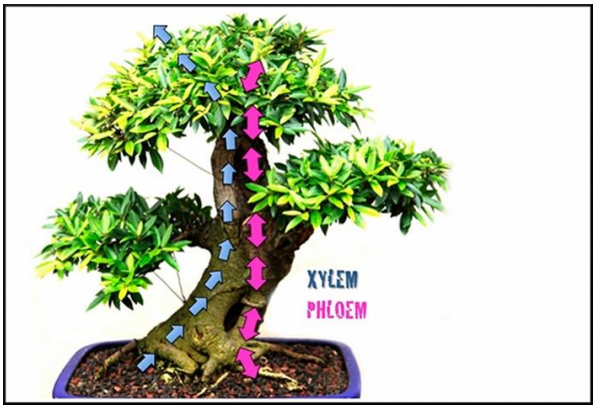
<table>
<tr><td colspan="2">Expectations: The students will learn about the layers of tree trunks and the flow of nutrients and water into the tree. 60 minutes indoors/outdoors.</td></tr>
<tr><td colspan="2">Materials: This activity can be done indoors or outdoors, get a coin of any wood for example purposes (preferably Balsam or Spruce). This activity is best done during the spring and summer months.</td></tr>
<tr><td>Teaching Strategy:
 
</td><td>*Make an example of a cross-section of a tree. Examining the cross section, look at each section compared to the diagram on the left. Use a black marker to mark stars of each section, most importantly the live bark, the dead bark, the cambium layer, and the sap wood. Be able to identify the growth rings and the pith and heartwood.

*Keep the coin for later exercises on Deciduous trees.

*Cut down a small pine tree for this activity. It needs to be at least 3 inches wide at the base.</td></tr>
<tr><td>Body:</td><td>Exercise: Show students the example the growth of a tree with the coin. Have them look at the differences between types of wood within the coin.

Bring out the pine tree. Cut off the branches and save them for the following lesson on Branches, and Leaves.

Have the students join in groups of 2-3. Give each student a coin of the</td></tr>
</table>

<table>
<tr>
<td> 
</td>
<td>tree and a marker. Have them identify the bark, the cambium, and the heartwood.

Join the students together again. Take the remaining tree stalk and begin to peel the bark from the trunk. Expose the cambium layer (it will be wet). Peel the cambium layer in strips once the last of the stalk is barked.

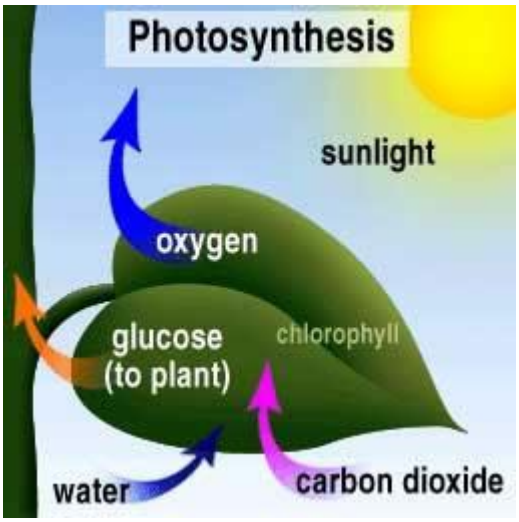
Explain that the cambium layer (xylem and phloem) is how the tree drinks water and gets nutrients from the ground and sends it to the branches, leaves and flowers.

The cambium is the layer that is used to make medicine.</td>
</tr>
<tr>
<td colspan="2">Resources:http://www.botanicalepistemology.com/2017/09/what-composes-heart-of-tree.html
Tree transport:
https://untamedscience.com/biology/plants/transport-in-plants/</td>
</tr>
</table>

Activity 7: Branches and Leaves

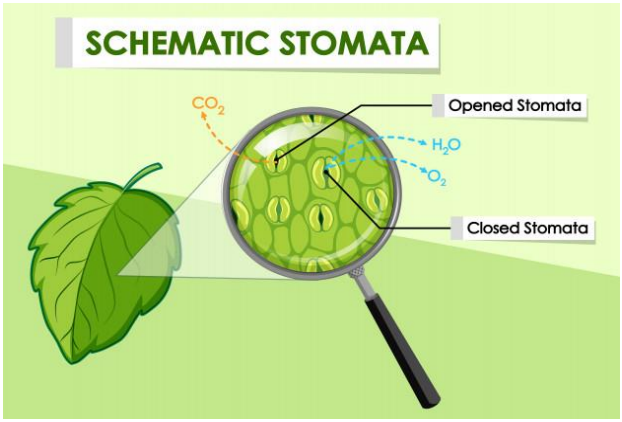
<table>
<tr><td colspan="2">Expectations: The students will learn about the branches, leaves and cones of the tree. They will learn that the sun is needed to create nutrients for the tree. 45 minutes.</td></tr>
<tr><td colspan="2">Materials: Pine branches from Activity 6 and if in late May or June, any leaves from different trees as examples.</td></tr>
<tr><td>Teaching Strategy:</td><td>The branches, leaves, cones and seeds will be fed by the transportation of nutrients and water from the cambium bark learned in Activity 6.

The Leaves are life little solar panels, they collect sunlight and convert the light into nutrients with the water and nutrients in the soil the tree grows in.</td></tr>
<tr><td>Body:

 
</td><td>Exercise:

Guide students outdoors to pick many different kinds of leaves found.

Get the students to chart where they found the leaves, and guide them with questions like:
*Is it shady or sunny where to leaf is found?
*What kind of leaf is it? A needle or a broad leaf.
*Do you think the tree had enough sunlight?
*Do you think the leaves would survive the winter?</td></tr>
</table>

The beathing holes of leaves are called stoma  	Next, have the students answer the questions with the group. Explain that what we breathe out, Carbon dioxide is breathed in by the tree leaves. The water that the plant drinks and carbon dioxide react with what makes the plant green-the chlorophyll. The chlorophyll picks up sunlight and produces sugar and pure oxygen or O2 We breathe in what the leaf exhales and we, plants and animals, are part of the cycle of life that rely on each other.
Resources: Life cycle of Black Spruce https://bplant.org/plant/8176 Life cycles of Trees https://slideplayer.com/slide/6128261/ Photosynthesis explanations: https://www.discoveryexpresskids.com/blog/photosynthesis-floating-leaf-discs Stomata: https://www.freepik.com/free-vector/diagram-showing-schematic-stomata-plant_6554653.htm	

Activity 8: Medicine and Nutrition of Trees

<table>
<tr><td colspan="2">Expectations: The students will learn about the layers of tree trunks</td></tr>
<tr><td colspan="2">Materials: Appropriate clothing for outdoors, transportation, locating a chaga fungus on a birch tree or use an example already picked.</td></tr>
<tr><td>Teaching Strategy:

  </td><td>Locate a Birch tree with or without a chaga fungus on it. Only birch and tamarack trees grow chaga (Inonotus obliquus).

*You will refer to the previous lessons to talk about how the plant grows medicine for itself by picking up nutrients, water and sunlight.

*You will also teach how we can use the medicine that the tree makes for ourselves.</td></tr>
<tr><td>Body:

*Understanding where the tree grows lets us know how strong the tree is and that it’s medicine it makes has helped it survive.

*Chaga is a fungus that lives with the birch and will not kill it. If you see a Birch tree with mushroom like fungi called a polypore, the tree is not living any longer.

*Chaga tea can be drank</td><td>Exercise:

Guide students to the birch tree. Ask them to identify if the tree got enough sun while growing.

Look at the shade of the leaves. If the leaves are light coloured, they may have been in a lot of light. If the leaves are darker, they may be in a shadier area.

*The tree leaves show us that the tree is strong and can grow chaga well if it was exposed to it.

*Ask students, “Why do you think trees make medicine?</td></tr>
</table>

*Anyone taking blood thinners should avoid drinking chaga tea. It also can thin the blood.	*Bring the chaga fungus indoors and gently chunk it up with the students. Make pea sized pieces. *Boil water, any amount, and put the chaga chunks in the pot. Cook for 5 to 30 minutes and distribute. *The tea will taste watery but the chaga has a lot of medicine that protects the tree and allows it to live on a Birch. It has pain relieving medicines for us that kill bacteria for the tree!
Resources: Chaga images http://mushroom-collecting.com/mushroomchaga.html Birch Polypore https://www.ediblewildfood.com/birch-polypore.aspx	

Appendix 1: Plant Learning Section

Bibliography:

1. 2012, C.H.Lin, Y.Y.Lee, C.C.Liu, H.F.Chen, M.C.Ko, C.Y.Li, Urbanization and prevalence of depression in diabetes, Public Health Volume 126, Issue 2, February 2012, Pages 104-111
2.2017, Neufeld, Hannah Tait, Richmond, Chantelle A. M., Impacts of Place and Social Spaces on Traditional Food Systems in Southwestern Ontario • Southwest Ontario Aboriginal Health Access Centre • International Journal of Indigenous Health, Volume 12, Issue 1 DOI:10.18357/ijih112201716903

Model 1: Land-Based Healing Model (LBH Model)

The LBH Model is housed under 3 contexts or Healing environments: Self, Land and Community. These aspects can be framed within many cultures, religious practices, and beliefs. All aspects of this model teach individuals that we are not separate from our environment and that oneself, land and community provide teachings inherent to each individual and context (or setting).

Self -Teachings concerning the self environment which include but are not limited to caring for the self, food nourishment and acquiring personal balance of the mind and body.

Land -Teachings that concern the physical land environment which includes but is not limited to; food and medicine procurement and preparation, canoeing and animal watching etc.

Community -Teachings concerning personal interaction with members of the community; familial relationships, social interaction, interconnectedness. Elders and teachers will aid in this aspect imparting teachings for Self, Land and Community.
*Programs can be shaped to differing life ways (Traditional, Christian etc.) and to the culture of community members that this program is pertinent.

Model 2: Gardens and Ecosystems

The forest that we live in is the Boreal. The Boreal forest has many different areas to study. We see Muskeg, we see Pine forests and we see Deciduous trees (trees that lose their leaves in the fall).

