

From Empathy to Advocacy: Storytelling for Social Justice Education through the English
Language Arts

We Are the Protectors

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Introduction

My perspective as a non-Native teacher has impacted my approach to the careful research of this subject matter. I can only offer my interpretation of this research and events through my personal lens. Being a part of the Diné Institute and learning about Diné culture has greatly influenced my worldview. This is my seventh year of teaching Kindergarten and my second-year teaching students who are Native. As a teacher, my core values include the following: caring, equity, joy, choice, and respect. These core values are embedded in my classroom throughout the curriculum you are about to read.

Context

City Demographic:

The city of Flagstaff is located in Coconino County. It is sixty-six square miles on historical Diné land with a population of 77,590 in 2021. The average household income is 77,787 dollars with a poverty rate of 17.47%. Flagstaff is surrounded by ponderosa pine and the San Francisco Peaks (Flagstaff, Arizona Population 2021, n.d.). According to the most recent census, the majority of Flagstaff identifies as white (Census Facts, n.d.). What makes Flagstaff unique is its large Native American population with twelve times the national average, due to the surrounding reservations such as the Hopi, Yavapai, Navajo and Havasupai Nations (Flagstaff, Arizona Population 2021, n.d.). Flagstaff has many water sources to feed the city's municipal water system, making it largely accessible to those within the city. The water comes from Upper Lake Mary, springs near the San Francisco Peaks, and groundwater. The water is then treated before use in businesses and resident's homes (Drinking Water, n.d.).

School and Classroom Demographic:

Manuel De Miguel School is a public Elementary school located in the small city of Flagstaff, Arizona and is a part of the Flagstaff Unified School District. The school was built in the University Heights neighborhood, on the west side of the city. The school serves students from

the University Heights neighborhood as well as other local neighborhoods extending to Boulder Pointe, Ponderosa Trails, Kachina Village and Munds Park. According to the U.S News & World Report data from the 2017-2019 school years, Manuel De Miguel has a student population of 630 comprised of 67.3% students who identify as white, 17.9 % of students who identify as Hispanic/Latino, 9.2% of students who identify as American Indian or Alaska Native, 3.8% two or more races, 1.0% Black or African American, and .8% Asian (U.S. News, n.d.). Students who are “economically disadvantaged” make up approximately 19% of the school population, which is similar to the poverty rate of Flagstaff (U.S. News, n.d.).

This curriculum unit is designed for the Kindergarten classes at Manuel De Miguel Elementary School. Kindergarten has five sections, each with 22 students, which makes for approximately 110 Kindergarteners in our building each year. The classes are located in their own wing of the building. Although I have only a couple of years of experience in this district, veteran teachers at De Miguel have stated that each year our incoming classes will have a few students who identify as Native American. My Kindergarten colleagues and I plan to teach this curriculum during the same week at the end of September during our English Language Arts (ELA) block which is a 90-minute block of time each morning during the school day. This 90-minute time-slot includes phonics, a thematic read aloud, a class activity, and “Kindergarten Jobs” that are completed independently while the teacher works with small groups. The current reading curriculum provided by our district to use for ELA instruction follows a framework that encourages readers to learn from their experiences with society. The curriculum includes whole group books and guided reading books that align with each unit’s theme. Although these books include characters and illustrations that represent multiple races and ethnicities, I believe they could be replaced with other multicultural books that both align thematically and dive deeper in social justice to provide more worldly perspectives in my Kindergarten classroom. Along with the curriculum units, the Kindergarten scope and sequence includes theme ideas to base our lessons on. It is my personal opinion that these chosen themes could be used as an opportunity to move beyond typical Kindergarten lessons reflecting dominant narratives to expand upon and look at ideas from multiple perspectives. Because most of my students come from homes that represent the dominant culture, it is important to expose them to new ideas and perspectives.

My group of Kindergarteners spend their entire day in our classroom with the exception of lunch, recess, and specials (gym, music, art and library class). I teach them English Language Arts, Math, Writing, Science and Social Studies. Although Social Emotional Learning (SEL) is not an identified subject that I teach, I believe it is my role as a Kindergarten teacher to give my students tools to grow socially and emotionally as well. Since we spend the majority of our school day together, I get to know each child very well. Throughout the year I have the privilege to build a relationship with the child[ren] and their families. My incoming class has twelve students who identify as white, three who identify as Native American, one who identifies as black, and seven that identify as Hispanic.

Rationale

Former president, Barack Obama stated at the Youth Townhall in 2010, “Without regard to whether some place is wealthy or poor, everybody should have the chance at clean air and clean water.” This quote, specifically referencing “clean water”, has gained significance for me since moving from Wisconsin to the American Southwest. I spent most of my life residing in a suburb of Milwaukee. My experiences from a small, middle-class town made me quite naïve to the idea that many communities around the country cannot turn on a faucet to get a glass of water because I had municipal drinking water readily available. I distinctly remember days, here and there growing up, where the city had to turn off our water for part of the day due to maintenance. A feeling of inconvenience, frustration, and annoyance was voiced by all in our household. Researching the topic of water availability on reservations has humbled me to my previous experiences as I had no idea how prevalent of a problem the lack of available clean water is. Since moving to Flagstaff, I was made aware that the availability of clean water and indoor plumbing impacted nearly one third of the Navajo Nation (Allen-Charmlley, 2020) so close to my new home. To many, this may only seem like an environmental issue, but research clearly shows that access to unpolluted drinking water disproportionately affects low-income communities and those of color, indicating that this is an issue of social justice. “Native American households are 19 times more likely than white households to lack indoor plumbing. African American and Latinx households are nearly twice as likely” (Roller, 2019, p. 12). This is due to a lack of funding for infrastructure and government support as well as billion-dollar industries that pollute clean water with energy resources such as low-sulfur coal, oil, natural gas, and uranium. (Dunbar-Ortiz, 2019). In fact, the Indian Health Service communicated with congress in 2018 that the Navajo Nation has more than 450 million dollars in unfunded water needs (Krol, 2020). Regardless of race, ethnicity or socioeconomic status- there is something that every human has in common: the need for clean water to survive. Yolanda Tso so simply and explicitly stated, “I don’t really believe that [water] should be considered a luxury in this day and age, especially in this country.” (Allen-Charmlley, 2020, n.p.) Being able to readily access unpolluted water is not only a basic human right, but is linked to our health and hygiene which, in turn, makes a significant impact on our daily lives.

