Old Crow Experiential Education Project resources were developed with input and guidance from Vuntut Gwitchin members, Elders and resource workers in Old Crow, Yukon, Canada. The resources and lessons are specific and relevant to the traditional and cultural activities of the Vuntut Gwitchin First Nation people. It is recommended that organizations and individuals interested in using these materials reflect on their community and youth needs, and create their own materials for their own community's traditions and culture under the guidance of Elders, community members and resource workers.

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Vuntut Gwitchin Government
PO Box 94
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Yukon Government

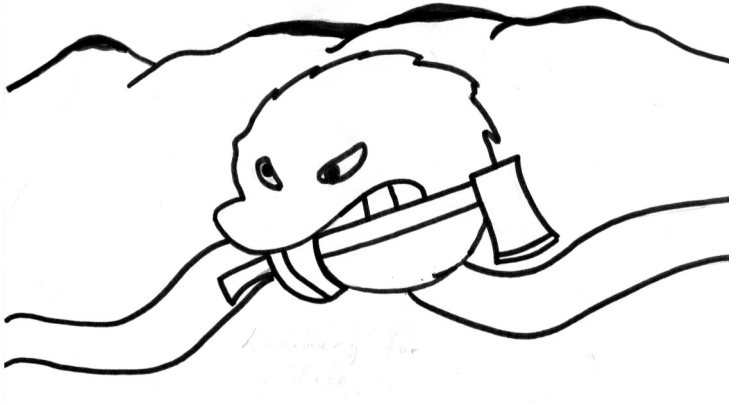
Vuntut Gwitchin Government

Thanks to:
Frances Ross, International Polar Year Researcher
Clifton, Logo & Motto

Traditions & Science

Year: _____

Learning for Life



Spring Culture Camp
Grades 7 - 9 Guidebook

Name: _____

Land-Based Experiential Learning

Fill in Your Schedule!

Time	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
7 a.m.						
8 a.m.						
9 a.m.						
10 a.m.						
11 a.m.						
Noon						
1 p.m.						
2 p.m.						
3 p.m.						
4 p.m.						
5 p.m.						
6 p.m.						
7 p.m.						
8 p.m.						
9 p.m.						
10 p.m.						

Extra Space for stories, autographs, drawings, poems, games or whatever you want!

Table of Contents

Assessment By The Camp Staff

Criteria—Language, Land Skills	Level 1—Not Yet Meeting Expectations	Level 2—Meets Expectations	Level 3—Fully Meets Expectations	Level 4—Exceeds Expectations
Commitment to Learning Gwich'in	Student does not try to speak or listen to local language.	Student rarely asks for help learning local language. Listens to local language.	Student sometimes listens to local language then tries.	Student often asks for help with learning local language. Eager to learn.
Fluency	Does not try to speak local language. Cannot assess.	Barely meets expectations of local language skills. Uses some labels.	Meets expectations of local language skills. Uses labels & few phrases.	Above expectations of local language skills. Always uses labels & phrases.
Muskrat Trapping	Will not try to trap muskrat but watches demonstration.	Getting started. Sometimes able to set a trap; needs a lot of help. Watches demo.	Getting comfortable. Able to set a trap with little help. Watches demo.	Strong skills. Muskrat trapping skills are independent. Watches demo.
Safety	Is not safe at camp.	Sometimes follows safety rules.	Usually follows safety rules.	Always follows safety rules.
Rabbit Snaring	Will not try to snare a rabbit.	Getting started; watched demo carefully but requires help to set a snare.	Getting comfortable. Able to snare a rabbit at their age level.	Strong skills. Rabbit snaring skills are above expectations.
Respect	Is not respectful. Does not listen to Elder, or respect the animals trapped or land.	Sometimes respectful to Elders, trapped animals or land.	Usually respectful to Elders, trapped animals and land.	Always respectful to Elder, trapped animals and land.
Cooking & Firewood	Refuses to do camp chores, even when asked.	Begins chores when asked.	Begins chores without being asked.	Begins chores without being asked. Always helps others.

Free Space for Writing & Drawing!

Learning Objectives Assessment By The Teacher

Criteria—Camp Journal	Level 1—Not Yet Meeting Expectations	Level 2—Meets Expectations	Level 3—Fully Meets Expectations	Level 4—Exceeds Expectations
Completion	Mostly incomplete. Many entries missing.	Significantly incomplete. Sometimes uses spaces provided.	Mostly complete. Most provided space is used in a reflective manner.	Fully complete. Consistently uses all provided space in a reflective manner.
Thought & Care	Limited effort and thought are evident in responses. Little to no detail given.	Some effort and thought are evident in reflections. Few details are given.	Significant effort and thought are evident in many reflections. Some details are given.	Outstanding effort and thought are evident in all reflections. Many details are given.
Insight	Limited insight is demonstrated in reflections.	Some insight is demonstrated in reflections.	Significant insight is demonstrated in reflections.	Outstanding insight is demonstrated in reflections.
Daily Tasks & Behavior	**Level 1—Not Yet Meeting Expectations**	**Level 2—Meets Expectations**	**Level 3—Fully Meets Expectations**	**Level 4—Exceeds Expectations**
Respect	Regularly disrespectful. Does not listen to camp staff. Does not follow camp rules.	Inconsistently respectful. Often does not follow instructions or camp rules.	Usually respectful of others. Usually follows instructions and camp rules.	Always respectful. Follows all instructions and camp rules.
Teamwork	Participates only when staff asks.	Participates when encouraged. Takes limited responsibility in group tasks.	Shares ideas. Actively listens. Takes responsibility in group tasks.	Inspires ideas in others. Assumes a leadership role to ensure group success.
Conflict Resolution	Often engages in conflict. Does not positively respond to conflict. Provokes others into conflict.	Often engages in conflict. Sometimes expresses ideas and concerns in a constructive manner.	Avoids unnecessary conflict. Recognizes conflict. Usually expresses ideas and concerns constructively.	Works to avoid unnecessary conflict. Recognizes and positively resolves conflict. Expresses ideas and concerns.

April dressing warm for checking traps. 2010

Section 1: Before & After Camp Activities

CAMP GUIDELINES AND SAFETY

1. Be respectful

Be a team player!
Teamwork is needed at camp to keep everyone safe, warm and fed.
Respect everyone.
Use appropriate manners.
No bullying/teasing.
Positive teamwork while working, learning and playing.
Listen and learn from your Elders, traditional teachers, school teachers, guest speakers, camp staff and each other.

2. Be prepared

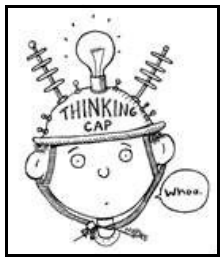
Bring five changes of warm clothing.
Bring clothing for traveling and outdoor activities.
Bring your own towels, soap, etc.
No junk food.
iPods can be used in the evenings only.
You can bring traditional food to share.

3. Be helpful

Help around camp when possible (collecting firewood, getting water, helping the cook, etc.).
Listen and learn from your Elders, traditional teachers, school teachers, guest speakers, camp staff and each other.
Keep the indoor and outdoor areas clear of garbage.

Activity	Help Needed	Okay	Master
Know how to take care of a muskrat house so that many muskrats can be taken from the same house.			
Know how to take care of a trapped muskrat (pull out of trap, clean & shake).			
Know how to kill a muskrat quickly and make sure the muskrat's pelt is not damaged.			
How to skin a muskrat.			
How to turn the muskrat pelt flesh in-side out.			
Know how to stretch and tack down muskrat pelts.			
Know how to repair small holes made when skinning.			
Cut muskrat open (belly-side) to pre-pare the muskrat for eating.			
Muskrat Eating - Can check liver for white spots. (Don't eat if spots are found.)			
Assembling (making) a rabbit snare.			
Setting a rabbit snare in the willows.			
Skinning a rabbit for meat and fur.			
Knowing how to care for the rabbit skin.			
Prepare the rabbit for eating.			
Clean up camp properly.			
Comments:			

*Student Assessment: How Did I Do?**



Think...reflect...remember…how did YOU do with the various traditional activities?