We will focus on the teachings from the trees. Each tree creates a garden like environment. **Pine** forest have certain plants that grow around them in the understory (forest floor where the tree grows) like Prince's Pine and Bunchberry and has an acidic environment. The **Muskeg** is a very deep body of water that is full of Peat moss, Sphagnum moss and plants that are considered carnivorous like Pitcher Plants and Sundews. The **Deciduous** forest can have plants like strawberry and funguses. This direction is merely a guide for understanding, there will be plants that mix in with other forest areas though we will discuss general observations that are commonly found in each area.

Model 3: Plant Harvest Protocol

Harvesting focusses on four major aspects of learning an individual plant: ***Identification, Collection, Preservation*** and ***Preparation.*** These four aspects are unique to each plant and each plant has similarities and differences in each aspect.

Identification: Important step to be sure of the plant you are harvesting. Traditional ways of learning and knowing a plant can include drinking and fasting the plant to learn its qualities.

Collection: Plants have different ways of being collected and this aspect is usually regarding the use of the plant.

Preservation: Plants have different ways that is best to preserve it for later use.

Preparation: Depending on the need of the individual using the plant, the preparations can vary greatly. With the preparation of cortex, for example, there are standard ways in which a person can cook tea for learning purposes.

Model 4: Animal Harvesting and Nutrition of wild foods

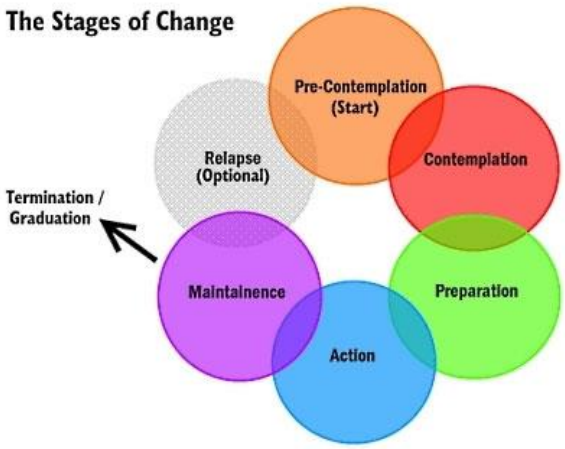
*Traditional Food Guide by the National Indigenous Diabetes Association
http://nada.ca/wp-content/uploads/2020/06/NIDA_TRADITIONAL_FOODS_GUIDE.pdf

Part 2:

INTRODUCTION TO A YOUTH EXERCISE PROGRAM

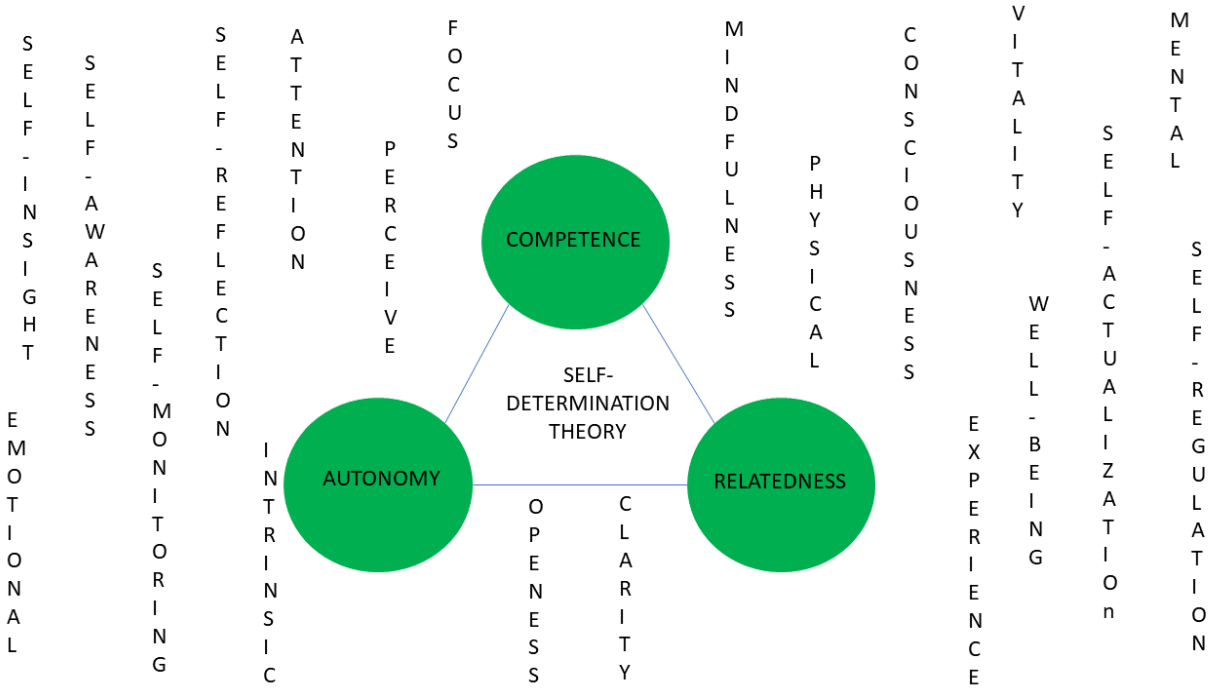
In the literature, non-communicable disease development is a sign of urbanization. These non-communicable disease states share a few things in common: lack of quality nutrient dense foods and lack of physical activity. An environment has been created for *Insulin Resistance*. The resistance towards insulin within the body does not allow the muscle tissue to utilize the "excess" carbohydrates in the blood stream. The excess carbohydrates within the blood stream are a cause of elevated blood glucose levels. The liver must then convert these excess carbohydrates into lipids (fat) to be stored in the adipose tissue. The main benefit of physical activity, aligned with multiple lifestyle changes and strategies, is to help the body become *Insulin Sensitive;* **a change in perspective leading to Health Transformation**.

The transtheoretical model for behavior change (TTM) is a framework used to help people who are contemplating or taking the steps to change their behavior.



The TTM is process orientated rather then outcome based. The basis for the TTM is that “one size does not fit all”[2]. This approach allows for organic growth and development. The TTM has been studied within the realm of exercise. When exercise is used as an intervention a strong leader and advocate is needed to guide the individual or persons along the journey. According to the TTM the process of volitional change follows the *stages of change* (see image above), *decisional balance* (the importance an individual places on the potential advantages and disadvantages of a behavior), *process of change* (behaviors, cognitions, and emotions that people engage in during the course of change), *Self-efficacy* (a judgement regarding a person’s ability to perform a behavior required to achieve a certain outcome), and *Temptation* (the intensity of the urges to engage in a specific behavior when in the midst of difficult situations).

Self-determination theory, a major component of the Transtheoretical model for Behavior Change, is grounded in autonomy (self-endorsement of ones behavior and the accompanying sense of volition and willingness), competence (feeling effective), and relatedness (the sense of being cared for and related to the other). The three big components of self-determination theory are essential to help an individual internalize the responsibility needed to change.

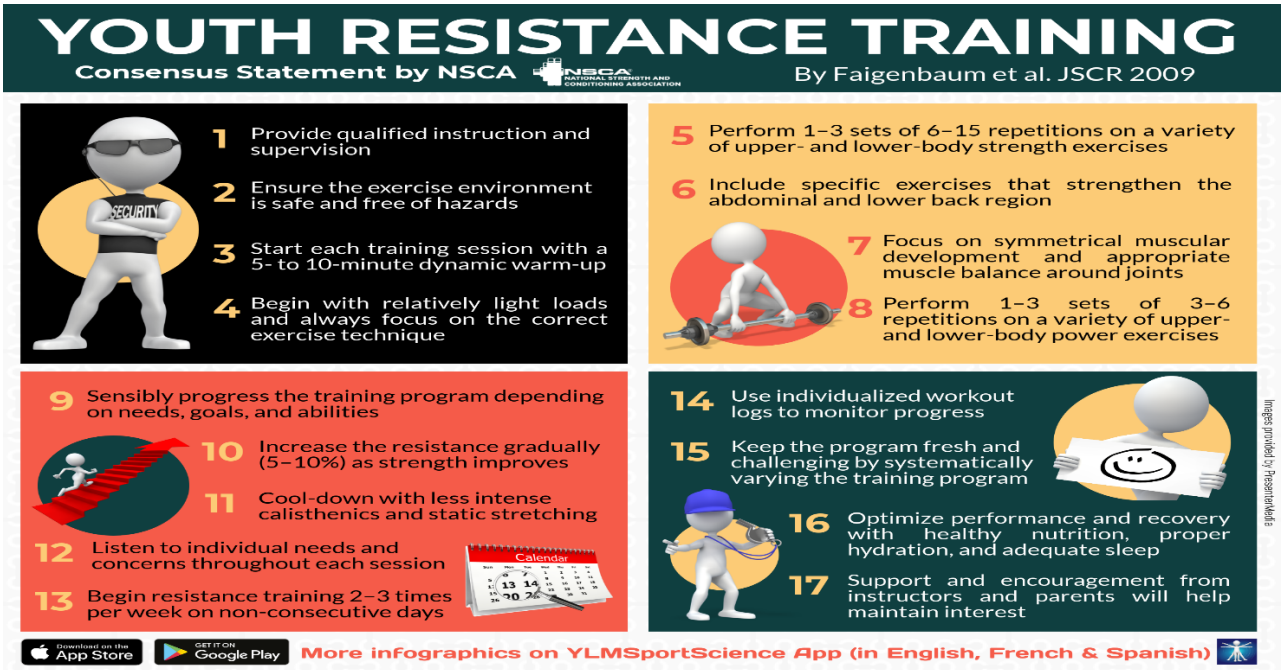


Change may be fulfilled if the individual places intrinsic meaning and value on the task or activity at hand.

Movement activities may help an individual develop self-mastery, self-confidence, competence, autonomy, self-knowledge, relatedness, positive self-esteem, self-regulation, self-determination, self-discipline self-motivation, self-efficacy, positive self-perception, self-respect, teamwork skills, knowledge and understanding of the environment, concentration, focus, attention, safety measures, risk management, personal decision making, interaction, a sense of personal encouragement, language, communication skills, enjoyment, intellectual growth, problem solving skills, creativity and self-expression, turn taking, sharing, reciprocity, resilience, a positive attitude towards self, environment, and others, and long term healthy living and well-being strategies.

Prescribing exercise and following guidelines has proven to be an ineffective way of helping people become active[2]. The transtheoretical model of behavior change states that “change usually does not occur all at once… it is a lengthy process that involves progressing through several stages”[2].

