

Building a Traditional Aboriginal Drum



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Preface

This Booklet will focus on building Aboriginal drums with Grade 11 students while incorporating multiple content areas including History, Science, and Industrial Arts. Curriculum outcomes from all three areas will be met with this project.

In History, the effects and importance that drums played in the lives of Aboriginals in Canada, from social gatherings to spiritual ceremonies will be examined. Different regions also had access to different materials thus the style of drum was different from the West Coast, to the Plains, or the Arctic.

Drums vary greatly in sound, volume, and appearance depending on what materials are chosen and how they are used to construct a drum. Different skins and woods will give different tones and render different sounds to a trained ear. The science of sound is explored through studying the creation and behavior of sound.

Industrial Arts will allow students to look at the traditional methods of creating drums using different tools, materials, and techniques. They will use a combination of modern and traditional methods in the creation of their own drum while focusing on curriculum outcomes in the newest IA Curriculum Frameworks.

Historical & Cultural

It is necessary to note that Aboriginal history varies throughout Canada, with differences occurring when told by different tribes, Elders and individuals. It is impossible for a high school teacher to provide a detailed understanding of all the tribes and their traditions to a Grade 11 Canadian History class, so there may be some generalizations of facts. There may be a stronger focus on tribes that are located in Manitoba, opposed to the West Coast or St. Lawrence Valley, but even still a thorough understanding of the tribal system may be too much to cover during a single semester.

Role and Significance

In Aboriginal culture it is said that the drum represents the heartbeat of Mother Earth. This means that all First Nations drums are ‘female’ and ‘human’; the first sound that was heard in the world was the beat of Mother Earth, just as the first sound a baby hears in the womb is its mother’s heartbeat (Teachings, 2010). This means that drums are cared for and played in a specific manner, never aggressively, as that would be like ‘beating’ your mother.

Drums play a very important role in Aboriginal culture and traditions and are used in four main categories:

- Social Occasions – designed to bring the community together and strengthen bonds between family, clan and community. Can be part of ceremonies or purely entertainment, such as dancing and socializing.
- Personal – these vary from person to person, but some uses of personal drumming are to help focus ones self, for prayer, or for communicating with spirits to help heal.
- Healing – drums play an important part in healing individuals and communities, and vary from tribe to tribe all across Canada. The beat of the drum is felt to be the heartbeat of Mother Earth

and may aid those during times of suffering, much like being consoled by your mother when you were young.

- Ceremonial – this can be broken into 2 sections: Spiritual and Political. Spiritual ceremonies would be certain days or events in the annual cycle or mythological events. Political ceremonies would be the introduction of new Chiefs, or other high ranking individuals, or visits from other tribes.

Types

The type of drum created will depend on the climate and resources available to the particular tribe. Here are some of the variations of drums:

- West Coast – the climate did not lend itself to making frame drums with skins stretched across, it was far too humid. It was common to use Red Cedar, a spiritually significant material, and create a plank, log or box style drum.
- Plains – handheld frame drum, 12 to 30 inches in diameter or large 2-sided powwow drum up to 100 inches in diameter. Animal skin (deer, bison, moose) would be stretched across the frame, depending on the size and sound desired.
- Central – water drums, made from hollowed out logs with skins stretched across. The water could be added or removed to change the sound of the drum, depending on its purpose.
- Arctic – large, light frames with skins stretched across. It was common to use baleen or the bone from a whale fin to create a frame and the skin of a deer, caribou, seal, mountain goat or intestines from a whale or walrus to stretch over it. The drumstick was made from antler, bone or wood (Phillips, 2010).

Incorporating Aboriginal Drums into Grade 11 Canadian History

The Grade 11 Social Studies curriculum has just been re-worked and now uses Enduring Understandings (EUs) instead of General Learning Outcomes (GLOs), and Learning Experiences (LEs) opposed to Specific Learning Outcomes (SLOs). There are 4 LEs for the first Cluster (Unit) – First Nations, Metis and Inuit Peoples (Manitoba, 2011). I believe that 3 of the LEs would lend themselves to incorporating the teachings and significance of drums in Aboriginal culture throughout Canadian history;

1.1 Who were the First Peoples and how did they structure their world?

1.2 Why did the French and other Europeans come to North America and how did they interact with the First Peoples?

1.3 How did First Peoples and Europeans interact in the Northwest and what were the results?

LE 1.1 would be the largest focus, teaching as many of the aspects of Aboriginal life as possible – social, political, spiritual, economical and ceremonial structures. The drum is interwoven in nearly all of these areas, so it would be simple to incorporate that into the lessons.

