

Wildlife, Plants, and Habitats of the Southwest

The Black Mesa and Monument Valley Regions

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Introduction

As I trudged slowly back home from school, my body shivered in the wet cold of the deep snow that rose above my knees. I was a third-grade student at school, and my home was a fifteen to twenty minutes' walk away. On some winter days, I would have to carry my younger sister piggyback because the snow was too deep for her to walk. The snow used to get very deep during the winters in Kayenta. My siblings and I would fill buckets of snow and melt them on the stove to get water. I remember how we used to eat fresh powdery snow. Now we tell our children they cannot eat snow because the smog in the air leaves the snow dirty and dangerous. I often reminisce about the wet winters of my childhood. We no longer get big snowstorms because of climate change.

We would get rain during the spring and summer seasons. The abundance of rainstorms created deep gullies and large puddles of water. These puddles were everywhere. My siblings and I would play in the puddles and make mudpies and cakes. We would play in the water because we knew the puddles would always dry. We would create imaginative games during our time outdoors when the rains came. I even remember standing in the rain to take a shower, washing my hair and body using yucca soap. We also had work to do when it rained. We would always rush around the house and take out all the containers, buckets, and troughs to collect the rainwater. The collected water was used for drinking, washing, and watering our crops like corn and melons, and for our livestock (horses, sheep, dogs, cats, ducks, geese, and chickens).

During the wet summer monsoon season, my siblings and I would collect many wild plants and a variety of mushrooms that grew around Kayenta. My siblings and I would wander around the community, foraging for plants and analyzing the different colors, smells, and tastes. We would eat these plants to sustain our hunger until our next meal. We did not have access to readily available snacks or food, so foraging for edible foliage was our way of snacking. The areas for foraging were much more abundant when I was young. There were fewer homes in Kayenta, and we could forage and play in the nearby fields.

Context

I have taught pre-kindergarten in the Kayenta Unified School District for ten years and have experience working with children with special needs and regular general education students in the same classroom. I teach young children ages four to five reading skills that will prepare them for kindergarten, and I also select students for Exceptional Student Services (ESS) and identify students that would benefit from our Special Education Services with an Individual Education Plan (IEP). One of the student services provided and required is transportation. Using the district bus to transport the child to and from school was mandated based on the child's IEP. Students are bussed into Kayenta from the surrounding small towns like Black Mesa, Chilchinbeto, Monument Valley, and Shonto. Depending on the location of the child's residence, the commute on the bus can take from half an hour to two hours. Most regular education students are brought to school by their parents or another guardian using their private vehicle. All my students are four years old this year, and most will turn five when school ends in the summer. The students in my classroom are 98% Navajo, 1% Caucasian, and 1% Asian.

The Kayenta Unified School District has several buildings designated as classrooms and cafeterias for each grade level. There is an Early Childhood Education (Preschool, Prekindergarten, and Kindergarten) building, an Elementary School (first through fourth grades), a Middle School (fifth through eighth grades), and Monument Valley High School (ninth through twelfth grades). Additional facilities within the district are the technology center, the administration building, the transportation area, a cultural center, and the vocational education buildings.

The district has several extracurricular activities that keep students active, and these after-school programs like pee-wee sports begin in third grade and continue through high school. Some after-school events include activities and academic clubs like math and science, chess, art, Navajo weaving rugs and baskets, zoom presentations about Diné culture, rope braiding, and sewing classes. After-school tutoring is also available.

Kayenta is a small rural town in the northeastern part of Arizona in a semi-arid desert region with a few junipers and cedar trees. The community members are predominantly Diné-Navajo. Interstate Highways 160 and 163 North (to Utah) are two main state routes through our small town. Kayenta is in Navajo County with an elevation of 5,700 feet above sea level (“Kayenta Township,” 2022). In the Navajo language, Kayenta is known as “Tó Dínéeshzee,” which means “where water comes out of the hill like fingers.”