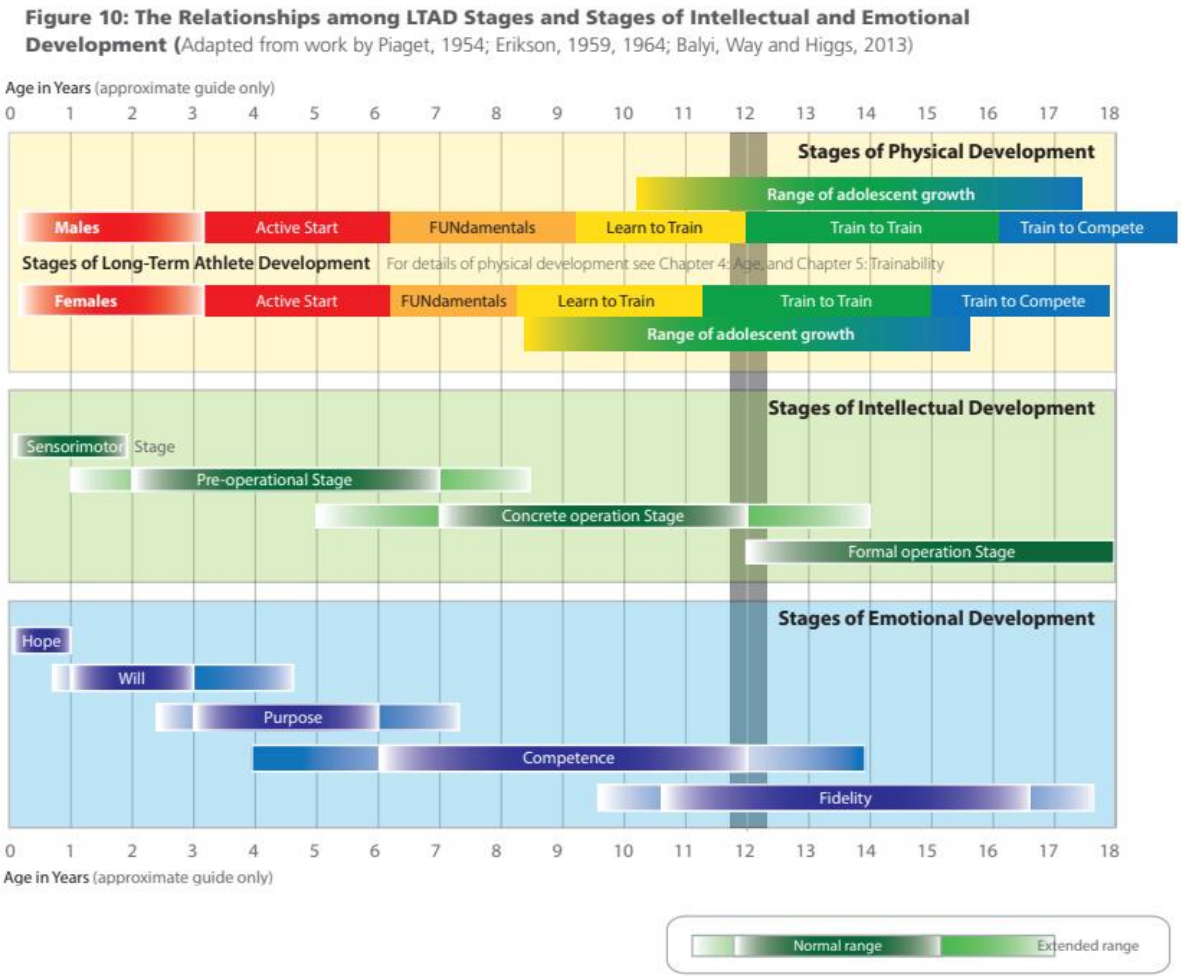
There is plenty of literature supporting the effects of youth exercise programs[1,2,3,4,5]. It is important to state that “adult programs and training philosophies are not appropriate for younger populations…and it is better to underestimate their physical abilities and gradually increase the volume and intensity of the training than to overshoot their abilities and risk injury”[1]. Below is a chart of recommendations from the National Strength and Conditioning Association regarding youth resistance training:



What is important is helping youth discover the effects that exercise can have on their well-being and guide them to these tools. Integrating

principles and philosophies to lead a balanced active life is a constructive endeavor that can lead to self-empowerment.

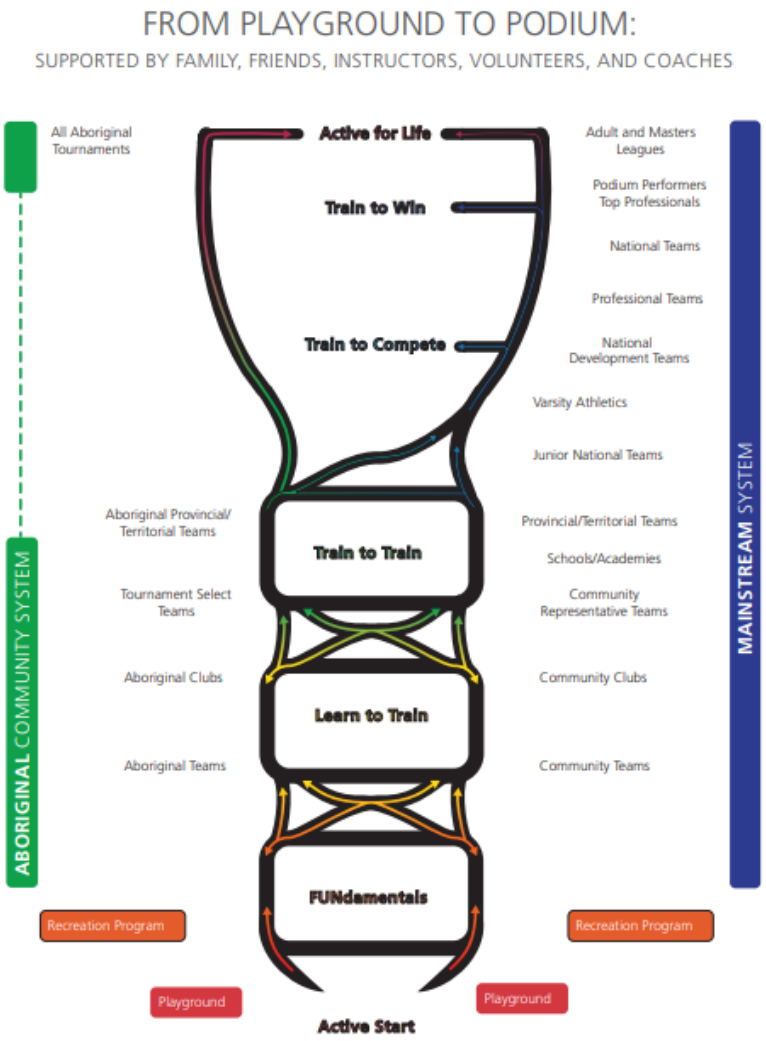
The biological stage of development that a youth is in should influence program design[1]. Caution should be taken in pre-pubescent youth due to their hormonal status and unfused growth plates. There is a biological difference between male and female maturation, one that requires attention. Being attentive of the differences can help avoid any undue injury. The focus of youth exercise programs is to promote an active way of life, develop a wide variety of motor skills, movement patterns, and movement competence in differing contexts and activities, having fun, and cultivating an intrinsic desire to be active[2]. This type of programming has the potential to create an active individual for life. Intellectual and emotional maturation are part of the equation and must be part of the programs plan.



(Aboriginal Sport for Life - Long Term Participant Development Pathway)

A long-term development strategy used in the sporting world can be used as a guide for further development of an active living program:

Figure 4: Aboriginal Participant Pathway – Two Streams
– This model is based on Aboriginal Sport Leader and Elder Alex Nelson's teachings.



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(Aboriginal Sport for Life - Long Term Participant Development Pathway)

The concept of physical literacy may be used to help explain, teach and guide people to embody their movement potential.

Figure 5: Physical Literacy

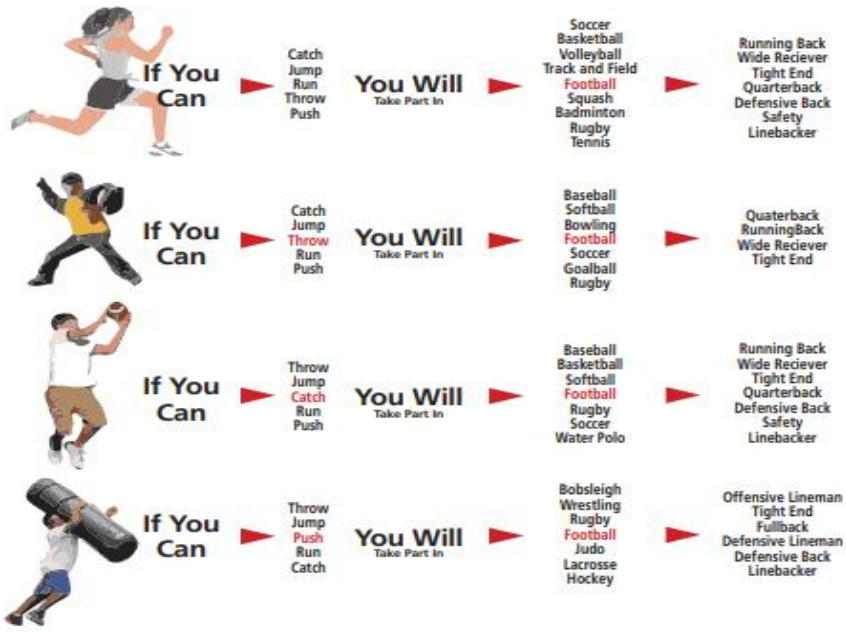
(Aboriginal Sport for Life - Long Term Participant Development Pathway)

Fundamental movement skills are the precursors to building specialized movement patterns that can lead to a lifetime of physical activity. A child must first learn the instinctive reflexive movements (ex: stepping) that eventually grow and change over the life course (ex: walking). These movements develop into complex specialized patterns (ex: running) that can be continuously refined and strengthened to become proficient, and efficient to lead a physically active life. The fundamental movements are:

Catch	Push
Roll	Run
Reach	Gallop
Pull	Leap
Bend	Climb
Throw	Skip
Swing	Hop
Fall	Jump
Grasp	Kick
Twist	Strike

The fundamental movements are a great base of support and may allow an individual to grow and develop a sense of competency and mastery towards the interaction with one's environment. The application of these movements is contextual in nature. For these movements to become habitual they will require the individual's attention, focus, persistence, self-efficacy, repetition, and sense of relatability to one's life. As well, continued use of the movement patterns will help the body become efficient at recruiting the optimal amount of energy via inter and intramuscular coordination and sensing the demand of the environment. The development of these fundamental skills may be used later in life to work at home, in the community and at a job to support ones livelihood.

