

Seminar: Clean Water and Air

“Water is Life”

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Author's Note:

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Introduction

What is Water?

Water is everywhere. About 60% of our body is water and roughly, 71% of the Earth is water (USGS). According to our Navajo culture stories, the same amount of water on Earth is the same amount of water in our body. Water is one of the four sacred elements of life, along with Earth, light/fire and air. The Earth need water as much as human and all other living things. Water has been here way before man came. Water is the essence of life.

Is the water pure or, rather, how pure is the water we use? Actually, water bodies are made up billions of molecules, with each molecule made up of oxygen and hydrogen (Chapman, 2020). What form does water come in? ‘Water is found in three different forms on Earth - gas, solid, and liquid’. The form water takes depends on the temperature of the water itself. Water on our planet flows as **liquid** in rivers, streams, and oceans; is **solid** as ice at the North and South Poles; and is **gas** (vapor) in the atmosphere’ (Fetter, 2015) There is water underground and again in all living things. There are all types of life, which include water as a necessary and primary component of their habitat; such as birds that fish, eagles and herons. Water creatures live in streams, rivers, and oceans. We use water to nourish our body, cleansing, cooking, and to make things. Animals use water to nourish their body and for cleansing. When we look at water as a solid, it begins when; water is liquid. Then when the temperature drops to the freezing temperature, water freezes. The biggest body of ice on earth is found in the North and the South Poles. We also use ice cubes for drinking water and use it in other forms of liquid such as soda, wine, juice and coffee. Water also can be present in the form of a gas; water vapor. (Fetter, 2015)

Context and Rationale

The purpose of this curriculum unit is to instruct and inspire our young people at Tuba City Boarding School (TCBS) in Tuba City, Arizona about sacredness and the importance of water quality on our land, particularly for grades 3rd to 5th. Tuba City is an unincorporated, town in the western part of the Navajo Nation, Arizona. In the 2010 census count, its population was 8,611 (City-data Tuba City, Arizona). The establishment of Tuba City Boarding School has quite a unique history. The Bureau of Indian Affairs (BIA) established the school in 1898 to educate the Native American student in Norther Arizona. Its first location was, 25 miles southwest of Tuba City and was known as Blue Canyon School. It was later moved to Moenave, AZ. in 1901, the school was relocated to its current location in Tuba City, AZ. “From its beginning up until the 1940s, the school was operated by the Department of the Army. Then in the 1950s, the school came under the direction of the Department of the Interior” (TCBS, 2019). There are three public schools and the boarding school that are providing education to the students within the about 50 miles radius of Tuba City. A majority of the students are bussed in each day.

Tuba City Boarding School consist of 55 general education classrooms, 8 special educations classrooms, 2 Gifted and Talented classrooms and 4 Native American education classrooms. The

student population is ‘approximately 1,200 and includes pre-kindergarten through eighth grade students’ (TCBS, 2019). The Tuba City Boarding School serves the Navajo, Hopi and Paiute students. There are roughly 93% Navajo students, 5% Hopi students, 2% other tribes and ethnicity of students at Tuba City Boarding School. Tuba City Boarding School also provides a dormitory for our students and about 10% of the students take advantage of this service, mostly those students who live in the most remote area and where the school buses have little or no access. There are three departments: Little Thunderbird Academy (grade pre-K through 2nd), Rising Thunderbird Academy (grades 3rd through 5th) and the Thunderbird Academy (grades 6th through 8th). There is one Navajo Language and Culture class in Little Thunderbird and Rising Thunderbird academies and there are two Navajo Language and Culture classes at the Thunderbird Academy. It is a requirement for our students attending TCBS to take these Navajo Language and Culture classes.

I am the Navajo Language and culture instructor at Rising Thunderbird Academy. There are six classes for each grade level, third through fifth. My Navajo Language and Culture class is a special class. For the school year 2019-2020, I will have each grade level for three weeks per quarter. The duration of my class time is 50 minutes each. Each class will have twelve weeks of Navajo Language and Culture class for the school year.

I have taught Navajo language for a total of twelve years at two school districts in the western agency of the Navajo Nation. I have seen a dramatic decrease of our proficient Navajo speakers within the last seven years. The first year of teaching Navajo language in 2004, 50% of my students were proficient in Navajo, about 10% were fluent speakers and 99% understood the language when spoken. Today, none of my students are fluent or proficient in speaking the Navajo language. All my students are second Navajo language learners. I would say about 60% of the Navajo students understand the language when spoken to them and none will respond in a complete sentence in Navajo.

About 40 percent of the population do not have access to running water in their homes (Indian Country Today, 2017) mainly those that live out in the most remote area of the Navajo Nation. This curriculum is about the safe drinking water in their school, home and community. The curriculum will start off with identifying the four sacred elements then focus particularly on water. I have titled this curriculum ‘Water is Life – T0 Iin1 !t’4’. Students will have an insight of why water is life through the traditional and western teachings. Students will define Water is Life – T0 Iin1 !t’4 and learn to explain the importance of water from the traditional and the western perspectives. Students will also learn how their community, Tuba City, and other surrounding towns and places have gotten their Navajo names with water. Many of our students do not know how scarce water is today. They do not know that there are man-made laws that protect water and the water that they consume every day. Students will gain insight on the national laws about clean water and safe drinking water. They will also develop an understanding of the Navajo Nation Environmental Protection Agency (NNEPA) laws of clean water and safe drinking water. Through a unique range of updated activities, students are offered a variety view of our community’s rivers, streams, ponds, and our relationship to our greatest natural resources – water. Students will have gain much more respect of the cultural aspects for

the water through their activities. The third through fifth grades will be provided with a variety of hands on investigations and activities that will encourage them to become stewards of Earth's vital water habitats.