Kayenta has a self-governed entity known as the Kayenta Township which was established in 1986 (Kayenta Township, 2022). It is governed by elected officials who reside in Kayenta. In addition to the Township, the town has a tribal chapter house. Kayenta has one fire station with voluntary firefighters who are from the community. The town has one post office which provides services for Kayenta and the surrounding communities. In addition, there is a law enforcement agency with a courthouse, a detention center, and the Navajo police department that regulates the safety of Kayenta and the surrounding communities. An Indian Health Service medical facility serves the community and outlying areas.

The Black Mesa coal mines were a significant source of revenue for Kayenta's citizens, but they were shut down in 2019 (A. Bahe, 1996). Currently, revenue comes primarily from the tourists who travel through Kayenta on their way to Monument Valley, El Capitan, and Betatakin. The residents employed with the local businesses and schools (KUSD and the boarding school) have a steady source of income. Another form of business revenue comes from the local flea market on Wednesdays. People from neighboring states come to sell livestock feed and hay and set up stands to sell hardware, jewelry, beads, traditional herbs, household and clothing items, and even traditional foods like mutton sandwiches, stew, blue cornmeal mush, and contemporary food like popcorn, snow cones, and burgers. These flea markets are a social gathering for the community to exchange local news, and the elders gather to chat and reminisce about the old days.

Due to limited employment opportunities in Kayenta, some families seek employment in border towns or larger metropolis cities to provide for their families. While fathers more often seek work outside of Kayenta, sometimes both parents leave to find work, and many children are raised by their grandparents or other extended family members.

Rationale

At the beginning of the 2020-2021 school year, my students were taught virtually with iPads distributed by the teachers and funded by the district due to the Covid-19 pandemic. Of the students who participated on these iPads, many were engaged during the virtual teachings, but approximately half were unable to grasp the concepts and fell behind. Sometimes the parents or guardians completed most of their child's assignments or had problems with the internet connection or severe complications with the virus. Several children had to stay with their relatives to separate themselves from their parents who had Covid-19. Some students came down with the virus, which caused a regression in their learning. Furthermore, getting students caught up with the rest of the class was stressful when they recovered.

Many of these issues of home situations like mobility, family crisis, and the importance of school was not a priority and caused the children in my class to struggle and not to grasp the learning concepts due to these quick transitions. These changes interrupted their learning progression. Additionally, assessing students through virtual learning (Zoom) using visuals was a difficult task because four and five-year-old students need to be able to focus and stay engaged when identifying colors, shapes, numerals, and letters. Most of the students could identify about half of the concepts, and only a couple could identify all the concepts virtually.

Some of my students returned to the classroom toward the middle of the school year. I began to teach the same concepts in person, which was much easier for the students. I assessed my students who were taught in person and found that all the students excelled in identifying the lower and upper-case alphabet and all the sounds. I taught all the students, including my ESS students, sign language using the alphabet letters because I believed they would all benefit from tactile learning. One student who is a non-verbal speaker identified all the letters using sign language.

My students have a basic understanding that they live in a desert region that does not have enough water and is usually hot during the summer. I want to teach them more about the specifics, such as the elevation, climate, weather, flora, and fauna, to help them gain more knowledge about the area where they live. By learning about these parts of the Kayenta area, students can connect what they learn in the classroom and what they see outside. I will explain how climate and weather change with elevation differences and reveal how this affects the diverse fauna and flora in the region where they live. I will compare the Kayenta area with Black Mesa to the south and Monument Valley to the north. Black Mesa and Monument Valley are just a few miles apart, yet they have different elevations and climates.

Content Objectives

I want to focus on the mid-elevation landscape region while teaching my pre-school students. This region contains an abundance of pinyon and juniper woodlands. I think my young students should know what flora and fauna exist in their backyard. Most of my students are visual and kinesthetic learners because young children like to utilize their senses by seeing, touching, hearing, smelling, and tasting while learning a new subject matter. They can quickly grasp the concepts using their senses when the subject(s) are taught.

Additionally, most pre-school students learn through repetition with gestures, visuals, voice, and modeling. For example, I embedded sign language into my classroom and my teaching strategies last school year to help my special education students comprehend the lessons. My two special education students responded well to the sign language used in the classroom. It made them feel included in the classroom and less isolated.

