

Diné Institute for Navajo Educators
“Taking Care of the Land with Traditional Ecological Knowledge”
Bringing Balance Hozho to the Classroom through “Three Sisters” TEK

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Author Note:

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Acknowledgements must be given to the Diné Institute teachers and peers in the cohort who have shared the many stories and their own traditional ecological knowledge about planting the three sisters. I am blessed with the willingness of my peers in this cohort and at my school that have shared their rich and beautiful Native American culture and TEK with me. This experience will continue to open my eyes to the efforts of applying culturally responsive content that embraces the language, culture, and traditions into the classroom. I also want to give acknowledgements to the parents and students that I serve for allowing me to share the educational space. I also want to honor TEK in all of its spirit of this westernized educational system that gives respect to the cycle of nature.

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Introduction

My own definition and perspective of TEK at the beginning of this process was very loosely defined and related to my own ecological knowledge through personal experiences. I was voiding the word traditional due to the lack of my own traditional identity and not being of Indigenous descent. I also had a gap in understanding what traditions related to ecology. For me my own personal knowledge of being surrounded with agriculture and planting was the only part of TEK that I could relate to. Born into a family and within an area that emphasizes the importance of preparing, planting, irrigating and preserving food as a supplemental source of daily nutrition throughout the year was more of a mass production. I did not understand how the process played a bigger role in the human and earth relationship (Ké) that is at the core TEK. I was often in the field working and gardening with my mother as a part of daily chores from early spring to the late harvest fall and in the kitchen with preservation methods after harvests, but I did not fully understand or appreciate the bounties that mother nature provided in the relationship and dance of production that had occurred. The area that I grew up in South Western corner of Colorado had a great history of ancestral land to the Ancestral Puebloan. Their archaeological and ecological history brought to the table the use of traditional planting of the Ancestral Puebloan beans that tied the ancient culture and the land. The current day continuance of planting and harvesting this traditional bean is still a large part of the local agricultural community of this area. The Ancestral bean has a deep, earthy flavor compared to the traditional pinto bean. I can appreciate it now more as an adult than as a child. This bean was taken from the ancestral ruins of the Ancestral Puebloan people and tells a different story than their Traditional Ecological Knowledge. Now as I eat the earthy flavored beans, I can imagine the soil telling me its story of how it is mass produced with seasonal mono-cropped rotations, beans grown together in multi-acrid fields, the bitter juices oozing out of a bite with traces of the mechanically irrigated soil treated with the flowing waters from the Dolores River. I see its unique calico coloring before being cooked is a crumpled timeline of the past and present. That timeline of the bean is now feeding the profits of this mass production rather than giving the gifts of its nourishment directly to the people and the community that engages with the relationship of planting and caring for her in the earth. With this own personal background knowledge, I felt like I wanted to use the ecological knowledge and the traditional knowledge of planting corn, bean and squash together. These 3 plants comprise the sisters, their relationship parallels that companionship of growing together for students in the classroom. This culturally responsive unit will emphasize how “Three Sisters Planting” is related to the academic relationships of learning and growing together. The Three Sisters planting is an easy first grade level concept of TEK that will allow students to translate that concept of companionship, and reciprocity to the community in the classroom. I have also tied this concept to our school's values of friendship, integrity, respect and empathy and they will bring a structure that will support many of our students' traditional values and personal learning growth into the classroom. As a teacher I will emphasize my own pedagogical knowledge to incorporate experiences in the garden by applying the concepts of preparing, planting, producing and preserving as it relates to the concepts of pedagogical lesson deliveries. Preparing students with prior knowledge, planting the seed of a new concept, producing something with a learning objective and preserving that knowledge for future applications in new learning.

Context and Rationale

Who is the audience for this Curriculum?

