STEAM Lesson Plan

FISHING TRIP





Curriculum Connections

Math (5) E2.1 use appropriate metric units to estimate and measure length, area, mass, and capacity

Math (5) F1.2 estimate and calculate the cost of transactions involving multiple items priced in dollars and cents, including sales tax, using various strategies

Math (5) 5: B2.1 use the properties of operations, and the relationships between operations, to solve problems involving whole numbers and decimal numbers, including those requiring more than one operation, and check calculations

Math (5) B2.4 represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 100 000, and of decimal numbers up to hundredths, using appropriate tools, strategies, and algorithms

Math (5) F1.3 design sample basic budgets to manage finances for various earning and spending scenarios

Math (5) D1.5 determine the mean and the median and identify the mode(s), if any, for various data sets involving whole numbers and decimal numbers, and explain what each of these measures indicates about the data Math SEL(5)

maintain positive motivation and perseverance build relationships and communicate effectively think critically and creatively



Learning Goals

Learners will be introduced to the Oji-Cree language through syllabics and roman orthography. The activities will reinforce the connection between the syllabic characters, roman orthography, and English language.

Learners will work in teams and look at how elements such as baggage weight and size affect extra costs, and mean. In addition, learners will use the distance, speed and time formula and mathematical problem solving to execute trip planning.



Materials

Ojibwe syllabics chart Includes Roman Orthography chart Pen and paper Colouring pencils (optional) Calculator (optional)

Activity challenge questions + hint cards



Assessment / Evaluation

Activity 1 (Dear Fellow Anglers letter - decode information)
Activity 2 (Luggage weight and size restrictions)
Activity 3 (Decode with Syllabics)
Activity 4 (Boarding Pass in Syllabics)
Activity 5 (Estimating flight times)
Activity 6 (Thank you card)

Rubric of their cooperative teamwork skills. Solve problems as part of the lesson.



Accommodations / Modifications

Limit the number of syllabics student needs to design Limit number of designs to complete on worksheet Access to computer mouse will assist with fine motor skill controls Student can work with TA

Teaching/Learning Strategies



Introduction (minds on/activate prior knowledge)

Class discussion: study /examine ontario map Locate Toronto and Sachigo Lake and calculate a straight line distance between them Optional Watch "Finding Our Way Forward, Together" The film tells the true story of the first map of the land we now call "Canada". https://downiewenjack.ca/reconciliation-begins-with-you/ Q: What languages are used in Ontario now? Languages spoken by students in class? Languages spoken at home?/ community? Other languages know to students? Q: What are the original language(s) in Ontario? Look at map of Ontario indigenous languages

New Learning (30 minutes) (give/demonstrate new information)

In Ontario there are several indigenous language groups spoken. In Sachigo Lake, located in Northern Ontario the people speak English and their traditional language Ojibwe.

Provide students with handout for Sachigo Lake's Ojibwe syllabics chart

Introduce the syllabics chart as a class activity Alternatives to english letters Other examples of characters used in other languages (Japanese, Russian, hieroglyphics) Show students syllabics and corresponding roman orthography



Teaching/Learning Strategies

syllabics	roman orthography	english word
94.pa	= (a-si-ka-ha)	fly

Each character in the syllabics system represents a syllable. Here is the breakdown of the syllabics characters used:

 \triangleleft (a): Represents the "a" sound.

✓ (si): Represents the "si" sound.

 \dot{b} (ka): Represents the "ka" sound.

"⊲ (ha): Represents the "ha" sound.

Demo translating from syllabic to roman orthography using these examples

Work as a class to have students decode the following:

In Ojibwe syllabics,
 the word "a+ya=aya" (in roman orthography)
 dog in English

syllabics roman orthography english word bPr'⁵ = love syllabics roman orthography english word

ΓσΓα² = support

Guided Practice (40 minutes) (checking for student understanding)

Activities 1-6

Put the students in groups/teams (of 3 preferred) Read 'Dear Fellow Anglers' Letter out loud to students Discuss with students Provide students with Activity 1 When complete, proceed through Activities 2-5 Note: Hint cards for each Activity are available if students need assistance. Indicate procedures for recording their calculation and translations and having them checked by the teacher before receiving the next set of clues Give an example of acceptable and unacceptable completed recording sheet



Teaching/Learning Strategies

Application (activity to reinforce/demonstrate learning)

Activity 6: Thank you card

Reflection (what did/didn't work) Next Steps (what to teach/re-teach)



Dear fellow anglers,

We are thrilled to invite you to participate in the annual Fishing Derby at Sachigo Lake! This year's event promises to be bigger and better than ever before, with exciting competitions, great prizes, and lots of fun for everyone.

The Fishing Derby will take place on Saturday, May 15th, from 8:00 am to 4:00 pm. The lake will be fully stocked with a variety of fish, including walleye, pike, and whitefish . Whether you're a seasoned pro or a first-time angler, there's something for everyone at Sachigo Lake.

In addition to the fishing competitions, we'll also have a range of activities and entertainment for all ages. There will be food vendors, live music, and plenty of games and activities to keep everyone entertained throughout the day.