The content of my curriculum will be about the elevation zone between 4,000 to 8,000 feet because this is the elevation range that the Kayenta region encompasses. This region has a semi-arid to arid climate, and this causes certain plants to grow within each elevation range. Plants like juniper, cliffrose, Rabbitbrush, and cacti grow sparsely. The climate affects the number of plants found in this region, and the wildlife is affected by the encroachment of Navajo livestock like sheep, cattle, and horses. When wildlife is seen near human populations, it is because they are in search of food and water. Wildlife like rabbits, jackrabbits, coyotes, foxes, and bobcats are becoming more visible because humans have invaded or encroached upon their environment.

Most of my students live in the town of Kayenta, and this town is all that most of my students have seen and experienced. Some students do not know Kayenta, Monument Valley, or Black Mesa's outskirts. I chose these two places as examples for comparison for this lesson plan because they are both on Navajo land and have various wildlife and plants due to their elevation differences. While the areas have differences, there is a common thread to be seen in all areas: the existence of livestock such as cattle, horses, and sheep.

Monument Valley

Monument Valley is located northeast of Kayenta. It is a tourist destination because of the 400-1,000 foot tall, wind-carved buttes and mesas made of sandstone. The elevation at the top of the buttes and mesas is approximately 6,000 feet above sea level ("Navajo Nation Parks and Recreation," n.d.). The Navajo name for Monument Valley is Tse'Bii'Ndziszgaiits which means "valley of the rocks."

Monument Valley has very sparse plant life, like the Great Basin Desert. The few plants that can survive in this arid environment are the Purple Sage, the Cliffrose, the Rabbitbrush, the Mojave Yucca, and the Brittlebush. The semi-arid plants can survive with very little rainfall and endure extreme heat and the dry cold winters. The sage plant, for example, has tough woody stems and soft velvety moist leaves that produce a eucalyptus aroma. This plant is abundant in the Monument Valley region but is shorter than Black Mesa's sage. They are narrow and shorter in contrast to the sage in the higher elevation. The sage is a common medicinal plant for the Native Americans who reside within the area. The leaf plant is collected and boiled to drink for colds and is used as an inhalant from the steam to help with colds.

Wildlife species can survive in this arid region because they know sources of how to obtain water and food. In addition, to a small quantity of vegetation, a few wildlife species, including various lizards, ants, snakes, scorpions, jackrabbits, coyotes, and kangaroo rats, live in this arid region. Some of these animals are nocturnal and use the cool night air to roam the desert in

search of food and water. The kangaroo rat, for example, is a nocturnal rodent. This rodent can avoid predators by using ears that are sensitive to sound and its sizeable hind leg with a long tail that balances while its feet help it get away from hunters of the night. Their hind legs can leap as far as nine feet and quickly change direction between jumps. The rodent is bipedal and hops similarly to a kangaroo. The rodent's way of movement of freeze to move, freeze to move to make it harder for the predator to find.

Monument Valley buttes and rock formations were carved out millions of years ago by winding rivers crossing over flat plains, which slowly carved out riverbanks and broke apart the conglomerate rock layer, the top layer of the plain. After cutting into the top layer, the river cut more profound gorges into the DeChelly sandstone formation. The wide, fast-flowing river cut deeper again and widened their floodplains, chopping the land into separate mesas. The rivers subsided due to drought throughout the land, and the wind created giant dunes. With slight precipitation and pressure, the dunes harden into sandstone rocks. The winding river and wind erosion formed the rock formations of various ranges of buttes. As water seeps into the crevices at the top of the mesas, it freezes, causing the water to expand, separate, and widen the crevices. Eventually, the separation causes the rock formation to fall, forming a scarp and shrinking the mesas into buttes. The continuing process of erosion carves the buttes into slender spires like Totem Poles (Abbot, 2007).

These reddish colorful buttes are significant attractions for tourism. These tourists come from different parts of the world, including Asia, Europe, and South America. The tourists bring in revenue that benefit the small town. Revenue like employment for the residents, the expansion of fast food and shopping areas, and the construction of roads to accommodate the flow of tourism traffic. The negative impact of tourism is the increase in crime, the increase in pollution due to litter, the constant tour of off-road vehicles driving on the back road in the valley that has increased fine dust particles floating into the air, and the noise pollution which affects wildlife and plants.