I am a First-grade teacher at Kinsey Inquiry and Discovery School or K.I.D.S for short. This elementary school is one of 9 elementary schools located in Flagstaff, Arizona. The Flagstaff population is 76,831. (Aug. 2024) It is the largest urbanized city near the south western edge of the Navajo Nation. The Navajo Nation in Arizona, Utah, and New Mexico is the largest reservation with 16 million acres of land. (Aug. 2024) Flagstaff is located at the base of the San Francisco Peaks; this mountain range holds a significant meaning for several of the tribes located on and around the Navajo Nation. The San Francisco peaks or Dook'óoslííd known by Navajo is one of the 4 sacred peaks that surrounds the Navajo Nation and is an intricate part of the traditional connections to the land, culture, spirituality, directions, and creation stories. Kinsey's great location near intersecting interstates and its centralized urban location makes it convenient for families that frequently travel to and from tribal homes on the Navajo Nation. Kinsey has become a hub for many transitional families that work and or go to school within the Flagstaff area.

Our campus is conveniently located on the south end of the NAU campus and its unique location in Flagstaff makes it suitable for many parents attending NAU as well as being located near historically affordable housing for Flagstaff. Kinsey is a unique place to introduce this curriculum not only because of the diverse student population but also because our school offers experiential learning opportunities with place-based learning and project-based learning opportunities. (PBL) This type of learning means that we are either exposing students to local experiential learning with placed based exposures through learning excursions or we are guiding their learning with problem/solution-based models that provides hands-on opportunities to build projects as solutions to real life problems. Through this unique PBL learning it gives students the possibility to learn in a different format that helps them to become global citizens and stewards of the land that they are learning from. The three sisters' lesson will give students of Kinsey the opportunity to engage with the classroom community and self-reflection through understanding nature and the needs of all living things to grow.

Our school's mission statement is providing learning experiences inspired by the environment, cultures, and community of Northern Arizona. This mission statement directly relates to building this curriculum in that it is based on my students' relationship to the environment, culture and community in and around Northern Arizona. Our school values include friendship, integrity, respect and empathy (FIRE). Students pledge daily to be kind, compassionate, and include others. To use integrity by doing the right thing even when no one is watching. To be respectful to all people, places, and things. They will also use empathy by being understanding and encouraging towards others. I have tied these core values in with the Diné standards and the representation that the 3 sisters bring to benefit each other.

Out of the 362 students enrolled at Kinsey 50% of the students are Native American, 22% Hispanic, 22% White and 4% Multiple Races <2% Redacted. Making this lesson relevant to a large percentage of the population. Our school also falls under the state requirements for "Community Eligibility Provisions" because we have 98% of our students that qualify for free and reduced lunch. (June, 26, 2024) Our schools boundaries include students living within walking distance as well as students that are bussed in from the Lake Mary/Mormon Lake,

Mountainair, and Munds Park area. Up until this upcoming 2024/2025 school year any student living within the city limits could choose to attend Kinsey regardless of what school boundary they lived in because the school is identified as a Magnet (Specialized Curriculum) school with the emphasis of PBL. This Magnet policy has allowed families living within the Flagstaff area to utilize the FUSD buses for free regardless of their inner-city location. Our class sizes have ranged from 17-25 students with 2 and 3 sections at each grade level. All subjects are taught within a home room classroom for pre-K through 3rd grade and departmentalized in 4th and 5th grade. All of the listed above factors make Kinsey school the perfect community of diverse learners that will benefit from this culturally responsive curriculum. I also feel that this curriculum will help to support a classroom culture that is built around a naturalistic pedagogy that relates to many of the Native American traditions with understanding the importance of emphasizing ecological knowledge. My recommendation is that you present this curriculum at the beginning of the school year because of its ability to provide a structured model for the classroom expectations that will guide students to learn independently and collectively. Because the final product is tied to our schools (F.I.R.E) core values the goal setting final project can be modified or aligned with your own schools' values. The three sisters' relationship provides a moral understanding that guides students to see how their own independent growth that is paired with community companionship that will benefit all learners to grow together throughout the year.