**Adapted from Spring Trapping on Crow Flat*

Activity	Help Needed	Okay	Master
Pack gear safely and securely.			
Know the area around camp.			
Know surrounding creeks, mountains & trails.			
Know how to collect & store wood.			
Keep stove safe & working properly.			
Understand muskrat behavior during different seasons.			
Understand muskrat reproductive cycles.			
Understand muskrat feeding patterns and relate these to trapping activities.			
Understand muskrat populations and when to leave an area so the population can recover.			
Know how many muskrats may use a muskrat house.			
Know how to identify a muskrat pushup.			
Find a door in a muskrat pushup.			
Take top off of the muskrat pushup.			
Set trap in a muskrat pushup.			
Know different ways of setting a trap in a pushup.			
Know how to make a plan if the house is slanted.			
Know how to leave no trace of ice or smell in a muskrat house.			

4. Participate

Follow your daily schedule.
Be on time for all activities.
Do your journal once a day.
Ask for help if you don't know how to do something.

Enjoy and have fun out on the land!

In your class, your teacher will assign one of the four sections to your small group. **Brainstorm** all the different reasons why the guidelines in that section are important. Then you're going to **share your answers** with the class.

Our group's section is:
The guidelines in this section are important to follow because:

SETTING GOALS

We are going to set two goals for Culture Camp.

LAND SKILL

Pick a skill that you want to learn or improve. Here are some ideas: skinning a muskrat, cutting dry meat, cutting fish, setting a trap or snare, reading the weather, memorizing traditional place names and many more!

My skill goal is _____

_____

Having a goal is a "big step" forward, but there are lots of little steps that you need to take before you meet this goal. **Explain two things that you will do at Culture Camp** to work towards meeting this goal.

1. _____

_____

2. _____

_____

POST-CAMP REFLECTION

Did you meet this goal? (circle one)	yes a little bit not at all
Who helped you meet this goal?	
How did they help you meet this goal?	

Teryn & Aaron enjoying the ride. 2010

Section 4: Assessment

Free Space for
Writing
&
Drawing!

PERSONAL

Pick a personal goal that you want to work on. Here are some ideas: be more helpful, positive, determined, relaxed, friendly, focused, social, confident, encouraging, or independent. There are lots of others too!

My personal goal is _____

_____

Explain two things that you will do at Culture Camp to work towards meeting this goal.

1. _____

_____

2. _____

_____

POST-CAMP REFLECTION

Did you meet this goal? (circle one)	yes a little bit not at all
Who helped you meet this goal?	
How did they help you meet this goal?	

PACKING

Here is a list of the things you <u>should</u> bring:

Clothing

- □ Five sets of clean clothing
- □ Runners or mukluks for inside the tent
- □ 6 pairs of warm socks

Outdoor clothing

- □ Ski pants
- □ Ski boots
- □ Warm hat
- □ Warm mitts
- □ Scarf

Bedding

- □ Pillow
- □ Sleeping Bag –30°C
- □ Warm Blanket

Personal items

- □ 2 sets of face towels, 1 face cloth
- □ Comb or brush
- □ Sunscreen (a must)
- □ Sunglasses (a must)
- □ Hair ties
- □ Journal, pens & pencils (from school)

Camp Journal Day 6 **Date:_____**

Today I helped with these camp chores:	
Today I helped these peo-ple:	
Today we ate:	Breakfast: Lunch:

GOALS	What was one of your camp goals?	
	Explain what you did to work towards this goal during camp.	

What did you feel like when you were driving home from camp, back to town?

Why do you think you felt like that?

Camp Journal Day 5 **Date:_____**

Today I helped with these camp chores:	
Today we did these activities:	
Today we ate:	Breakfast: Lunch: Dinner:

Explain how you are going to use these new traditional and academic knowledge and skills back in the community.

1. Look back at the camp guidelines. What are three things you **should not bring**?

-
-
-

2. In small groups, **pick five items** from the list and explain why each item is important to bring to camp.

Item	Why it's important

Preparing for the Culture Camp Magazine

While we are at Culture Camp we are going to be taking photos and recording information that we will share with the rest of the community when we return to town.

Extra, extra! Read all about it! With all the beautiful, funny and interesting photos you take, together we will be making a Culture Camp magazine that we will send out to everyone in the community.

First we need to learn some photography skills. Have your teacher initial below when you have shown that you know how to:

BEFORE CAMP

____ Safely use and take care of the camera

____ Take pictures indoors and outdoors

DURING CAMP:
Check out the list of photos to take in section 2.

AFTER CAMP

____ Download pictures to the computer

____ Label pictures and video clips

Camp Journal Day 4 **Date:_____**

Today I helped with these camp chores:	
Today I helped these peo-ple:	
Today we ate:	Breakfast: Lunch: Dinner:

What was the funniest thing that has happened so far? Share all the details!!

Camp Journal Day 3 **Date:_____**

Today I helped with these camp chores:	
Today we did these activities:	
Today we ate:	Breakfast: Lunch: Dinner:

Describe some new traditional knowledge that you have learned.

Who did you learn this from? _____
Who will you pass this knowledge on to? _____

Trey & Grin trying to dog mush. 2010

Section 2: Camp Activities

MAGAZINE PHOTO CHECKLIST

We will need lots of interesting photos for our magazine. Here is a list of photos that you should make sure your class takes. Once you've got a photo, check it off the list!

Camp Life

- ☐ Helping the cook
- ☐ Chores around camp
- ☐ Visitors who came from Old Crow
- ☐ Trading post

Cultural & Academic Activities on the Land

- ☐ Setting & checking traps
- ☐ Setting nets
- ☐ Learning how to cut or stretch a skin
- ☐ Dog sledding
- ☐ Skiing or snowshoeing
- ☐ Listening to an Elder tell a story
- ☐ Playing a game in the bush
- ☐ Working with new equipment

Camp Journal Day 2 **Date:_____**

Today I helped with these camp chores:	
Today I helped these peo-ple:	
Today we ate:	Breakfast: Lunch: Dinner:

Camp has the ability to bring people closer together - working, laughing, learning, playing & sharing stories together!

Describe how you feel closer to one person at camp.

Camp Journal Day 1 **Date:_____**

I'm sleeping in a tent with:	
Today we did these activities:	
Today we ate:	Lunch: Dinner:

REFLECTION	Describe the best part of the day. How did you feel?	
	Describe the worst part of the day. How did you feel?	
	What are you **most excited about** for Culture Camp?	

Cultural & Academic Activities at Camp

- ☐ Dissecting
- ☐ Presentation in the tent
- ☐ Microscope work
- ☐ Playing a game in the tent
- ☐ Musicians in the tent

Anywhere!

- ☐ Funny, happy, excited, action shot
- ☐ Group photo
- ☐ Kitchen
- ☐ Snow shelters

Other photos I took:

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

Chief & Council - Becoming a Leader!

Every day at camp one student will be chosen to be chief and 2 or 3 students will be chosen to be the council. The Chief & Council for the day will take care of any issues within the camp community. They will be the leaders for the day!

Chief & Council need

- To be effective problem solvers
- To having strong listening & public speaking skills
- To have strong cultural & academic knowledge & skills

What are other knowledge and skills that the Chief & Council members require?

_____

_____

_____

Who can the Chief & Council go to for advice and guidance?

_____

_____

Where can the Chief & Council members go to for more training or education?

