

Painting with Natural Plant Dyes and Herbal Meanings
Diné Institute for Navajo Nation Educators 2024 Seminar.
Taking Care of the Land with Traditional Ecological Knowledge
With Professor Peter Fulé and Jonathan Martin at Northern Arizona University.
Curriculum By: Tina Benton



Context

This curriculum is based on research and in person research with elders and spokespeople that I have researched on books and the web. This is very important to me because it involves my Native Plants in my area and understanding how important each plant is and learning what I can about each plant. It's important to understand the plants and how to use them in medicine, food, religion, art, and everyday life. Using these plants in my art class would be really interesting and inspiring for my students to learn how to prepare the recipe for each different type of color dye. There will be a video on Arnold Clifford on Native herbal plants. Each plant has its purpose in healing and dyes and many other good remedies.

The school teaches from K-12th grade, total students from K-12th was around 140 total. It's a small school located on the Navajo Reservation and it's along the border from two closest towns which is Winslow and Flagstaff, so we do have some school competitors. The school buses pick up the students during school days. In the morning, the first student gets picked up at 6am in the morning. We have about 4 bus routes, one bus goes towards Grand Falls and Flagstaff area and the second bus goes towards Tolani Lake and the third bus goes to Birdsprings, and Seba Delgai and the last bus goes towards Winslow. (Note: the school does not go by daylight savings time; they only run on regular Arizona time which is mountain standard time.) Then they are brought to the school and there will be a bus monitor waiting for them to greet the students each morning. As they make their way off the bus, it's a short walk to the cafeteria which is a very short convenient walk. At 7:50am the teachers then pick their students up and take them to their class and there they start taking classes. The school is on a program called PBIS rewards, a management system stands for Positive Behavior Interventions and Support Program. The students love this program, the students get prizes, and the teachers also get a small prize too. Also, the school is under another program called Beyond Textbook, which I like, personally. I feel like we did a lot of improvement with this program and it allows us teachers to attend training and with new learning as the years are passing by. We need to keep up with the new technology & system in learning with the kids with this program. It also allows the IT person to be more involved in this, which is good. The school has wonderful staff, such as the front office, the staff there are always there to help assist you and the Administrator is always there and happy to assist you and keep you on track. Business offices are always busy and if you need their help they are happy to help or they like to remind you of signing your timesheet, we're always there to help each other and help the kids and the kids are, our customers, were there to keep them happy and learning. LSI has security guards, cameras to keep the school safe and you will see them walking and checking things out. They have a good maintenance department, keeping the school working properly and janitors keeping the school clean. Also it has a huge cafeteria kitchen with friendly cooks and it's a big cafeteria where kids have all that space to eat or study, it has a great home feeling connection. The Gym has a weight room, boxing room and showers. It's great for recreation, it has basketball courts and a huge stage to host graduation or a play, or any other presentations. The school goes all out. They like to celebrate holidays and the biggest one is the Native American week, pow wows will be going, activities for the kids and selecting the new LSI Prince and Princess, it's great loads of fun. The kids like to dress in their native clothes on certain days, or some kids will be wearing it all week, which I think is awesome and they like to dress like this all throughout the school year. The school has a program called FACE program that they teach 0-5 year olds and also parents can come with their kids or if they're

pregnant they can attend the program. It's a nice program for building a family and to prepare them for family learning. We have wonderful teachers here at LSI, we attend meetings and always attend workshops to advance the kids to have better scores in their state test. The school is in a program called Beyond Textbook and it's a good program. One of the goals that we want for the school year 2024-2025 is the SMART Goal to increase students' attendance by implementing a multi-tiered system of support, including personalized communication with parents. Progress toward this goal will be measured by the improvement of the overall chronic absentee rate from 16.11% to 10% by the end of the year 2025. In the 2024-2025 school year, more than 60% of the students will demonstrate mastery of grade level essential standards in ELA as measured by the NAVVY assessment dashboard.

I started work there in January 2023 as a CTE teacher. I teach beginning welding, beginning carpentry for 6th thru 8th grade and Welding and Carpentry for 9th to 12th grade and for art I teach from Kindergarten to 5th grade. So I'm able to meet all the kids and get to know and work with each of them. But let's start from the beginning on where my life led me here as a CTE teacher. I'm from Birdsprings, Arizona born and raised. My clans are Tsinaajinni Shash Diné e, Tsenijikini Nishli', Hashk'aan Hodzohi da' shi' Cheii', Honaganahalli' a' shi' nalla' that is who I am as a Navajo Lady. I attended Tsidito'ii Head Start for preschool, Kindergarten I went to Leupp Boarding School and part of 1st grade, 1st grade to 8th grade I went to Leupp Public School, and for High School I attended Sinagua High in Flagstaff and graduated High School there. After high school I traveled for work, started off as a helper and moved on to Carpentry. I built lots of homes in and around the Flagstaff and Zuni area. Then I went to school for Welding at Maricopa Community College, passed combination welding like a breeze, graduated MCC and afterwards I worked for the Boilermaker Local 627 in Phoenix Az for 20 years. Then in 2022 I applied at Leupp School for a CTE teacher and I was hired. I became a welder instructor, carpentry instructor and an art instructor.