Reason for balance/Hozho with TEK with The Three Sisters planting

After hearing from Lance Twitchell at the American Indian and Indigenous Teacher Education Conference (June 22, 2024) he emphasized the importance of preserving cultural identity through language, history, ceremonies, ecology, and so much more. Cultural identity is usually learned through elders and the community. Throughout history it was made clear that the loss of many cultures is directly related to historical assimilation of boarding schools. The practices of colonial educational systems is a major reason that we are seeing endangered languages and cultural loss worldwide. I can see how the continued westernized educational system is continuing to fail students of diverse cultural backgrounds; many students cannot identify with their culture or see themselves within the structures of the federally funded and state guided education. The structures and strategies that are currently in place do not always embrace other languages, traditions, regalia, and ceremonies. According to Gregory Cajete PHD, author of Look to the Mountain stated that since the 1960's Indian education has been fully attached to federal finances and modern educational theories. This complicated story of financial ties to the structures and regulations of our traditional education system is so closely tied to state test scores, curricula and the trappings of modern American education (Cajetes 1994). Cajetes goes on to explain the differences between the philosophical non-Indian views of teaching about the world as an inanimate mass of matter that is arranged into shapes of energy and patterns, is a matter of belief, not experiences. This westernized way of thinking is the polar opposite of many Indian beliefs. (1994)

According to WestEd American Indian/Alaska Natives have the lowest graduation rate of any other race or ethnic group. Approximately $\frac{1}{3}$ of the AI/AN youth do not graduate in the western states. In Arizona from 2019 the AI/AN graduation rate was 67% and in 2021/22 that dropped to 64%. (2023) This startling data is also another reason why I am creating this curriculum based on

“Three Sisters” companion planting. This topic of traditional ecological knowledge is culturally relatable and allows students to see themselves as a participant in school that parallels relationships observed in nature and celebrated traditionally at home. Many of the local communities on the Navajo Nation and across the country are utilizing planting of the three sisters as a type of Traditional Ecological Knowledge and it is such an intricate part of daily living, it is woven into ceremonies, traditions and language.

The experience with the Diné institute and learning more about what TEK encompasses has led me to a deeper understanding of traditional methodology; that many Native Americans see the world as an intricate, intimate relationship of all living things (K’é). Building a curriculum that embodies that relationship of K’é and utilizing the traditional ecological knowledge of planting the three sisters will embody a balance (Hozho) of school and culture.

Content Objectives:

What is TEK?

The term TEK was coined in Western academia, not from Indigenous communities (Ramos, 2018 & McGregor, 2005). TEK has been defined as “ a cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings with one another and with the environment”(Berkes, 2012, p.7). It may also be referred to as “...the culturally and spiritually based way in which Indigenous peoples relate to their ecosystems” (LaDuke, 1994, p.127). Seafa Ramos and other contributing authors go on to say in *The Journal of Wildlife* the approach to TEK research have been influenced by divergent interpretations of TEK from a Western and a Indigenous scientific perspective (Whyte, 2013 & Ramos, 2018). In Seafa Ramos paper (*The Journal of WILDLIFE* 2021 she explains the term TEK is so extensive with such a broad definition that it can encompass so many things for Indigenous people: it is a way of life, values, language, relationship, land, family, regalia, animals, nature, spirit, seasons, food, management, stewardship, traditions, ceremonies and much, much more. Indigenous scholars have noted that TEK is not just knowledge about the relationships with the environment, but it is the relationship itself; it is the way that one relates. One lives TEK (McGregor, 2004).

TEK is such a current topic because it is now playing an important role in understanding that the preserved technology/knowledge that has been guiding traditional Indigenous tribes for hundreds of years are resulting in a better way of living and sustainability for many biological resources. Through this seminar we have learned that the sustainability of TEK is playing an important role in many environmental sciences like; fire ecology, wildlife management, irrigation, water management and agricultural sustainability.

