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Introduction:

This cultural unit will share how long ago our ancestors were engineers as well.

Cultural Objective: Students will learn what kind of engineers they people were.

Cultural Information:

The PPT presentation will demonstrate how they performed their duties as engineers in their era of time.

What Types of Engineers were the Anishinaabe people?

Biomedical engineers: apply engineering principles and techniques to the medical field & to improve health & look at how engineering can be applied to the human body.

- Traditional Medicine people. The healing stories provide examples of contemporary specific healing rituals used during indigenous healing encounters. Sun Dance, Yuwipi, Ojibwe Healing Ceremony, Shaking Tent, and Shaker Healing Ritual.

Chemical engineers: design equipment and processes such as those producing energy, electronics, food, pet food, clothing, and paper.

- One's who learned how to make (clothing/food, etc.) – Clothes Designer and gardeners.

Civil engineers: plan, design, construct and maintain structures – such as buildings, roads, bridges, and dams – that meet human needs.

- In each area we were at our structures we had to build them. Chosen leaders would take us out to spring then to fall camps and back for winter camp with our supplies. Runners, trappers, guides.
- Ojibwa Lifeways: hunting and gathering traditions of the Anishinaabe people.
- They are historically known for their crafting of [birch bark canoes](#), sacred [birch bark scrolls](#), use of [cowrie](#) shells for trading, cultivation of [wild rice](#), and use of copper arrow points.

Mechanical engineering: comprises the design, analysis and usage of heat and mechanical power for the operation of machines and mechanical systems.

- Those who kept the fires burning in their wigwams, teepee, and longhouses. Remember, first heat was the Sun Power. Learned how to work in the woods, which wood burned the best and the longest. All this was done with teaching involved.

Sustainable "green" design engineers: comply with the principles of economic, social, and ecological sustainability in their design of physical objects, and even the earth's physical surface.

- This field of sustainable design is also referred to as green design, eco-design, or design for the environment. Those who taught us about our way of life long ago and encouraged today. Anishinabe people live with nature in all aspects.

Mineral engineers: who are focused on extracting minerals from the ground and converting them to pure forms.

- Such as finding of our arrowheads, crystals, stones for the sweat lodges and longhouses. Elders knew what stones were to be used for the home, sweat lodge ceremony, or longhouse.

Agricultural engineers: apply engineering technology and biological science to agriculture.

- What foods were available in the areas in which we traveled after the winter season was over.

What were Ojibwa homes made out of? Trees from the area you lived in, covers were made out of animal hide or birch bark, bark from the trees or grasses weaved together.

Traditional shelters were made of birch bark, juniper bark and willow saplings. The bark sheets were bundled up and reused when they traveled. Unlike the plain's tribes, who did use large cured hides but often had horses to help carry heavy loads, the Ojibwe traveled on foot and hides were very heavy.

Throughout history, we have relied on our ancestors to teach us about how we survived the past to the present through storytelling. Today our homes are made out of constructed lumber, composite materials from factories.

Author biography:

Boozhoo, my name is Miigizi Ikwe, Wapski Makwa indoodem, Mikanock Wajii. My other name is Frances Allard, I'm from the Turtle Mountain Chippewa Reservation in Belcourt, ND. I am Anishinabe Ikwe (Ojibwa)/Cree/Mitchif and the eldest of 8 siblings. I have two sons, an adopted daughter, a foster daughter and an adopted grandson. I have seven grandchildren and one great-granddaughter. I raised two other young men as well; one lives here in Belcourt and the other lives in Colorado. My father was a marine, my mother was a beautician, and when I was a child, we traveled throughout the US/Guam/Japan before returning to the Turtle Mountain home of my parents in 1959 when I was 14 years old.

I have had a lot of educational experiences, both formal and informal. I graduated from Turtle Mountain Community High School in 1963; got an LPN degree in 1974 through the Lake Region Jr. College in Devil's Lake, ND and was trained in Belcourt; completed a BA in Communication/Dance in 1985 (Missoula, Mt) during the summers I worked as a woodland fire fighter; added an AA in Chemical Dependency in 1993 and an AA in Child Abuse/Neglect in 1994 from Lummi Community College (which later became Northwest Indian College) in Bellingham, WA; and then went back to TMCC for an AA in Commercial Art/Graphic Design in 2005; and picked up many certificates along the way. During those years, I was educated also by many Elders from different

tribal nations and finally came home to Belcourt in 1995 and began my studies with all the Elders in the Turtle Mountains. I learned a lot and was honored to sit with them and learn from them. I also went to Canada to learn from the other half of my blood line, the Cree Nation. My travels took me across the US/Canada and across the ocean to Guam and Japan, learning many cultures along the way. The very first teachings I learned were the Seven Teachings of the Ojibwa, which came from my Aunt Edna Cloud who began this journey for me.

While I was in college, I learned to do research and found that very interesting. That training has become even more useful now that I am a board member of the Turtle Mountain Chippewa Tribal Nations Research Group, a board that reviews and approves all research done on the Turtle Mountain Chippewa Reservation. There are individuals from various universities who want to do research with our Turtle Mountain people, and the board makes sure they are following the guidelines of the Tribal Nations Research Group. We are the protectors of our people in the research/data arena.

I learned to sew in high school and loved it. This is one of my gifts that I have. I design all of my regalia (the traditional clothing/accessories) that I wear for Ceremonies/Pow Wows/special occasions. Since I have moved home, I have designed and made regalia for my grandchildren and other young people as well as others who request it of me.

I am a Cultural Advisor for TMCC and ND EPSCoR. I work with 6-12 graders in ND EPSCoR NATURE camps during the summer months and ND EPSCoR NATURE Sunday Academies during the school year. I write cultural supplements for each of the STEM topics covered in the various STEM activities. If I am not familiar with a STEM topic, I do research on the topic so that I can figure out which cultural information fits best with it. This I have been doing for 22 years. I work for TMCC as an instructor, and was asked by the TMCC president and vice president many years ago to develop an archive for our artifacts by our people (clothing, tools, baskets, sculptures, etc.) for the college, which I did for 6 years. I am also currently working for the Turtle Mountain Chippewa Heritage Center for the last 3 years as an archivist/assistant for our artifacts and the tour guide to explain the historical way of life of our people here on the Turtle Mountain Chippewa Reservation. I also do research on various artifacts in our collection to find the importance/year/geographic origin of the items.

I realize that my passion is all about what I have learned and how to give back to our families, relatives, friends, and those who want to know who we are as Anishinabe people. I am grateful for the teachings of our elders, our young people of today and my children. I am also a sponsor for those who are struggling with alcohol/drugs on a one-on-one basis, as well in the sweat lodge. I work with the youth, adults, and the elders, outside this community in all four directions.

As I look at my journey throughout my life, my vision is to work with my people in any way I can to teach what I know, and pass it on to all that are interested in our Native way of life. I live simply so that I can live in peace and harmony in nature, which means I will follow the Seven Teachings in a good way. Those teachings came from my elders and I take the lessons they taught me seriously and to heart. So, my mission is to guide those who want the Seven Teachings in their life. The Seven Teachings are Love, Honesty, Humility, Bravery, Respect, Wisdom and Truth.

