

Wildlife, Plants, and Habitats of the Southwest

Preparing Navajo Wool with Native Plants and Wildlife

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2022

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## Introduction

Some would say that the Diné moved, because of their livestock needs. When the Diné moved they allowed vegetation to grow and rest in the different areas, but after certain laws and regulations were passed by the government, they forced the Diné to set up permanent homes in one location. Many elders said, this was why the Plant People were not able to spread any more. Just like the Diné, the Plant People were stuck. They could not spread their feet (roots) any more. Overgrazing in one area has caused many dry washes and a lot of erosion. Lack of rain has also been an issue which some say is caused by the neglect of natural laws: abusing the Earth by mining for minerals, stopping the blood flow (rivers) of the Earth with dams, wasting resources like water and food (pools and mass production of foods). The life of the Diné is always about balance. Balance of ones resources in this case. Never take more than you need was a common saying in the Diné home as the old people understood that nothing should ever be wasted. (Mike, 2018)

This curriculum unit will explain the importance of certain plants and animals to the Navajo people. It will give students an understanding of why their grandparents and relatives value the land and the native animals and plants. Students will gain respect and will want to also help restore what is valuable to their people. Students will learn about the Navajo craft, rug weaving. They will be taught the oral history of how sheep came to be, how rug weaving was introduced to the People, and how a balance needs to be restored.

## Context

### Demographic Information

The community that I teach in is in Chinle, Arizona. It is located in the Northeast corner of Arizona on the Navajo Reservation. Chinle is located in the central part of the Navajo Reservation. According to the Chinle Chapter website, the estimated population is about 5,000 and services another 8,000 surrounding residents. (Chinle Chapter, 2022). It is a small town that has businesses and community services that include shopping centers, gas stations, restaurants, hotels, a grocery store, a bank, a police station, a hospital, housing apartments, the Arizona Department of Transportation and the local public schools. It is located next to the Canyon DeChelly National Monument which brings a lot of tourism.

Canyon DeChelly National Monument is a National Park operated by the National Park Service (NPS). It was preserved on February 1, 1931. It is on approximately 84,000 acres of land that has archeological resources. (Nps.gov, 2022). There are families that reside in the Park who still cultivate in the Canyon and this brings in tourists. There is an Anasazi ruin called the White House, the Mummy's Cave, and the home place of the deity Spider Woman, Spider Rock. The Canyon has also been used as a background for some movies like the *Lone Ranger*. The school that I teach at is named after this Canyon. In Navajo, Canyon DeChelly is called Tséyi', meaning "in the canyon." It is protected by the NPS and also by the Navajo Nation, the Bureau of Indian Affairs and other stakeholders.

The people who live in the town of Chinle, have homesite leases that give them an allocated amount of area to cultivate on. In some of these areas, related families live next door to each other. Some of these families have livestock that include farm animals such as goats, sheep, horses and cows. The families must hold a permit that allows them to have these animals.

In the town of Chinle, people live very close to one another and this does not give much room in the area for farm animals. It is basically an open range and when driving to the local school, a person may have to slow down and stop because cows and horses are walking across the road. In the outskirts of Chinle, sheep and goats roam the fields and the open land.

Chinle's history includes the removal of the Navajo People from their homeland during in 1864. The United States government sent in US soldiers to force the Navajo People to walk over four hundred miles by foot to Ft. Sumner, New Mexico. This major event in Navajo history is known as "The Long Walk." The Long Walk occurred for several reasons. Treaties between the United States and the Tribes were broken. There were settlers migrating to the West Coast in search of gold and traveling through Native lands. Rich minerals were thought to have been found. This movement of foreign people on the land caused small raids and wars and the United States government decided to fix this problem by sending the Native people away to a place where they could control them. (Bruchac, 2002).