One of the first topics that we explored in TEK was the relationship of fire ecology with the article “Returning Fire to the Land: Celebrating Traditional Knowledge and Fire. In this article it explains that North American tribes have had traditional knowledge about how fire has effects on the ecosystems, habitats, and resources. We know that for millennia, tribes have used fire to promote valued resources. This scientific data has also been documented through tree rings, burn scars and traditional uses for trees. The western ideas of fire management and fire suppression

has proven to be detrimental to our current day forested lands partly due to the introduction of the smokey bear propaganda with fire suppression. The result of this long-term change in forest ecology has put many of us in a dangerous situation living near or within dense untreated forested areas. (J. For. 115(5):343–353 <https://doi.org/10.5849/jof.2016-043R2>) Just like the 3 sisters, fire ecology exploration could be used as the bases for the structure of this lesson as students dive deeper into understanding the relationship of the fire triangle and how each element plays an important role to understanding the behavior of fire.

Looking at other examples in Arizona we looked into how TEK has and still is a foundational part of the current day irrigation system in central Arizona. In a section of Simon Ortiz book Traditional Ecological Knowledge about Indigenous Sustainability: Language, Community wholeness, and Solidarity, reveals how the research of Dr. Jerry Howard helped to understand the importance of how the Hohokam-O’odham had created an irrigation system that spanned over 110,000 acres of canals and irrigation system. The system still stretches from current day Phoenix to the south by current day Casa Grande and Florence. According to Dr. Howard this is one of the largest, most sophisticated achievements of its time. The Hohokam-O’odham used this system to produce and live from the 3 sisters’ agricultural benefits in a large-scale way. (Simon Ortiz, Traditional Ecological Knowledge)

In the book Braiding Sweetgrass written by Robin Wall Kimmerer she reflects deeply on the TEK of 3 sisters agriculture, as she writes about the traditional planting of the three sisters with their beautiful story of reciprocity. Kimmerer shares the three sisters’ special relationship as the corn supports the bean with its strong tall structure while the bean can also add support from the wind. The reciprocity for the bean is providing its benefit back to the corn under the soil with its specialized nodules that house the Rhizobium bacteria that produce nitrogen back into the soil. This relationship becomes an important part of the reciprocity and companionship because the bean is providing nutrients for all plants that can benefit, including the squash. The last sister, squash plant has large leaves that provide shade that helps to retain moisture in the soil for the unison of plants and reduces weeds. She also uses her specialized tiny hairs on the stems as a way to protect the plants against hungry animals. This story of the three sisters with their unique relationship of reciprocity and companionship in nature drew me in to be utilized and the base of this curriculum. Seeing young students build a culture that is centered on replicating this symbiotic relationship of interdependence while still growing independently will be at the core of this curriculum. The concept of TEK will be important for the students to see themselves in this culturally responsive curriculum because it will hold a deeper understanding and relationship with the land, the traditional planting, stories, language and the elements of nature that relate to their own intricate part of traditions. The background building of traditional ecological knowledge has brought me to the understanding that I am not a part of the TEK for three sisters planting but my students are and their traditions hold that knowledge and power of what the three sisters represent to them. The definition of TEK is in the mind and eye of the traditional beholder.

Why 3 sisters planting?

Three sisters planting has been part of TEK for a very long time. Polycropping maize, bean, and squash has a long history in the Western Hemisphere. Evidence for each of these

crops extends back millennia in Central and South America Students may briefly be introduced to the long history of planting the three sisters that may have originated in central Mexico and spread up throughout what is now labeled America by 1000 CE. Several Indigenous tribes use three sisters' companion planting today although it may be planted in different ways dependent on the region and climate. In the northeast TEK mound planting Wampanoag method or Haudenasaunee planting method of the three sisters takes advantage of the rich soil and heavy moisture dense climate that keeps seeds from rotting (Three Sisters: Companion Planting of North American Indigenous Peoples, 2021).