Content Objectives

“Any cultural teachings that are taught in the Navajo comes with story. Why? Stories come in form of prayers and songs” (Gonnie, 2019). My grandfather once told me, ‘you are a teacher that teaches the Navajo language and culture. When you are in the classroom teaching your students, you are praying just as a medicine man when he is performing his ceremony, he talks to the people that comes in which are his students. Therefore, you will need to know what you are talking about and what you want your students to learn and take with them, ‘ (Gonnie, 2019). In modern research of presenting a lesson or a curriculum, we need to know what our objectives and resources are to make our lesson effective. ‘Be culturally knowledgeable of what you will present to your students. Make sure you ask about what you do not know and do your research’ (Gonnie, 2019). With this mindset, I will present my curriculum about Water is Life with some Navajo cultural teachings and western research.

Navajo Culture – Four Elements

The four sacred elements of life is the air, water, earth and light/fire. In our Navajo culture there is a story each of these elements. These elements also have their own prayers and songs that are practiced by the traditional medicine men. I have received this information of the four sacred elements of life from my grandfather, Gibson Gonnie; Naay4e’ee K’ehgo Hataa[ii].

The order of these sacred elements are air, water, earth and light/fire. The wind clean the earth with a strong wind. The wind covered resources that were not good; such as harmful natural resources that were not healthy for human; cleaned and blew away bad energy and at some places created canyons. When the strong wind was done then it rained which formed rivers and oceans. A diversity of plant life began to grow at different parts of the world, which is at their present habitats. At last a Hogan was made. In the center of the Hogan the sacred fire was lit. The Holy People dwelled in the Hogan. Early in the morning they have noticed that there is a potter of water by the fireplace. They started wondering who has been putting the water there and how did it get there. On the fourth day early in the morning, they witnessed a woman coming in with water and placed it by the fireplace. She then went clockwise around the fire and went outside. The Holy People followed her outside to a nearby stream. Then they saw her walked into the water and disappeared into the mist. It made the water create a ripple. (Gonnie, 2019)

My grandfather explained that these four scared elements is essentials for all living things on earth. Each of these elements has prayer and songs which are used to make a sacred offering with the sacred minerals; white-shell, turquoise, abalone-shell, obsidian, corn pollen and the blue pollen. When land is in need of rain/moisture, the offering to the water is made to call upon the Holy People of the rain and thunder. He also explained that not just anyone can go out and make

the offering, a traditional medicine man that knows the sacred names of these elements, prayers and songs will need to perform the offerings.

Foundation of Water

The Navajo Nation is located in the middle of the four sacred mountains; Sisnaajin7 (Blanca Peak) to the east, Tsoodzi[(Mt. Taylor) to the south, Dook'o'os[77d (San Francisco Peaks) to the west, Dib4 Nitsaa (Hesperus Mountain) to the north, Dzi[N1'oodi[ii (El Huerfano) the doorway and Ch'ool'9'9 (Governador Knob) the chimney. "There are four rivers that borders the Navajo land; Rio Grande River to the east, Little Colorado River to the south; Colorado River to the west and to the north is the San Juan River. These rivers are the Foundation of water (T0 Bee Ak4k'eh Hashch77n)" (Gonnie, 2019). These rivers are the protectors of the Din4 and land. These are the places where the medicine men go to do their offering when any kind of life-threatening emergency occurs within the Navajo land.

Water Names of Surrounding Areas and Towns and Clans

Names that associate with water among the Navajo country and in the clans is considered sacred. Students will be able to understand the sacred meaning of their hometown and its surrounding area and learn to appreciate where they live today. Tuba City is called T0 Naneesdiz7 in Navajo (Tangled Stream of Water). There is other surrounding area of Tuba City that have water in their names. Student will identify the towns and places by their Navajo names on the map. Here are as follows;

T0 Naneesdiz7 (Tangled Streams of Water) – Tuba City, Arizona

K'ai'bii't0 (Spring in the Midst of Willow) – Kaibeto, Arizona

Sh33't0 (Spring in the Sunshine) – Shonto, Arizona

B44gashiito' (Cow Springs) – Cowspring, Arizona

T0nehal99 (Where the Water Gathers) – Tonalea, Arizona

B22h T0 (By the Water) – Willow Springs, Arizona

Clanship is important among the Navajo people, children at a young age are expected to know their four clans they represent and should present themselves as clanship expected. Students will be able to understand the sacred names meanings of their clans and learn to appreciate themselves as who they represent. There are some clan names that we associate with water, as follows:

Ta'neezahnii - Tangle of Water Clan

T0tsohnii – Big Water Clan

T1chii'nii – Red Streak into the Water Clan

T0'ahan7 – Near the Water Clan

T0 Aheadl7inii – Water Flows Together Clan

T1b22h1 – Edgewater Clan

T0d7ch'7i'nii – Bitter Water Clan
Clan

Naasht'4zh7 T1b22h1 – Zuni Edgewater
Clan

B88h Bitoo'nii – Dear Spring Clan

T0d7k'=zh7 – Salty Water Clan

T0 Baazhn7'1zh7 – One Who Comes to the Water Clan

Hozh= - Beauty Way

T0 Iin1 At'4, water is life. Hozh= is beauty. Therefore, water is part of beauty because it gives life. Without water, no living thing will exist. We the people of Mother Earth will need to know what is Hozh= to live in harmony with our existence. If we begin to misuse or exploit water, we will not live long on this planet. My grandfather Gibson says that we need to start utilizing the water with harmony. What does he mean by that? When our people use water, it was always used with a prayer, good thoughts, or a song. Water nourish our body, health is important. Very few people utilize water in this way now. Today we only do that in ceremonies. The Native American Church ceremonies utilizes what with prayers and songs at midnight when the fire chief brings in the water and morning when the woman brings in water. Water is used sacredly in all ceremonies.

Clean and safe drinking waters is very scarce today. Billions dollar industries such as the gas/oil industries are polluting our clean water which make it not safe to drink (Water Education Foundation, 2019). They are digging up natural recourses that is not good for our Earth and the people living on it. Some of these resources were meant not bothered with at all. There are people who believe in the survival of humanity are making laws that will protect our clean water and drinking water. What will it be like for our future generations when we continue to pollute that water at the speed we are going today? What are we putting out children's children into? How will they live? These questions haunt us. Water protectors are practicing their first amendment right of the US Constitution to protest these oil and gas companies to discontinue their drillings and polluting our clean waters. Greed is blinding the sacred use of water. Surface water and underground water are two main source of drinking water for the people. In the 1970's there has recognized that these sources of water were being threatened by underground waste injections (Water Education Foundation, 2019) mainly done by the oil and other natural gas companies. How do we protect our drinking water?

Safe Drinking Water Act

In 1974 the first federal law addressed drinking water quality by enacting the Safe Drinking Water Act (SDWA). This act “focused on public drinking water systems, whether drawn from the surface or various surface sources, requiring they maintain particular health-based level of purity.” (Grijalva, J, 2008). This act also required land use permits, including underground injection. The Safe Drinking Water Act authorized the United States Environmental Protection Agency (EPA) to set standards for our drinking waters to protect against both the man-made contaminants and naturally-occurring that may be found in the drinking water. The SDWA applies to all public water systems in this country. The Environmental Protection Agency (EPA) and the states started working together to meet the standards. There are a number of threats to drinking water. These threats are improperly disposed of chemicals; animal waste,; pesticides, and human threats of wastewater injected underground. Naturally-occurring substances can also contaminate drinking water. The responsibility for making sure these public water systems

provide safe drinking water is divided among US EPA, states, tribes, water systems, and the public. The SDWA provides a framework in which these parties work together to protect our valuable resource, water (SDWA Overview, 1974). Every year each community must prepare and distribute reports about the water they provide to the community. If there should be a new water system in the community, the EPA must conduct a thorough cost-benefit analysis to see if the water system could be at risk for any contamination and possible health effects. Each state has funding available to help water system make improvements infrastructures and to help protect their water sources. Anyone that is responsible for the safe drinking water in the communities must be certified. The Safe Drinking Water Act also provides their consumers with reports indicating what is in their drinking water, where it comes from, how it is treated, and how to help protect the drinking water. Every state must also conduct an assessment of its sources of water to identify potential sources of contaminations and to determine how to the sources are to these threats. Our drinking water sources are in good hands since the EPA uses the SDWA to oversee it.

Navajo Nation Safe Drinking Water Act

Under Title 22 of the Navajo Nation Code, Chapter 13 is the Safe Drinking Water Act which was adopted in 1995 which was later amended in 2012 (CAP-27-12) “to protect the health and welfare of the Navajo people and the environment by establishing appropriate drinking water standards to ensure that drinking waters is safe for consumption, and by protecting underground sources of drinking water from potential contamination by underground injection activities. For these purposes, “drinking water” includes bottled water, and this Act provides authority for the regulation of both public water systems and bottled water systems” (Title 22.NNC). As of 2000, Navajo Nation has been the only tribe in the United States to have regulatory authority for its drinking water program. The Navajo Nation Environmental Protection Agency (NNEPA) now “regulates 168 separate water systems serving 177,000 people. The 12 systems included in this primary expansion were regulated by the EPA” (Perez-Sullivan, Aug. 1, 2018).

According to the NNEPA, Navajo Nation drinking water comes from two major sources; surface water and groundwater. Surface water includes the rivers, streams, creeks, lakes, and reservoirs. Surface water is primarily used for drinking, irrigation use, and other public uses. Groundwater seeps down into the soil until it reaches rock materials that are saturated with water. Water is stored in between rock particles and eventually seep into streams, lake and rivers (Water Education Foundation, n.d.). The surface water the “Navajo Nation has claims to waters from the Upper Colorado River basin (including the San Juan River), the Lower Colorado River basin and the Rio Grande basin. Major rivers include the San Juan River, the Colorado River, and the Little Colorado. The Nation also has claims to a series of ephemeral washes that flow within the reservation boundaries. The Nation relies on groundwater from the Coconino Aquifer, the Dakota Aquifer, the Navajo Aquifer, and several others” (Navajo Nation). What’s dumped on the ground, poured down the drain, or tossed in the trash can pollute the sources of our drinking water. The concern here is not running out of drinking water but to protect the water from contamination.