_____

_____

Clifton reflecting at the end of the day. 2010

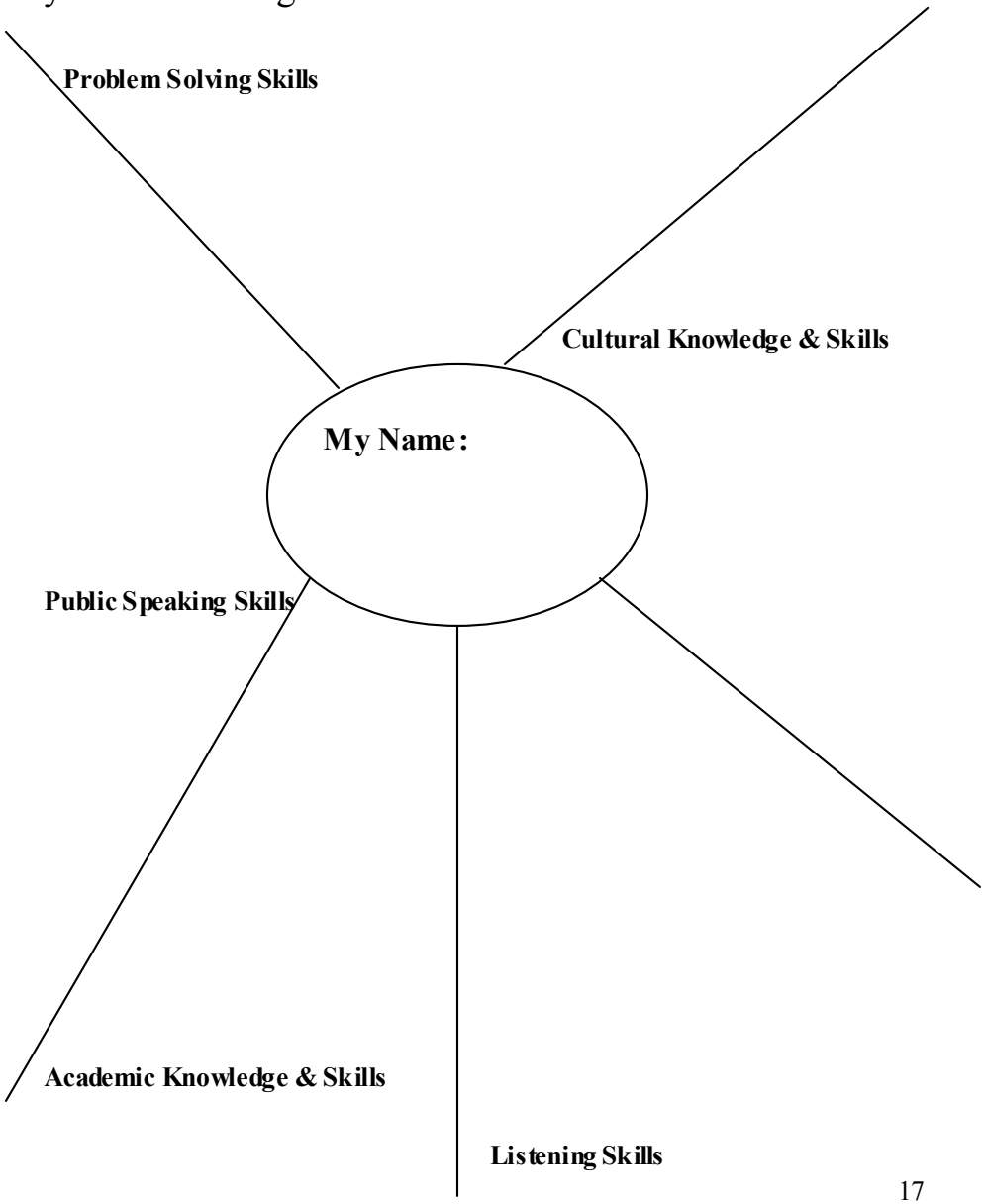
Section 3: Camp Journal

Notes:

You are going to a Chief or Council member at some point in this camp….

How can you make your leadership skills stronger?

Individually or with a partner brainstorm ways to make yourself a stronger leader….



Practice...Makes You Stronger

Read through this scenario. You need to figure out how to solve this problem. Use the steps on the next page to solve the scenario by yourself or with a partner.

Picture this– A beautiful spring day at camp. It is the third day of camp and it has been going fairly well. Chores are being done, students are sleeping well and everyone is eating lots of healthy food.

However, the traditional teacher, school teacher and classmates are getting frustrated because ***one student is not showing respect to the teachings and activities going on.*** *This student has been:*

- *Showing up late for class time.*
- *Not filling in their booklet.*
- *Interrupting guest speakers while they speak.*
- *Not paying attention to Elders while they talk.*
- *Not willing to play games.*
- *Only wanting to eat and earn trading post furs*

How could the Chief & Council solve these problems?

Second Draft: Copy Your Story Here!

(After camp you will type up the article.

Title: _____

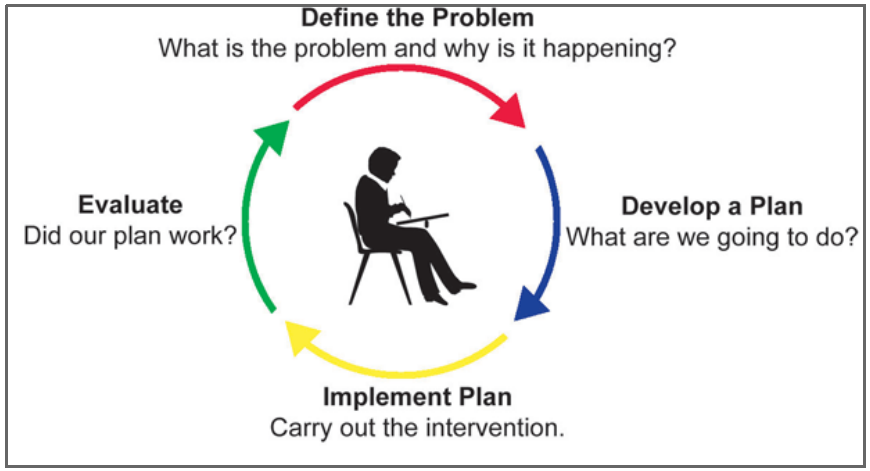
Need more space?
Have another story idea? Go for it!

How do you make a good story...GREAT? Try using these tips below.

_____ Friend editing _____ Add descriptive words _____ Be creative

_____ Teacher editing _____ Add feelings & thoughts *Did you try them?*

From the Student Support Service Project:



Define the problem: _____

_____

Develop a plan: _____

_____

_____

The next steps would be:
Step 3: _____
Step 4: _____

How does this problem solving process connect with the knowledge & skills mentioned on pages 16-17 (speaking, cultural, listening, etc.)?

_____

_____

Trading Post

When you are at camp - chores need to be done!

List the camp chores that need to be done:

1)

2)

3)

4)

5)

*If you keep a **positive, helpful attitude** you may be rewarded with **furs**!*
These furs will be used to trade at the end of camp for supplies for you and your family.

Camp gear, clothing, food, art supplies, school supplies are examples of some the trading post supplies.

EARN as many furs as you can!

Rough Draft

Title: _____

YOU Can Create History
In the
NEXT Issue of the Camp Magazine

Share your favorite story or information.

Let's start the writing process…NOW!

BRAINSTORM

Learning About A Trading Past
The Hudson's Bay Company

Read, together as a class, pages 121 - 127 in the *People of the Lakes* resource book. Discuss the reading as a class.

Imagine, then draw 4 scenes from the reading (your pick!). In less than 6 words describe the scene.

_____	_____
_____	_____

The Hudson's Bay Company

Use the *People of the Lakes'* pages 121 to 127 to answer the following questions.

Grades 7 to 9 Questions

1) Myra Kaye's February 20th, 1980 story uses the Gwich'in language. Find the Gwich'in words, write them down and give the English definition.

_____

_____

_____

_____

2) Why do you think Myra used Gwich'in in her story?

_____

_____

3) Explain Myra Kaye's line "At that time we didn't think about what little we had and we still had a good life".