To keep the ecological history relevant to the region and students I will relate one of the most unique southwest discoveries of TEK planting methods to Zuni waffle planting. The Zuni designed “Latdekwi:we” or waffle planting as a way of preserving the moisture in the dry desert climate. This type of planting involves squared divots and mounded soil shaped like a square formation like a waffle. This method retains the precious moisture around the seeds to start the germination process and continued growth while blocking the wind. Sunflowers have also been known to be planted around the edges of the waffle formation to help keep the squared soil formation protected from the wind. (June 29, 2024) This information will help build students' background knowledge in understanding how to retain the essential needs of a seed/plant to grow and thrive in the harsh desert environment. They will relate to the Diné standard: PO 2. Tó choo'łgi baa ákonisin dooleel. I will recognize the value of water. Students will then apply this understanding about the importance of water as one of the main needs for seeds/plants to grow. During one of the main activities this concept will be compared to the relationship of the importance of a pencil to the essential need for learning in the classroom.

Another reason why I chose to use 3 sisters in developing this curriculum is because it does have a scientific crosscutting standard that can be incorporated into the lesson development. Arizona state standard 1.L2U2.7: Develop and use models about how living things use resources to grow and survive; design and evaluate habitats for organisms using earth materials. What plants need to grow, survive, and produce.

The needs of each of the three sisters' and the importance of their companionship of being planted together will play such an important role in each of the lessons developed throughout this curriculum. Students will relate their classroom environment, supplies, and their relationships to their classmates and the needs of plants, as well as their ability to grow together in a collaborative environment. Students will use the 3 sisters as a model for social dependency on one another to be successful in utilizing supplies/tools and understanding concepts collaboratively.

Three sisters' companion planting is a great way for young students to grasp a small part of TEK while still relating to personal and classroom goals. I thought that this topic was a great way to encourage students to tap into their own cultural background and pull from any traditional knowledge of planting, eating, ceremonial use, or traditional uses for any of the 3 sisters' plants. My overall goal for creating a harmonious (Hozho) classroom is drawn from the value of what the three sisters bring when planted together. The description of this relationship is so eloquently described in this quote by Ian Torres, Heritage Garden Intern. “Let’s look at it this way; by themselves, these three plants will produce and will survive, but when they are together their

potential is expanded and the chances of them producing, as well as the quantity and quality, are increased. Now, in our society we have been taught that in order to be productive and successful we have to live our lives through a model of individualism. We have this language and mindset of the individual. In reality this individual mentality that on many occasions has crippled our nation, our businesses, our relations, our communities, and even our families. The truth is that we really need each other just like the corn, beans and squash need each other". (June, 2024)

Classroom Activity

I want students to start this unit off with drawing upon their own TEK. This process will start by having a traditional telling of the three sisters. I will then pull from students TEK of the three sisters with an activity that will allow students to contribute their own thinking and understanding of their background knowledge about each of the three sisters. Students may feel comfortable sharing language, traditional stories, or about how they may use each plant. They may also make ceremonial connections that are related to these important plants. This activity stems from a conversation with Dr. Darold Joseph (personal communication, June 2024) during the residency of the Diné institute and is a big part of drawing in the students' own introduction to TEK for first graders. Each poster will be building the value of how the 3 individual plants play an important role in their own lives and culture. Students will be sharing vocabulary/stories, traditions/history, planting/harvesting methods, and the use/ceremonies associated with each plant. The plants are labeled and pictured at the center of a word web on a large post it with English, Navajo and Hopi terms for the three sisters. Each wall post it will also have the listed above categories on branches of the word web so that students can engage in conversation and produce words or drawings that relate to their own TEK of corn, bean and squash. See attached example. (See figure 1.1) This activity will engage the students with their own understanding of TEK for the three sisters. It will also pull in some Diné standards into the lesson development.

PO 3. Shighan haz'ą'ą'dóó iiná bee nashidi'nitinígíí yísíníst'ą'ą dooleeł. I will identify and appreciate the teachings of life surrounding the home.