The Navajo Tribal Utility Authority (NTUA) maintains and operates the water systems throughout the Navajo Nation. NTUA's mission is "to provide safe and reliable affordable utility services that exceed our customer's expectations" (NTUA Annual Water Quality Report 2018). The NTUA is required by the EPA to provide their consumers with a Consumer Confidence Report (CCR) for each water system they are responsible for. There are eight districts that the NTUA covers throughout the Navajo Nation. The Tuba City District has eleven communities they provide CCR to their consumers. These communities are as follows; Tuba City, Coalmine Mesa, Rare Metals, White Mesa, Gap, Comeron, Kaibeto, Red Lake, Coppermine, LeChee and Hard Rock.

Teaching Strategies

I will use a variety of GLAD (Guided Language Acquisition Design) strategies to engage and provide my students with an exciting learning experience while they are learning about the Safe Drinking Water Act. GLAD is "an instructional approach that incorporated a variety of strategies to support bilingual students in simultaneously learning, content, and acquiring language" (2017, Tips for Teachers). These are the following strategies that I will use in my lessons.

T-Chart – I start my unit with a T-Chart. This gives the students an insight of what the lesson will be about. I will be asking students 'What do we know about Safe Drinking Water?' 'What do we want to know about safe drinking water?' And at the end we will go back in fill in the last column with answering the question 'What have we learned about Safe Drinking Water?' (See Figure 2.)

Pictorial Input Chart – I will design a picture-supported chart of the Western Navajo Nation map. I would lightly sketch out the map in a pencil prior to instruction. During the instruction the students would be sitting close as I fill in the chart with names of the towns and rivers in English and Navajo with markers. I will be using color-coding to support brain imprinting. (See Figure 1.)

Graphic Organizer Input Chart – I will setup a graphic organizer to present my lesson in chunks. I will have the chart pre-planned such as notes, sketches, words are penciled and any of the picture cards. I will be filling them with markers and again color-coding as I present the lesson. At the end students will be given a writing opportunity in their writing logs. (See Figure 3, 4, 5, and 6.)

Quad-Chart – Using this chart the student will identify the four elements of life and illustrate them. They will also use this chart to draw and label what is Hozh= mean to them; How will you identify Hozh=? Student will use this chart to identify the Four Elements of Life. Student will illustrate the elements and write about it. (See Figure 6 and 7.)

Observation Chart – Student will observe pictures or drawings of water or related to safe drinking water and write observations, comments or questions about them. (See Figure 8.)

Survey – Student will establish survey questions about safe drinking water in their home, community and school. The 3rd grade will conduct a survey about safe drinking water at their

home. The 4th grade will conduct a survey about safe drinking water in their school. 5th grade will conduct a survey about safe drinking water in their community.

Classroom Activities

Navajo Language

The lessons of this unit will be taught in the Navajo language and culture class. I will provide students with vocabulary words in Navajo. (See Figure 9) The vocabulary words will be written on the board they will be using the words in their notebooks, posters, charts, and illustrations.

Chart

Students will also be creating charts. Student will identify, illustrate and write about the four elements of life. Student will define the words H0zh= by illustrating and writing about it. (See Figure 3, 6 and 7.)

Students will create a chart and identify five importance of Water is Life – T0 Iin1 !t'4. We could ask ourselves these following questions; what do we think of when it comes to water? Why do we need water? Can we do without water, if so for how long can we do without water? (See Figure 5.)

Students will create a graphic organizational chart – Safe Drinking Water Act. After reviewing the PowerPoint of the Navajo Nation and the national Safe Drinking Water Acts, we will compare and contrast the two acts by when it was established and its terms. (See Figure 4 and 6.)

Posters and Writing

Students will create a poster titled “Water is Life – T0 Iin1 !t'4”. They will illustrate what Water is Life mean to them. They will write a paragraph of their illustration.

Presenters

I will be writing invitation letters to the Navajo Tribal Utility Authority located in Tuba City to have someone from there come into the classroom and inform the students about safe drinking water and the data on water usage. They will also present any useful information that the students need to know about their local drinking water.

Water Day!!

At the end of the unit each grade level will have a Water Day. There will be 5 water stations that the students will be rotating among them. There will rules and instructions of each stations in their Water Day Activities booklet (See Figure 16). These activities are as follow:

1. Water Balloon Toss – students will learn about water pressure when tossing water balloons. Student will hypothesize by asking themselves questions of their experiment with water balloons (See Figure 11).
2. Evaporation – students will learn about the process of evaporation of water. They will use the sunny and shady sidewalk; some may even want to use paper to perform their experiment. Students will record their findings (See Figure 12).

3. Fun With Bubbles – students will learn about surface tension by making their own bubbles bottle using soap and water. They will record their steps of how to make bubbles (See Figure 13).
4. Create Water Filters – student will learn about ways to turn dirty water into clean water. Student will record their findings (See Figure 14).
5. Underground Water Movement – students will learn about how underground water is formed and how water flows through different kinds of sediments (See Figure 15).