_____

_____

_____

Traditional perspective: Record or draw the story that the Elder or traditional teacher shared.

NIGHT SKIES

Explore the night skies using the telescope or the iPad and the Night Skies App. Describe any interesting planets, horizon, northern hemisphere, southern hemisphere or star positions below.

.

Choose the question for your grade level:

Grade 7: Explain the variety of local, natural items. Explain what items had to be brought to the Hudson's Bay Trading Post. Describe one of the trades made in the stories.

Grade 8: There was an extremely long distance between the trading post and the supplier of the trading post. Sometimes it took years to get the furs to the supplier and send goods back to the trading post.

How might the past lives of the Vuntut Gwitchin people be different if the trading post and supplier were closer?

_____

_____

_____

_____

_____

_____

_____

_____

How might the current Vuntut Gwitchin culture be affected?

_____

_____

_____

INTERVIEW NOTES:

WEATHER

Comparison with Past Temperatures

Compare weather information with data from 20 years ago by discussing the temperatures with an Elder.

Possible questions you could talk about:
Is it the same?
Warmer? Colder?
Are certain seasons different now?
How do they know?
What do they remember?
What are some extreme weather stories?

INTERVIEW NOTES:

Grade 9: ***"If somebody wanted a gun, they got one gun for an [entire] summer's work. If...one person wanted a gun, he got a double-barreled muzzle loader. The Hudson' Bay [stood the gun] up and whoever wanted it, piled beaver [pelts] flat like this [until] the beaver reached even with the gun…'" - Joe Netro***

Explain whether or not the trade between the beaver pelts and the gun was fair.

_____

_____

_____

_____

_____

_____

_____

Design a different trading system to purchase a gun with beaver pelts.

_____

_____

_____

_____

_____

MUSKRAT TRAPPING INTERVIEW

Interviewing is a great way to gather knowledge. Ask the following questions and record the information on muskrat trapping below. There is space for your question as well.

If you are interested and have permission use a digital camera or iPad to record the interview.

Name of the Person Being Interviewed:	_____
Date of Interview:	_____
Time of Interview:	_____
Location of Interview:	_____

Where did (do) you go trapping?

_____

_____

What animals did (do) you trap?

_____

_____

_____

Did (do) you trap by yourself or with your family?

_____

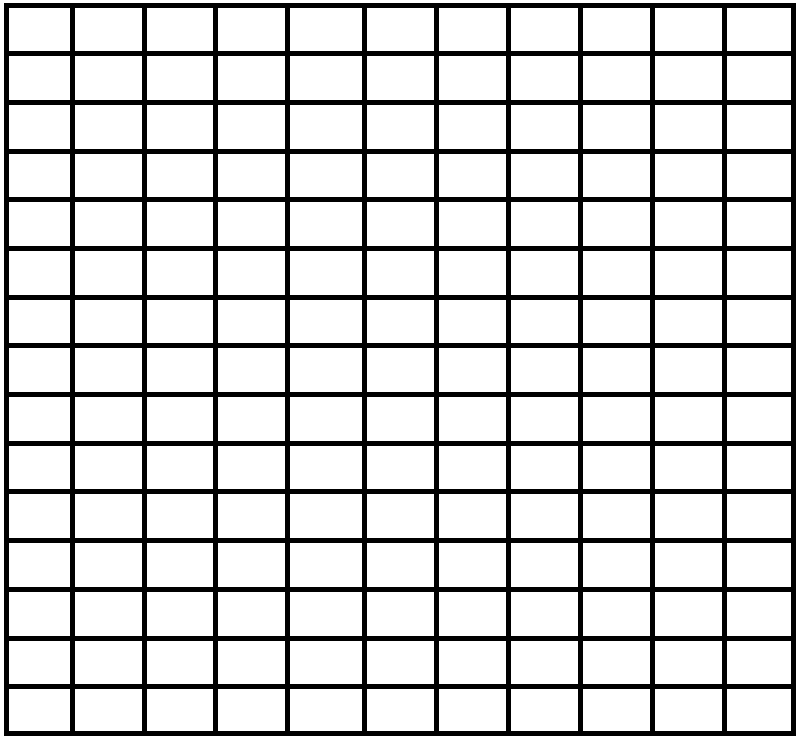
_____

Precipitation Bar Graph

Create a bar graph to track the daily precipitation. Make sure your graph includes:

- title
- x-axis label
- y-axis label
- proper time scale
- proper precipitation scale
- straight lines

Title: _____



Tracking Wind Speed

What day had the strongest wind?

Date: _____

Speed: _____

What are the advantages to wind during winter? In summer?

What are the disadvantages to wind during winter? In summer?

Poster 3: Daily Precipitation

Day	Amount of Precipitation (cm)
1	
2	
3	
4	
5	
6	

What are your reasons for trapping?

_____

_____

_____

_____

On average, how many muskrats would you catch in a spring season? How much did the muskrats sell for?

_____

_____

_____

Your question:

_____

_____

Answer:

_____

_____

_____

_____

_____

Introduction to Dissection Tools, Microscope & Slides

Once the muskrat has been skinned and the skin has been stretched, you can now prepare for dissection.

What is a dissection? A dissection is an organized, careful process of separating tissue in order to study tissue, organs, organ systems, cells, bones, etc.

Dissecting Tools

Scalpel

ALWAYS treat animals with ***respect.***

No laughing, playing or being mean to animals that are alive or not alive.

RESPECT ALWAYS

Needles, Probes & Picks

Pins

Scissors

Temperature Line Graph

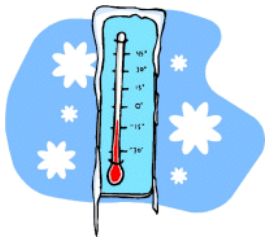
Using the data you recorded, **create a temperature line graph**. Use a different colour for each time (6am, noon, 6pm, midnight). Make sure your graph includes:

- title
- X-axis label
- y-axis label
- proper time scale
- proper temperature scale
- clear, coloured lines

Title: _____

WEATHER

Tracking Temperature



Find (or make) the poster in the teaching tent that tracks the temperature, wind speed and daily precipitation. Record these measurements below.

Poster 1: Temperatures at 6 hour intervals

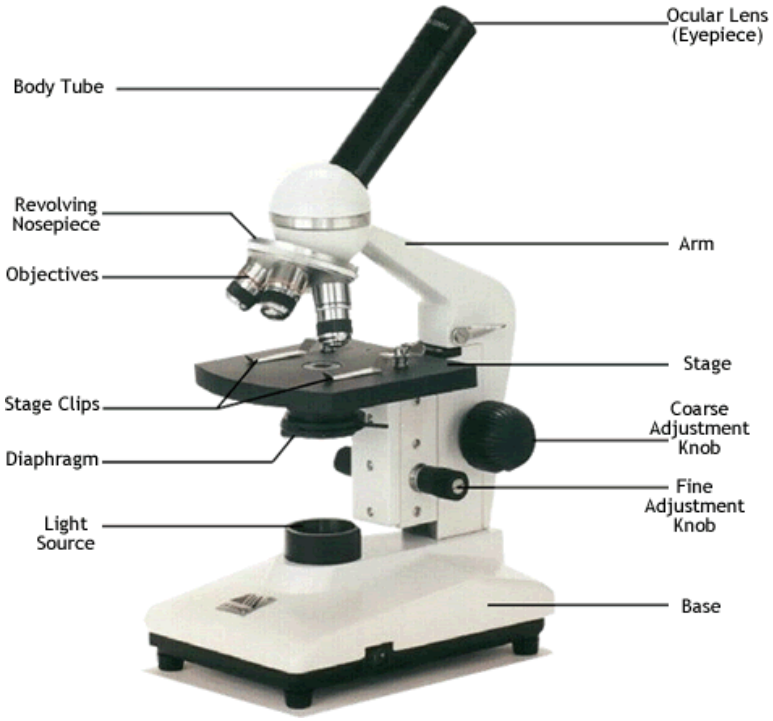
Title: _____

Day	6 a.m.	Noon	6 p.m.	Midnight
1				
2				
3				
4				
5				
6				

Tweezers

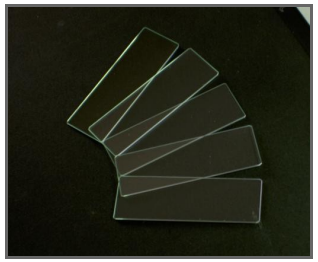
Dissecting Tray

Microscope Parts

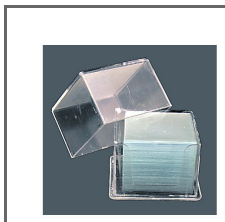


Source: Microscope Help

Microscope Slides



Microscope Cover Slips



Muskrat Organs, Tissues, Glands & More Dissection

Carefully follow the instructions from your teacher to ensure a proper dissection.