PO 4. Shimásání dóó shicheii baa hane' bits'ą'ą'dóó íhwiideesh' ááł. I will express and value my grandparent's Diné way of life teaching.

In the next lesson I wanted to tap into the science standards about plants needs 1.L2U2.7 Develop and use models about how living things use resources to grow and survive; design and evaluate habitats for organisms using earth materials. What plants need to grow, survive, and produce. I plan to use an introductory video about plants needing the core 4 elements to grow and survive. Water, air, nutrients, sunlight as the core four. (Aug, 2024) I will then have students apply the knowledge about the 4 essential elements to predict why a plant would not grow successfully when evaluating several different images that display unsatisfactory growing conditions. I will use that discussion to then introduce students to the traditional ecological knowledge of the Zuni with some imagery of examples of Zuni waffle planting. Students can help me identify why they think that this style of planting would be beneficial for plants to retain the 4 core elements. I have added to this lesson by allowing students to help me in planting a classroom plant. I will have labels of the 4 core elements on popsicle sticks that are used as we plant to label the needs of the plant. Students can also use the diagram and word bank to add labels to their personal page that has a picture of the classroom plant.

For the following lesson I wanted students to grasp the concept of reciprocity and how the three sisters planted together give and get from one another. I have found a great YouTube video and retelling of the 3 sisters' story from the Cherokee version. The Roseville Area Schools Nutrition services retell the Cherokee version of the three sisters as they clearly describe how important the relationship that the plants have with one another. I have paired this resource with a diamond board activity that allows students to dive deeper into the definition of reciprocity for each of the 3 sisters.

Now that students understand all of the critical elements of the plants' needs, reciprocity and companionship when the 3 sisters are grown together, we are ready to follow up with another lesson that will introduce how those things relate to the classroom and their learning together. I have taken and modified a game from Project Wild that is used to replicate what plants/trees need to grow. I have pulled out the same elements of water, sunlight, air, and nutrients as those elements will be an analogy for what is needed/tools are used in the classroom to help you grow. Prior to playing the game I set up 4 boxes that were labeled nutrients(pencils), water (glue stick), sunlight(crayons) and air(scissors). I then had students put each of their core elements that were in their pencil boxes into designated labeled boxes. The first part of the game entails that students get spaced out around the classroom as a seed in the soil. Students will need to bring their pencil boxes with them as they plant themselves in one location in the room. Their pencil boxes will serve as another analogy by protecting the seed just like the TEK Zuni waffle planting method. As they are planted firmly in one location of the classroom, I will go around to drop nutrients (represented as pencils) close by some seeds that are in reach and some that will not be in reach. With the rule that students cannot move their feet they will try to reach for the nutrients. I will continue this same step to drop glue sticks near some students to stock in their pencil boxes (glue/representing water). Again, some students can reach and others may not reach far enough to get one. Crayons will be dropped throughout the room as well representing sunshine as students have to continue to stay planted but reach for all their needs to be placed in the waffle wells/boxes to survive. I have also added scissors as part of my lesson because I wanted students to see all four core elements and it was tied to the next round with a collaborative task. After this first round, I will stop to discuss and see what wells or pencil boxes have everything they need to survive, nutrients, water, sun and air. One or maybe two students would have been able to reach all of the items needed to survive or grow. I will relate this to what you need in class to learn and all of the elements/tools needed for their growth in the classroom. Have students return the elements back into the designated boxes for the next round. In this round I will give students a card that labels them as a bean or corn or squash seed. This is the scaffolding that helps students to see how the three sisters' companionship works. Ask students to find their sisters of the 3 sisters to get planted together. Corn, beans and squash will be planted and stand together in one location. Before playing the game again with students, explain that they are now working together to collect 4 core elements to share as they can show reciprocity in their companionship. This will emulate the planting of the seeds together as they work together to help sustain the plant's growth. Students will have a collaborative relationship with peers in sharing their needs or (supplies) to grow strong together. I will continue this idea with one more part of this activity to show that we all learn differently and know different things but we can use each other to help us understand and put pieces of a puzzle together to learn as a team. Just like the three sisters getting what they need with support from each other. I have created a puzzle piece that makes up the 4 different pieces of our FIRE pledge. Each clue requires students to work together to use