Student Assessment Plan

The primary goal of this unit is to help all students learn about the importance of safe drinking water in their daily lives. In order to do this the materials taught must be relevant, comprehensive at all levels. The order in which the lessons are sequenced in program must be coherent. The lesson instructions need to be supplemental with academic support and the appropriate resources provided to create environment conducive to learning. As a teacher we have the same expectations for all our students but when it comes to assessments, we have those students who have their individualized educational plans (IEP). How would I assess those students with IEP? “if that plan indicates the student’s conditions is so profound that the student is not expected to achieve the intended outcomes of the grade level or course, but instead is pursuing entirely different goals or learning outcomes, there would be no need to administer the common assessment to that student” (pg. 135, Learning By Doing). Typically, a student with special needs should be expected to acquire the same knowledge and skills as the other students in the class. I have to apply specific modifications and/or accommodation for them as indicated in their IEP.

I will be assessing the student on their progress in learning about the unit with a formative and a summative assessments. Formative assessments will be given the duration of the unit using teacher made assessments, daily questions and discussion, their active participation in class, projects that they will be working on by themselves or with partners, daily reviews of previous lessons, and completion of experiments on Water Day Activities. The students will be creating a portfolio that they will be using to assess themselves. The summative assessment will be given at the end of the unit with five questions to assess what they have learned about the unit. Student portfolios will be one of the summative assessment.

Alignment with Standards

Din4 Language Content Standards

K-3rd Din4 Culture Standards

DCS:C2.PO3 – I will identify the various types of weather.

DCS:C3.PO2 – I will recognize the sacred teaching of the land and water creatures.

DCS:C4.PO2 – I will recognize the value of water.

I will develop and apply critical thinking to establish relationship with the environment. (Doss, M.)

4th – 6th Din4 Culture Standards

DCS:C3.PO2 – I will classify the land and water beings in my environment.

DCS:C4.PO2 – I will locate the different water sources.

K-3rd Din4 Government Standards

Judicial Branch

DGS:C1: PO2 – I will recognize the rules.

4th – 6th Din4 Government Standards

Legislative Branch

DGS:C1: PO2 – I will identify the process of rulemaking of Navajo Nation Council Delegates.

Arizona Science Standards

4.E1U1.6

Plan and carry out an investigation to explore and explain the interactions between Earth's major systems and the impact on Earth's surface materials and processes.

4.E1U1.7

Develop and/or revise a model using various rocks types, fossil location, and landforms to show evidence that Earth's surface has changed over time.

4.E1U1.9

Construct and support an evidence-based argument about the availability of water and its impact on life.

Resources

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Water Hole: No Running Water on Navajo Nation Reservation. (n.d.). Retrieved June 26, 2019, from <https://newsmaven.io/indiancountrytoday/archive/water-hole-no-running-water-on-navajo-nation-reservation-JF3R11tCVkeLkYHSz2BxMQ/>. Water Hole: No Running Water on Navajo Nation Reservation

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United States Geological Service, (n.d.). “The water in you.” Retrieved October 15, 2019, from https://www.usgs.gov/special-topic/water-science-school/science/water-you-water-and-human-body?qt-science_center_objects=0#qt-science_center_objects.

Water Day Activities

1. Water Balloon Toss
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2. Evaporation
Disappearing Handprint STEM Activity. (n.d.). Retrieved October 5, 2019, from <https://www.discountschoolsupply.com/disappearing-handprint-stem-activity>.
3. Fun With Bubbles
Tools, H. S. (n.d.). Home. Retrieved October 5, 2019, from <https://www.homesciencetools.com/article/how-to-make-super-bubbles-science-project/>.
4. Create Water Filters
Michaud, K. (n.d.). Homemade Water Filter Science Project. Retrieved October 5, 2019, from <https://science.lovetoknow.com/science-fair-projects/homemade-water-filter-science-project>.
5. Underground Water Movement
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Books

1. *Navajo Nation Safe Drinking Water Act. Navajo Nation Code Title 22. Chapter 13, Safe Drinking Water Act. 1995. Amended (2012).*

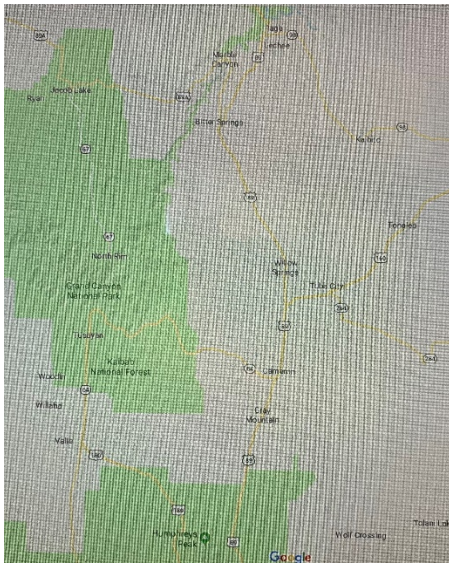
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Interviews/Presenters

- Gonnie, Gibson. “Four Sacred Elements of Life”, June (2019)
- Doss, Max “STEM” June 27, 2019