Some of the people who did not want to leave and the US soldiers were ordered to destroy their homes and take or kill their livestock. Canyon DeChelly became a place of refuge but the people were not able to stay long due to a shortage of food. The People could no longer stay hidden and surrendered to the US soldiers in Ft. Defiance and then began the journey to Ft. Sumner. The People were imprisoned for four years before it was realized there was not enough funding to encamp over two thousand Navajos. The Navajo Leaders at Ft. Sumner met with the US agents that were sent to investigate the conditions at Ft. Sumner. Negotiations were made and a treaty called the Treaty of 1868 was signed. (Laljani, 2020).

When the People returned, they had to rebuild and restart their flock. The trauma of being forced to leave their ancestral homeland caused the People to have a mindset of, "do not waste resources or take things for granted." As part of the agreement from the Treaty of 1868, the Navajo people were given a flock of sheep to help in the rebuilding of their life. The People began to rebuild under some guidance of the US government and their leaders (Michaelis, 2014).

As the Diné rebuilt, they found themselves with vast amounts of livestock. During this time period, Navajo People who had vast amounts of livestock were considered "wealthy" people. In 1933-1934, this overpopulation of livestock caused a Livestock Reduction Order. It was given due to overgrazing and a concern over environmental impacts like erosion. Additionally, as a part of the Treaty of 1868 agreement, the Navajo People were assigned government agents that would address the concerns of People. An Indian Affairs commissioner came and talked to the People but did not give suggestions as to what could be done or listen to the People. There were protests, petitions and Tribal Council members were assaulted and threatened. As this era continued, the officials came up with grazing permits. The permits listed the owner and the count and location of livestock. This process was not accepted widely by the Navajo People, especially

by the matriarchs. The women voiced their disagreement stating, “Our sheep are our children, our life and our food” (Weisiger, 2007). The People tried every aspect in saving their livestock.

The community of Chinle continues many of their traditions even though they have endured many obstacles. The Canyon DeChelly has over 40 families that live and farm in the canyon. (Chinle Chapter, 2022). There are families outside of the community who farm and have livestock they tend to. Some children who live in Chinle are not exposed to the caring of livestock unless their grandparents live in an open range area where they have a large amount of allocated land. If the children are cared for by grandparents, there is a chance they are exposed to the caring of livestock and have knowledge of the ins and outs of the ranch way of life. When questioned about how livestock are utilized, a handful of students engage in giving their personal knowledge about it.

## **Rationale**

This curriculum unit is designed for students in the second grade. The second graders are taught reading, math, and writing in their regular core classroom. Sparingly, implementations of science and social studies are tied into the reading, math and writing subjects. This curriculum will apply to the science content as students will look at how plants and animals are important in the Navajo culture and they will explore how plants are utilized in traditional Navajo wool dyeing.

There are seven schools under Chinle Unified School District. There are three elementary schools in the town of Chinle and two elementary school that teach prekindergarten to eight grade located in nearby small towns of Tsaile, Arizona and Many Farms, Arizona. Chinle has one junior high school and one high school. I teach at Canyon DeChelly Elementary School in Chinle. On average we have 130-150 students each school year. This creates several groups of a grade class. Each classroom is a self-contained classroom that teaches core classes: reading, math, writing, and social studies. Each school creates an academic goal that is determined by the previous years’ state/district assessment data.

The curriculum Chinle Unified School District uses for core content is *Beyond Textbook* from the Vail School District. In the past 4-5 years, the Navajo culture and language teachers have modeled this format for their curriculum. Teachers from other districts have approved lesson plans that are uploaded to the curriculum of *Beyond Textbook*. Because of this, teachers have access to many different ways of teaching a standard, along with assessments that will help to provide data for academic achievement and intervention tools.

The Navajo culture and language teachers were encouraged to create their curriculum in this manner. The Navajo language and culture teachers are passionate about revitalizing the Navajo culture and language curriculum at Chinle Unified School District and so they took on this challenge. There are eight units that were created which have since been revamped and updated as new resources have become available. Each unit of the curriculum for Navajo culture and language are scaffolded.