clues to find the missing letters to spell out F.I.R.E. I created simple clues that require students to do some math and alphabetizing and phoneme letter recognition to then use their core element nutrients(pencil) to write down the answer. After all of the clues are solved, the teams will have to use the water element to glue their pieces of paper back together to reveal our school's logo on the back. Once glued down then the team can use the sunlight/crayons element to color in the logo together. If time allows, lastly the teams will use the air/scissors to cut out the logo. I plan to save these completed puzzles as a part of the final product display and as a reminder to students that when they work together and share their resources, they can accomplish tasks together.

Assessment

The last part of the unit is a lesson that reflects on what the students have learned from playing the 3 sisters needs/companionship teambuilding game together. It also embraces several of the Diné cultural building standards. The overall concept will serve students with concept 1 of the Diné character building standard: K'ézhnídzin dooleeł- I will express critical thinking to establish relationships with the environment. From the previous role play activity I would like students to use their reflections to make class and personal goal setting boards that reflect on how they want to use Friendship just like the bean in the classroom to help and support one another. Diné standard: PO.3 Shá'áhwiinnít'íí dooleeł: I will demonstrate and express kindness PO. 4 Saad bee ajoooba'ígíí bee yáshti' dooleeł: I will speak kindly to others. Students can also set an independent goal to show how they might use integrity to help themselves to learn in the classroom. (represented by the respect of oneself / corn) Concept 3 of the Diné standards: Adíłnishdlíí dooleeł: I will have self-respect, PO2. Ádaahááh nisdzin dooleeł: I will demonstrate self-respect. Students will also discuss how they will use respect for other people, the space and the things just like the squash represents when she is planted together with her sisters. All of these concepts are of course tied into the idea of reciprocity and how everything we do encompasses the exchange of a mutual benefit that we would want share in seeing, hearing and doing in the classroom.