Registration for the Fishing Derby is free, but spaces are limited, so be sure to arrive early to secure your spot. There are spots for your team of three to join the derby. You will need to meet the fishing derby committee in person at the Sachigo Lake Band Office to complete your registration. Don't forget to bring your own fishing gear, and be sure to follow all rules and regulations to ensure a safe and enjoyable experience for all.

We can't wait to see you at the Fishing Derby at Sachigo Lake! Get ready to reel in some big catches and make memories that will last a lifetime.

Sincerely,

The Sachigo Lake Fishing Derby Committee

Activity 1 Complete the chart below with information from the letter									
Who What When Where Why									
Who is on your team?	What is the purpose of the letter?	When is the Derby? Start time: End time:	Where is the event? Where is registration:	Event?					



Activity 2: All Aboard!

To get to Sachigo Lake, Ontario, there are no direct planes, trains or roads from Toronto! The angler team decides to get there by Via passenger train from Toronto to Sioux Lookout and then transfer to a plane from Sioux Lookout to Sachigo Lake.

Prior to leaving for the trip each angler will need to pack their bags with all of the things needed - warm clothes, winter hats, boots, food, fishing gear, life jackets etc. That is a lot of equipment!

Each angler is bringing 3 pieces of luggage and they will want to figure out if they will have any extra charges. If so, how much will each need to pay? If any piece of luggage is over-weight or oversized, there is a fee of \$40.

Considering the information below and determine how much each traveler will pay to get their luggage from Union Station to Sioux Lookout?

Maximum size and weight restrictions



Overweight baggage

Between 23 and 32 kg (50 and 70 lb.) \$40 (tax included) per item and per direction.



Oversized baggage

Between 158 and 180 linear cm (62 and 71 linear in.) Linear dimensions = length + width + height. \$40 (tax included) per item and per direction.



Extra baggage

Maximum 3 additional items per person, \$40 (tax included) per item and per direction.



Activity 2: All Aboard!

Complete the table below for each passenger and each piece of luggage to determine what extra charges will apply.

	Luggage weight (KG)	Overweight Charge? (in \$)	Luggage Length (cm)	Luggage width (cm)	Luggage Height (cm)	Oversize Charge (in \$)
Passenger 1 Luggage #1	20		40	65	55	
Passenger 1 Luggage #2	25		55	45	25	
Passenger 1 Luggage #3	21		28	85	60	
Passenger 2 Luggage #1	24		45	70	15	
Passenger 2 Luggage #2	28		55	35	35	
Passenger 2 Luggage #3	12		32	45	85	
Passenger 3 Luggage #1	22		60	55	40	
Passenger 3 Luggage #2	32		35	58	32	
Passenger 3 Luggage #3	14		45	50	70	

A)	Passenger 1 pays	<pre>\$ for overweight,</pre>	<pre>\$ for oversize</pre>	\$total
	Passenger 2 pays	<pre>\$for overweight,</pre>	<pre>\$ for oversize</pre>	\$ total
	Passenger 3 pays	<pre>\$for overweight,</pre>	<pre>\$ for oversize</pre>	\$ total

B) As you are all traveling as a team to the same destination it makes sense that you split the cost evenly. Calculate the mean price to figure out how much each passenger should pay to cover the extra charges.



Activity 3: Wawatay!

In Oji-Cree, the word "wawatay" means "Northern Lights" in English. It specifically refers to the natural phenomenon of the shimmering lights that appear in the night sky, also known as the Aurora Borealis or northern lights.

If you're lucky you might be able to witness the wawatay on the train at night.

Use the syllabics chart to identify the syllabics characters for wa wa tay.

Given the Roman Orthography (RO) for Northern Lights is:_Wawatay_____ use the Syllabics Chart to write the characters for wawatay



Activity 4: Syllabics on plane ticket

Activity 4 (syllabics on plane ticket)

In northern Ontario, many signs are written in both English and the local Ojibwe Language using Syllabics

Use the chart below to fill in the missing information from one boarding pass using Syllabics to the one with blanks. (i.e where it says $Pdr^{2} P \rightarrow^{2}$ on the first write Boarding Pass on the second.

Ticket information to include:

English	Ojibway Syllabics
Boarding pass:	6ዓላა 6৮৮১
Name:	ŲJPεQ
Flight:	⊲∽∿∪
Date:	ᢂ᠋᠆᠆᠆᠆᠆᠆᠆᠆᠆
Departure time:	⊲۲۵۰⊄,≻
Origin:	⊲₽᠈∩ᲮᲥᲮᲥ∙⊲°
Destination:	ϧϥϧϯϥ

Add the english terms to the boarding pass

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Activity 5- Flight Time

Fishing Derby contestants need to fly from Sioux Lookout to Sachigo Lake

Slate Falls Airways (SFA) flies the 180 KM from Sioux Lookout to Sachigo Lake, and they use 3 different plane types. Each team member flies on a different plane.