I have become very passionate about this water accessibility as I have learned more about it and there are three primary reasons that I am focusing on it for my curriculum unit: our country’s current pandemic, a desire to educate others who may have never truly considered this issue before, and a shared value of water.

COVID-19:

Since the Coronavirus outbreak in 2020, our country has seen an increasing divide on this issue, especially with respect to healthcare. Throughout the pandemic, we were told by news stations

and experts around the world to wash our hands often and properly to help control the spread of the virus. This statement made by experts assumes that everyone has handwashing access, but what about those living without access to clean, running water? This is one of many reasons we have seen low-income communities hit hard by the COVID-19 virus; in fact, the Navajo Nation surpassed New York in per-capita coronavirus cases (Allen-Charmlay, 2020) and has had to rely on donations for basic needs like handwashing stations. It is commonly known that handwashing with soap is able to disrupt the transmission of diseases, something that is often taken for granted by many Americans. Brauer states that, “this often is not the case for people in low-income countries” (Schmidt, 2020, p.1). This document also states that if “the COVID-19 pandemic would coincide with water shortages in such areas, access will be further restricted and will disproportionately harm those who can least afford to pay for water.” (Schmidt, 2020, p. 2). Water shortages have a direct correlation to an increase in COVID-19 infections due to an unequal access to water as discussed by the Navajo Nation Department of Water Resources director (Krol, 2020). It is heartbreaking to watch communities, specifically the Navajo Nation, be hit so hard by this pandemic. It is even more devastating to me that the United States government is aware of these statistics and understands possible solutions, yet continues to make decisions that have a negative impact on the Navajo Nation.

My Students:

Although my students are growing up in a different part of the country than I did, many of their experiences related to water accessibility are similar to my own. Because I am able to build a strong relationship with my students, I was able to discover that my 100% of my class from the year of 2020-2021 had access to running water in their home; they are able to walk a short distance in their home or classroom to fill up a water bottle or wash their hands without thinking twice about it. Although this curriculum will be taught to a new group of students, I can make an assumption that those numbers will be similar this year. From observation and conversations with my students, I have noted that there is a disconnect with the value of water and its impact on our daily lives. In “Why Indigenous Literatures Matter” Justice (1975) speaks of this disconnection:

Disconnection is cause and consequence of much of this world’s suffering. We are disconnected from one another, from the plant and animals and elements upon which our survival depends, from ourselves and our histories and our legacies. When we don’t recognize or respect our interdependencies, we don’t have the full context that’s necessary for healthy or effective action (p. 4-5).

Understanding the impact of disconnection on global issues has led me to see the importance of guiding my students to learn about our relationship with water and its value in cultures around the world. It is my vision that this curriculum will help my students to form connections between the idea that water is life and the nature of its accessibility. I want to help them draw these

connections by learning about the Diné way of life using children's literature as mirrors, windows and sliding doors (Bishop, 1990). Children who are a part of the dominant culture often find their lives mirrored in books, but need to be read books that act as a window or sliding door into other's reality - books that help them understand the diverse world they live in and to build connections to other humans (Bishop, 1990). It is imperative for students who do not identify with the dominant culture to see themselves in literature, too. Through high quality, culturally responsive read alouds, I want to create a safe space for my students to think critically about the themes expressed to create empathy for cultures other than their own. This curriculum will teach my little learners to know the sacredness of water and how it affects humans. In the end, I hope students will use this knowledge to one day advocate and be change makers for a world that provides every community with access to clean water regardless of race, ethnicity or socioeconomic status.

How I Am Influenced by Water:

Finally, this is a heartfelt topic to me because of many special moments I've had surrounding water. Although my hometown, Milwaukee, is known for its proximity to Lake Michigan, I have spent a lot of time on other bodies of water in our state. My father and I spent many weekends of my childhood at our cabin in northern Wisconsin. On our land is a small lake where we would spend the majority of our weekends fishing, boating, swimming and exploring. This lake is not only special to me because of the memories connected with it, but because of all it has provided for my family. My father would tell me stories about the vegetation, animals around and within the lake, and talk to me about the water height and how it's changed over time. These are changes I have observed during my lifetime as well.

This body of water has been a self-care outlet for me. Just sitting near water has a restorative impact on our health, according to marine biologist Wallace J. Nichols. "Water gives our brain a rest from overstimulation, induces a meditative state, evokes feelings of connection to something beyond ourselves, and spurs creativity" (as cited in Aguilar, 2018, p. 162). Being outside, specifically near water, gives humans negative ions to breathe which helps us feel energized and rejuvenated (Aguilar, 2018). It's no wonder I have positive memories regarding my time spent at the lake. I have always wanted to protect this body of water that is so important to me and hope to help others protect water that is life for them.

Content Objectives

Social Justice Education

Social justice, according to Lee Anne Bell, is both a goal and a process that can be learned and cultivated in our classrooms (1997). Let's begin by explaining the term social justice as stated by

Boyd, “social justice denotes a commitment to understanding, studying, and continuously discerning systems of oppression and to taking action to work against those structures for a better and more equitable society for all individuals” (2017, p. 5). I would like to place emphasis on the idea that social justice involves both learning and taking action- an idea this curriculum reinforces by giving students tools they need to advocate regarding an injustice they see, should they choose so. It is important for us to first understand that systems of dominant culture exist where not all members of a community experience equity (some examples include racism, sexism and classism). These individual experiences of inequity as stated by Sensoy & DiAngelo are a part of a large system of “pervasive, historical and political relationships of unequal power among social groups” (as cited in Boyd, 2017, p. 6). The goal of social justice education, as stated by Bell, is to help students develop critical thinking skills that help them understand these systems of oppression and to deepen their knowledge to examine issues of injustice in their lives as well as the world around them (1997). We as teachers are responsible for educating ourselves on the systems of oppression so we are able to help our students deepen their knowledge and prepare them to become activists for social change. Alongside mandated curriculums, teachers are able educate their students by choosing how and what we teach to reflect our diverse society by integrating culturally relevant materials and providing a space to guide students through conversations about these pertinent topics (Boyd, 2017).

Because this curriculum is centered around English language arts (ELA), I will provide you with more specific information regarding social justice education during reading time. ELA is text centered, more specifically read aloud centered in Kindergarten. Being text centered, ELA gives us an opportunity to choose print that acts as mirrors, windows, and sliding glass doors to our students’ lives and the world around them (Bishop, 1990). Through guided discussions that promote equity, students and teachers can analyze the text from a social justice angle. When students build connections from diverse texts to their lives, they not only validate their own story, but can see relevance to community and nationwide events through these sliding glass doors provided through literacy (Boyd, 2017).