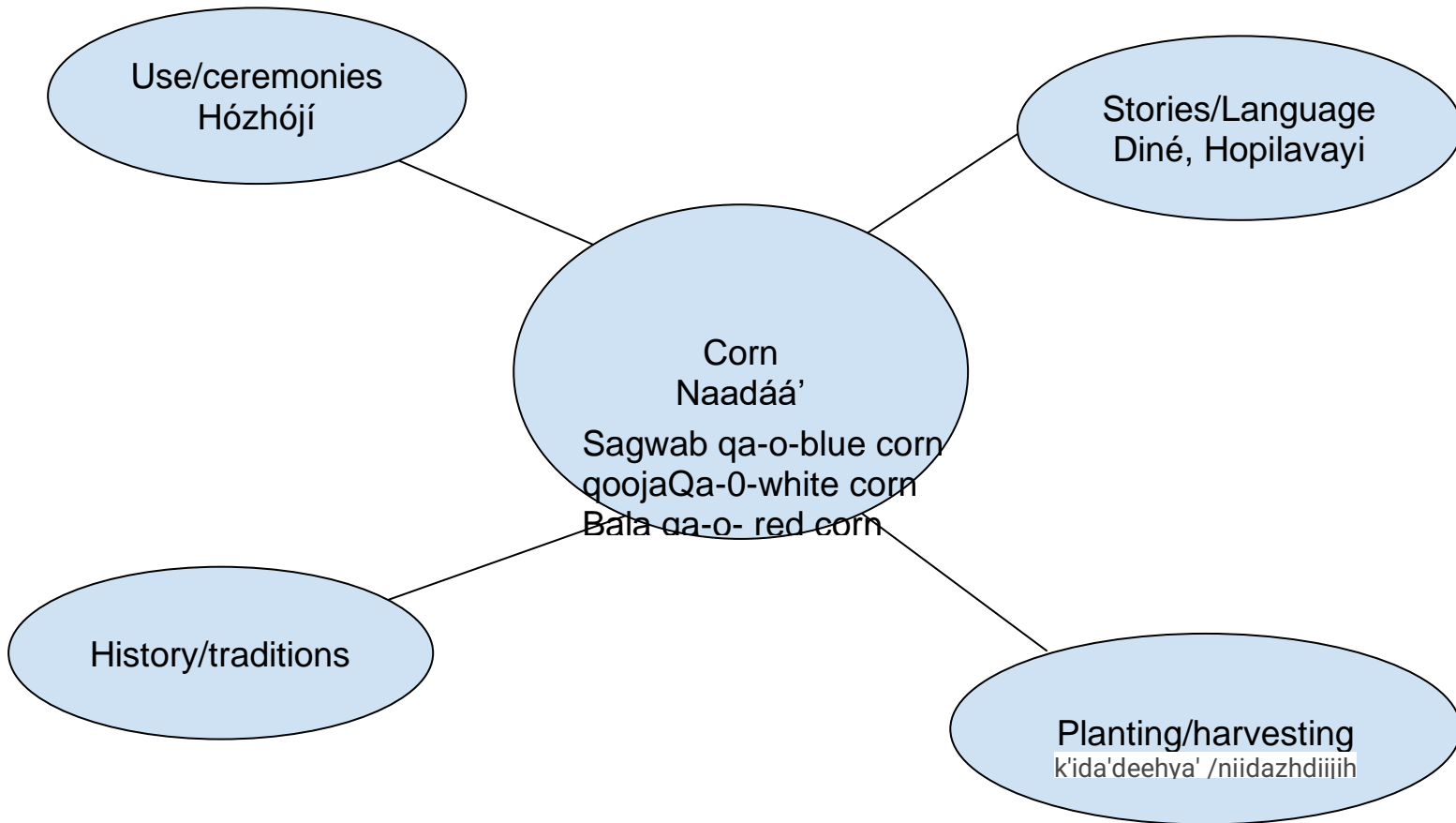
Teaching Strategies

In this process I want to reflect on my own rationality of the process of planting as it is related to teaching techniques that provide the best academic growth. My example is to relate to the 4 p's of the planting process and how those are similar structures of an effective lesson delivery. We start with **prepare (I do)** engage the students with important prior knowledge, **plant (We do)** the seed of new knowledge, **produce (You Do)** and harvest the knowledge with assessments, and **preserve (Reflect)** it for future applications that brings additional scaffolding that starts this learning cycle again. The first step in this curriculum will be to **prepare** with a short presentation to students about 3 who are the sisters planted from a local guest presenter. I will then gather a kind of pre-assessment with the information gathered by having students interact with the 3 corners wall posters. Students will then continue to be led into understanding the **planting** processes with a short presentation and slideshow that will present a TEK story of 3 sisters, TEK history of 3 sisters planting, needs of a plant, Zuni TEK examples of 3 sisters planting. The next lessons and activities are part of the **Plant/We do** process as students learn more about reciprocity and use a vocabulary worksheet and game to put several of the concepts taught in the **Planting stage** together. After the guided practice portion of the game the second portion leads

students into a **Produce** portion of the skill building and because they have practiced, they should be successful together. With the last part of the unit as a reflection piece of individual understanding of how the 3 sisters' relationship can be reflected in the classroom is the **Preserve** portion of the cycle. I will use their reflection as a way to assess their understanding of the relationship with peers in the classroom.

I hope that this lesson that reflects the relationships in nature is a natural understanding for students to understand that TEK can lead us to a better way of learning and growing with one another. The future hope is that these students can plant their own TEK understand to find a balanced relationship in the classroom with learning together and for themselves that will continue to preserve and serve future generations.

Figure: 1.1



Resources

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