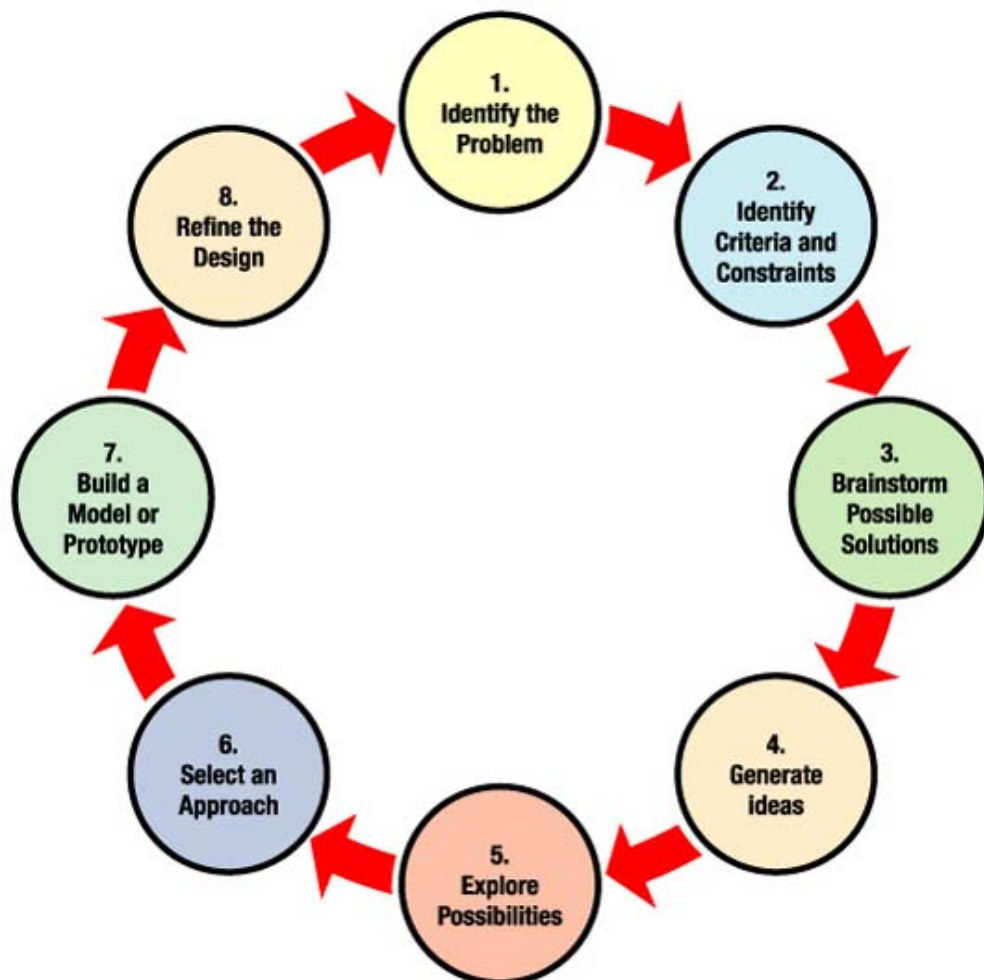
LE 1.2 and 1.3 could focus on the initial encounters with Europeans, from first contact until 1763, and a bit of what happened afterwards. Emphasis could be placed on how the traditions of Aboriginals were accepted (or not) by the Europeans at this time, focusing largely on the spiritual ceremonies. The conditions for First Nations, Metis and Inuit people are discussed later in the curriculum; LE 3.3 – How did Canada's relationship with First Nations, Metis and Inuit peoples change after Confederation? and LE 5.3 – How are First Nations, Metis and Inuit peoples seeking a greater degree of cultural, political and economic self-determination?.

Science

In the grade 11 Physics curriculum sound has an entire cluster devoted to it, including: how its created, how it reacts with its environment, and how the materials that create and focus it affect it. The process of creating a drum, testing it, and demonstrating it follows this specific learning outcome:

S3P-1-19 Design, construct (or assemble), test, and demonstrate a technological device to produce, transmit, and/or control sound waves for a useful purpose.

By using the design loop during this process of building the drum students will be able to explore how different materials affect sound and the following SLO's:



How does a drum work?