The foundation of justice embraces the concept of respect, dignity, and the worth of all people. The idea of social justice is seen in many cultures including Hebrew, Islam, and Indigenous traditions. For example, the word *namwayut* from the Musqueam people, means “we are all one”. This directly correlates with the importance of living in harmony and balance as seen in Diné culture. The Chief of Justice for the Navajo Nation talks about horizontal justice where, no one is seen as more important than the other, the focus is on the wholeness of the group to restore balance and harmony (Evans, 2016).

Although this topic can feel heavy by those called to teach from a social justice perspective, Adams and Bell share that “hope is generated through learning about the actions of individuals and groups, historically and in the present, on whose work and ideas we can build” (p. 116,

2016). By teaching our students about the systems of oppression, we are moving towards justice. In the teacher resource portion of this curriculum, you will find more resources to support you as you make the journey to educate our youth about social justice and encourage them to be activists.

Oppression and Social Justice Education

Bell states that oppression is a term used to “embody the interlocking forces that create and sustain injustice” (1997, p. 5). Oppression can manifest in many ways, but this particular issue of potable water on the Navajo reservation is an example of institutional oppression. Through social justice education, this institutional oppression can be “exposed, analyzed, and challenged (Bell, 1997, p. 5).” Oppression of the Navajo people is seen through history and laws that maintain a hierarchy of the dominant culture including lack of government accountability for mining on reservations and under-resourced water infrastructure for the Navajo Nation. Inadequate water resources on the Navajo reservation today are also cumulative, being rooted in genocide that “set non-native people on the road to wealth at the expense of dispossessed Native Americans.” (Bell, 1997, p.6-7).

Diné Peoplehood and Connection to Water

Diné, the name for Navajo people, is translated to mean “the People”. Identity is a crucial part of Diné values and there are four components to Indigenous identity - land, language, ceremonial cycle, and sacred history. Part of this sacred history is the Diné origin story which describes the emergence of Diné people into their territory. A portion of this origin story describes a deity named Changing Woman. This protector gave birth to twin sons named Born for Water and Monster Slayer. Born for Water’s name is reflective of the Diné emphasis on the value of water. Changing Woman also created the original clans, making two of the four from sweat glands on her body, thus, making them sacred. She named these two clans after water-related elements - Bitter Water and Mud. According to the story, water blessed the grounds that these groups have called home, making water a central part of Diné identity. Water also plays a vital role in many rituals and ceremonies of the Diné people associating water with life. More clans have been welcomed to the Diné community and a reference to water (Tó) can be seen in many clan identities (Dziadosz, C. 2020).

In 1995 the Navajo Nation Environmental Policy Act was created to put policies in place regarding water care that reflect the Diné way of life. The policy promotes harmony and balance between the natural environment and people of the Navajo Nation. It also emphasizes restoration of harmony and balance when necessary. When balance in the natural world is off, it will affect the people, too. Originating from the Diné creation story, there is a spiritual connection to the ground as a living being that needs to be respected instead of treated like a resource to be

manipulated. The Navajo Nation states that protecting and restoring the environment is held to great value. “Water is life!” The quality of life is directly correlated to the quality of the environment (Navajo Nation Environmental Policy Act, 1995).

The Navajo Reservation

The Navajo reservation is in the U.S southwest, occupying Arizona, New Mexico, and Utah. In 2016 there were 350,000 people living within the Navajo nation with 332,000 enrolled tribal members. Much of the reservation is on the Colorado Plateau and is surrounded by four sacred mountains: Blanca Peak, Mount Taylor, San Francisco Peaks, and Hesperus Peak. The Diné people remain on the land despite being forcibly moved off by the U.S government between 1863 and 1868. This “Long Walk” was a 300-mile march to Bosque Redondo with a goal of forcing Navajo people into a lifestyle of farming. After many lives were lost and the resistance to this removal, the Navajo returned to their homeland. (Tsosie, 2015)

This “new” reservation was established with the signing of the Treaty of 1868 when the men, women and children were finally allowed to return to their home. The United States of America created the boundaries of the reservation. At that time, it was a small territory containing Fort Defiance, Chinle, Many Farms and Shiprock. Now, the reservation is approximately 27,000 square miles. (Navajo Tourism Department, n.d.)

The Navajo Water System

As stated from the Navajo Nation Environmental Protection Agency Public Water Systems Supervision Program’s (2019) website, drinking water on the Navajo Nation comes from surface water and groundwater. The website also explains that surface water includes the bodies of water that you are able to see above ground - rivers, lakes, streams, and reservoirs. Groundwater sources include aquifers which supply wells and springs. This water must then be decontaminated and then distributed to homes, mainly through piping. According to the Environmental Protection Agency (EPA, 2019), many homes do not have access to this regulated water supply, as approximately 15% of households are unable to access the potable water system. This means the households rely on unregulated water supplies, such as wells or springs. The EPA (2019) also states that despite the use of unregulated water sources being prohibited because of contamination, many people still use them due to a lack of water infrastructure in remote areas. Families are encouraged to haul water from regulated sources or purchase from stores. The expense of this is great with the inclusion of travel.

Tribal Sovereignty and Water Rights

Tribal governments have existed long before the formation of the United States and have been recognized by the U.S Constitution as distinct governments. Recognition as a sovereign entity gives tribes the rights and power to govern that also apply to other nations. This sovereignty is limited because of the relationship the U.S Government has with tribes. Although the tribes have the inherent right to govern, the government can exercise their power over tribes in certain situations. Sovereignty law, as stated in *Albuquerque v. Browner*, acknowledges the right for tribes to have jurisdiction over their natural resources. This includes the right to control water resources and regulation of water pollution. Having the ability to control a natural resource such as water is vital for the Navajo Nation because of their cultural emphasis on a relationship with the natural world (Owley, 2004).

1908 Winters v. United States

The *Winters v. United States* (1908) case states that “when Congress creates an Indian reservation the water necessary to fulfill the reservation’s purposes is reserved highly implicitly” (Brougher, 2011, p. 1). This lawsuit was filed as a result of the Fort Belknap Reservation experiencing water shortages due to water being diverted from the region to non-native water users. The Court eventually ruled in the Winters Doctrine that the government guaranteed water sufficient enough for the people on the reservation and needed to continue this throughout the years (Brougher, 2011). Tribal officials are also supposed to be included in water-policy negotiations but are repeatedly left out of these key discussions. Indigenous water rights were initiated when the reservation was created, giving high priority to the rights for sufficient water to irrigate crops, fishing and other purposes (Crepelle, 2019). Tribes are supposed to have enough water for current and future needs, although most do not use it due to multiple reasons - a lack of infrastructure being one of them (Crepelle, 2019). Despite the Winters Doctrine describing the quantity of water a tribe is entitled to, it does not address the quality of the water. The quality of water is described in the Clean Water Act (CWA) and the Safe Drinking Water Act (SDWA).