Figure 6: Benefits of Developing Fundamental Skills



(Aboriginal Sport for Life - Long Term Participant Development Pathway)

To develop movement skills a framework based on the principles of motor learning may be used. A way to organize the skills into a structured program based on motor learning principles is:

Blocked (beginners)	Series (intermediate)	Random (advanced)
1111 1111 1111	123 123 123	1332 4341 1133

The blocked design is to enable one skill to be performed in a repetitive manner. A series allows for multiple skills to be developed in a sequential order. A random design is for the learner to develop the skills in an unknow sequence of events creating a new and unique environment to learn in. The random design will call on higher order functioning of cognition.

The development of a vast array of skills in varying contexts has the potential for the autonomous selection of specialization in later years.

Structuring activities in a way that is conducive to the individuals learning style and environment is recommended to optimize positive outcomes. The organizing of the skills based on motor learning principles will help the individual gain confidence through ordered instruction. The structuring of activities may also be done in a way that promotes long term development of the fundamental movement skills progressing to the development of specialized movement patterns that are specific to sport, work, chores, or any other movement related activity. The *principle of specificity (specific adaptations to imposed demands)* states that the body will respond and adapt to the stresses imposed onto it. From a movement standpoint, this entails physical fitness components as well as movement patterns.

The progression of skill acquisition will be unique to the individual based on the principle of individualization. Individualization requires constant communication between the individual and their surrounding environment. The environments need is to be conducive for the potential of the individual's unique expression. The individual must posses the courage to continuously move. Anything that is viewed as a detriment may hold back or cease progression of the expression. The structuring of the activity(s) will need to be in accordance with biological growth and development. This will ensure that physical, intellectual and emotional growth are occurring simultaneously within a person's competence and capacities. A steady and gradual increase of skill and knowledge acquisition will ensue.

Continuous progression will add variability. The importance of the *principle of variability* lies in the incremental changes to training (or skill acquisition) that allow for improvements in performance. When one changes self-knowledge has been obtained. The changes may come from a gradual increase in the load (*principle of progressive overload*) that the individual is

subjected too or to a change in the overall stimulus. Resistance training has a different effect on the body than aerobic training. Below is a chart that shows the effects of aerobic and resistance training on health and fitness variables:

Table 2 Comparison of the effects of aerobic endurance training vs. resistance training on health and fitness variables

Variable	Aerobic exercise	Resistance training
Bone mineral density	↑	↑↑↑
Body composition		
Fat mass	↓↓	↓
Muscle mass	↔	↑↑
Strength	↔	↑↑↑
Glucose metabolism		
Insulin response to glucose challenge	↓↓	↓↓
Basal insulin levels	↓	↓
Insulin sensitivity	↑↑	↑↑
Serum lipids		
HDL	↑↔	↑↔
LDL	↓↔	↓↔
Resting heart rate	↓↓	↔
Blood pressure at rest		
Systolic	↓↓	↓
Diastolic	↓↓	↓
Physical endurance	↑↑↑	↑↑
Basal metabolism	↑	↑↑

↑ increased; ↑ decreased; ↔ negligible effect

(Braith, R. W., & Beck, D. T. (2007). Resistance exercise: Training adaptations and developing a safe exercise prescription.)

Activity, movement, play, and exercise can alter our state of conscious priming our mind to be in an optimal state for learning[4]. Aerobic activity helps increase blood flow throughout the body and provides nourishment

for function. Resistance training allows for the development of the neuromuscular system by building strength and power.

" Many of the pervasive health concerns in modern society are the result of diet and lifestyle choices that are at odds with the evolutionary milieu for which we remain genetically adapted"[13]. Thinking along the lines of the above statement allows for the environment to be adapted so the body may perform physical feats to help produce optimal health and well-being. Below is a chart that shows how the environment may be adapted to modern life ways and help prevent and recover from disease states that are associated with modern society:

Table 1
Energy cost of various hunter-gatherer or forager activities and recommended equivalent modern activities[5]

		Energy (kJ/h)	
Hunter-gatherer activity	Modern equivalent activity	176-lb man	132-lb woman
Carrying logs	Carrying groceries, luggage	893	670
Running (cross-country)	Running (cross-country)	782	587
Carrying meat (20 kg) back to camp	Wearing a backpack while walking	706	529
Carrying a young child	Carrying a young child	672	504
Hunting, stalking animals	Interval training	619	464
Digging (tubers in field)	Gardening	605	454
Dancing (ceremonial)	Dancing (aerobic)	494	371
Carrying, stacking rock	Lifting weights	422	317
Butchering a large animal	Splitting wood with an axe	408	306
Walking—normal pace (field and hills)	Walking—normal pace (outside on trails, grass, etc)	394	295
Gathering plant foods	Weeding a garden	346	259
Shelter construction	Carpentry, general	250	187
Tool construction	Vigorous housework	216	162

(Organic Fitness: Physical Activity Consistent with our Hunter-Gatherer Heritage James O'keefe-Robert Vogel-Carl Lavie-Loren Cordain)

Performing the activities outdoors is a way to promote healthy interaction with the environment, enjoy the benefits of fresh air and the sun. The incorporation of seasonal teachings into the activity may promote long-term

well-being practices. The seasonal variations allow for change and variety to be experienced by the participants in an organic way which can add another dimension to their growth and development.

The importance of building a relationship with Self and understanding one's relationship with the world can allow the transition of change to occur organically. The environment can help teach us. Our mind can help us learn. Our heart can help guide us. Our gut can help lead us. Creating an environment that brings joy, happiness, a sense of relation, autonomous support and endorsement can help alleviate ill-being. Individual self care strategies, aimed at supporting movement potential throughout the life course, can be used for self expression, aesthetics, health and fitness, athleticism, competition, relational, and adventure[5].

CURRICULUM

Lesson: **Where Am I?**	Learn about diabetes and associated illnesses.
Objective	- Learn about diabetes and associated illnesses. - Learn the individual's perspective on the disease

Lesson: **Developing the Self.**	Gain an understanding of Behavior Change and Self-Determination.
Objective	- Understand individual, familial and community history. - Transtheoretical Model for Behavior Change - Components of Self-Determination Theory - Individual to understand the role of the CHW or supports during times of change. - Motivation for change

Lesson: **Get Active, Stay Active.**	Learn what physical activity is and how it can be integrated into a lifestyle.
Objective	- Definition(s) of physical activity. - Components of Physical Activity - Physical Literacy - Motivation to exercise - What is physical activity to the individual. - Effects of physical activity on well-being

Lesson: **The Physical Body.**	Learn the basic anatomy and physiology of body as it pertains to movement.
Objective	- Understand the inter-connectedness of the body. - Basic structure and function

	- Circadian Rhythms - How the body is affected by NCDs - How the body is affected by exercise

Lesson: **Sweat. Build. Move.**	Learn about exercise and how to develop movement competence.
Objective	- Aerobic and Resistance - Program Design: F.I.T.T - Integrating, maintaining, and progressing exercise, physical activity, and movement into a lifestyle - How much is enough? - Developing skills - Heart Rate monitoring - Respiratory Rate Monitoring - Why guidelines don't work.

Lesson: **Keep on Flowing.**	Learn strategies to cope, monitor progress, and stay motivated.
Objective	- Goal setting and milestones - Problem Solving - Journaling - Mindfulness, focus, attention - Breathing

Lesson: **Love your Self.**	Gain knowledge in supportive actions that help create health and well-being.
Objective	- Sleep - Diet - Self-care - Rest - Play - Weight management - Intermittent Fasting - Self-monitoring, Self-regulation, Self-actualization

	- Community Involvement - Alone time - Hobby(s) - Home Economics - Knowledge discovery, Adventure - What works for you?

SAMPLE ACTIVITIES

Expectations: The participants will gain an understanding of behavior change and self-determination	
Materials Needed: pen, journal	
Teaching Strategy: Introduction	Introduce the topic of behavior change and self-determination: - What does change mean to you? - Why would change be important to well-being? - What is needed to make healthy choices for yourself? - What is physical? - What is mental? - What is emotional? - What is spiritual? - What does self-determination mean to you?
Body	Bring an Elder(s) into the conversation to offer teachings and stories about a Holistic way of being. Incorporate the Teachings of The People (i.e.: values – respect, wisdom, love, bravery, humility, trust, truth) to help the individuals integrate the values into their approach to self care. Share the concept about the transtheoretical model for behavior change. Ask the individuals: Does changing the behavior of thinking

	and/or acting have an affect on well-being? What would prevent a person from changing? Why would someone want to change their behavior? How would someone go about changing their behavior? What would support someone changing their behavior? During the sharing circle, allow time for the individuals to share their perspective about how they feel about themselves, or what they think about themselves.

Resources:
Location and setting will be pre-determined by the Elder.