Black Mesa

Black Mesa is located south of Kayenta. Its Navajo name is Dziłíjiin which translates as "Black Mountain." Its dark appearance is from the pinyon-juniper and mixed conifer woodlands that grow on the mesa's side. It is a sacred place for Navajos and is said to be the body of the female pollen range to protect the Diné people.

Black Mesa was formed over eighty million years ago by many-layered sandstones, shale, and mud deposits. Black Mesa was covered with seawater which had marine and plant life. The ocean began to recede as time progressed and living things in the water began to die and were buried by sand. The ocean's receding caused years of drought that formed gigantic dunes which began to be compressed by pressure and precipitation that hardened into sandstone rocks. The mesa was one huge plateau that rested upon the Colorado Plateau. An active fault line caused the layers of deposits to shift in opposite directions (a reverse fault) to form two plateaus, one formed the uplift of the Shonto plateau, and the other formed the dip drop of the Black Mesa

plateau. Millions of years of heat, wind, and water erosion eroded the top layer of the uplift fault of the Shonto Plateau. The mass erosion caused the Shonto Plateau to recede low than Black Mesa's elevation. In addition to the fault line, what is now called Laguna creek eroded and divided the two plateaus. The creek was a wide river then, and the river would recede then flood periodically throughout the years. Years of creek erosion caused the plateaus to erode quickly, especially the Shonto Plateau. (A. Abbot, 2007).

One of the many legends passed down by storytellers and generations of residents of the local area is that a Water Monster, a holy being, made Tsegi canyon and once lived there. He used his horns to dig the channel where Laguna Creek now flows.

The vegetation on Black Mesa is the common Utah juniper, mixed conifers, aspen, saltbush, alfalfa, and sage. The plants provide an abundance of food for wildlife and domestic livestock. Native tribes like the Navajo and Hopi use many plants for food and medicinal purposes. The Native tribes knew when and where to harvest and collect the plants. These common plants in the mesa area can survive because of plentiful rain and wet winters. Black Mesa's elevation is over eight thousand feet, providing a cooler and wetter climate for flora and fauna. For example, the juniper tree provides sustenance for both people and animals. Native Americans use the scale like tree foliage and the berries for medicinal uses, food, and dyes. The branches and trunk are used to build hogans, shade houses, fences, and as firewood. Large and small animals and birds eat the berries when they are ripe.

Black Mesa is rich with wildlife which includes mule deer, coyotes, bobcats, and mountain lions. Small animals include jackrabbits, bunny rabbits, and squirrels. Rodents such as mice and prairie dogs also thrive there. For example, mountain lions roam the plateau to feed their young kittens. The big cats are solitary animals and can roam the area as far as ten to a hundred miles as their hunting range. These cats are tan to reddish brown coats with long tails. They can jump vertically and horizontally to about twenty to forty feet. Mountain lions typically hunt deer, bighorn sheep, elk, and other small animals. When prey is caught and killed, the partially eaten food is covered with leaves, brush, and dirt. Because of human encroachment, the cats have limited space for hunting, and they begin to take what is easily available, like livestock. This creates a conflict between the mountain lion and humans. Most Navajos that live on Black Mesa know the mountain lion's routine and hunting patterns.

In addition to animal species, about two hundred forty species of birds have been identified on the mesa. Bird species include large predator birds like owls and hawks, the smallest finches, and hummingbirds which feed on nectar from an assortment of flowering plants. The number of bird species is slowly dwindling due to the toxins created by the mines and nearby power plants. The toxic fumes burned from the heavy equipment and blasting had frightened many of the wildlife and bird to abandon their habitat and move to other parts of the mesa. The birds benefit the area by controlling the rodent population, and hummingbirds help by pollinating the flowering plants. (<https://scholarsarchives.byu.edu>)

These sudden changes in the environment and the encroachment of humans have negatively impacted wildlife habitat. Before the establishment of the mines, there was abundant wildlife on and around the mesa. Many Natives used to hunt mule deer due to their migration patterns from Black Mesa into the various canyons. When I drive on highway 163 along the base of Black Mesa and Tsegi canyon, I see many mule deer and elk migrate to and from the mesa into the canyons for food and water. It was a sight to see! Today, the migrations are not seen anymore.