A drum works by a thin membrane, stretched over the opening of a hollowed out structure, being struck by an object which causes vibrations to travel the membrane and become amplified by the object. Hitting a drum pushes down the drum head, which acquires potential energy from the hit. The drum head then vibrates back and forth, until the energy has been dissipated. The vibration of the drum head creates pressure waves in the surrounding air, which is essentially what sound is. The pressure wave characteristics describe the sound that is heard, amplitude (harder the hit, the more the drum head flexes) affects the volume sound, higher frequency (which depends on the tension of the drum head) affects the pitch of the drum (from the low frequency bass drum to the high frequency snare).

“The drum shell must be solid material of all one species.” As a purist approach, this is the truest of statements one can make because depending upon construction, it allows the wood to emit tone unaltered from its natural state. Some cultural groups have actually carved a donut shell out of very large logs, which depending upon thickness can create weak points in the shell and wastes material, as drums get large. So bending materials to form a shell are the next best thing and obviously bending thicker walls takes more skill and time, hence very costly to create.

Depending on the density of material that the drum body is made of will determine its tone. The denser the material the “richer” the sound, the softer the material the “softer” the sound. Thickness and density of the drum head material will also contribute to the sound tone and the drum will produce. Drum heads can be made of a variety materials and vary by use and culture. Drumhead tension also plays a large role in sound production, the drums head can be adjusted to allow for more or less vibration affecting the tone and volume of the drum.

SLO's Grade 11 Physics met by drum construction and study:

Cluster 1 Section 3 – Sound

S3P-1-17 Investigate to analyze and explain how sounds are produced, transmitted, and detected, using examples from nature and technology.

S3P-1-20 Describe and explain in qualitative terms what happens when sound waves interact (interfere) with one another.

S3P-1-27 Explain in qualitative terms how frequency, amplitude, and wave shape affect the pitch, intensity, and quality of tones produced by musical instruments.

Industrial Arts

Building an Aboriginal drum in a senior years industrial arts class focuses on production skills from the *Drafting Design Technology* and *Woodworking Technology* outcomes.

Outcomes:

Drafting Design Technology

GLO DD1 Tools and Equipment: Identify and demonstrate proper use of tools, materials, and equipment utilized in drafting design.

GLO DD2 Drawing Interpretation: Recognize and interpret technical drawings.

GLO DD4 Geometric Application: Apply mathematics and geometry in completing technical drawings.

GLO DD5 Production (Working) Drawings: Use the design process and problem solving to create production drawings.

GLO DD6 Applications: Develop an understanding of drafting applications and current workplace practice.

GLO DD7 Current Innovation: Demonstrate an understanding of current innovation in drafting design processes, applications, and emerging new technologies.

Woodwork Technology

GLO WW1 Wood, Products, and Processes: Demonstrate an understanding of woodwork—woods, wood products, and processes.

GLO WW2 Measurement and Layout: Use woodworking measurement and layout tools correctly and efficiently.

GLO WW3 Separation: Apply separation processes to wood.

GLO WW4 Fastening: Apply fastening processes and specialty hardware to wood, correctly and

efficiently.

GLO WW5 Wood Joints: Apply joints and joining techniques to wood.

GLO WW6 Finishing: Apply finishing processes to wood considering their environmental impact.

GLO WW7 Current Innovation: Demonstrate an, understanding of current innovation in woodwork processes, applications, and emerging, new technologies.

Materials List:

- Spruce 2x4 @ 48" length
- Wood Glue
- String (for Clamping)
- Deer Hide (or other suitable animal hide)

Equipment/Tools:

- Planer
- Jointer
- Table Saw
- Mitre Saw
- Band Saw
- Sander
- Scissors
- Hammer
- Leather Punch

Safety:

- Use proper PPE when using equipment ie: safety glasses, tie back cut, loose clothing and jewelry.
- Read and follow safety rules posted on machines in the shop
- Ensure guards are working properly and are in place when using machinery.
- Keep fingers clear of safety zones when working with machines.
- Ensure you take notice of the safety zones marked out around the machines.
- Use clamps or hold downs with cutting small pieces on mitre saw.
- Make all adjustments to machines with power off

Procedure:

Surfacing the Material:

Step 1: Select a Spruce 2x4x8 and cut in half (give other half to another person)

Step 2: Joint 2 sides of the board. Make sure you joint 2 corners so that you have a square corner.

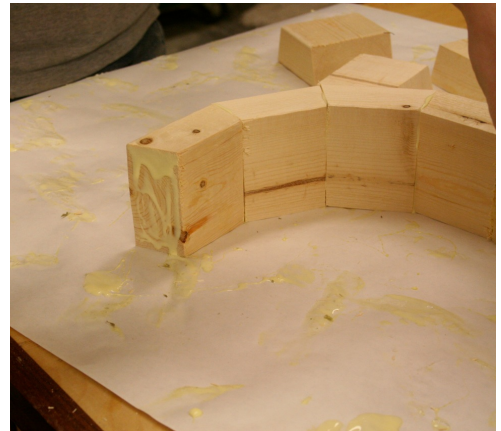
Step 3: Plane the board to a thickness of 1 ¼”.