This curriculum is an example of scaffolding. It has been created for the Navajo Rug Unit. When students are in kindergarten, they are introduced to the tools used in rug weaving. As first

graders, they learn about how these tools are used. Then at the second-grade level they learn about the process of how the wool is prepared. Thus, this subject is taught as a basic sequence learning. Still these lessons that the children learn in kindergarten through second grade do not incorporate actual hands-on activities. This curriculum incorporates project based learning. When students get to third grade, they know of the tools, how to use them and how the wool for the rug is made, so that they are able to create a rug. Each time this Rug Unit is taught, I reintroduce the stories of the Navajo rug and the tools that are used to remind them why they are important and should be respected. In fourth to sixth grade, students learn about different types of regional Navajo rugs like the Ganado rug, the Two Grey Hill rug, and the Chief Blanket rug.

Rug weaving for the Navajo people is a tradition that has been passed down from generation to generation within a rug weaving family. The regional style of weaving, the making and caring of tools, the songs and prayers of weaving, and the raising of the sheep and goats are passed from one generation to the next. Some students may have this knowledge and if not, this is an opportunity for them to gain more knowledge about their culture and heritage.

In Navajo cultural stories, rug weaving was taught by the deity, Spider Woman. It is said that she taught how to use the tools for weaving, how to create the wool, how to create designs and how to create the colors. In the creation of making a Navajo rug, one also needs to know the songs, prayers and to understand the mutual respect of the process of making a Navajo rug. Everything that is used to make a Navajo rug comes from nature and the animals. A Navajo rug weaver needs to know the type of sheep wool that is being used, where these sheep were raised and how they were taken care of. The weaver needs to acquire knowledge about plants and trees to make the dye for the wool and the tools needed to make a rug. Knowing these features creates that mutual respect between the weaver and the environment. In the book, *Katie Henio: Navajo Shepherd*, the author states, “-sheep came to be the center of their lives, so much so that a Navajo name for sheep, bee iiná át’é, means, ‘that by which we live’” (Thomson, 1995). Sheep have always been one of the means by which to make a living for the Navajo people.

According to Navajo stories, when the first Navajo deities wanted to make their shelters, the People sought out the animals and insect because they were the first to inhabit the world that the deities came to. In the Navajo legends, the deities came through three worlds to get to the final fourth world where we live in today. Different animals and deities resided in each of these worlds. The deities and animals were able to communicate due to their respect for each other. In this fourth world, the deities asked the animals and insect how their homes were built and one of these deities they visited was Spider Woman. She taught First Woman how to weave at this visit and the deities decided that with this ability they would create clothing, blankets, and a doorway covering. This teaching has since been carried on and continues to be utilized in these ways. It is instilled in the Navajo people that anything created from a loom acquires value that will help the family. Navajo people today make these rugs to be able to make a living for themselves and to provide for their families. Each rug that is created is made for a purpose.

In this curriculum, students will be taught a brief history of how rug weaving came about and why it is an important part of their culture. In the Navajo teaching, every person, both female and male, has a purpose that is taught to them by their parents, grandparents, and family members. They are told not to just depend on others, but to be able to fend for themselves. These teachings

are survival skills and they are still utilized today. Children learn new material everyday as we are prepare them for their future. When teaching this unit of Navajo rug weaving, I teach about how this cultural knowledge was one of our ways of schooling.

Through this Navajo rug weaving curricula, students learn math with the counting of the warp, creating geometric designs, calculating dimensions, heights, and widths, and calculating how much wool will be needed. Science is also used in Navajo rug weaving as plants and natural resources are used to create the tools and the colors of the wool. Weavers who create rugs are also storytellers. Each rug has its own story. An added bonus in knowing how to make a Navajo rug is that it can be a secondary income for them. Our cultural arts and tools are not readily available as it would be when buying a dress or bedding from a store. Knowing this type of information helps prepare students for the future.

In schools, state assessments are given every year as a way to know if the students made academic achievements or gains. Because of these state tests, teachers are left with little time to teach subjects that are not included in the state exams. This curriculum incorporates other subjects. Through Navajo rug weaving students will learn animal science, botany, geography, chemistry, art, math, engineering, and Navajo philosophy and culture.