Rationale

Many years I have been an artist probably as soon as I held a crayon in my hand. My dad taught me how to paint, draw and use color. But I never thought of painting with Indigenous plants, until the DINÉ seminar when I thought of trying and experimenting with painting with natural plants. This will be the first time I will be sharing a unit like this with my students at Leupp Schools Inc. I think this would be fun for the students. On 08/10/2024 we had a field trip to Tsaille to Diné College where we met some botanist native plant specialists. They collect all plants from Native plants, and some off the reservation. They collect seeds and grow them in the greenhouse. Jesse Mike, "a Native specialist", had a talk about plants and how to get the seeds, and which plants can make color dye. As he gave us the tour he explained some plants and how to gather the seeds. He shared with us the names of the plants and he demonstrated how to gather seeds and in what season to gather them. I can explain just a little of this information in my curriculum. He mentioned that most plants have a flower at the very top and it's better to gather towards the fall when it's ripe and you gently grab and squeeze just a little and pull up and you should have seeds in your hands. They have a book specifically in the Rockpoint area called Restoring Native Plants to Navajo Nation Lands, it's by Jesse Mike, Diné Native Plants Program, Nora Ventrella, Botanist, Navajo Natural Heritage Program, Molly L. McCormick,

U.S. Geological Survey. It has a lot of good information in it, if you are interested in Native plants. The whole trip was very interesting. Another gentleman named Jared Begay talks about Pinon cones and how old the tree is by the tree branches, so each branch tells a story on the scarring of the cone when it falls and when it starts growing the pine cones come out growing again. Like every 5 years a branch extends its growth every 5 inches. There are a lot of uses to the Pinon tree for the Navajo people and probably for the surrounding tribes, is what he mentioned in his speech. But I learned from him how old a tree is. He did show us the grandmother tree which dated 600 years old and this Pinon tree was huge, big and tall and in good health. Bryan Neztosie who is also a botanist specialist in his talk he runs a laboratory and when we took a tour in his lab he mentioned not to touch anything, keep arms and hands to yourself. I couldn't believe how they kept everything clean and everything was tightly closed, they had native plants in small containers and they were experiencing it. They even got to know how they can communicate which he said it's very difficult to understand. I thought that it was awesome how plants and trees communicate with each other through some kind of data, it was neat and beautiful to me. He brought us out to one of their outdoor laboratories again. He told us not to touch any of the plants or take anything from their restricted area. As he started his tour there he mentioned that the students gather plants and how they date it and how they look around the surrounding area for anything different in the area, they take notes on very little diligent new growth. It was a very very interesting subject. These kinds of talks and tours really interest me and want to learn more about it. Because some of the Native plants are starting to be instinctual or very rare anymore and we need to try to learn how to save them, we need these plants for lots of reasons, like food, medicine, etc.... The Navajo land is starting to grow unwanted plants and it's starting to cover all over, and it's so sad to see these plants overpopulate the Navajo Land and it looks so awful. These unwanted plants, I was told that these plants grew outside of Navajo land and the people that grow alfalfa and transport them threw Navajo land or sell them on Navajo land the seedlings inside fall off the bales of hay and that's where it grows unwanted plants such as loco weeds, stickers, and camel thorns and many more unwanted plants.

So, I have experience getting some native plants and trying it out on my own. I took my nature walk and decided to cut off a piece of plant from a plant called Mormon tea plant. I boiled it and it came out to be yellow in color and I kept boiling it and one hour passed and that's the result in color and I started painting it on a plane sheet of paper but I have not yet tried it on canvas. Eventually I will be painting with native plants on canvas. It was fun painting with plants, oh my gosh it was so exciting and this was new to me. Now I cannot wait to try this with my students. Their mind is going to be blown away.



Content Objectives

Ethnobotany is the study of interrelation between humans and plants, however, current use of the term implies the study of Indigenous or traditional knowledge of plants. It involves the Indigenous knowledge, cultivation, and use as food, medicine and shelter. It's a study of how people of a particular culture and region make use of native plants. Plants provide food, medicine, shelter, dyes, fiber, oils, resins, gums, soaps, waxes, latex, tannins, and even contribute to the air we breathe. Navajos have been using plant dye for as long as 1700's, using it for their wool to color. By the 1950s, legendary weaver Mable Burnside-Myers of Pine Springs, AZ, created a Navajo Dye Chart to help her children and other weavers create more consistent colors. Her chart shows the following native plants and sources: Myers, M. (January 2,2017). Legendary weaver of Pinesprings, Az, created a Navajo Dye Chart to help her children and other weavers.