Why not video tape the dissection?
Then you can watch it prior to an exam.

Circulatory System

- ☐ heart
- ☐ blood vessels

Respiratory System

- ☐ lungs
- ☐ trachea
- ☐ bronchi
- ☐ pulmonary arteries
- ☐ pulmonary veins

Skeletal System

- ☐ bones
- ☐ skull

Muscular System

- ☐ major muscle groups

Digestive System

- ☐ mouth
- ☐ teeth
- ☐ esophagus
- ☐ stomach
- ☐ pancreas
- ☐ liver
- ☐ small Intestine
- ☐ large intestine
- ☐ rectum
- ☐ anus

Nervous System

- ☐ brain
- ☐ spinal cord
- ☐ nerves

What were the activities that made your muscles sore?

_____
_____

Using the chart on page 58, determine which muscles were the sore ones?

_____
_____
_____

If you were chopping wood, the moment the axe swings from behind you to the moment it hits the wood, predict what muscles you would be using.

_____
_____
_____
_____
_____

People of the Lakes pg. 257 - Dick Nukon, Jan. 20, 1995

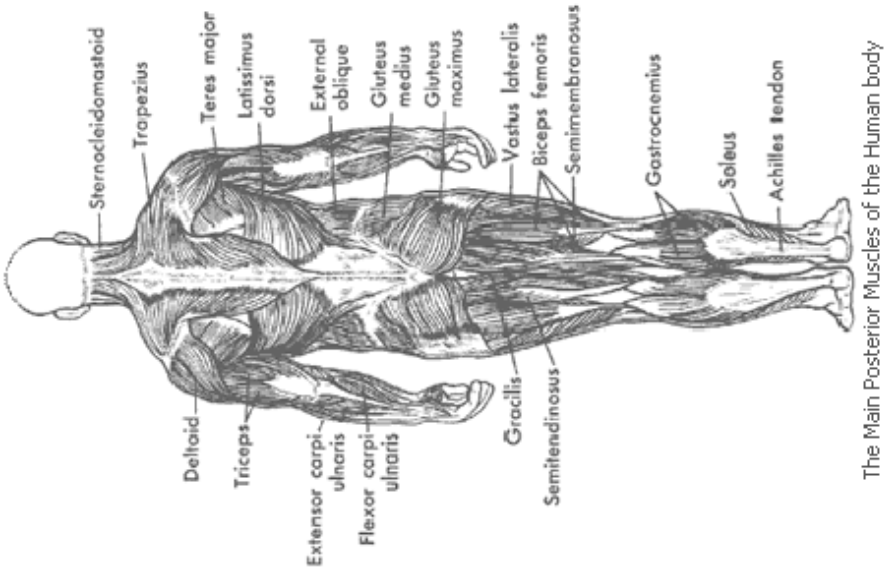
1898, all the time my dad was around there he wasn't married. The steamer Yukon *worked on the Yukon River between Anchorage and Dawson. He got a contract cutting wood for the steamer* Yukon. *They needed wood. It was only eight dollars a cord, too. He cut 300 cords one year. Every year he did that, him and one guy but that guy, [after] not even one year, he quit - too hard for him, I guess. My dad kept getting wood and cut 300 cords a year.*

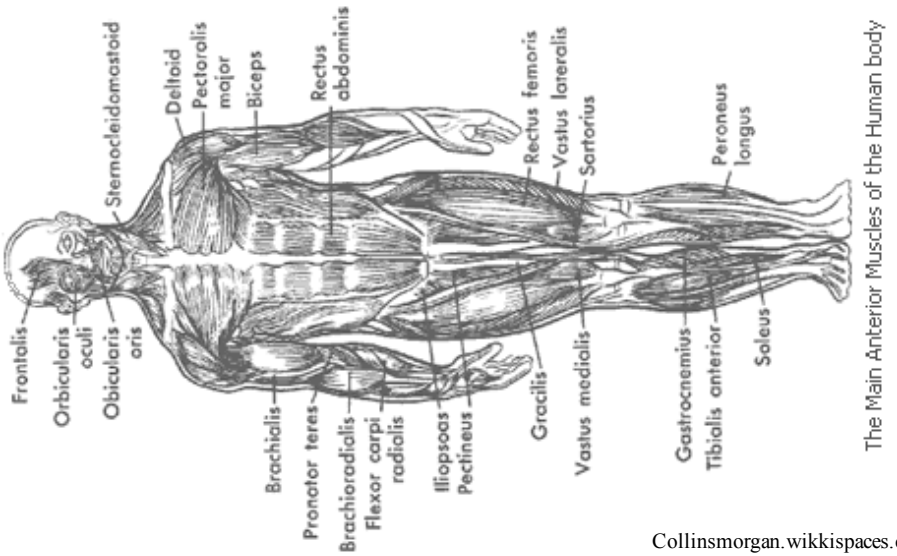
What year did the story take place? What wood cutting technology would have been used that year? _____

_____
_____
_____

Do you think Dick Nukon's dad's muscles were sore and weak after cutting 300 cords of wood? Explain your answer.