Water Quality Laws

A well-known water quality law is the Clean Water Act of 1972. According to Owley, the Clean Water Act’s main goal is to “restore and maintain the chemical, physical, and biological integrity of the nation's waters. It calls for the eventual elimination of the discharge of any pollutants into navigable waterways” (2004, p. 71). Under the act, the EPA sets water quality standards in which individual states are main enforcers.

Safe Drinking Water Act

In order for tribes to be treated as states to protect their resources under the Clean Water Act and Safe Drinking Water Act, they must meet four criteria. The tribe needs to be federally recognized, the tribe's government must be capable of carrying out governmental duties, the body of water the tribe is regulating must be on the reservation, and the Environmental Protection Agency (EPA) needs to declare the tribe capable of keeping water quality standards consistent with CWA and SDWA. Being treated like a state to protect their water has enabled eighty-five tribes to make significant changes to their water quality. The Navajo Nation is the only tribe that is exercising their rights under the SDWA giving them precedence over 160 water systems. The EPA is required to make sure that water sources on reservations meet the SDWA standards, with the exception of water sources on the Navajo Nation due to the Nation exercising their right to protect the water on their reservation (Crepelle, 2019).

Despite having rights to a quantity of water that meets the reservations needs and quality water under CWA and SDWA, tribes have difficulties accessing water. I will be focusing on the inaccessibility of water relating to the Navajo reservation: "The average Navajo is able to use only seven gallons of water a day while the average American uses approximately 100 gallons of water a day" (Crepelle, 2019, p.169). This is due to many reasons including limited infrastructure, plumbing in homes, or lack of a potable water source. The water has been contaminated by years of mining many minerals, with uranium having the most noteworthy impacts.

Mining

Carnotite (a yellow radioactive mineral) was discovered near the Carrizo mountains on the Navajo reservation in 1918. This began decades long of mining resulting in dangerous outcomes for the Navajo people. Shortly after in 1919, the U.S Congress passed an act which opened up the reservation for mining and prospecting. Radium, Uranium and Vanadium were heavily mined with over 40,000 pounds sold by 1920. With the discovery of a multitude of natural resources on the Navajo Reservation leading up to 1920, mining companies worked with the Department of Interior to get tribal councils set up on the reservation in order to authorize mining leases. A council was chosen but was not able to meet unless the Secretary of Interior was present for the discussion (Tsosie, 2015).

With atomic energy gaining momentum due to development of nuclear weapons in 1948, many prospectors searched the Navajo reservation for uranium. The demand for uranium eventually slowed in the 1970's which caused the mines to close. These mines left many employees without a job and were often abandoned without being properly cleaned up. More specifically, as of 1989, "there are more than 1,000 non-coal abandoned mines and 273 abandoned coal mines" (Tsosie, 2015, p. 5) on the reservation. Around half of the mines have been reclaimed but half remain, causing Uranium to disperse into the environment (Raymond-Whish, S. et. al., 2007). Mass mining of uranium, improper mine clean up, and careless disposal of waste is the cause for many Diné people being exposed to uranium and other ores via contamination of soil, water and

air. Out of the 175,000 people living on the Navajo Reservation in 2000, half hauled water from the nearest water source for daily use such as drinking water, cooking and laundry. This indicates that many Navajo Nation residents have been and continue to be exposed to harmful levels of Uranium (Raymond-Whish, S. et.al, 2007). These nearby water sources for those without running water such as wells, stock tanks and springs have unsafe uranium levels that are higher than the EPA U.S drinking water standards as analyzed by the Environmental Protection Agency (EPA). The EPA surveyed 226 water sources on the Navajo Reservation. Out of these 226 sources, 90 were contaminated with uranium above safe drinking water level of 30 µg/L. Uranium levels in these sources ranged from 33.3 to 1,131 µg/L, some almost 38 times the safe drinking water level (Raymond-Whish, S. et.al, 2007). Unfortunately, these wells are typically unregulated by the state and federal agencies. This pollution of water (as well as soil and air) has ultimately led to disease and death rooted in systemic problems (Tsosie, 2015).

Mining Effects

Exposure to uranium by either ingestion or inhalation due to mining has a multitude of health effects for humans. Raymond-Wish states that chronically ingesting these metals has been shown to affect kidneys, causing cancer or kidney failure (2007). Public health studies have also shown higher cases of diabetes, high blood pressure and autoimmune disease near communities with a closer proximity to uranium mines. Tsosie writes that uranium is genotoxic, meaning that exposure not only causes disease, but structurally affects human DNA (2015). This cell death and mutation known as genotoxicity, linked to uranium exposure, is an underlying cause of cancer formation, higher cancer rates, and mortality. Raymond-Wish referenced an earlier study completed by Maynard and Hodge in 1949 on rats and mice. This study showed that uranium exposure also affects reproductive organs. The data states uranium acts like estrogen after observing the effects of uranium on rats (2007). The rats that ingested uranium had weight loss, fewer litters, and fewer pups per litter born. When the rats returned to their non-contaminated diet, they regained their weight but continued to have issues with lower litter and pup rates, showing that the ovaries may have been permanently damaged (Raymond-Wish, 2007). Uranium exposure also affects the neurological system. “Navajo Neuropathy” is a name given to the neurological deterioration disease which, according to Tsosie, 37 people on the reservation suffered from due to consumption of poisoned well water (2015). Many people with neuropathy show symptoms in childhood and do not live to age thirty (Tsosie, 2015). Unfortunately, there is much more to be discovered regarding the effects of uranium on the human body due to its complex nature.

The pollution of water also greatly impacts the environment on the Navajo Nation, despite having naturally occurring metals in the area. When the metals were mined, they caused elements to mobilize throughout ground and surface water. Not only drinking water, but soil and plants continue to be contaminated as well. This, in turn, affects livestock as well as traditional

plants and medicine for the Diné people. Although many of the effects are understudied, more studies are being done to better understand the uptake of metals in vegetation and animals. Hopefully these studies will help develop a plan to address the concerns of the Navajo Nation regarding ranching and agriculture (Tsosie, 2015).