Culture – Navajo Tea (*Thelesperma megapotamicum*)

The cultural portion of this curriculum is about a plant that grows in the students' backyard, known as Navajo tea. This plant grows around the Kayenta and Black Mesa regions. It is a perennial plant which the plant grows annually. The plant has roots, stems, leaves, and a yellow flower which is recognizable by many Natives that use the plant. Native people know how the tea helps the body and the traditional purpose of drinking tea. Many locals collect the plant for a hot tea drink and for dyeing wool.

Navajo tea is a native plant to Arizona, New Mexico, Utah, Colorado, Nevada, and up through Idaho. The Navajo tea is classified as a forb plant variety of an herbaceous flowering plant species, a term used in biology and vegetation ecology. It is part of the aster family. It grows between 4,000 to 9,000 feet in elevation. Navajo tea grows in well-drained soil or gravel, making it perfect for rock gardens and restoring prairie ecosystems. Navajo tea is a hermaphrodite, meaning that it has male and female parts. It is pollinated by insects and attracts bees, butterflies, and other beneficial bugs. The plants grow to one to two feet depending on the available moisture. The leaves are primarily thin and long and grow in a tuft. The leaves have a smooth texture. The flowers have outer florets and a central disk with tiny flowers (New Mexico State University, 2018).

Traditional Native people would conduct an offering of pollen and prayer before cutting the plant. After the offering, the plant is cut above the root about a couple of inches above the ground. The whole plant is not cut. Some are left intact to keep the plant growing, so it can produce seeds for the next season. After cutting the stem, the stem and flower are tapped, so the seeds from the flower are dispersed onto the ground. Doing this gives time for the seeds to germinate for the next growing season allowing more plants to grow. Afterward, the wet plant is bent, folded into a small bundle, and tied into a knot shape. The bundle is dried in a paper or plastic bag for three to four days, allowing air to circulate through the bundle plant. Many people will bake the plant to kill impurities and insects before boiling it into tea to consume.

This tea is used for medicinal purposes among the Native people. They make this tea because it has excellent anti-inflammatory properties. Traditional tribal medicine used the tea for general pain, including stiffness and muscle soreness. People dealing with chronic joint pain can find relief by regularly consuming this tea. Navajo tea also calms an upset stomach. Issues with acid reflux can be reduced by consuming this tea before or during meals.

The Navajo people also use tea for dyeing wool. The leaves, flowers, and stems are boiled until the water is yellow or brownish. Afterward, wool is added and boiled until the wool is at the desired color. The tea color is infused into the wool and turns the wool yellow or brownish. The

color of the wool depends on the amount of plant used. After dying, the wool is spun into yarn strands, woven on a loom and eventually becomes a rug.

Teaching Strategies

I teach four-year-olds in pre-kindergarten in a classroom that includes special needs students. Most four-year-old children have short attention spans; the longest I can keep them fully engaged is about 8-10 minutes. I then need to transition to another activity to keep them engaged. I utilize colorful visuals and hands-on activities. I have about eighteen students in my classroom currently, but the enrollment of students continues throughout the school year. Typically, new students replace those that drop out of school due to various circumstances. I teach in-person to all my students using the safety protocols of wearing a mask, social distancing, frequent hand washing, and sanitation of the classroom and teaching materials.

I prepare students and their families by informing them of weekly newsletters and emails and by calling or texting families about any changes in our school and the community. If unexpected changes occur in our school, students will have an iPad to continue their school day using virtual online teaching at home. Many of their assignments are posted on Seesaw and in google mail. Parents can communicate on Zoom for parent meetings and parent-and-teacher conferences.