Appendix

A. Map of local area and Pictorial Input Chart



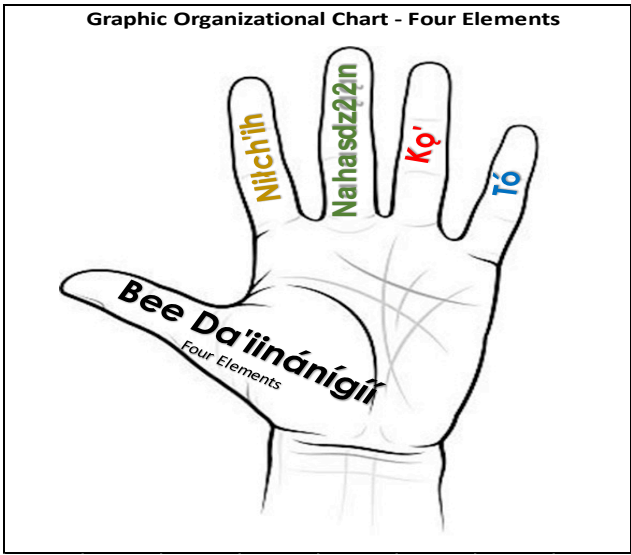
(Figure 1)

B. T-Chart

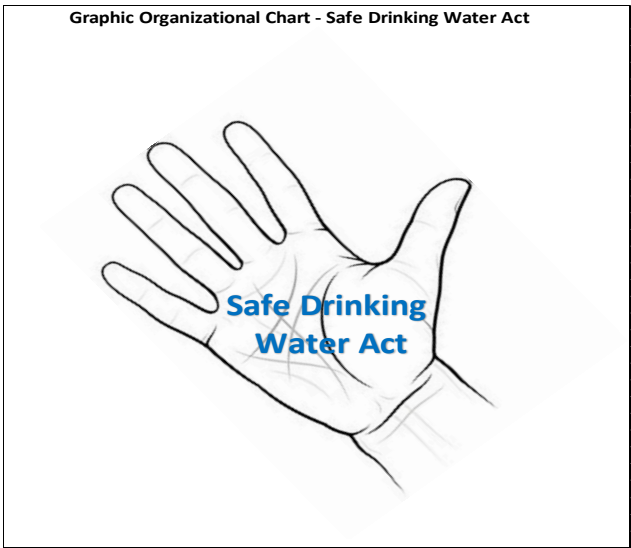
Safe Drinking Water		
What do we already know about Safe Drinking Water? Ha'1 t'zh t'1 1 7b33' t0 yid1 n 7b ee nihij b44hozin?	What do we want to know about Safe Drinking Water? Ha'1 t'zh t0 yid1 n 7b22h h0 hwiidil'1 1 [niidzin?	What have we learned about Safe Drinking water? Ha'1 t'zh t0 yid1 n 7b ee b0 hwiil'33'?

(Figure 2)

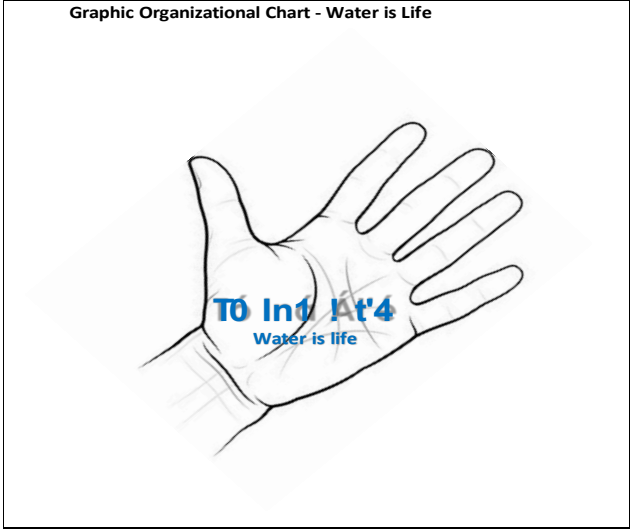
C. Graphic Organizer Input Chart



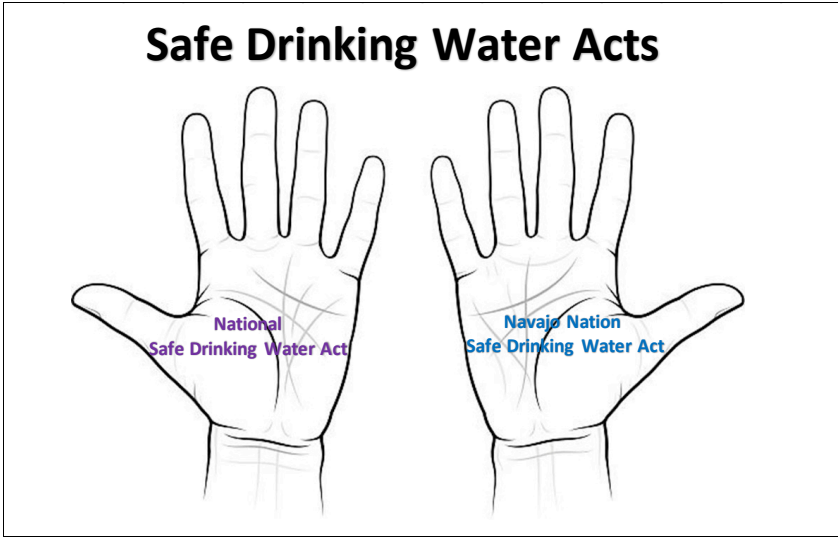
(Figure 3)



(Figure 4)