Many Navajo cultural arts are used in everyday living. They involve using the land, the environment and the livestock. Navajo people do not waste the resources that are available to them. Navajo people live with a holistic mind frame where everything intertwines and due to this there is a higher respect for nature and animals.

In the book, *Conservation Biology, Restoration Ecology, and a Navajo View of Nature*, Yazzie and Covington give a definition of conversation biology that resonates with the same Navajo idea of being respectful of nature and animals. As Yazzie and Covington state,

Conversation biology is a crisis- or mission-oriented discipline that deals with phenomena which frequently addresses human sensibilities including, ethics, morality, and the relationship with animal communities and ecosystems as a whole dynamic system. (Pina & Covington. 1994, p. 122-124)

A goal of this curriculum units is for students to be able to gain and continue to develop a respect for the environment and the animals. They will be able to know the hard work, dedication, and time it takes to create one of the traditional arts of the Navajo people. They will also learn that when they take from the environment, they must care of it too. Ecological restoration is a big topic to mention to elementary students, but an introduction about it is important to mention so the ways of the Navajo arts are not forgotten. This curriculum will teach about how to have that empathy for the environment by learning what it takes to create the wool needed to create a Navajo rug.

### **Content Objective**

The overall objective for this curriculum unit is that students will be able to identify the wool preparation steps in making a Navajo rug by implementing the Diné teachings. Under this

objective, there are subobjectives that will help students complete this goal. This unit will cover the history of how plants and animals are utilized in the making of Navajo rugs. The unit will cover science botany, math, and Navajo arts.

## Plants

The Navajo attitude toward- plants is of appreciation of abundance. Every plant is viewed as an important component of all of the vegetation upon which man and animals depend. Thus, flowers and other plant parts from many species are treated ceremonially and used in healing/curing ceremonies. (Pina & Covington. 1994, p. 122-124)

There are many different types of plants on the Navajo reservation that have specific purposes and uses. Navajo weavers are experts at knowing what types of plants and vegetation to utilize to create their dyes. They know the seasons and locations of these plants and vegetation. They also know how much to take and use.

According to the National Park Service, there are roughly 357 species of vascular plants in a certain area of a community on the Navajo Reservation (Nps.gov, 2022). The Navajo Nation is located on the Colorado Plateau. The National Park Service keeps records of reports, data, maps, and projects on the results of the vegetation on the Colorado Plateau. There are many resources including articles and books that give examples of the types of vegetation that is used to dye wool. Some of the popular vegetation that is used to dye wool is red onion skin, sunflower, alder bark, sagebrush, Indian paint brush, rubber plant, juniper mistletoe, rose hips, small snake weed, juniper bark, brown onion skin, and gamble oak bark. Vegetation dyeing can be a difficult process due to trying to get the exact hue of a color. Wool dyeing is a tedious process so now aniline dyeing and blended wools are often used (Navajorug.com, 2022).

To help with the restoration of plants and trees, the Navajo Nation has a nursery located in Fort Defiance, Arizona. There is a greenhouse, a lath house, seed extractor, and a warehouse. The nursery has 36 native species that they generated for their restoration project and have one million forest tree seedlings that are used culturally and eaten by livestock. The nursery serves as a learning center that young children can visit and learn about plants that are used for ceremonies, in cultural activities, and for medicine. It also teaches about restoration and ecosystem management (Luna, 2000).

## Sheep

The Navajo people have raised sheep and goats before the Long Walk in 1864. When the People were being captured by US soldiers, it was reported that the soldiers took some of the livestock as well. Upon their return from the Navajo land, the People were given sheep to restart their livestock herds.