Comparing Black Mesa and Monument Valley Regions (PowerPoint)

The first teaching strategy I utilize in this curriculum unit is a PowerPoint presentation about Black Mesa and Monument Valley area. The PowerPoint provides a visual representation so that students can view and connect to their learning. The teacher's oral explanation of the visual slides helps students comprehend the concept. Vocabulary is purposely selected and stressed so students make connections with visuals and print. For example, a picture of a juniper tree and the word juniper tree are used. The PowerPoint presentation compares the two regions of the plateau of Black Mesa and the desert region of Monument Valley. The PowerPoint slides will contain pictures of various plants and animals from the two regions, the elevation differences, land formations, and climate and seasonal changes. Students will view and discuss the difference in elevation between the two geographic areas. In addition to PowerPoint, I will use visuals, poster charts, and books to show the region of both areas. While explaining the two areas, I will incorporate information about the climate by using visual charts and graphs to demonstrate the weather in both regions. PowerPoints are a great teaching activity that allows students to see colorful visuals of the landscape of Black Mesa, Kayenta, and Monument Valley. I will give the students information that further explains each area so students will have a wealth of background knowledge that connects the PowerPoint visuals.

Venn Diagram Strategy

A Venn Diagram is another excellent example of a visual comparison using print and pictures. It is a critical thinking skill in which students think of similarities and differences. It is a visual of the relationship between the two regions. Using Venn diagrams allows children to separate vocabulary into two circles that overlap in the middle. The teacher writes short phrases and pictures as the students orally input information onto the Venn diagram. The teacher explains a

Venn diagram to their students by introducing animals like a cat and a dog. The students will begin to see and understand that they are looking for differences and likenesses. This enables students to be familiar with the diagram so that when the teacher begins the actual lesson about the Black Mesa and Monument Valley regions, students will have background knowledge of how to analyze a Venn diagram. The teacher can use comparative topics like the Black Mesa and the Monument Valley topography, the different plants, and animals.

Classroom Activities

Navajo Tea (Ch'ilgohwéh7'deí)

The cultural activity portion of this curriculum teaches students about the Navajo tea plant and how the Navajo people use the tea. A Navajo tea plant will be brought into the classroom for show and tell. The tea plant will be boiled in water to make a warm drink that the students will have the opportunity to smell and taste. Additional dry tea plants will be used to make a drink, and others will be used as a dye for wool. Next, students will use the tea as a dye by putting a strand of white wool into a warm pot of liquid tea and watching the wool change color. Navajo language words will be used during the activity. Ch'l ahweeh, tó, dibé biyaa', as'aa', sidoh, hálchin, ndlah, hazho'ogoo nanintin which will be written on index cards and displayed. Ch'l ahweeh is written on their baggie with the dried tea bundle in it. Embedding the Navajo culture and language into a hands-on activity will promote and enhance the students' traditional knowledge.

Student Assessment Plan

Rubric can be used for prekindergarten students. Rubrics at this age level needs to be very specific and simplified for young students to understand. For example, when students are analyzing the created Venn diagram, they also need to know the criteria of the rubric. Students need to know they are assessing while learning about the Venn diagram. The teacher explained the process of the rubric and the Venn diagram in how they are connected. Students will know they did well by praising them of a giving a high five, showing thumbs up, and verbal praised from the teacher of great job or awesome,

Rubric Venn Diagram

1	2	3	4
Verbally retells the similarities and differences between the two regions from the diagram. Students will say facts that are not on the diagram.	Verbally retells the similarities and differences between the two regions from the diagram. Students say there are two circles.	Verbally retells the similarities and differences between the two regions from the diagram. Students will retell <u>one</u> fact on the diagram.	Verbally retells the similarities and differences between the two regions from the diagram. Students will retell <u>two</u> facts on the diagram.

Nature Walk Activity

An additional activity is nature walks. Students collect plants while walking around the playground. The students will conduct an observational drawing of the plant they have collected, and the teacher will assist them by modeling how to label the stem, leaves, and flowers. After they complete the drawing, the teacher will assist the students in compiling their drawings into a booklet. All the collected plants will be pressed between books. The teacher will model how to press the plants, and the students will mimic the activity. After the plant is pressed, the teacher will assist the students by labeling the plant. The plants will be a booklet for classroom use. The final product will be two completed books, one of their drawings with labels and the other of the pressed plant. Creating a booklet using plants is an excellent activity for pre-kindergarteners because it takes them outdoors for a specific purpose and is hands-on. Going outdoors for young students is taking them beyond the classroom setting, which is outside the box.