Diné Science

Although this curriculum unit is literacy based, there are STEM (science, technology, engineering and mathematics) activities embedded throughout to create a hands-on learning experience for Kindergarteners. Many Indigenous communities and scholars are educating the scientific community about their expertise and worldviews of nature. The study of nature for Indigenous communities is based on curiosity driven inquiry according to Tsosie. Specifically, Cajete (as cited in Tsosie, p.40, 2015) describes Indigenous science as “a collective inheritance of human experience with the natural world that has been passed on for generations.” This aligns with the Diné principle of living in balance and harmony with the natural world. Tsosie reiterates four main lessons within Diné science that I intend to incorporate as a framework for this curriculum’s science experiments and STEM activities- Nitsáhákees (Thinking), Nahat’á (Planning), Iiná (Implementing/Experiencing), and siih Hasin (Reflection). These lessons align closely to the scientific method.

The first lesson, Nitsáhákees, is the concept of thinking. It signifies the beginning of life, birth and spring to Diné people. This is the place when Kindergarteners will observe or gather information about the activity in front of them. Through observation, students may develop questions about the activity using an inquisitive mind. Nahat’á signifies youth, the season of summer, leadership, identifying resources, and today. During Nahat’á, or planning, students will gather information, make predictions and develop a plan using their creative ideas. Iiná, or implementing, signifies adulthood, strength, and the season of autumn. During Iiná, students put their plans into action through experiments. Lastly, Siih Hasin signifies old age, self-awareness, and winter. Throughout Siih Hasin, students will reflect on the activity done. They may answer questions from the beginning stages of the activity or draw conclusions about the activity. (Tsosie, 2015)

How Water Affects the Human Body

The human body is approximately 60% water; our organs and bones are made up of water. According to the Center for Disease Control, water helps to regulate body temperature and protect joints and tissues. Water is necessary for human life, without it, the body can react in many ways. Water also plays a key role in ridding the body of waste through urination, sweat and bowel movements. The Henry Ford Health System Staff states that when a person does not

drink enough water, the side effects include headaches, slow bowel function, dull skin, fatigue, weight gain, and dry mouth (2020).

Water - A Social Justice Issue

The term justice can have different meanings depending on the context it is used in, but the term justice in relation to social context refers to “a way of distributing resources among people” according to Evans (2016, p. 43). The lack of access to a natural resource such as clean water falls under this category of a social justice issue: “Social justice and water refers to fairness of access to water resources and equality of burden from poor water quality and water hazards” (McDonald, et. al, 2011, p. 93). We can see through the research presented throughout this curriculum that the Navajo Nation does not have an equal access to water resources due to a lack of funding and infrastructure. It is also evident that those living on the reservation have inadequate water quality compared to people who do not live on the reservation. The Navajo tribe has been robbed of access to clean water by an entrenched system, despite being a community that values preserving all of our natural resources (Allen-Charmlley, 2020). One of the factors to having poor quality of water is poverty due to a high unemployment rate. According to Crepelle (2019), this above average unemployment rate, “is the result of paternalistic federal policies that create a dense business-killing bureaucracy in Indian country” (p. 172-173). The government also underfunds tribal water safety despite the trust relationships between the United States and tribes. Crepelle states that the United States spends more money to improve water quality in foreign countries than on Indian reservations - they only receive \$0.75 for every \$100 needed to improve drinking water quality (2019). An element that keeps a human alive and healthy should not be a luxury; it should be accessible to all people.

Teaching Strategies

Connection Circle

A great way to gauge your student’s prior knowledge about water is to start off with a connection circle. Using circles to create a space where all voices are heard is a part of peace-making models in the Native American culture. This is a great way to engage students in the topic while building relationships in your class. In preparation for this activity, gather a talking piece to help students understand the idea of taking turns and to ensure all voices are heard. To begin, have students join you in a circle on the carpet area. The goal of this connection circle is then shared with the students, “I would love to hear some of your experiences with water. If you feel comfortable, please share something you like about water or a memory you have about water.” Allow students to go around the circle responding to this question. After every student has had a turn, invite students to make connections to what their classmates have said. You may want to limit this to 3-5 connections due to time. Once connections have been made, the teacher can close the circle by

summarizing what has been said in the circle. This activity will activate student's prior-knowledge before diving into the unit.

Whole Group Read Aloud

Any of the included children's literature (found in "teacher resources") can be used as a whole-group read aloud. These books were specifically chosen because they deal with water and Indigenous people. You can read one story per day or read the same story over multiple days to dive deeper into the content. Some read aloud ideas you can use are the "just read" technique where you and your students can read the book, enjoy it and then put it away. You can "read it again" and again and again, where students will begin to love the books and know the words so that they can chime in as you read. You can also do an "interactive read aloud" where you can use pointed comprehension strategies to increase their depth of knowledge.

If you choose to use an interactive read aloud using one of the listed books, the following is a way to structure your read aloud time. Before you read, introduce the book and/or reading strategies to your students; use a picture walk, discuss the characters, or activate background knowledge. During reading, read the book and engage listeners with talking, expression, or acting. After reading, move your readers towards discussions that further their comprehension.

Here are some of the main themes from each of the chosen texts that you can emphasize throughout your discussions with students.

- Books that teach students about water and its relation to life as well as how water is used and where it is found:
 - *My Little Planet: We Need Water* by Charles Ghigna
 - *We Need Water* by Helen Frost
 - *Hey, Water!* by Antoinette Portis
- Books that connect through the commonality of water:
 - *A Cool Drink of Water* by Barbara Kerley
 - *Water's Children: Celebrating the Resource that Unites Us All*
- Books that address pollution to water and urge for its protection:
 - *We Are Water Protectors* by Carole Lindstrom
- Books that address the availability of clean water:
 - *The Water Princess* by Susan Verde
- Books that discuss working together to bring change:

- *Nibi's Water Song* by Sunshine Tenasco
- *The Water Lady: How Darlene Arviso Helps a Thirsty Navajo Nation* by Alice B. McGinty

Scaffolding the text

Although there is no particular order for reading the suggested children's books, scaffolding the text can help the flow of the unit. This is a suggested order for reading to your class. Begin by reading a non-fiction water book such as *We Need Water* or *Hey, Water!* to teach students the importance of water. Follow by reading a text that not only connects water to your student's lives but also acts as a window to other perspectives such as *A Cool Drink of Water* or *Water's Children*. The remaining books (*We Are Water Protectors*, *The Water Lady: How Darlene Arviso Helps a Thirsty Navajo Nation*, *Nibi's Water Song*, *The Water Princess*) can be saved for later in the unit when students have gained background knowledge about water. This way, they are able to critically think regarding the themes presented in these stories.