Step 4: Using the Table Saw, Rip the board to a width of 3”.



Cutting the Blocks

Step 5: Set the Mitre saw to a 15-degree angle and cut 12 pieces that are 3 1/8” long (see blueprint)



Gluing

Step 6: Glue the pieces together. **Note:** Do a dry fit first to ensure pieces were cut correctly.

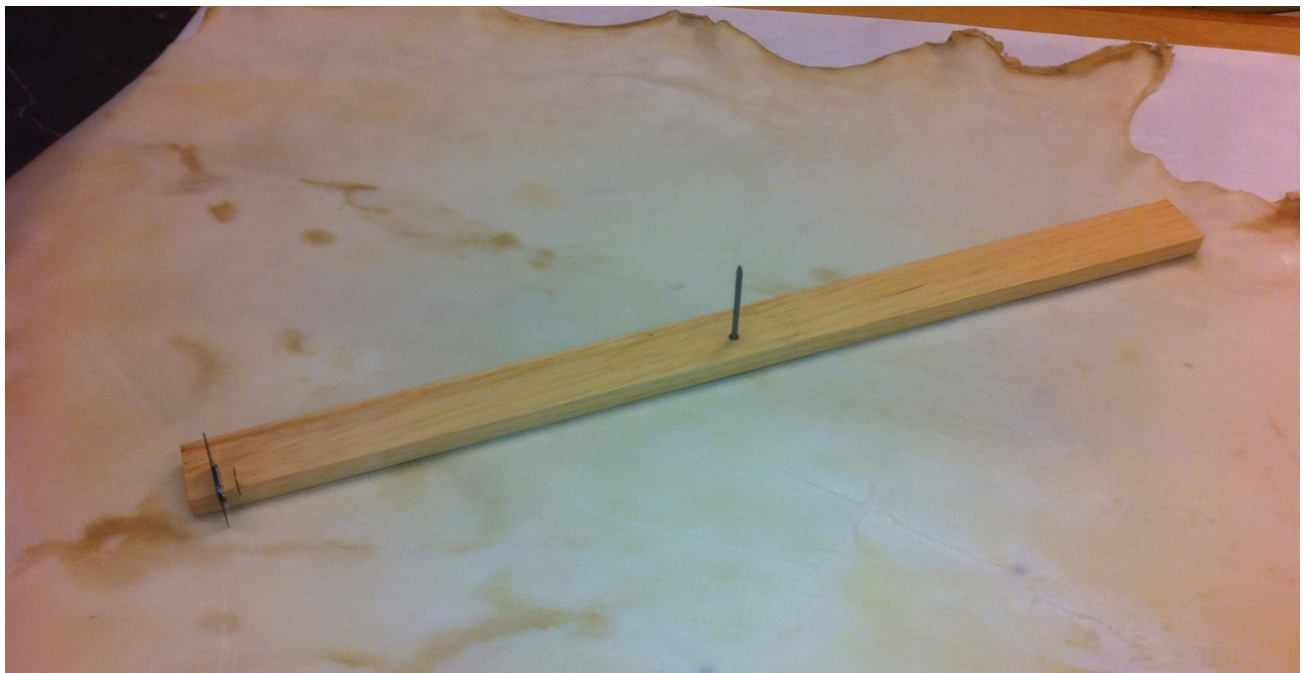
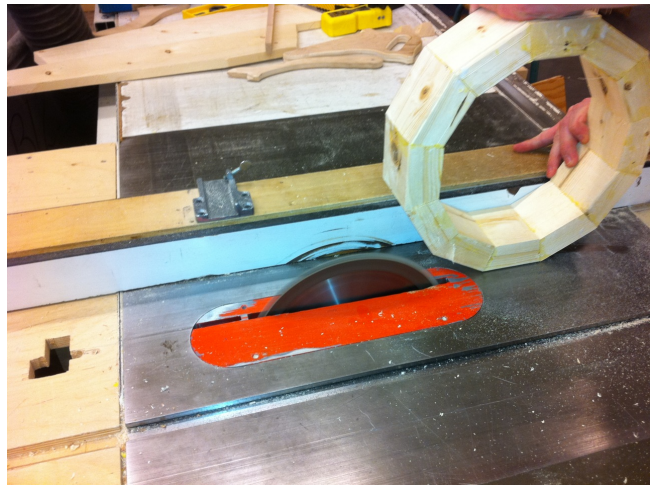
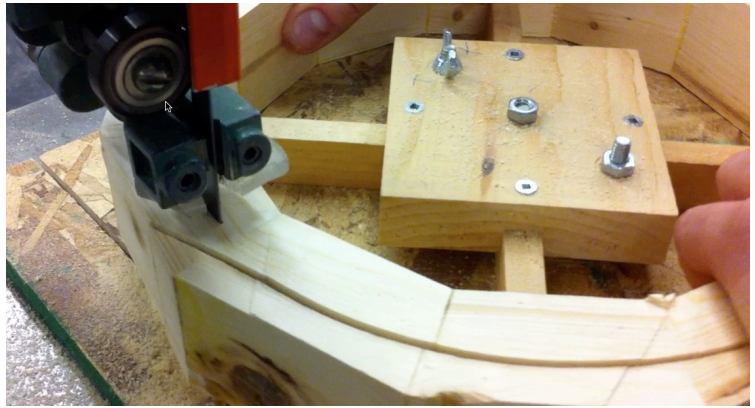
Step 7: Using a piece of string and a nail, clamp the pieces together.