_____
_____
_____



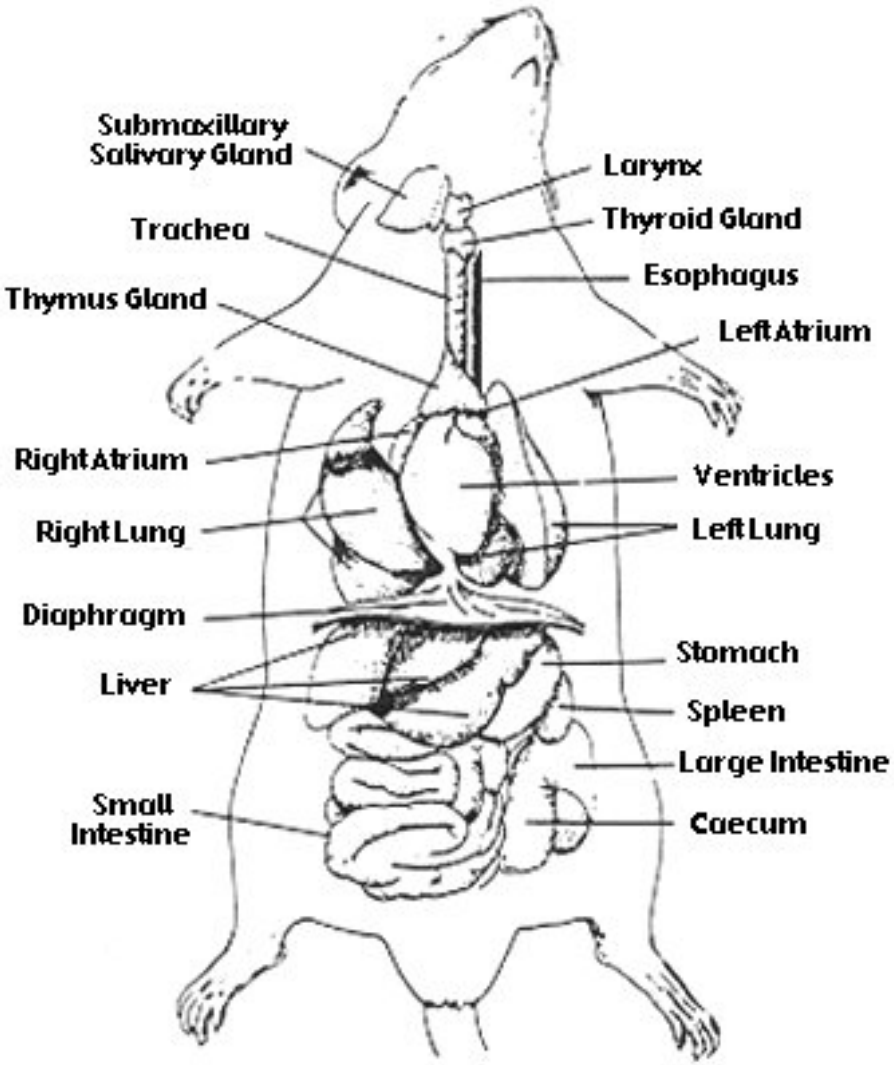


Collinsmorgan.wikkispaces.com

Look at the pictures carefully. Read the titles carefully.

What does anterior mean? _____

What does posterior mean? _____



Other Organs, Tissues & Glands

- ☐ Kidneys
- ☐ Thyroid Gland
- ☐ Ligaments
- ☐ _____
- ☐ _____
- ☐ _____

Write down anything unusual you found during the dissection here:

_____

_____

_____

_____

_____

A Focus On the Muskrat's...Stomach?

Gently remove the stomach from the muskrat: cutting at the base of the esophagus and at the top of the small intestines.

Cut open the stomach and scoop out the stomach contents onto the dissecting tray.

1) What was inside the muskrat's stomach?

2) Did you notice that food was more or less digested at the base of the stomach?

3) Using your knowledge of food webs, create (draw & label) a food web below.

Ensure you have covered a producer, consumer, secondary consumer, tertiary consumer and decomposer.

Traditional Activities, Working Hard & The Science Behind It

Okay - you are at camp...you're sweaty and tired! Why? Let's figure it out. List 7 activities at camp that either make you sweaty OR makes your muscles weak or sore.

Activity	Length of Time Doing the Activity (minutes)	Sweaty Yes or No	Sore/Weak Yes or No

Why do we sweat?

Sweating is the body's natural way of cooling us down. We sweat in order to keep the body at its normal temperature, which is 37° Celsius. If we lost this bodily function we could suffer from heatstroke. Inside our body are long, twisting tubes of cells known as the sweat glands. The blood vessels in our skin open and the fluid is release through out pores. -Wisegeek.com

Why do our muscles get sore the next day or two?

Delayed muscle soreness is thought to be a result of microscopic tearing of the muscle fibers. The amount of tearing (and soreness) depends on how hard and how long you exercise and what type of exercise you do. -about.com

Why do our muscles get weak while working hard?

Weakness is a lack of physical or muscle strength and the feeling that extra effort is required to move your arms, legs, or other muscles. Fatigue is a feeling of tiredness or exhaustion or a need to rest because of lack of energy or strength. Fatigue may result from overwork, poor sleep, worry, boredom, or lack of exercise. -webMD.com

BEARLY ANY ICE!

Grades 8 to 9 Questions

5. Describe ways the polar bear could adapt to survive during climate change.

_____
_____
_____
_____

6. What economic and cultural impact would the loss of the polar bear have for northerners?

Economic (hint: $$) Impact:

_____
_____

Cultural Impact:

_____
_____
_____

7. What animal has economic and cultural importance to you?

_____
_____

8. Predict: Are these animals effected by climate change? Why or why not?

_____
_____
_____

9. Ask your traditional teacher question #8. Does he or she agree? Why or why not?

_____
_____
_____

Making a Wet Mount Slide

Microscopes are an amazing way to view organs, tissues and even cells close up. Follow the steps below to make a proper slide.

- **Microscope slides**
- **Cover glasses**
- **Specimen (**examples: slice of organ) Small & thin!
- **Water**
- **Tweezers:** for handling the specimen
- **Tissue paper**

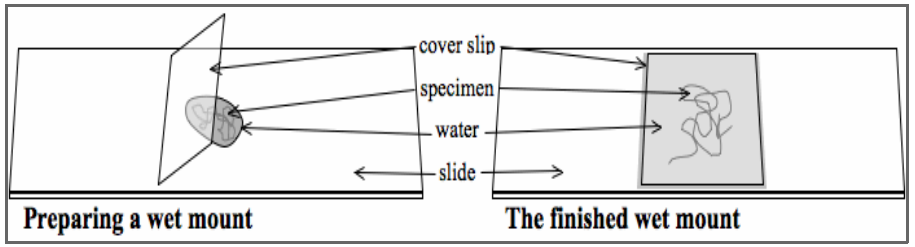
1. Place a small drop of water on the microscope slide.

2. Place the specimen onto the water.

3. Hold the cover glass on one side with the help of tweezers. Lower the cover glass onto the water drop at an angle.

4. Then slowly lower the cover glass into the liquid. This will minimize disturbing air bubbles.

5. Remove excess water with tissue paper. The cover glass should not float freely. The surface tension of the water should hold it in place. Alternatively you can add more water using a pipette or tweezers.



Sources: *Microbehunter.com (steps)*
Kleines Classes (diagram)

Scientific Sketching

Using the dissection as a guide, **sketch <u>one organ</u> at two different powers (magnifications)** below.

Take the power of the ocular lens (eyepiece) multiply it by the objective lens for total magnification.

Ocular Power _____ x Objective Power _____

= Total Magnification _____

Body Organ: _____

<u>Lower Power Sketch</u>
Total Magnification: _____

BEARLY ANY ICE!

Grades 7 to 9 Questions

1. How did the length of each round affect the polar bears' chances of catching enough seals to survive?

Longer Round: Increased or Decreased Survival (circle one)

Shorter Round: Increased or Decreased Survival (circle one)

2. What <u>change</u> in the ecosystem does a shorter round repre sent?

_____
_____
_____
_____

3. How did the number of hula hoops affect the polar bears' chances to catch the required amount of seals in order to survive?

<u>More</u> Hula hoops: _____
_____
_____

<u>Less</u> Hula hoops: _____
_____
_____

4. If the sea ice continues to vanish, what may be the ultimate fate for the polar bear? Why?

_____
_____
_____
_____
_____
_____

BEARLY ANY ICE!

Year	# of Rounds in Year	# of Hula Hoops	# of Adult Polar Bears at Beginning of Round	# of Surviving Adult Polar Bears	# of Cubs at beginning of round	# of Surviving Cubs	# of Cubs Born	# of Seals at Beginning of Round	# of Seals at End of Round
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Body Organ: _____

Higher Power Sketch
Total Magnification: _____

MUSKRAT TRAPPING

Data Chart

Within the teaching tent, the class has set up a tally chart to record the number of muskrats caught daily. Fill in your tally chart below.

Give your Data Table a Title!