Small Group

During small groups, the teacher will pull 4-5 students at a time for more individualized instruction. Included with this curriculum is an emergent reader. This emergent reader can be used to extend your student's knowledge about water and focus on early reading skills and sight words. This book can be used over multiple days. Begin by introducing any new sight words your students may not recognize before reading. Once your students are familiar with new words, give them a book introduction by using a picture walk that supports meaning and vocabulary by pointing out pictures. From here, you can allow students to work on reading the book while lightly coaching them through reading strategies.

Kindergarten Jobs

Students will be given independent activities to complete during work time relating to water. These independent activities are called "jobs" in my classroom. Before "job time" the teacher will present the project to students through modeling. Kindergarten students will work on the project or activity while the teacher pulls small groups.

Text Analysis

According to Allan Luke (2012), critical literacy approaches, "view language, texts, and their discourse structures as principal means for representing and reshaping possible worlds. The aim is the development of human capacity to use texts to analyze social fields and their systems of exchange—with an eye to trans-forming social relations and material conditions" (p. 8-9). The

high-quality literature in this curriculum is intentionally chosen as a means to expose my students to different world views and to prompt critical conversations in our classroom. Before reading these stories to your class, it is important to think about the goals you may have for the conversation that may stem from reading the book (Teaching Tolerance, 2019). According to the model described in “Let’s Talk” in Teaching Tolerance, it is important to remain positive throughout the conversation and establish conversation norms with your students to create a safe space. You can ask your students, “What do we want our conversation to look like? Feel like? Sounds like?” The conversation can begin with a shared starting point using response prompts related to the book or you can ask students to share their personal response. As the teacher, it is important to structure the conversation as young learners are still learning social skills. After wrapping up the conversation by summarizing the ideas shared, it is important to check in with students. Asking students to use a thumbs up, thumbs in the middle, or thumbs down to share how they feel is a great Early Elementary strategy (Teaching Tolerance, 2019).

Technology

This curriculum provides multiple ways to use technology. There are many books in the teacher resource section that you may not have in your library. The books can also be found on YouTube; once you find the video that works best for your class, you can project the story onto a Smart Board or Promethean Board for students to listen and view. This curriculum also utilizes student iPads for an end of unit project. If your students do not have access to an iPad in the classroom, they can complete the project on a desktop computer. If your students are unable to access a desktop computer, there is an alternate activity provided.

STEM Activities

Science, technology, engineering, and mathematics (STEM) activities are incorporated into this curriculum to provide a hands-on learning experience for Kindergarten students. These STEM activities align with the Diné Science principles stated in the Content Section. In the Classroom Activity section, you will find two STEM Activities - Cleaning Polluted Water Experiment and How Pollution Spreads Experiment. When structuring these activities for your students, keep the four Diné principles in mind - Nitsáhákees (Thinking), Nahat’á (Planning), Iiná (Implementing/Experiencing), and siih Hasin (Reflection). First begin by presenting the activity to your class as a whole group. During this introduction, students will apply the Nitsáhákees principle by observing the activity. After observation, the teacher can prompt students to form questions about what they’ve observed. The rest of the activity will be completed in small groups, so you will need to split up your class in the way that works best for you. In small groups, students will begin the Nahat’á portion of the activity where they will gather the information, they need to make a plan to solve the pollution problems. Once students have a creative plan, they will implement their ideas using the principle, Iiná. While students are

planning and implementing as a small group, the teacher will walk around, visiting each group. During this time, the teacher can ask the group to reflect upon the activity. Some questions you can ask to prompt deeper thinking during the activity are:

- Can you share with me what's been working well for your group? Why is it working well?
- Can you tell me something that isn't going well during your activity? What could you change to make it work better?
- Is your group reaching the goals that you set in the beginning of the activity?

After each group finishes up and you've checked in with them, you can bring the whole class back together again to reflect on the activity.

Poetry

Using poetry in your Kindergarten classroom not only expands on the curriculum's main topic-water, but will build student's phonological awareness (rhyming), visualization, and reading fluency. You can spend multiple days on the poem included in the Classroom Activities section of this curriculum titled, *We Need Water* by Charles Ghingna. Begin by displaying the poem for your class. Some examples of ways to display the poem are as follows: using the book, projecting onto a Smart Board, or writing on a poster paper or sentence strips. The more you read the poem, the more students will be able to read along with you. After multiple reads, students can clap or snap when they hear the rhyming words in the poem. To extend this rhyming activity, you can cover one of the words in a rhyming pair throughout the poem. Read the poem as normal. When you get to the covered word, you can ask students what word belongs. You can also ask students to think of another word that rhymes with the pair. As you continue reading this poem over and over, you are building their reading fluency.

See, Think, Wonder

This teaching strategy is from *Be the Change* by Sara Ahmed (2018). Ahmed uses the power of a visual to help students critically think about the impact of something. Begin with a chart with three columns labeled "see", "think", and "wonder". This can also be done in discussion style. Show your students an image, in this case, a picture of polluted water. Ask students to take a look at the picture and share things that they see. Encourage them to keep this matter of fact- for example, "I see a lake." or "I see water." These answers can be recorded on the chart or shared aloud. Next, have students turn and talk with a partner or a group. Have them discuss what this image makes them think of by asking them, "What does this picture make you think of?" There are no wrong answers. Students may say something along the lines of "I think the water is dirty." or "I think I want to swim there!" After recording or sharing these answers, encourage students

to ponder questions they may have based on what they see or think in the form of “I wonder...”. As the teacher, you can use these questions to help structure your unit.

Classroom activities

Cleaning Polluted Water Experiment

This activity can be introduced as a whole group and worked through as a class, or, students can problem solve in small groups. You will need the following materials:

- A large plastic tub filled halfway with water
- Blue food coloring (optional to color the water)
- Vegetable Oil
- Cocoa Powder
- Cotton Balls
- Small Rocks or Stones
- Sponge
- Spoon
- Plastic Cup

To set up the experiment, fill the tub halfway with water. You can add a couple drops of food coloring if you'd like. Place the rocks or stones to create the “environment”. You can get creative with this and add other materials to reflect your region, too! Have the vegetable oil and a small amount of cocoa powder mixed ahead of time- this is the “pollutant” (oil, uranium, etc.).