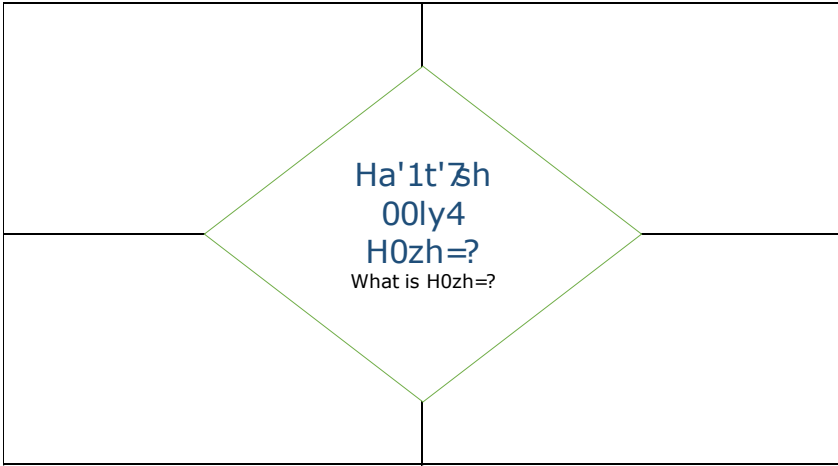


(Figure 5)

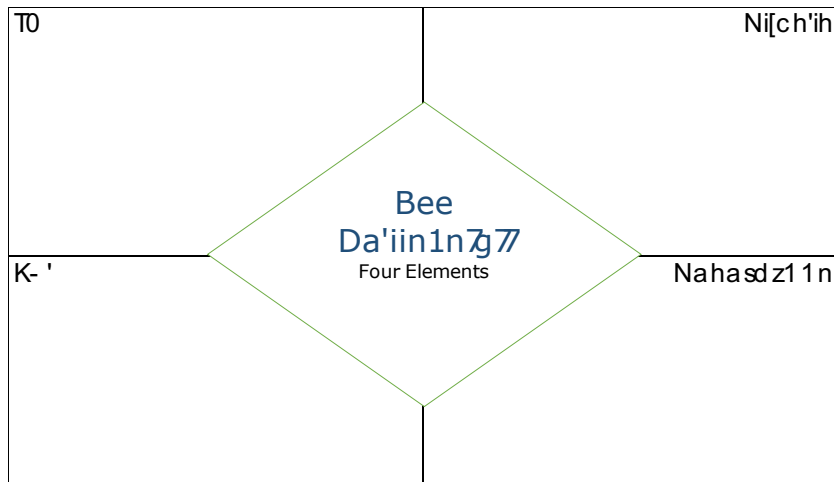


(Figure 6)

D. Quad-Chart

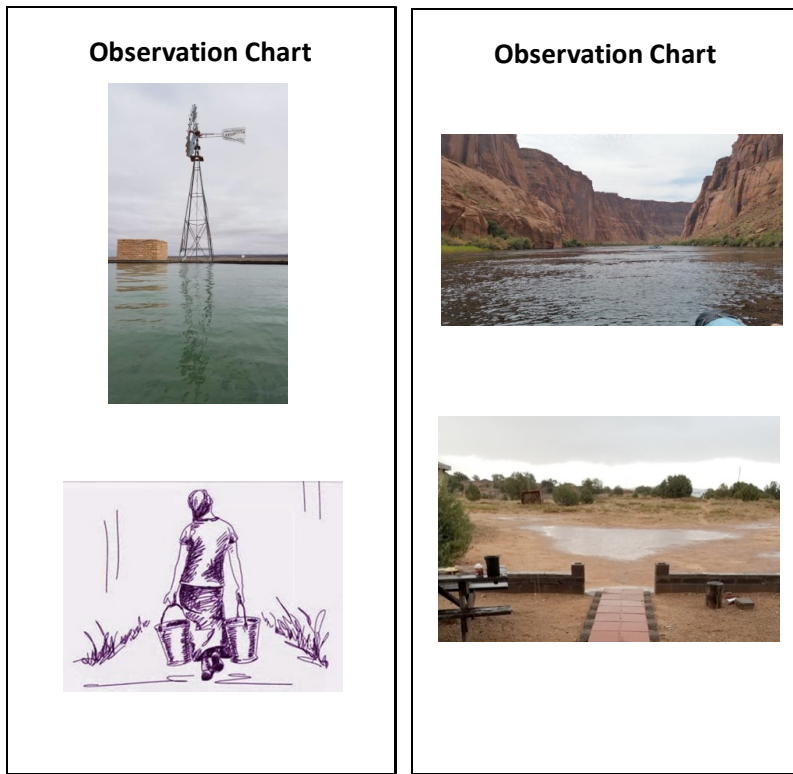


(Figure 6)



(Figure 7)

E. Observation Chart & Pictures



(Figure 8)

F. Saad B0hwiidoo'1[7g77 – Vocabulary words

Saad Bóhoo'aahígíí			
tó	water	kéyah	land
kò'	fire	Diné	Navajo people
niłch'ih	air	ba a'ahayá	protected
Na hasdzáan	Earth	bik'ih a déest'íí'	protected
k'os	cloud	ditléé'	wet
na hałtin	rain	tó niteel	ocean
tó nilí	river	na haz'ánígíí	places
łeeyi'	underground	hózhó	beauty
bee haz'anií	laws/policies	Bitsi' Yishtłizhii	American Indian
tó yidlánígíí	drinking water	iiná	life
niłtóólí	clear, pure	tó danilínígíí	rivers
nizhóní	good	dził	mountain