_____

Day	# of Muskrats Trapped	# of Traps Set	Success Fraction	Success Decimal	Success Percent
1					
2					
3					
4					
5					
6					

means "number"

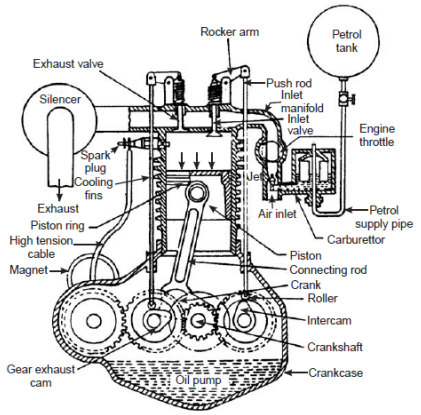
Success Fraction - $\frac{\text{\# of muskrats}}{\text{\# of traps}}$

Success Decimal - # of muskrats divided by # of traps

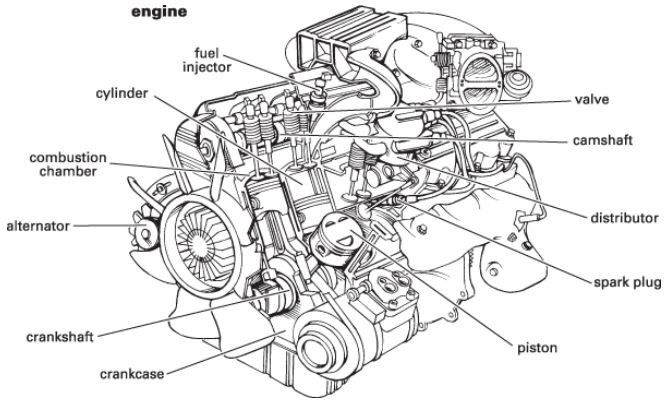
Success Percent - # of muskrats divided by # of traps multiplied by 100

Compare and contrast 2-stroke and 4-stroke engines. Write the information in the chart below.

Same	Different



An air-cooled four-stroke petrol engine.



The science behind an engine is vast. Every year there are different models, sizes, makes, parts and materials and the engineers behind the engines may have different purposes for researching and designing it...explain the reasons behind designing different engines?

_____

_____

_____

_____

_____

_____

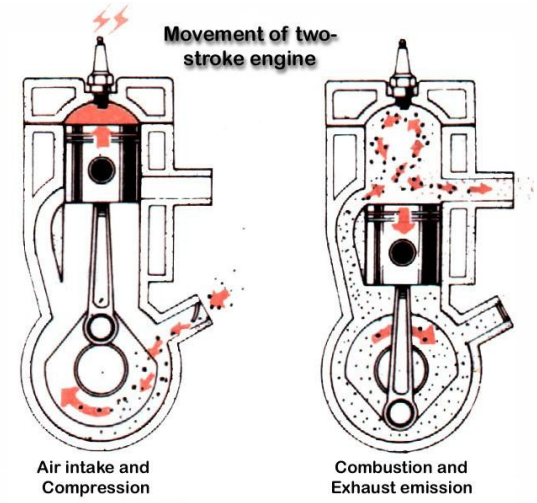
_____

_____

_____

_____

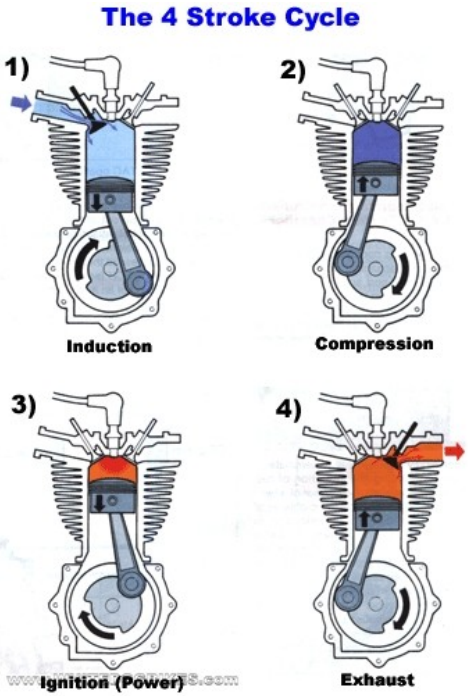
Two-Stroke vs. Four-Stroke Engines



Outboardmotoroilblog.com

"Stroke" refers to the movement of the piston in the engine.

Two stroke means one stroke in each direction. A 2 stroke engine will have a compression stroke followed by an explosion of the compressed fuel. On the return stroke new fuel mixture is inserted into the cylinder.



Whitedoglubes.com

A 4 stroke engine has 1 compression stroke and 1 exhaust stroke. Each is followed by a return stroke. The compression stroke compresses the fuel air mixture prior to the gas explosion. The exhaust stroke simply pushes the burnt gases out the exhaust.

- Deepscience.com

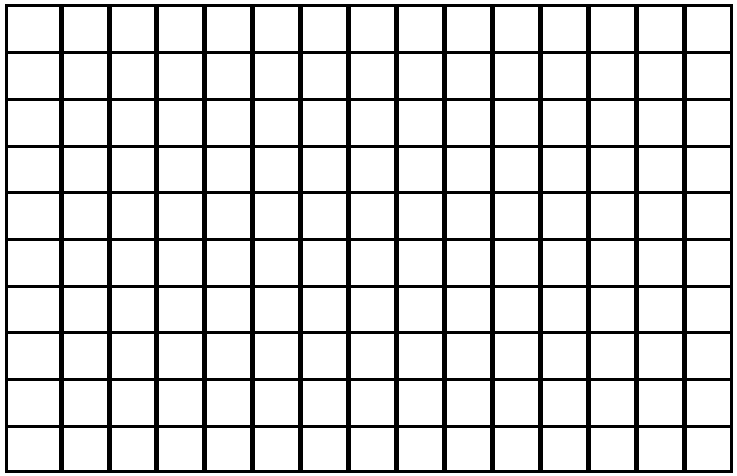
MUSKRAT TRAPPING

Line Graph

Create a line graph to track the number of muskrats caught each day.

Make sure your graph includes:

- Graph title
- X-axis title
- Y-axis title
- Proper time scale
- Proper # of muskrats scale
- Straight lines



MUSKRAT TRAPPING

Trapping Trends

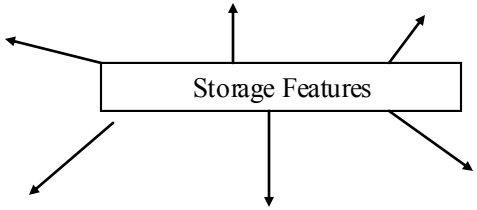
1. What was the trend of the data during the camp (increasing daily, decreasing daily or remaining the same)?

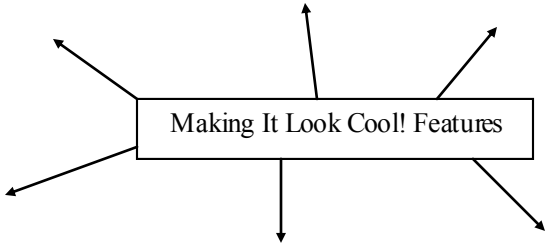
   Why is there this trend?

2. Using a different color pencil or pen, extrapolate (predict) the future trapping rate on your line graph.

3. Did you predict increasing, decreasing or staying the same?

   Why?





You be the engineer!

In the space <u>below</u> sketch YOUR DREAM skidoo. Label one or more important safety, comfort, storage and "making-it-look-cool" feature (s).

Skidoos & Engineering

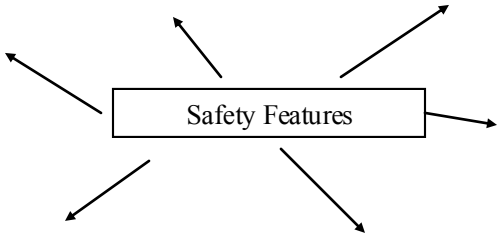
Engineering: *Science or art of making practical application of the knowledge of pure sciences, as physics or chemistry, as in the construction of engines, bridges, buildings, mines, ships, and chemical plants.* - Dictionary.com

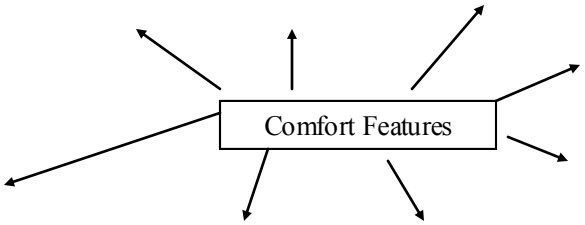
Do you or your family own a skidoo? If yes, what type do they own?