Promoting Motivation:
https://www.youtube.com/watch?v=VGrcets0E6I

Transtheoretical Model for Behavior Change:
https://www.youtube.com/watch?v=SSR_eCQLlkc&t=2s

Transtheoretical Model for Behavior Change:
https://www.youtube.com/watch?v=oO80XyBDrl0

Teachers' rubric for understanding the Individuals perspective:

- Language
- Knowledge
- Demonstration
- Transfer of skill
- Interaction with Environment
- Intrinsic value to the Individual
- Integration of expressed potential into way of life

<table>
<tr><td colspan="2">Expectations: The participants will learn how to plan, coordinate, set goals, develop strategies, network, promote, research, develop, cooperate, educate, gather resources and information, care for, participate, budget, and access information</td></tr>
<tr><td colspan="2">Materials Needed: pen, paper, markers, poster board, Elder, Community Health Worker (CHW), table(s), computer</td></tr>
<tr><td>Teaching Strategy:
Introduction</td><td>Introduce the topic of Diabetes and associated illnesses. Ask:
- What effect does diabetes have on the: individual? family? Community? Nation? Land?
- What does diabetes mean to you?
- Why would learning about and understanding diabetes be important?
- What is needed to help someone with diabetes? A family with diabetes? A community with diabetes?
- What are the illnesses associated with diabetes?
- How can diabetes and associated illnesses be prevented?
- How can diabetes and associated illness be treated?
- How can you support a person with diabetes and/or associated illness?</td></tr>
<tr><td>Body</td><td>Bring an Elder(s), CHW, and someone living with diabetes into the conversation to offer teachings about diabetes and associated illnesses.</td></tr>
</table>

	Create a sharing circle where every participant involved has the opportunity to speak and express their ideas about diabetes and associated illnesses. In the circle, ask the participants to brainstorm ideas about: - Planning - Strategies - Goals - Coordinating - Promoting - Researching - Educating - Gathering resources - Gathering information - Budgeting - Dates and Days - Activities To spread awareness about diabetes and associated illnesses. Compile all ideas and suggestions and start to plan for the Awareness days. Create promotional and educational information about diabetes and associated illnesses. Participate in the Awareness Days. Ask the individuals: How can planning and coordinating help your self? Family? Community? Nation? What can you do to incorporate it into your life?
Resources: Kiiwetinoong Diabetes Initiative Website	

Location and setting will be pre-determined by the agreed upon consensus of the group, community, facilitator, and Elder(s).
Teachers' rubric for understanding the Individuals perspective: - Language - Knowledge - Demonstration - Transfer of skill - Interaction with Environment - Intrinsic value to the Individual - Integration of expressed potential into way of life.

Expectations: The students will understand how active living is self-care. They will build the capacity to define active living in their own way.	
Materials Needed: transportation, Elder(s), proper clothing, safety gear (if required),	
Teaching Strategy: Introduction	Have an Elder(s) introduce the concept of Active Living and ask: - What is active living? - How does active living effect self, community, Nation? - What is a working life? - Why is work/job/career important?
Body	**In the Community** The students will go into the community and be involved with different active life ways, building or repairing a house, hunting, trapping, gardening, medicine picking etc.

	Ask the students what they experienced. Ask them how this relates to active living and what they learnt about self-care. **Take home:** Have the students reflect at home about their experience. Ask them to write down what they experienced, what they learnt, what was important to them, why the experience was important to them, what they would like to see, do, or try in the future.

Resources: Dependent on Community availability

Indigenous Communities Active for Life:

https://physicalliteracy.ca/portfolio-view/indigenous-communities-active-for-life/

Canadian Active living
https://www.activeagingcanada.ca/participants/get-active/active-living/what-is-active-living.htm

Canadas Physical Activity Guide to Healthy Active Living
http://physicalactivityplan.org/resources/CPAG.pdf

Example Activity
https://www.fnha.ca/Documents/FNHC_Comic_Book_Guide.pdf

Teachers' rubric for understanding the Individuals active-living perspective:

- Safety
- Quality
- Efficiency
- Language
- Knowledge
- Demonstration

- Transfer of skill - Interaction with Environment - Intrinsic value to the Individual - Integration of expressed potential into way of life

Expectations: Individuals will learn the basic parts of the body and their importance.	
Materials Needed: Paper, Coloring utensils, Cardboard	
Teaching Strategy: **Introduction**	Introduce the Human Body: - What is the body? - What does it help us do? - What are some of the body's parts? - How do these body parts help us be active? - How do these body parts help us with the activities that we like to do?
Body	Create groups of 3-4 individuals. The task is to draw an outline of each individual on the paper or cardboard. If outside, create the outline with items from the environment (sticks, stones, pine cones, leaves; or in the snow). Next, label the parts of the body: arms, legs, feet, hands, head, neck, eyes, ears, nose, mouth, shoulders, knees, toes, fingers, elbows, hips, abdomen, chest, back, buttox. When labeling the parts ask the individuals to point them out on their own body.

	If done with cardboard, cut the outline out. Colour or fill in the outline. Draw and label the organs: lungs, heart, spleen, stomach, kidneys, large and small intestine, bladder, reproductive organs, trachea, esophagus, appendix, liver, gall bladder, brain, tongue Joints: shoulders, knees, ankles, hips, elbow
Resources: Basic Anatomy: https://www.youtube.com/watch?v=MCgfKmixrDc	
Teachers' rubric for understanding the Individuals movement knowledge: - Safety - Quality - Efficiency - Language - Knowledge - Demonstration - Transfer of skill - Interaction with Environment - Intrinsic value to the Individual - Integration of expressed potential into way of life	

Expectations: Learn anatomy of animals and the relation to our own anatomy
Materials Needed: Knives, tables, towels, containers

Teaching Strategy: **Introduction**	Introduce the body parts of an animal and how they relate to our body.
Body	Dependent on the season or when the hunters and trappers acquire an animal from the land. Have the individuals split into groups of 4-5 and accompanied with an Adult or Elder. Have the Adult or Elder guide the students through by showing them and explaining the various parts of the animal's body and the tools used.
Resources: Elders, Hunters, Trappers	
Teachers' rubric for understanding the Individuals movement knowledge: - Safety - Quality - Efficiency - Language - Knowledge - Demonstration - Transfer of skill - Interaction with Environment - Intrinsic value to the Individual Integration of expressed potential into way of life	

Expectations: Ability to **read and i**dentify fundamental movements.	
Materials Needed: Flashcards	
Teaching Strategy: **Introduction**	Introduce the various animals that live within the environment and ask: - What animal is this? - Why is this animal important to us? Our environment? - How does this animal move? - What does this animal eat?
Body	Sit in a circle (inside or outside). Ask an individual to draw a card. Have the individual identify the animal and talk about its habitat, diet, and movements. Have the individual demonstrate the movement to the group. Have the group perform the animal movement together. Make the sounds and behaviors of the animal. Do this for 30 seconds to one minute. As soon as they have stopped, have the individuals sit in a comfortable position on the ground and find calm through deep, focused, relaxed breathing. Have them breathe for 30 seconds to one minute. Repeat until all the cards have been turned. Create a game or allow free time to explore the animal movements that were taught in the lesson.

Resources:	
Teachers' rubric for understanding the Individuals movement knowledge: - Safety - Quality - Efficiency - Language - Knowledge - Demonstration - Transfer of skill - Interaction with Environment - Intrinsic value to the Individual Integration of expressed potential into way of life	

Expectations: Ability to read and identify various sports, games, activities, jobs, and chores	
Materials Needed: Flash cards	
Teaching Strategy: **Introduction**	Introduce the concept of sport, games, activities, jobs, and chores and ask: - What activity is this? - Why do people do this activity? - How do you perform this "activity"? - Why would this activity be important to someone? - What "activity is important to you? - Do you perform this activity?
Body	Indoors Have the individuals identify and match the image on the flashcard with the definition.

	Once the flashcards have been matched with the corresponding definition, have the individual write on a separate piece of paper why the activity would be important and where this activity would be performed.
Resources: Flashcards	
Teachers' rubric for understanding the Individuals movement knowledge: - Safety - Quality - Efficiency - Language - Knowledge - Demonstration - Transfer of skill - Interaction with Environment - Intrinsic value to the Individual Integration of expressed potential into way of life	

Expectations: Ability to read and **i**dentify fundamental and functional movements	
Materials Needed: Flash cards	
Teaching Strategy: **Introduction**	Introduce the fundamental and functional movements with a definition and ask: - What movement is this? - Why is this movement important? - What does this movement allow you to do?

	- How do you see yourself performing this movement in everyday life? - What sport or activity is this movement performed in?
Body	Indoors Have the individuals match the image flashcard with the definition flashcard. Once the flashcards have been matched with the corresponding definition, have the individual write on a separate piece of paper why these movements would be important for their well-being.
Resources: Flashcards	
Teachers' rubric for understanding the Individuals movement knowledge: - Safety - Quality - Efficiency - Language - Knowledge - Demonstration - Transfer of skill - Interaction with Environment - Intrinsic value to the Individual Integration of expressed potential into way of life	

Expectations: Identify and perform fundamental movements. To recover and find calm from movement through the breath.	
Materials Needed: Music device or portable stereo (possibly a phone)	
Teaching Strategy: **Introduction**	Introduce the fundamental movements via demonstration ask: - What movement is this? - Why is this movement important? - What does this movement allow you to do?
Body	Sit in a circle (inside or outside). Ask an individual to perform a fundamental movement. Once done, ask everyone to stand up and perform the movement when the music starts. Play the music for 30 seconds to one minute. As soon as the music has stopped, have the individuals sit in a comfortable position on the ground and find calm through deep, focused, relaxed breathing. Have them breathe for 30 seconds to one minute. Repeat until all the movements have been performed. Create a game or allow free time to explore the fundamental movements that were taught in the lesson. Allow exploration to occur in and around the trees to allow Nature to provide obstacles to overcome.

Resources: **Fundamental Movement Skills:** https://sportforlife.ca/portfolio-view/indigenous-long-term-participant-development-pathway/ https://activeforlife.com/activities/ **Fundamental Movement Games:** https://thephysicaleducator.com/game_category/fundamental-movement-skill-games/ https://activeforlife.com/resource/individual-lesson-plans/ http://www.oasphe.ca/documents/FUNdamentalGames-Longversion.pdf https://whatmomslove.com/kids/active-indoor-games-activities-for-kids-to-burn-energy/	
Teachers' rubric for understanding the Individuals movement knowledge: - Safety - Quality - Efficiency - Language - Knowledge - Demonstration - Transfer of skill - Interaction with Environment - Intrinsic value to the Individual Integration of expressed potential into way of life	

Expectations: Individuals will learn and practice fundamental movements in different situations.