Trimming the Circle

Step 8: Using a Band Saw and circle cutting jig, cut the drum into a perfect circle. **Note** You may have to build a custom jig like the one seen in the photo.

Step 9: Sand the rough edges off the sides of the drum so that the deer hide will not break.



Applying the Skin

Step 10: Soak the hide for several hours. The hide will come rolled up and very ridged, almost like a raw hide bone.

Step 11: Layout the hide. On a single piece you can likely get 3-4 pieces thus 3-4 drums.

Step 12: Mark and Cut a 19" circle on the Hide.

Step 13: Punch holes $\frac{1}{2}$ " always from the edge of the Hide approximately 1 inch apart.

Step 14: Use left over Hide to cut narrow strips approximately $\frac{1}{4}$ " thick to use for threading.

Step 15: Thread the long narrow stands through the holes on the edge of the deer hide. **Note** Using a piece of wire you can make a needle to feed the stands through easier.

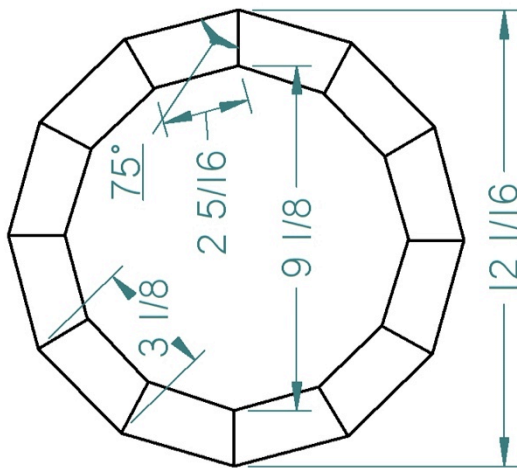
Step 16: Wrap the skin around the drum frame and tighten the strand if hide being thread through the edges.





Step 17: Use the remaining strands to make crisscross pattern on the back of the drum **Note** Be sure you do not tighten the deer hide too tight. As the hide dries it will tighten up drastically.

Step 18: Place the drum up on its side to dry properly. The skin may take 1-2 days to completely dry.



Solid Edge	TITLE			Drum Frame		
	SIZE		DWG NO	REV		
	A4					
	FILE NAME: Drum Framed.dft					
	SCALE: 1 : 4		WEIGHT:		SHEET 1 OF 1	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

Resources

Manitoba Education. (2010). *Senior Years Industrial Arts*. Manitoba. Retrieved from http://www.edu.gov.mb.ca/k12/cur/teched/ia_framework/glo.pdf

Manitoba Education. (2011), *Clusters and Learning Experiences*, retrieved from http://www.edu.gov.mb.ca/k12/cur/socstud/history_gr11/gr11_clusters.html#cluster1

“Modern Wood working”. By Willis H. Wagner and Clouis E. Kicklighter

Rohahes Iain Phillips. (2010), *Drum Culture*, retrieved from <http://www.native-drums.ca/index.php/Drumming/Culture?tp=a&bg=1&ln=e>

Teachings of the Drum, (2010),, retrieved from <http://www.shannonthunderbird.com/Tribal%20Drum%20Teachings.htm>

“Technology Education: Safety Resource. By Rachel Baxter and Mary Lorenz”