_____
_____
_____
_____

Did you know an engineer researched and designed that skidoo?

Stand near a skidoo at the camp.
Examine the skidoo and determine what the engineer did for each topic.





MUSKRAT TRAPPING

Central Tendency and Range

Transfer the information from your data table to the blanks below.

Day 1: _____ Day 2: _____

Day 3: _____ Day 4: _____

Day 5: _____ Day 6: _____

1. **MEAN** is the arithmetic ***average***. Add up all the muskrat numbers and divide by how many days there are.

Our muskrat mean was: _____

2. **MEDIAN** is the number in the middle. Put the values in order from lowest to highest then find the number in the middle.

_____, _____, _____, _____, _____, _____

Our muskrat median was: _____

3. **MODE** is the value that occurs the most often:

Our muskrat mode was: _____

4. **RANGE** is the difference between the lowest and highest values. Subtract the lowest value from the highest value and the difference is the range.

Our muskrat range was: _____

MUSKRAT TRAPPING

Calculating Income

At the end of camp, calculate your class' income for the 6 days worth of muskrats.

You will first use present prices and then use the prices the Elder or community member gave you in the interview.

NOW: Using current prices

Year:

Current price:

Calculate income using the formula below:
Total # muskrats x price per muskrat = total income

_____ x $_____ = $_____

THEN: Using past prices

Year:

Past price:

Calculate income using the formula below:
Total # *muskrats x price per muskrat = total income*

_____ x $_____ = $_____

Abiotic & biotic factors continued….

People of the Lakes pg. 209 - Hanna Netro, July 21, 1999:
…My old man [husband] said he went to Fishing Branch, that open place to fish King Salmon [or] the other one, we call it dog salmon. [It] just dies in that open [unfrozen place]…The open place, even looked thick, white because of [all the dead] fish…

After the grizzly bears eat it all, the water turned good, looked clean. I asked him, "How do you know it's good?" "Because I drank it and I didn't get sick." That's funny, you know. I just think the way God put it down there for us. Really it even stinks there, when you go close, and that when the grizzly eats it all and then it's clean again…

In the open spot of water the fish turned the water "thick & white". Why would this happen? Think of multiple reasons (biotic and abiotic).

_____
_____
_____

Did Hanna's husband take a risk drinking the "clean" water? Why or why not? _____
_____
_____

What occurred to make the water "clean" again? State several reasons. _____
_____
_____
_____

Draw an abiotic and biotic food/water web. Draw as many trophic levels as possible.

Examples of biotic items would be zooplankton, water insects, worms...anything living.

Using the aquatic insect identification books determine some of aquatic insects found in the benthic sample.

Sketch and label* six biotic items below.

*Try finding the **English, Latin & local language names….**

1. How long could YOU survive off (food, bills, gas, etc.) of the NOW incomes right now? "NOW" income was $_____ Why?

2. How long could YOU survive off (food, bills, gas, etc.) the THEN income right now? "THEN" income was $_____ Why?

3. Predict - Using NOW prices how many muskrats would a person have to catch to survive the year.

   Year's Total Muskrats Predicted: _____

   NOW Amount Per Muskrat: $_____

   Total Year Income: $_____

4. Was your prediction a good one? Why or why not?

5. Ask the traditional teacher how many days per year a trapper can trap muskrats.

   _____ days

6. Using your prediction from #3 and information from #5, calculate how many muskrats per day needs to be caught.

   _____ muskrats per day

   Is this amount possible? Yes No

   Where should a trapper move to catch the highest amounts of muskrats as possible? _____

Aquatic Studies

English Lake Name: _____

Other Lake Names: _____

GPS Coordinates: _____

Draw a series of pictures showing the process of getting through the ice to collecting water and lake bottom samples.

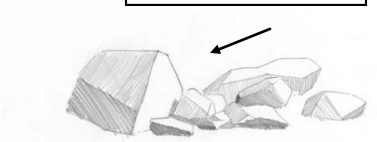
1	2
3	4
5	6

Using the dissecting tools: tweezer, probes, picks and other tools dig through the benthic sample.

Sketch and label **abiotic** items that are found in the sample.

Find any biotic items? Water insects? Worms? <u>Gently</u> place them to the side for when you reach the biotic section!

Example of Abiotic



Rocks

Lake Bottom
Benthic Sampling

Sketch the benthic sampler below.

Describe how it works.

_____
_____
_____
_____
_____

Why is it important to understand what is at the bottom of the lake?

_____
_____
_____

If you know what is at the bottom of the lake, what type of decisions could be made?

_____
_____
_____
_____
_____

Do you think researchers use the same methods for getting water samples in a frozen lake? Why or why not?

_____

_____

_____

_____

Water Testing

Using a **water monitoring kit*** test the lake for the following:

1) **Coliform Bacteria** _____bacteria per 100 mL

48 Hour test - Read instructions carefully.

What is it? Bacteria that lives in the feces of warm-blooded animals. It can cause serious illness in humans!

2) **Dissolved Oxygen** _____parts per million (ppm)

5 Minute test - Read instructions carefully.

Why is it important? Aquatic animals need oxygen to survive. A higher level of oxygen shows a healthy, stable ecosystem. Low oxygen levels can mean high bacteria levels or pollution.

3) **Temperature** _____°C

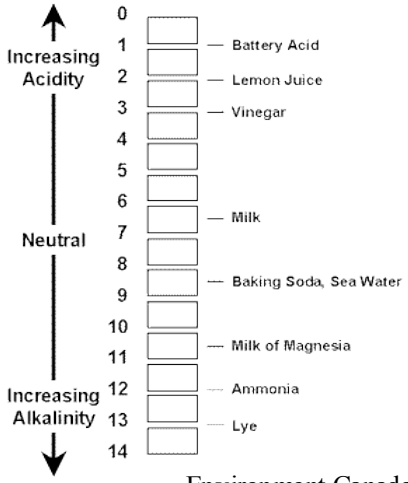
2 minute test - Read instructions carefully.

Temperature is critical in a water ecosystem. Cold and warm temperatures affect the amount of oxygen, rate of growth and amount of bacteria.

**Every kit varies in testing equipment and chemicals. Read instructions carefully.*

4) **pH Level** ___#_____

Normal range for lakes is a pH of 6.5 to 8.2. Animals are adapted to a specific pH and may die if the pH changes slightly.



Environment Canada

5) **Nitrate** _____ ppm

Nitrates are needed to build proteins in animals and plants. Too much though can cause problems with our blood carrying the oxygen.

6) **Phosphate** _____ ppm

Phosphate is needed for plants to photosynthesize and animals' cellular respiration. Too much can cause plant overgrowth and cause less oxygen in the water.

Overall Ranking

Using your kit's ranking system—state whether the level is: Poor, Fair, Good or Excellent!

Coliform Bacteria _____

Dissolved Oxygen _____

Temperature _____

pH Level _____

Nitrate _____

Phosphate _____

Based on these results YOU make some water management decisions….

Grades 7– 9 Questions

1. In July a group of Grade 1 to 3 students are camping near the lake you just tested. It is a hot day and everyone wants to go swimming in the lake. You are the supervisor. Is the lake safe to swim in? Why or why not?

_____
_____
_____

2. Your boat broke down and you have no matches to start a fire in order to boil water. Can you drink the water straight from the lake? Why or why not?

_____
_____
_____

Grades 8 & 9 Question Only

3. A boat, with 4 large boat batteries, sinks in the lake. As the Natural Resources Director for the local Government, what water test are you going to conduct? Why is this a problem? Explain how you could fix the problem (if needed).

_____
_____
_____
_____
_____
_____
_____
_____
_____