Materials Needed: Mats, cones, tape, stick(s), music, balls (or objects to throw; ex: rocks)	
Teaching Strategy: **Introduction**	Introduce Fundamental Movements by asking: - What is movement? - How do we move? - Why is movement important? - When do we move? Discuss safety before performing the skill. Allow for time for an observable demonstration of the skills and activity.
Body	Select the fundamental movement(s) that will be performed. Ex: Rolling, throwing, running Create different stations where the fundamental movement(s) can be explored. Ex: Station 1: forward roll onto a mat Station 2: side rolls from lying on the back. Station 3: underhand toss against at or into a target (alternate hands) Station 4: Overhand throw at or into a target (alternate hands) Station 5: Run a designated length and come back (once or repeat a certain number of times) - To add variability and complexity, a ball may be tossed and caught while running and/or thrown at a

	target at the end of the length or during the run. Station 6: Run backwards a designated length and come back (once or repeat a certain number of times) Select a designated amount of time for each station. Have the individuals observe the movement and then perform the movements at each station for a selected amount of time or repetitions. At the end of the session and after clean-up, have the students sit in a circle and ask the students: - What did you feel? - What did you find difficult? - What did you find easy? - How would this help you? - What would you try differently? If anything,… *All the stations may be combined to form a small obstacle course that can be incorporated into the lesson or used as a separate lesson.

Resources: Dependent on Community resources

Fundamental Movement Skills:
https://sportforlife.ca/portfolio-view/indigenous-long-term-participant-development-pathway/

https://activeforlife.com/activities/

Functional Movement Explained:
https://www.youtube.com/watch?v=NYkK_XizsuY

Understanding Self-Mastery
https://scottjeffrey.com/self-mastery/

Developing Physical Literacy:

https://sportforlife.ca/wp-content/uploads/2019/09/DPL-2_EN_web_November_2019-1.pdf

Youth Conditioning:

http://iyca.org/download/IYCA%20Summit%20Manual%20Complete.pdf

Obstacle Course Ideas:

https://www.youtube.com/watch?v=fEa0hiuyZ84

https://www.youtube.com/watch?v=erkJND01AWw

Fundamental Movement Games:

https://thephysicaleducator.com/game_category/fundamental-movement-skill-games/

https://activeforlife.com/resource/individual-lesson-plans/

http://www.oasphe.ca/documents/FUNdamentalGames-Longversion.pdf

https://whatmomslove.com/kids/active-indoor-games-activities-for-kids-to-burn-energy/

Movement Games:

https://simplifaster.com/articles/fun-movement-games-athleticism/

Teachers' rubric for understanding the Individuals movement knowledge:

- Safety
- Quality
- Efficiency
- Language
- Knowledge
- Demonstration
- Transfer of skill
- Interaction with Environment
- Intrinsic value to the Individual
  Integration of expressed potential into way of life

Expectations: Individuals will learn and practice functional movements in different situations.	
Materials Needed: Gym equipment	
Teaching Strategy: **Introduction**	(Indoors or Outdoors) Introduce Functional Movements by asking: - What is a functional movement? - When do we perform functional movements? - Why are these movements? - How do these movements relate to daily activities? Demonstrate a functional movement.
Body	**Functional Movements** Create different stations where functional movements can be explored. 1-3 minutes per station. **Ex: Squat** Station 1: Body Weight Squat Station 2: Squat with a ball and toss to a partner.

	Station 3: Squat in front of a wall **Ex: Lunge** Station 1: lunge for a distance forward and backward Station 2: Lunge with a ball and pass it to a partner. Station 3: **Ex: Pull** Station 1: Use a rope to pull something for a distance. Station 2: Use a rope to play tug-o-war against a partner. Station 3: Body weight row **Ex: Hip Hinge** Station 1: Engaging the hips by easing the bum towards the wall Station 2: Supine Bridge Station 3: Standing single leg hip hinge hold **Ex: Rotation** Station 1: wood chop top down Station 2: Lawn mower bottom up Station 3: Semi-squat hold **Ex: Gait** Station 1: Single leg squat to chair Station 2: walking over obstacles in a straight line Station 3: walking over obstacles in a straight line with one eye closed **Ex: Push** Station 1: Body weight push-up Station 2: Squat, pick up a ball on the ground and push a ball over head

	Station 3: Squat, pick up a ball on the ground and push it towards a partner Have the students brainstorm where these movements would be used in everyday life. Ask the students: - What did you feel? - What did you find difficult? - How would you move differently? - What do you feel you need to move better? - Where are these movements used in everyday life?
Resources: **Functional Movement Explained:** https://www.youtube.com/watch?v=NYkK_XizsuY	
Teachers' rubric for understanding the Individuals movement knowledge: - Safety - Quality - Efficiency - Language - Knowledge - Demonstration - Transfer of skill - Interaction with Environment - Intrinsic value to the Individual - Integration of expressed potential into way of life	

<table>
<tr><td colspan="2">Expectations: The students will understand fundamental and functional movement skills and develop a sense of self-mastery.</td></tr>
<tr><td colspan="2">Materials Needed: mats, gym space, music</td></tr>
<tr><td>Teaching Strategy:
Introduction</td><td>Introduce Physical Literacy by asking:
- What is Physical Literacy?
- When do you use Physical Literacy Skills?
- Why is Physical Literacy important?
Discuss how you develop, learn, and use physical literacy skills</td></tr>
<tr><td>Body</td><td>Fundamental Movements
Create different stations where the fundamental movements can be explored. Have the students observe each other and provide feedback. Ask the students:
- what did you feel?
- What did you find difficult?
- How would you move differently?
- Do you feel you need to move differently? Why?

Functional Movements
Create different stations where functional movements can be explored. Have the students brainstorm where these movements would be used in everyday life. Ask the students:
- What did you feel?
- What did you find difficult?
- How would you move differently?
- What do you feel you need to move better?
- Where are these movements used in everyday life?</td></tr>
</table>

	Combination of Movements Create stations with fundamental and functional movements. Increase the student's capacity to move within and beyond their potential. **Mini Games** Write down a variety of fundamental and functional movements and place them in a container. Have each participant draw from the container. Have the participants split into groups and come up with a mini game (ex:3 on 3 soccer) that can be played within the group and emphasises the movements selected. Use implements (sticks, balls, pylons, trees, rocks, shovel etc.; dependent on inside or outside class) to enhance creativity and play. Play the games for a designated amount of time. Have the participants speak about their experience. ***** Seasonal Note:** During the winter months, coordinate with the Community heavy machine operators and ask them to pile snow into a specific area. Have the individuals plan, design and create ideas for an outdoor snow maze, toboggan slides, warming "huts", and decorations.

	Have the individuals create crafts or art that is meaningful to them. Collect the materials from the bush or outdoor surrounding areas. Have the students relate the plants or plant material to health and well-being. All crafts can be hung and displayed around the maze and slides.

Resources: Dependent on Community resources

Fundamental Movement Skills:
https://sportforlife.ca/portfolio-view/indigenous-long-term-participant-development-pathway/

https://activeforlife.com/activities/

Functional Movement Explained:
https://www.youtube.com/watch?v=NYkK_XizsuY

Understanding Self-Mastery
https://scottjeffrey.com/self-mastery/

Developing Physical Literacy:

https://sportforlife.ca/wp-content/uploads/2019/09/DPL-2_EN_web_November_2019-1.pdf

Youth Conditioning:

http://iyca.org/download/IYCA%20Summit%20Manual%20Complete.pdf

Obstacle Course Ideas:

https://www.youtube.com/watch?v=fEa0hiuyZ84

https://www.youtube.com/watch?v=erkJND01AWw

Fundamental Movement Games:

https://thephysicaleducator.com/game_category/fundamental-movement-skill-games/

https://activeforlife.com/resource/individual-lesson-plans/

http://www.oasphe.ca/documents/FUNdamentalGames-Longversion.pdf

https://whatmomslove.com/kids/active-indoor-games-activities-for-kids-to-burn-energy/

Movement Games:

https://simplifaster.com/articles/fun-movement-games-athleticism/

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Expectations: Understanding of cross-training and the relation to our ancestral past	
Materials Needed:	
Teaching Strategy: **Introduction**	Introduce the concept of hunter-gatherers: - What are hunter-gatherers? - Why was it important to move and work as they did?

	- Is this type of movement relevant today? - How can a person replicate or move like a hunter-gatherer today?
Body	**Obstacle Course** Have the students work independently to brainstorm ideas of an obstacle course that would replicate the movements of a hunter-gatherer. The obstacles shall incorporate fundamental and functional movement patterns. As well as engage critical thinking, problem solving, and instinctual attributes. After independent brainstorming, have the students work in small groups to showcase their ideas, thought pattern(s), and imagination(s). Have the students come up with several small obstacle courses and one large obstacle course based on their ideas and the understanding of a hunter-gatherers' movement capacity. Obstacle course time parameters: 15 seconds in duration 30 seconds in duration 60 seconds in duration 120 seconds in duration 240 seconds in duration Next, have the groups brainstorm the material they need to collect (either in the facility or outside and

	around the community) to build their obstacle course and form a plan of how they will bring it to life. Build the obstacle course(s) (may take several days) *If done outside the half-built course may be left to attend to at a later date. Have the students perform the obstacle course independently and in small groups. A friendly competition may be created. Allow the students to set the parameters. <u>Follow-up Lesson</u> Introduce the metabolic and energy systems.
Resources: Creating an Obstacle Course: https://www.youtube.com/watch?v=QtJNuFHP11k	
Teachers' rubric for understanding the Individuals movement knowledge: - Safety - Quality - Efficiency - Language - Knowledge - Demonstration - Transfer of skill - Interaction with Environment - Intrinsic value to the Individual	

- Integration of expressed potential into way of life.

Expectations: Students will build movement skills by using their expression of potential via mini-games and stations	
Materials Needed: balls, hitting implements,	
Teaching Strategy: **Introduction**	Introduce the topic of skill development. Ask: - What is a skill? - How does a person develop skill? - Why are skills useful? Necessary? - What skill(s) do you have?
Body	Outdoor or Indoor Pre-select movement skills to develop. Or In a previous session, have the individuals brainstorm movement related, activity related, or sports related skills that they would like to work on. Place them in a bucket and have the students draw the skills from the bucket. Once all the skills have been drawn from the bucket place them in order that they were drawn. These will be the pre-determined skills to work on. This will create the opportunity for pre-planned lessons and give the students a sense of autonomy. Create mini games based on the skills that will be developed. Mini games may be team oriented or independent.