<http://www.navajorug.com>

- Red Onion Skin
- Sunflower
- Alder Bark
- Sagebrush
- Indian Paintbrush
- Rubber Plant
- Juniper Mistletoe
- Rose Hips
- Small Snake Weed
- Juniper Bark
- Brown Onion Skin

■ Gambel Oak Bark

But in my use of plants I'm going to use them for art, how to get color from a plant and how to prepare it and paint with it on a canvas with my students. The students will then learn that we can get color from plants. Dyes are a very slow process, the boiling takes hours, leaving the wool overnight in the dye can deepen the color and brightens. They are some plants that lose their color when boiled, it explains in the recipe. Fresh plants are better at preparing dye than when dried. It is strongly recommended that you keep rinsing the yarn after its absorption. Need to clean the wool before carding, dry-clean in dirt till dirt falls out then you wash with yucca root and rinse well then the dying process.

Classroom Activity

Introduction to Native Plant, talk about the plant that we have close by the school, we have Mormon tea plant, Navajo tea and other native plants that are close by. To make sure they know what plant to get, and leave the bad plant alone. Next we took a stroll off the school campus and we picked Native plants and some flowers, brought them to the class room and we cut them up and set them in water and waited 24 hours for them to set. While it was setting we built our frame and canvas and next day we painted our plant dye on to the canvas and made our paintings.

Wool Dye Recipe: These are a couple of color recipe's on dying wool, and the first is on how to naturally mix two wool colors to make gray.

O Wash Ya"N with Yucca root

1 handful crushed yucca root (fresh or dried)

1 quart cold water, Sufficient hot water to wash the yarn

1 pound yarn

Free hands and tub from grease as yucca roots will not lather when grease is present. Rub the crushed roots between the hands in the cold water until there is a heavy lather. Strain. Add enough water to make a warm solution. Wash the yarn thoroughly, using a second water if necessary to clean it. Then rinse twice ... Then after spinning the wool, if necessary card again.

Recipe for black (brown- black), tan brown and cream colors can be obtained naturally from various colored sheep

Gray

¼ pound black wool

¾ pound cream wool

Mix black and cream wool together and card. Pull to pieces, mix again and card again to get even color. The proportion of the black used will determine the resulting shade of gray That's to make natural color with wool.

Black Walnut Shells (*Juglans Major*) makes a dark almost black color

2 pounds wild walnuts shells

½ cup raw alum

1 pound yarn

4 gallon water

Crushed shells, put in water, soak overnight. Boil for 1 hour. Strain. Add raw alum. Boil for 10 minutes. Stir for 2 hours. Leave in Dye Water overnight. Rinse. (without alum a gray brown color will result).

Brigham Tea (*Ephedra Viridis*) - Makes a brown-yellow color

4 pound lupin (all of plant)

¼ cup raw alum

1 pound yarn

5 gallons water

Boil Lupine for 2 hours. Strain. Add Alum. Stir. Boil for 10 minutes. Add wet yarn. Stir. Boil for 2 hours. Leave in dye water overnight. And lastly, rinse.

Brayn, N (February 1940) Navajo Native Dyes, their preparation and uses (p.16)

Student Assessment Plan

Creating - Conceiving and developing new artistic ideas and work. 1. Anchor Standard: Generate and conceptualize artistic work. 1. Enduring Understanding: a. Creativity and innovative thinking are essential life skills that can be developed. As the kids are still young they have lots of questions. Like one said their grandmother dyes wool and weaves with it on a loom. They even showed me that they can rub the plant onto the canvas to get more color. They were so excited they wanted to use other plants, I let them explore other plants to see what other colors they could make. They finished their art color dye painting, they couldn't wait to show their parents. And that concludes the activity.

Resources Material list Reading and research

1. Navajo Native Dye Chart - googled on the website
2. Nanise' A Navajo Herbal By: Vernon O. Mayes and Barbara Bayless Lacy
3. Navajo Cultural use of Native Plants In the Four Corners Region- Arnold Clifford (youtube)
4. Ethnobotany of the Navajo by Francis H. Elmore A.A, A.B, M.S
5. Restoring Native Plants to Navajo Nation Land Handbook by: Jesse Mike, Program Coordinator, Diné Native Program
6. Traditional Indigenous Plants and Food (Ethnobotany), Mariah Gladstone
7. Navajo Native Dyes their Preparation and Use, By Nanabah G. Bryan