Cessna	Beaver Turbo Otter		
Maximum passenger =4	Maximum passenger =6	Maximum passenger = 9	
Payload = 360kg	Payload = 550kg	Payload = 1180kg	
Cruising speed = 204km/hr	Cruising speed = 222km/hr	Cruising speed = 214km/hr	
Max range = 965 km	Max range = 420 km	Max range = 930 km	

Questions: Use the information given above for each type of plane to determine: At what time (rounded to the nearest minute) did each of the three ice fishers arrive in Sachigo Lake?

Passenger 1 arrival time _____ Passenger 2 arrival time _____ Passenger 3 arrival time _____

The variables for the formula speed = distance \div time can be rearranged, just like any other equation. This formula can be rearranged in three ways: speed = distance \div time (S=D/T) or this can be said as TIME = Distance / Speed

To calculate one of the variables (speed, distance or time) we need the other two, which we place into the formula and solve to determine the third variable.

Passenger 1 flew on the Cessna, Passenger 2 was on the Beaver and Passenger 3 was on the Otter.

They all left the Sioux Lookout to fly to Sachigo Lake at exactly 2:00 PM.

How much time had elapsed from the arrival of the first plane until the arrival of the third plane?



Activity 6: Thank you card

Objective: Write a Thank you card to the Fishing Derby organizing committee for inviting your team to attend the Sachico Lake Fishing Derby.

In Ojibway, "thank you" can be expressed in a few different ways depending on the context and region, but one common way to say it is "miigwetch" (pronounced MEE-gwetch). So, "Thank you Sachigo Lake" in Ojibway could be written as "Meegwetch Sachigo Lake"

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⊢ÞÞ² (mee-yi-ki-n)
Here is the breakdown of the syllabics characters used:
Γ (mi): Represents the "mee" sound.
> (yi): Represents the "yi" sound.
P (ki): Represents the "ki" sound.
2 (n): Represents the "n" sound.

Use this to create a thank you card with the syllabics and sign your name. Include a drawing of something that you found interesting/meaningful from the challenge. Thank you = Miigwetch $\Gamma \geq \dot{P}^{\circ}$ (mi-yi-ki-n)

HINT CARD FOUR Activity 4- Syllabics on Plane Ticket Review the chart of Ojibwe Syllabics listing words commonly found on plane tickets in both English and Syllabics. One ticket is written out in Syllabics, and one ticket is written out in Syllabic were. Fill in the correct English word to replace the Syllabics. Write out the word Boarding Pass in Syllabics	HINT CARDONE Activity 1- Decode Dear Fellow Angler Letter Use a highlighter to find the key information who what where why
HINT CARDING Activity 5- Activity 5 - Flight Time Calculations for the Cessna Identify the question needing to be solved What time does Cessna arrive in Sachigo Lake? Identify the required information Departure time - 2:00 PM Distance = 180 Km Speed = 204 Km/hr Time to destination - ??? Apply info to formula (Time = Distance/Speed; T=D/S): T = 180k/204km/h Resolving for T in formula T = 0.88 hours (0.88 x 60 minutes = 52.8 (53) minutes) T = 52.8 minutes (53) after departure Arrival time 2:53 PM Repeat for Beaver and Turbo Otter planes	HIT CARDING Activity 2- All Aboard Overweight luggage charges Any bags over 23 kg are considered overweight 540 for each overweight bag Oversize Luggage charges Adding the bags length + width + height will give the bags over 158 cm are considered oversize 540 for each oversize bag E.g. A 30 kg bag will be charged a \$40 overweight charge Definition : The mean (average) of a data set is found by adding all numbers in the data set and then dividing by the number of values in the set. For example, the mean of 10, 20, and 60 is (10 + 20 + 60) ÷ 3 = 30.
HINT CARD SIX Activity 6 - Thank you card Fold a blank piece of paper to make a card Everybody likes being thanked. Sometimes the simplest way to say thankyou in a card is to say 'Thank -you'. Adding a picture that represents your trip and/or using the local word for thank you is a nice added touch. Remember to add your names to the card! How to say 'thank - you' in Oji Cree Thank you = 'Miigwetch' Or in Syllabics = Decorate with Syllabics Fish Trains Planes	HINT CARD THREE Activity 3 - Syllabics (Decoding) How to decode a syllabic word into Roman Orthography Use syllabics chart and find the Syllabic that matches, and record the syllabic and the Roman Orthographic letters beside it (e.g. $\nabla = ay$) Continue for each syllabic When finished, combine the Roman Orthogra- phy letters together to complete the word Try saying the word out loud

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> I I I

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_ _ _

_ _

I

I I

FISHING TRIP - SYLLABICS CHART



γ	ay	Δ	ee		0	4	a		
٧.	way	Δ·	wee	D	·wo	4	• wa	0	W
٧	pay	٨	pee	>	po	<	pa	Î	p
U	tay	Ω	tee)	to	C	ta	T	t
9	kay	ρ	kee	d	ko	Ь	ka	١	k
ſ	chay	ſ	chee	J	cho	ե	cha		ch
٦	may	Г	mee	1	то	L	та	C	m
р	nay	σ	nee	٩	no	٩	na	2	n
ς	say	S	see	۲	SO	5	sa	n	S
J	shay	S	shee	2	sho	5	sha	U	sh
4	yay	4	yee	4	yo	4	ya	4	у