	Create teams for team mini games. Set a time for each mini game to be played. Ex: Mini-game hockey 3 on 3 hockey to work on the skill of passing. When on offence, each player must pass the ball (or puck) 3 times before shooting. Ex: Mini-Game Volleyball 1 on 1 volleyball working on bumping, passing, and spiking. The two individuals must move the ball in the sequence of bump, pass, and spike. The objective is to keep the ball up, if possible, while using good form and technique. Ex: Mini-Game Flag-Tag Each participant has two flags hanging form the back of their shorts (or pants). The objective is to dodge and evade and attempt not to lose a flag(s). Set up a boundary to play in. Variation: person must get from point a to point b without loosing a flag and the “defender(s)” may only operate within a certain parameter.
Resources: **Fundamental Movement Games:**	

https://thephysicaleducator.com/game_category/fundamental-movement-skill-games/

https://activeforlife.com/resource/individual-lesson-plans/

http://www.oasphe.ca/documents/FUNdamentalGames-Longversion.pdf

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Movement Games:

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Expectations: The individual(s) will understand the cardiovascular (CV) system, CV exercise, the importance for preventing/treating diabetes and what they can do to incorporate CV exercise into their life.	
Materials: Interval timer (app), weights, other exercise equipment, anatomy coloring book, pen, paper, exercise clothing	
Teaching Strategy: Introduction	Introduce the CV system and ask: - What is the cardiovascular system? - Why is the CV system important?

	- How does CV health effect the body? Discuss the concept of heart rate training, endurance training, and High Intensity Interval Training (HIIT). Explain that there are many ways to develop a routine. Learning to make informed choices, find, experiment, and discover which way works best for them.
Body	**Introduction of Body Systems** Introduce the body systems with a brief overview of how they function in relation to the effects of exercise. The individuals will learn about the: - Cardiovascular system - Nervous System - Muscular System - Skeletal System - Respiratory System - Endocrine System - Metabolic System - Immune System Ask the individual what the benefits of aerobic training are and the different "protocols" available (high intensity interval training, steady state) as it relates to health. **Steady State Exercise (machines).** Prior to exercise, the students will be introduced to the Borg Scale. Ask the individual why understanding intensity and the level of exertion is important? Ask the individual what they may feel or think during different periods of exertion? Ask the individual if different ways of moving will be more intense on the body and why? Will it be the same for everyone?

	The individual will be introduced to different exercise machines. The students will have time to experience each machine and set a pace that enables them to complete 5-10 minutes of steady state exercise. The students will learn, through self discovery, which machine they liked (if any), and the effect the machine had on the body. **Steady State Exercise (walking, jogging, running).** The individual will partake in outdoor physical activity. Ask the individual what effect the environment has on their well-being? Ask how do they feel when they are outside? The individual will go for a walk, jog, or run for a designated amount of time. Ask the individual how they felt during and after. Ask if they feel there is a benefit to this type of activity. **High Intensity Interval Training (H.I.I.T)** Ask the individual if they have heard about H.I.I.T. Explain to the individual the health benefits and risks associated with H.I.I.T. The individual will discover the different H.I.I.T protocols and the effect they have on the body. The individual will go through a H.I.I.T workout that is designed by the instructor and tailored to the individual's fitness status. *Over the course of the program each protocol will be tried so the student gains

	a deep understanding of this mode of exercise. ** The individuals will brainstorm different exercises and create a H.I.I.T workout for the class to go through. Place the exercises in a container and have each student draw an exercise. This will help determine the exercise order. Have the individuals pick the protocol. Go through the routine for a designated amount of time. Option: Have the individual or group re-visit a previous activity to observe progress and to observe perspective(s)

Resources:

Indigenous Long-Term Participant Development Pathway:

https://sportforlife.ca/portfolio-view/indigenous-long-term-participant-development-pathway/

Interval Training for Youth:

https://www.researchgate.net/publication/261757826_A_Review_of_Adolescent_High-Intensity_Interval_Training

Programming for Cardiovascular Fitness:

http://www.glencoe.com/sites/common_assets/health_fitness/gln_health_fitness_zone/pdf/heart_rate_monitor_activities/cardiovascular_fitness/cardiovascular_fitness_activity_1.pdf

Heart Rate Variability

https://www.youtube.com/watch?v=nDwnhmehQfg

Anatomy coloring book
https://www.chapters.indigo.ca/en-ca/books/product/9780451487872-item.html?s_campaign=goo-Shopping_Smart_Books&gclid=Cj0KCQjw8fr7BRDSARIsAK0Qqr6pK6enQSXbcWo-e-9G_Oc_lCi1jgovcgLAjNQ_qd5vNOuUKRg5GCsaAjAVEALw_wcB&gclsrc=aw.ds

Borg Scale:
https://academic.oup.com/occmed/article/67/5/404/3975235

Teachers' rubric for understanding the Individuals movement perspective:

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Expectations: The students will understand the principles of resistance training, the structuring of a resistance workout, the various ways to use resistance training and the benefits regarding prevention and recovery from disease.	
Materials Needed: anatomy coloring book, pencil crayons, notepad, pen, exercise clothes	
Teaching Strategy: **Introduction**	Introduce the topic of resistance training and ask: - What is resistance training? - How does resistance training benefit the body? - What is a muscle?

	- How do you build strength? - When would you use resistance training? Discuss the guiding principles of resistance training (S.A.I.D [specific adaptations to imposed demands], “all or none”, hypertrophy and atrophy, specificity, overload, adaptation, progression, variability) and how they help prevent and recover from disease.
Body	**Designing a resistance training program** The students will be introduced to the concepts of training status, experience, repetitions, sets, volume, load, intensity, frequency, duration, and rest. **Body Weight Strength Training** Set up a space where an exercise routine can be done that focuses on body weight movement. Introduce the topic of program design for resistance training. Follow the principles of exercise progression, overload, and technique. Have students go through the exercises and ask: - Which movements were challenging and easy? - What did you learn about yourself? - What would you do differently or keep the same? - What did you do to over come a challenge encountered? - What is the difference between structuring a workout for resistance training and aerobic training?

	- Name 5 body weight movements and the muscles they target. **Free Weight Strength Training** Set up a space where an exercise routine can be done that focuses on movements with free weights. Follow the principles of exercise progression, overload, and technique. Ask the participants: - What was challenging? - What is the difference between body weight and free weight training? - What did you notice about working with free weights? - When would free weight training be beneficial for someone? - Name 5 exercises and the muscles they target. **Machine Based Strength Training** Set up a space where an exercise routine can be done that focuses on machines. Follow the principles of exercise progression, overload, and technique. Ask the participants: - What did you learn working with the machines? - How do machines differ from the other forms of exercise you tried? - When would working with machines be beneficial? Not beneficial? - Name 5 machines and the muscles they target. **Barbell Strength Training**

	Set up a space where an exercise routine can be done that focuses on movements with a barbell. Introduce the topic of compound exercises. Follow the principles of exercise progression, overload, and technique. Ask the participants: - What did you learn using the barbell? - What was different about using a barbell compared to the other ways to resistance train? - Why would you use a barbell? - When would you not use a barbell? - Name 5 barbell exercises and the muscles they target. **Bands** Set up a space where an exercise routine can be done that focuses on movements with resistance bands. Follow the principles of exercise progression, overload, and technique. Ask the participants: - What makes bands different from other forms of resistance training? - What did you learn using bands? - Why would you use resistance bands? - Name 5 exercises with resistance bands and the muscles they target.
Resources: **Basics of Strength and Conditioning:**	

https://www.nsca.com/contentassets/116c55d64e1343d2b264e05aaf158a91/basics_of_strength_and_conditioning_manual.pdf

Youth Resistance Training Guidelines:

https://www.nsca.com/education/articles/infographics/youth-resistance-training/

Fundamental Movement Skills:
https://sportforlife.ca/portfolio-view/indigenous-long-term-participant-development-pathway/

Foundations of Fitness Programming:
https://www.nsca.com/contentassets/8323553f698a466a98220b21d9eb9a65/foundationsoffitnessprogramming_201508.pdf

Developing Physical Literacy:

https://sportforlife.ca/wp-content/uploads/2019/09/DPL-2_EN_web_November_2019-1.pdf

Compound Exercises:

https://www.youtube.com/watch?v=ZLR_ouIMLX0

Guide to Resistance Bands:

https://www.youtube.com/watch?v=zWveMGgKtC8

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Expectations: The students will understand the value of recreational activity, play, and social support	
Materials Needed: dependent on activity, Elder(s)	
Teaching Strategy: Introduction	Introduce the various recreational activities, ask: - What is a recreational activity? - Why are recreational activities important? - What value does a recreational activity have to you? A family? A community? Discuss the many ways recreational activities can be incorporated into a life way, the relationship between self and activity, the importance of recreational activity. Ask the individuals, how does being active effect well-being? How does being active effect your health? Discuss the topic of recreational and leisure types of activities. Ask the individuals: why are recreational and leisure activities important to you and the

	community? How does recreational and leisure type activities affect individual as well as community well-being? *Some activities may have the potential to be used in multiple seasons.
Body	The following list of example activities can be pre-determined by the facilitator and interest from the group or individual. The education and order of events can be detailed through the lead facilitator and Elder. Planning and coordinating activities may be done months prior due to funding allocation, interest from community members, resources available. Each activity has the potential to operate multiple times a week and in various settings (ex: indoors or outdoors). **Winter:** **Hockey** **Broomball** **Skating** **Cross-country skiing** **Snowshoeing** **Trapping** **Fitness Class(s)** **Spring:** **Hiking** **Running/Walking Group**

	Fitness Class(s) **Dance** **Self-Defence** **Summer:** **Volleyball** **Swimming** **Camping** **Running/Walking Group** **Fitness Class(s)** **Fall:** **Broomball** **Fishing** **Hunting** **Fitness Class(s)** **Dance** **Self-defence**
Resources: Availability dependent on Community resources	
Teachers' rubric for understanding the Individuals movement perspective: - Safety - Quality - Efficiency - Language - Knowledge - Demonstration - Transfer of skill - Interaction with Environment - Intrinsic value to the Individual - Integration of expressed potential into way of life	

Expectations: Students will acquire knowledge and understanding through story telling

Materials Needed: Books with teachings on health, well-being and being active	
Teaching Strategy: **Introduction**	Indoor or Outdoor Introduce the topic of focus and attention. Ask: - What is focus? - How do you focus? - Why is focus important? - What is attention? - How to you pay attention? - Why is attention important? -
Body	Pre-select the reading material according to age and lesson. Before reading, ask the individuals to focus on what speaks to the heart. After reading, ask the individuals what spoke to them and why it was important. Option: Have the youth read to the children. Have an Elder(s) read or tell stories to the youth and children. Create a buddy system where a youth and a child partner up and read to each other.
Resources: Books in community	

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Expectations: The individuals will enjoy being out on the land walking	
Materials Needed: Outdoor clothing	
Teaching Strategy: **Introduction**	The teacher will introduce walking: - What is walking? - Why do we walk? - Why is walking important? - How do the seasons effect our body? Our movement? Our work? Our community?
Body	Have the individuals prepare for a walk by wearing appropriate clothing. Have the facilitator, Elder, or guide lead the way. Draw the individual's attention to the effects walking has on the body. Ask: what do you feel? How is your body responding?