Livestock came to the Americas in 1494 when Spain began colonies in the Caribbean. Livestock then expanded to the southwestern United States in 1598 when Spanish ranches flourished in the states of Texas, New Mexico and Arizona (Sponenberg & Taylor. 2009). The Navajo People began acquiring sheep and horses by trading with and raiding the Spanish. By 1930, the numbers of flocks owned by the Navajo grew to 574,821. The sheep the Navajo People were breeding

during this time were the Churro sheep. The wide population of Churro sheep caused overgrazing and they were forced into livestock reduction by the United States government. During this time the Navajo Churro sheep almost became extinct. Navajo Churro sheep were crossbred with different breeds of sheep but by the 1970's, through efforts from organizations, 450 Navajo Churro sheep survived (Strawn, 2004).

The wool from Navajo Churro sheep wool has been found to be a good fiber for spinning and for use in weaving Navajo rugs. Due to the way the Navajo Churro sheep have been bred, the lambs can average fleece shearing of four to five pounds and adults average from eight to twelve pounds (Strawn, 2004). Navajo Churro sheep have been bred to be able to withstand the conditions of the harsh environment, to be able to survive with the vegetation that is available, and to be able to be disease resistance. Navajo Churro sheep have a low grease content and this helps weavers spend less time cleaning the sheered sheep of sand and twigs. Navajo Churro sheep that are naturally black, brown, creamy white and gray are favored because the fleece does not need to be dyed.

## **Teaching Strategies**

### **Gradual Release Model**

One of the teaching strategies Chinle Unified School District implements is the Gradual Release Model. This model is a release of responsibility from teacher to student. It begins with the teacher modeling the content standard being learned, to the teacher and student learning together, to the student individually working on the content standard with some observation from the teacher, to the total responsibility of on the student. The Gradual Release Model demonstrates how by providing appropriate instruction, the teacher helps to target the specific learning. The Gradual Release Model has four components: focus lessons, guided instruction, productive group work and independent learning.

When using this strategy, I find that it helps to stay focused to the objective. This helps students take ownership of their own learning. With good modeling from the teacher of the content, this strategy works. During the focus lessons, students are able to see their teacher's model of their thinking process and how they use background knowledge. In the guided instruction process, students and teachers are able to work together. The teacher asks questions while facilitating students during their learning. The guided instruction can be individual one on one, in small groups, or as a whole group. When students are in a productive group, they are able to learn the content and work collaboratively to solve, apply and practice their learning. When students move on into independent learning they use what they have learned and independently work on the problem given. The Gradual Release Model does not have to be done in order. The Gradual Release Model does not need to be in order of starting with the teacher of "I do," to teacher and students of "We do," to Student independence of "You do."

### **Graphic Organizers**

Several graphic organizers that students will use during this curriculum unit is concept mapping and sequencing charts. The concept mapping helps to keep the students on topic, and it helps



them later recall the information that they learned. Students will use concept mapping when they are categorizing and naming plants, insects, and vegetation that are used for plant dying. Students will use a sequencing chart to sequence how wool is processed, prepared, and utilized.

## **Classroom Activities**

### **Activity One: How are Navajo Rugs made?**

In the first activity, students will learn about the history of Navajo Churro sheep. They will start with a hook question: “How is a Navajo rug made?” Students will be placed in groups and these groups will discuss with one another about what they know about how a Navajo rug is made. Then students will regroup as a class and discuss with the teacher how a Navajo rug made. The teacher will then present the main objective of this activity, “I will be able to identify the wool preparation steps in making a Navajo rug by implementing the Diné teachings.” The teacher will explain that in order to reach this main objective, there will be several subobjectives that will help them to explain in their own words how the Navajo People prepare wool to make a Navajo rug.

### **Activity Two: How are Sheep used by the Navajo People?**

For this activity, the teacher will give students a picture of a sheep. On this picture students will create a web around the sheep with the things they know about how the Navajo People use the sheep. This will be their way of answering the question, “What do the Navajo People do with sheep?” The teacher will give students some time to write these things down. The teacher will monitor and jot down the names of the students who will share what they have written on their webs. When the time is up, students will share their web with the class. The teacher will then read the book, *The Goat in the Rug*. Students will discuss about how the weavers processed the wool. They will work in small groups and use a consensus map to tell the sequence of how wool is processed. At the end, they will do a gallery walk to see if their sequence is like their peers.