Rubric Pressed Plant Booklet

Students create a booklet. After the completion, they are asked questions like show me your title, how do you hold your book, what is on the first page of your book, what is in your book, what is your book about. These questions are asked to reinforce the steps in how they made the book to understand print concepts and pictures in their book, which will help them understand how the rubric is used when grading their performance. A rubric is a good measurement tool when assessing or guiding students on a given task and on a certain standard. It is a very specific way to know what students have learned and have created to meet the rubric criteria.

1	2	3	4
<p>A few components of the book have been completed</p> <ul style="list-style-type: none"> - no title - no pressing plant - no labels - 2 pages 	<p>Some components of the book have been completed</p> <ul style="list-style-type: none"> - title included on the front cover - plant pressed with missing labels (leaf, stem, and flower) - three pages (front and back cover, one pressed plant pages) 	<p>Most components of the book have been completed</p> <ul style="list-style-type: none"> - title included on the front cover - plant pressed with missing labels (leaf, stem, and flower) - four pages (front and back cover, two pressed plant pages). 	<p>All components of the book have been completed</p> <ul style="list-style-type: none"> - title included on the front cover - plant pressed with labels (leaf, stem, and flower) - four pages (front and back cover, two pressed plant pages)

Rubric Sketch Booklet

1	2	3	4
<p>A few components of the book have been completed</p>	<p>Some components of the book have been completed</p>	<p>Most components of the book have been completed</p>	<p>All components of the book have been completed</p>

- no title - no picture was drawn - no sentence - 1 page booklet	- title included - pictures of plants drawn by the student on 1 page - the students write one short sentence for one page about the plant - 2-page booklet (cover with the title, two pages of sketch, back cover)	- title included - pictures of plants drawn by the student on 1 page - the students write one short sentence for one page about the plant - 3-page booklet (cover with the title, two pages of sketch, back cover)	- title included - pictures of plants drawn by the student on two pages - the students write one short sentence for each page about the plant - 4-page booklet (cover with the title, two pages of sketch, back cover)
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Alignment with Standards

Strand 1: Scientific Inquiry and Application – Concept 1 Exploration, Observation, and Application. The students observe, explore, and interact with materials and their environment. Materials and instructional strategies that are culturally and linguistically responsive and relevant to the student's context by supporting their exploration, observation, and hypothesis about the relationship between objects, people, and events in their world.

While teaching my unit, the students will observe and analyze the two regions by comparing a PowerPoint presentation and reading a literature book with the teacher about the two regions.

Strand 1: Inquiry and Application – Concept 2 Investigation. The child researches their prediction and the ideas of others through active exploration and experimentation. Children use their skills and various tools and materials to gather information while investigating. Active experimentation requires questioning, refining, and persistence. Children explore answers to questions and begin to form more complex conclusions. Information gathered deepens a child's knowledge of the world and their environment.

Students will gather and analyze plants while on a nature walk as a hands-on activity and then make their own booklet from the collected plants.

Strand 1: Inquiry and Application - Concept 3: Analysis and Conclusion The child analyzes data (their observations and background knowledge) and forms conclusions about their investigation. Children form conclusions about their observations and investigations by collecting, discussing and communicating, and reflecting upon the information gathered. Adults can help children organize their information using tools such as graphs, digital media, manipulatives, and other relevant methods.

Students gather and analyze plants and input to a booklet by labeling their plant. Students will discuss with teacher about their booklet.

Prekindergarten Diné Cultural Standards

Standard: K'é dóó nitsáhákees dóó nahat'á níísgòò iiná bee shííh hasingo ádoolníł.
I will develop an understanding of Diné way of life.

Concept 3-Iiná

Bits' áądóó bee da 'ilnáanii baa ákonisin dooleeł.
I will implement and recognize the Diné lifestyle.

PO 3 Shinaagóó nanise' dahólónígíí dabízhí' shíł bée'hózin dooleeł.
I will name the various plants within my surroundings.

Resources

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