(Figure 9)

G. Water Day – Activity Book



Water Day Activities

Nizhi: _____

Tó Iiná Át'é

(Figure 10)

Water Balloon Toss

Learn about the water pressure.
https://www.canr.msu.edu/news/teaching_kids_about_science_with_water_balloons

<p>Materials:</p> <ul style="list-style-type: none"> * Water balloons filled with water * 2 players 	<p>Instructions:</p> <ol style="list-style-type: none"> 1. Position yourself 3 ft apart from each other. 4. Player 1 stays in one spot while player 2 take a step back after each toss. 5. Player 1 will be counting their tosses 6. Player 2 will be counting how many steps they take back. 7. Play the Balloon Toss 2 times
--	--

<p>Game 1 Number of tosses:</p>	<p>Game 2 Number of tosses:</p>
--	--

Record your findings/observations:

(Figure 11)

Evaporation

Learn about the process of evaporation.

<https://www.discountsschoolsupply.com/disappearing-handprint-stem-activity>

Materials:

- * Bowl of water
- * A Sunny Sidewalk
- * A Shady Sidewalk
- * Timer

Instructions:

1. Wet hands in the bowl of water, place a wet handprint on the sunny sidewalk.
2. Set timer and watch how long it takes for handprint to evaporate
3. Record time and repeat two more times
4. Repeat Steps 1 to 3 for the shady sidewalk

Sunny Sidewalk:

Time:

Compare results:

Shady Sidewalk

Time:

(Figure 12)

Fun With Bubbles

Learn about surface tension.

<https://www.homesciencetools.com/article/how-to-make-super-bubbles-science-project/>

Materials:

- * 5 gallon Bucket
- * Liquid Dish Soap
- * Bubble wands

Instructions:

1. Measure 6 cups of water into a container
2. Add 1 cup of dish soap
3. Stir until soap is mixed in, try not to let foams or bubbles form as you stir.
4. Place the wands in the container and have some bubble fun.

Record your observation:

(Figure 13)

Create Water Filter

Learn about ways to turn dirty water into "Clean Water".

<https://science.lovetoknow.com/science-fair-projects/homemade-water-filter-science-project>

Materials:

- * 2-Liter soda bottles
- * Coffee filters
- * Homemade filter (sock, paper towel, sponge, cotton balls, etc.)
- * Contaminants (cooking oil, laundry soap, dirt, grass, etc.)

Instructions:

1. Cut bottle in half, poke a small hole in the lid of the bottle
2. Place the coffee filter at bottom of half-bottle with lid and add homemade filters
3. Place the filtered half in the empty half of the bottle
4. In a Cup mix 1 cup of water, and two different contaminants.
5. Pour the contaminated water in the filter and watch

Record your findings:

(Figure 14)

Undergroundwater Movement

Learn how groundwater is formed and how water flows through different kinds of sediments.

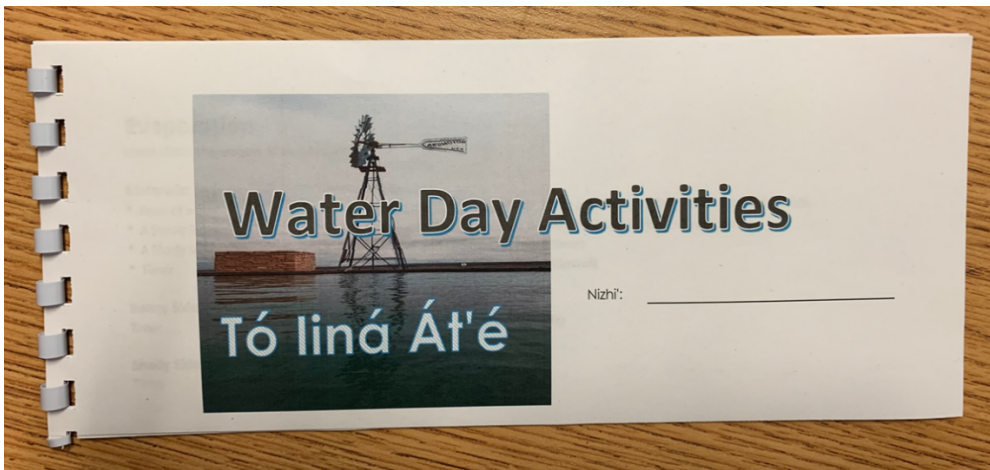
Materials: <https://www.earthsciweek.org/classroom-activities/groundwater-movement>

- * 3 2-Liter Bottles (holes at the bottom)
- * Equal amounts of gravel, sand, and clay (small bags)
- * Colored water

Instructions:

1. Predict how water will move through gravel, sand, and clay. Which type of material will allow water to pass through it most quickly?
2. Test your hypothesis by filling three different soda bottles or plastic cups to the same level with earth materials - gravel in the first, sand in the second, and clay in the third. The material should fill the containers to a depth of about eight cm.
3. Look closely at each container with the naked eye and with a hand-held magnifying glass. Do you want to adjust your hypothesis after looking at the materials?
4. To demonstrate how groundwater moves through underground rock formations, pour about 120-240 mL of colored water into each container. Record your results and discuss them as a class. Which container emptied the fastest? Which emptied the slowest? How do the different materials influence water movement in natural systems?

(Figure 15)



(Figure 16)