### **Activity Three: What is used to dye the wool to make a Navajo rug?**

In the next activity, the objective is, “I will be able to identify the types of plants/insects/nuts that are used to dye wool.” The teacher will give out a picture of a plant and will ask students to web around the picture what types of plants they know. The teacher will then review the story, “The Goat in the Rug,” and have students recall what the weaver used to dye the wool. Students will then watch a video that shows how the Navajo People process wool. After the video, the teacher will present a PowerPoint about the other types of plants found in their community that are used to dye wool. Students will revisit their web to see if the plants/insects/nuts they drew are presented in the PowerPoint. Students will then draw four types of plants/insects/nuts that they would use to dye their wool. They will name the plants/insects/nuts and give a little information about each and what colors they make.

### **Activity Four: History of Navajo Rug Weaving**

The next activity that students will do will teach them about the history of Navajo Rug weaving. The subobjective for this activity is, “I will explain the history of the Navajo Rug.” The teacher will ask the question, “Why do your grandparents and other relatives have sheep and goats?” In their groups, students will be given a chip and time to think. This chip will be used to indicate when they would like to share their answer to the question. The teacher will again monitor and jot down the names of the students who will share their response. The teacher will then read the beginning of the book, *The First Hogan*, and then skip to the part where the People visit Spider Woman. The teacher will then have students watch a video of a read aloud called, “Spider Woman Teaches the Navajo.” Students will be given sentence frames and they will fill in the blanks with vocabulary words. Students will put the sentence frames in sequence to tell the story of how the Navajo People learned to weave.

#### Activity Five: Plants and Animals used to Dye Wool Project

The final activity students will do is create a pictorial image that shows plants that are used to dye wool. The teacher will show students a video that shows a plant, an insect and nut that is used to dye wool. Students will create a small rug and illustrate the plant, insect and nut that is used to dye the wool. If possible, the teacher could invite a guest who can show the students the process of wool dyeing as a hands on activity. Students will have a discussion about why taking care of plants and animals is important.

#### **Student Assessment Plan**

Students will take a pre and post-test of this Diné Studies curriculum. These will both be multiple-choice tests. Students will also take informal and formal assessments of each unit. They will also take a District Formative Assessment where they answer three multiple choice questions and have two written responses.

For this curriculum, students will turn in a wool preparation sequencing chart. They will illustrate the steps and give sentences of how the wool is prepared. Students will turn in a web chart of the types of plants, insects, and nuts that can be used to dye wool. The final project students will turn in is the pictorial image that will be graded with a rubric.

#### **Alignment with Standards**

The standards for this curriculum unit will come from the Navajo Nation and Arizona State. From the Navajo Nation Standards the standard that will be used is: “I will develop an understanding of Diné way of life.” The concept is from Concept 1 that states, “I will acknowledge and value my thoughts and personality.” The performance objective (PO) under the concepts that will be used are PO 2, “I will describe the value of things that I use,” and PO 3, “I will recognize cultural items and jewelry.” The other concept used will be Concept 3 that states, “I will implement and recognize the Diné lifestyle with the performance objective,” and PO 3, “I will name the various plants within my surroundings.” This standard covers how students will use the Diné way of life by learning about weaving and using native plants.

From the Arizona State Standards of World and Native Languages, the standard that will be used is on Native Americans and their plants and comes from Cultural Competencies. The standard states, “Students will use the target language to investigate, explain, and reflect on the relationship between the practices, products, and perspectives of cultures studied.” The standard uses performance levels on a rubric. For this curriculum, the intermediate level is used. This means that students will investigate and describe similarities and differences in practices, products, and perspectives used across cultures (e.g., holidays, family life, historical and contemporary figures) to understand one’s own and others’ ways of thinking. The other intermediate level of the same standard is, “Students will use appropriate language and behaviors while participating in familiar culturally authentic activities and situations (e.g., presentations, virtual activities, community celebrations, theatrical productions, concerts, interviews).”

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