	Have the individuals look around at their surroundings. Have them listen. Ask: what do you see? What do you hear? How does the surroundings relate to your body? Ask the facilitator, guide, or Elder to offer teachings during the walk. Note: This activity may be done any time of the year
Resources: Elder, Guide, Facilitator	
Teachers' rubric for understanding the Individuals movement knowledge: None	

Expectations: The participants will gain an understanding of how to set goals.	
Materials Needed: pen, journal/paper	
Teaching Strategy: Introduction	Introduce the topic of goal setting. Ask: - What is a goal? - Why are goals important? - When in your life have you set a goal? Tell me about it… - How do you set goals?
Body	**Setting goals.** The students will be introduced to the S.M.A.R.T principle for setting goals.

	On a new sheet of paper, have each individual write down two goals. Place the goals into a container. Draw a goal from the container. Have each individual write S.M.A.R.T onto a sheet of paper. Have each individual fill out the S.M.A.R.T acronym as best they can. Once completed have each individual share their "plan". After sharing, have the individual brainstorm different strategies or ways of accomplishing the goal. Have the individuals share their strategies.

Resources:

Goal Setting:
https://www.youtube.com/watch?v=PCRSVRD2EAk

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Appendix

Future Considerations:

Active Living Mentor Program: Designed based on teach-learn and to keep the flow of knowledge alive. In preparing youth and young adults to participate in building strong roots through community engagement and active learning.

Ages 5-9: Participating and watching the development and building of traditional and modern structures (ex: homes, cook shakes etc), helping with recreational services, helping with day-to-day operations of the community at large. Guidance will be given through an Adult, Elder, Community Health Worker, volunteer and/or Project Facilitator. As well, the youth will be able to apply their knowledge using their imagination and play by building with objects and items in the environment. Pre-determined lessons required.

- Ex: Learning about chores; Learning to build with sticks, stones, snow, etc; Outdoor structures; Exploring the environment, gathering, learning about own strength and abilities, how to remain emotionally competent when activities or tasks are difficult, skills may be developed in activities

Ages 10-13 Buddy Program: The youth in this age category will be partnered with a young adult as a guide to learn from and accept more responsibility in and around the Community. The two will be paired for a designated amount of time or for the duration of a project.

- Age 10 one “season” paired with Age 17
- Age 11 one “season” paired with Age 16
- Age 12 one “season” paired with Age 15
- Age 13 one “season” paired with Age 14
- Age 14: four seasons, four different tasks
- Age 15: four seasons, four different tasks

- Age 16: four seasons, 2 “jobs”
- Age 17: four seasons, 1 “job”

Ages 14-17 Mentor Program: The young adults will be paired with a youth to guide through projects. The young adult will be guided by an Adult, CHW, volunteer and/or Elder.

Intermural Games

Creating a tournament style program in the Community designed around modified sport(s) and/or activities. The intermural games may be hosted any number of days per week and operate for a specified number of weeks. All participants are welcomed. Example games are:

- Floor hockey
- 3 on 3 soccer
- A made-up game (brainstorm with community members)
- 3 on 3 basketball
- Obstacle course races

Fitness Classes

Fitness classes have the potential to increase an individual and community’s physical activity based on the principles of the Self-Determination Theory; Competence, Relatedness, Autonomy. A fitness class may be any number of activities (cardiovascular, weight training, cross-training, dance, self-defence). A fitness class needs an energetic, enthusiastic, motivated individual to lead the group. Following the exercise principles of F.I.I.T (frequency, intensity, time, type) is a way to help build this type of program into community living. Following the neurophysiological adaption of 6-8 weeks for the body to notice improvements is a way to gauge program duration, prevent burnout, and

supplement with variety. Long term programming requires long term commitment from community members and political funding streams. Fitness classes have the potential to improve mental health, physical health, and prevention of non-communicable diseases.

Designing an Awareness Program

Drawing awareness to a particular initiative or program within a community takes coordination, preparation, and support. For those that are not so interested in being physically active may find enjoyment in helping promote health and well-being. Each year can bring about a new initiative. These initiatives can centre around the theme of prevention and recovery of a specific non-communicable disease, education on well-being or anything associated with health, wellness, and active living. Please find a sample framework below:

a. Raise awareness
b. Educate
c. Conduct local physical activity programmes and initiatives
d. build capacity
e. create supportive environments
f. give recognition
g. High level political commitment
h. funding
i. support from stakeholders
j. a coordinating team
k. clear programme objectives
l. integration of physical activity within other related interventions
m. multiple intervention strategies

n. target the whole population as well as specific population groups
o. Governmental Initiatives
p. clear identity for the programme
q. implementation at different levels
r. implementation with the local reality
s. leadership
t. dissemination of the intervention
u. evaluation and monitoring

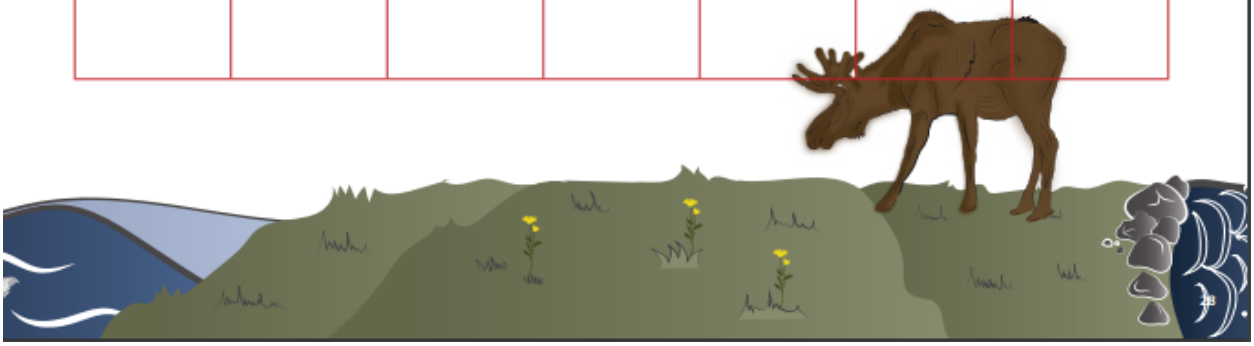
Designing an Exercise Program

When designing an exercise program, a macro and micro level approach is beneficial to the program designer. A macro level may be a year or several months. A micro level may be a week or daily schedule. This type of design allows the program to be flexible and to help the facilitator anticipate any needed changes, adjustments, or drawbacks. A sample rubric to follow during the design period is:

i. Goal
ii. Objective
iii. Needs Analysis
iv. Strategy
v. Outline
vi. Schedule
vii. Resources
viii. Activity(s)
ix. Cost

Another resource to plan the vision of the program is below:

Program Vision:						
Action	Outcome (what do you expect this action to lead to?)	Who is responsible for this action?	Who/what can help? (look at your community scan)	What other resources could help? (people and money)	Timeline (when do you want this action completed by?)	Target (what change will you see?)
Example: I will form a program team	Having other people that can run my program	Me	The recreation coordinator and local soccer coach	A grant to cover our program team's travel cost	June 15, 2018	More people to deliver the program in case I am away



(https://sportforlife.ca/wp-content/uploads/2019/09/DPL-2_EN_web_November_2019-1.pdf)

Resources for the program will vary between communities due to equipment supply, facilities, instructor knowledge, and the imagination of the instructor. Some websites and reference material is included in the sample activity section.

The **cost** of the program will be determined by the rate of pay for the instructor, facility access, purchase of new equipment (if needed), or supplies for participants. There are funding streams available (ex: Jordan's Principle, Healthy Horizons Foundation) for youth programs that centre around active living, exercise, wellness, mental health, and well-being.

Month	December	January	February	March	April	May	June	July	August	September	October	November
Season	WINTER			SPRING			SUMMER			FALL		
Total # of weeks	13			13			13			13		
Days/week	5			5			5			5		
Indoor days/week	3			3			2			2		
Outdoor days/week	2			2			3			3		
Days of Program	M/T/W/Th/F											
Off Days	S/Su											
Off Weeks	Special events, 1 week every cycle (ie: 1 week during a season)											
Total # of Sessions	260											

Sample Macro Exercise Program Framework (year):

Months	December/January/February												
Week	1	2	3	4	5	6	7	8	9	10	11	12	13
Days/Week	M/T/W/Th/F						OFF	M/T/W/Th/F					
Indoor days/week	M/F												
Outdoor days/week	T/W/Th												
Total # of Participants	Variable												
# of Instructors	Variable												
Equipment	Activity Dependent												

Sample Macro Exercise Program Framework (month):

Week	1						
Day of Week	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Location	Off	Indoor	Outdoor	Outdoor	Outdoor	Indoor	OFF
Time	-	60 mins	Half Day	60 mins	Half Day	60 mins	-
Type	-	Resistance	Community	Cardiovascular	Land	Physical Literacy	-
Intensity	-	Moderate	-	High	-	Moderate	-
Total # of Participants	Variable						
# of Instructors	Variable						
Equipment	Activity dependent						

Sample Micro Exercise Program Framework (week):

Day	Monday						
Location	Indoors						
Time	60 mins						
Intensity	Moderate						
Type	Fucntional Movement						
Warm-up	10 mins	Muscle Activation (5 mins), Skill (5 mins)					
Main	40 mins	Body Weight	# of Exercises = 12	# of Reps = 15 each	Circuit	Sets = 3	Rest = 2 mins
Exercise Selection	Squat, Push-up, Lunge, Pull-up, Plank, Hip-up, Bear Crawl, Hip Hinge, Tricep Extension, Crab Walk, Side Roll, Hollow Hold						
Cooldown	10 mins	Static Stretching					
Equipment	Mats						

Sample Daily Exercise Program Framework

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