Talk to students about what happens when we don't clean up messes near water, oops! It spills into the water and pollutes it. Take your cup and scoop up some water- ask students, “Is this a glass of water you would like to drink?” “How would your body feel if you drank this?” Students may make observations about the pollutant and you can begin leading this discussion towards how to clean it up. Present to them some clean up materials- a spoon, sponge or cotton balls. Ask them their thoughts about how they will work. From here, you can choose whether you'd like the class to work through this together or use it as a small group activity.

How Pollution Spreads Experiment

This water pollution demonstration by Home Science Tools will show students how easily pollution spreads through water and can also affect groundwater. Students will observe “polluted water” spread throughout an egg carton placed on top of a paper towel. They will also observe the polluted water as it absorbs through the egg carton and onto the paper towel, demonstrating

pollution's effect on groundwater. See the "Teacher Resources" section for the full demonstration.

Poetry Study

These activities expand on the whole group readings of *We Need Water* by Charles Ghingna. Begin by reading the poem aloud to the class from the poster, projection or sentence strips that you've prepared. Read the poem again, but this time, ask students to close their eyes while you read it. Before reading the poem a third time, ask students to share the pictures they saw in their head as you read. After letting students share, read the poem a third time to students with their eyes shut. This time, give students the visualization page included in *Appendix A*. Allow students to draw a picture of their visualization next to the poem's words. This activity can be done during "Kindergarten Job" time.

Included with the visualization drawing page is a packet with the words from *We Need Water* on sentence strips found in *Appendix B*. Students can cut out the sentence strips and put them in the correct order, referencing the poster size poem in the classroom to help them.

Kindergarten "Jobs"

Jobs are activities that my Kindergarteners complete each day during ELA independent work time. The following are water related activities that your students can complete during "job" time to deepen their knowledge and appreciation for water as well as grow their phonics, reading, and writing skills.

Phonics Activities

- Water Play: Alphabet Sorting - Fill up a large tub halfway with water and place magnetic letters in the water-filled tub. Provide students with scoops (large spoons or measuring cups) or tweezers and two large bowls. Students can use the tools provided to pick up the letters and drop them into the bowls by, sorting by uppercase and lowercase letters.
- Colorful Letters - Provide students with a paper plate, eyedropper, and cups filled with colored water. Students will place the eyedropper in a cup of water and bring the water into the tube. Then, students will carefully squeeze the water onto the paper plate forming focus sight words or letters of the week. Depending on student need, you can use a permanent marker to write sight words or letters on the paper plate. If students are able, they can do this without the guiding marker lines.
- Water Painting - Take students outside on a nice day with paint brushes and buckets of water. Let students dip their brush in water and use it to "paint" their names, letters, or sight words.

- Letter Identification Raindrops- These letter identification worksheets, found in *Appendix C*, from *Preschool Play and Learn (2019)* are a great way to practice letters during your water curriculum unit.

Reading Activities

- Library - Set out both fiction and non-fiction books in your classroom library for students to read or look through at their leisure.
- Water Write the Room - After reading or listening to the book “Hey, Water!” by Antoinette Portis, have students share about the different ways we see water in our environment and use it to help our bodies. For students to complete this “job”, you will have to cut and hide the picture cards (found in *Appendix D*) around the room. Independently, students will walk around the room with a recording sheet (found in *Appendix D*) and look at each picture, originally from the story. They will name the water source shown on the card and record the word on the page.

Writing Activities

- Water Scavenger Hunt - Give each student a clipboard and the “Water Scavenger Hunt” paper included with this curriculum. Take students on a walk around the school or in your neighborhood. Have students draw or write three places that they see water in their community. *Appendix E*.
- Water Writing Prompt - Journal writing is a great activity for Kindergartners. Depending on the time of year you implement this curriculum, your students may be in a variety of writing stages. When students write in their journal, you can prompt them to write or draw as a reaction to a story you’ve read about water. You can also ask them to write or draw something they’ve learned about water.

Student Assessment Plan-

Observation

In Kindergarten, much of our assessing of student knowledge is gauged by watching and listening to our students. Throughout this curriculum, there are many opportunities for you to walk around the classroom while students are completing activities either independently or in small groups. Use these opportunities as a chance to listen to student’s conversations with each other regarding water, the books you’ve read, or the activities they’re completing. When the time presents itself, ask students to tell you more or ask them clarifying questions. These quick check-ins can tell you a lot about what students have learned.

Culminating Activity

Google Slides

As a cumulative project to this unit, students can create a Google Slide presentation sharing what they've learned about the importance of water. If students have not worked in Google Slides before, they will need to be taught the logistics of logging into their Google account, opening slides, and how to maneuver the application. When students are confident in using the application, this project will be an engaging and creative way for students to share what they've learned. There are many ways to introduce the project, so you can choose what works best for your students. An example of how I would introduce this activity to my students is by creating a chart and brainstorming some of the things we've learned about water throughout the week. Then, encourage students to think about the information that stands out most to them; something that they would like to share with others. As the teacher, you can model this thought process and then show students an example of how to creatively display the information on a Google Slide. Try to keep this example short and sweet in order to allow students to come up with their own ideas. They will come up with some amazing things! This project may take a couple of days. When they are completed, you can have students share their slide with your school email address. After receiving all of the slides, you can compile all of the slides to create a large slideshow to view as a class. The slideshow is great for sharing with your principal or families!

ChatterPix

ChatterPix is another great iPad application to use as a culminating activity for your Kindergarten students. As with Google Slides, students will need to be taught the logistics of downloading this app on their iPad and using the program. This can be modeled for the students in a whole group setting before working independently. This application can be found in the "App Store" on the iPad. Once downloaded, students can use this application to take pictures and record their voice to make the picture move and talk (similar to a "GIF"). The idea of this activity is for students to take a picture of themselves or something relevant to the topic of this curriculum and record their voice to share something they've learned about water or to share a way for others to help protect our water. Students will begin by opening the application and allowing it to access their camera. Then, students will take a picture of themselves or something relevant to the topic of water. Once the picture is taken, students will use their finger to select the mouth area of the picture. This will allow the mouth to move to make it look like the picture is talking once the voice is recorded. Next, students will have to allow the application to access their microphone. Once allowed, students will be able to press the microphone button and record a sentence or two relating to what they've learned. Students can share a fact about water or a sentence advocating for the importance of clean water. Lastly, students have the ability to

decorate their picture using stickers and filters, they love this part! The picture can be saved to share with the class or teacher.

Alternate Activity

The above activities are given with the assumption of access to iPads in the classroom. If your students or school do not have access to iPads or desktops the activities can be done in different modes. Students can share what they've learned by designing a poster instead of a Google Slide. Instead of using ChatterPix, students can make a brown paper bag puppet and use it to share what they've learned with the class.

Alignment with standards-

The standards in this curriculum unit will cover one English Language Arts standard from the Common Core, one science standard given by the Arizona Department of Education, and one cultural standard from the Department of Diné Education. The standard for English Language Arts is focused on reading literature. Throughout this unit, students will be read multiple books in a whole group setting and will be encouraged to respond to the questions asked regarding the story. Students will also be given opportunities to share questions they may have after hearing the story. Although other standards will be addressed, asking and answering questions about the text will be the main focus. The unit as a whole will address the Arizona History and Social Science standard of explaining how water impacts humans through learning about the effects of water on a human body and what happens when a human does not have clean water.

CCSS.ELA-LITERACY.RL.K.1 With prompting and support, ask and answer questions about key details in a text.

K.G2.1- Human environment interactions are essential aspects of human life in all societies (Explain how water and weather impacts humans).

The Diné content standard in this curriculum focuses on a culture standard that will help students develop an understanding for the Diné way of life. The standard, developed by the Department of Diné Education, focuses on concept four, Siihasin, where students will apply and practice the Diné way of life with confidence.

PO 2. I will recognize the value of water.

Resources

For Teachers

Delaunoy, A. (2017). *Water's Children: Celebrating the Resource That Unites Us All*. Pajama Press Inc.

A story that shares children's stories about water from all around the world.

Ghigna, C. (2013). *My Little Planet: We Need Water*. Raintree.

A children's story written in a poetry format which discusses sources of water and the importance of water.

Frost, H. (2006) *We Need Water*. Capstone Press

A non-fiction children's book that describes why water is necessary for life.

Kerley, B. (2002). *A Cool Drink of Water*. National Geographic Books.

A children's story with beautiful illustrations that show people getting water all around the world. This book emphasizes the common need for humankind to have water.

Home School Hub (2021). *Water Pollution Demonstration*.

<https://learningcenter.homesciencetools.com/article/water-pollution-demonstration/>

A description of and instructions to a water pollution experiment to do with your Kindergarten students.

Learning for Justice. (2021). *Classroom Resources*. Learning for Justice.

<https://www.learningforjustice.org/classroom-resources>

A web-based source for teachers to use as a resource when teaching from a social justice perspective in the classroom.

Lindstrom, C. (2020). *We Are Water Protectors*. Roaring Brook Press.

A children's book that tells a story about a young girl who fights against the Dakota Access Pipeline.

McGinty, A.B. (2021). *The Water Lady: How Darlene Arviso Helps a Thirsty Navajo Nation*.

Random House Children's Books.

A children's book that tells a true story about a woman who helps the Navajo Nation get water.

Portis, A. (2020). *Hey, Water!* Holiday House.

A non-fiction book that, through the eyes of a young girl, explores the different places we see water in our lives.

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Teaching For Change. (2021) *Educator Resources*. Teaching for Change: Building Social Justice Starting in the Classroom. <https://www.teachingforchange.org/educator-resources>
A web-based source for teachers to use as a resource when teaching from a social justice perspective in the classroom.

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A children's book that follows an Indigenous girl as she tries to find clean water to drink.

Verde, S. (2016). *The Water Princess*. Penguin.
A children's book which, based on a true story, follows as a young girl dreams to bring clean water to her African Village.

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We Need Water
By Charles Ghigna

See the river.

See the lake.

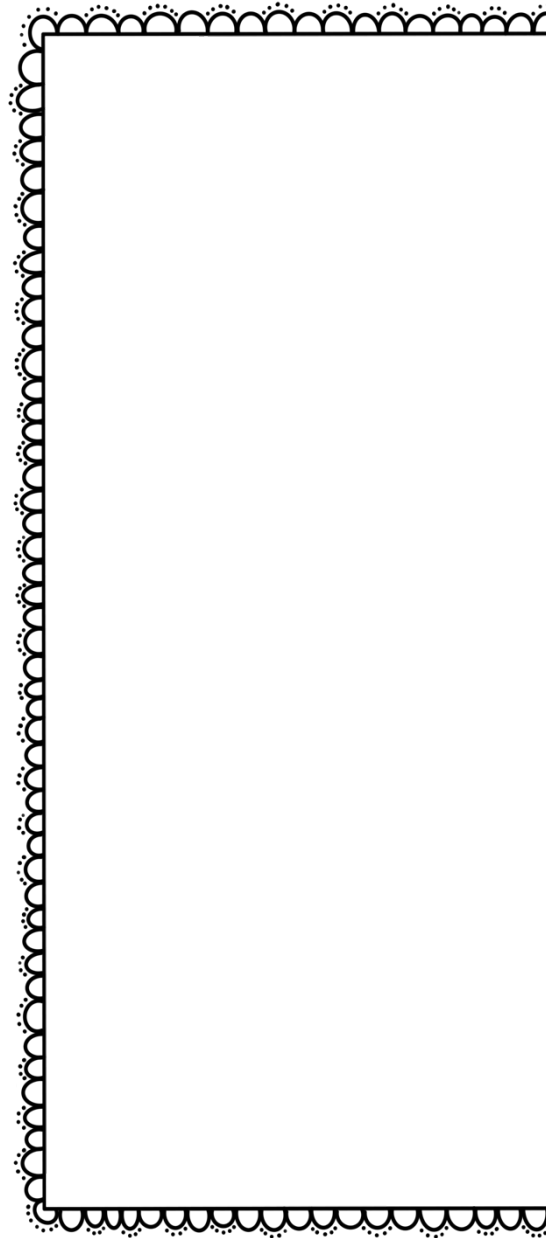
See the puddles raindrops make.

See the ocean from the shore.

See the waves and hear the roar.

Water flows from sky to sea,
bringing life to you and me.

Water helps us all to grow-
Every living thing we know.



We Need Water

By Charles Ghigna

See the river.

See the lake.

See the puddles raindrops make.

See the ocean from the shore.

See the waves and hear the roar.

Water flows from sky to sea,
bringing life to you and me.

Water helps us all to grow-
Every living thing we know.

Name: _____

Water Write the Room

1.

5.

2.

6.

3.

7.

4.

8.

Name: _____

Water Scavenger Hunt

A large, empty rectangular box with a black border, intended for a student to draw or write their findings.A large, empty rectangular box with a black border, intended for a student to draw or write their findings.A large, empty rectangular box with a black border, intended for a student to draw or write their findings.