

The Native American Garden

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Interdisciplinary Views of Pittsburgh History

Introduction

One may ask why is a biology teacher is taking a Pittsburgh History class? I have asked myself that question a few times this semester. I am a native Pittsburgher, although I left the city for five years, my ties to Pittsburgh were so strong that I found myself back here, raising my children in the same neighborhood in which I have lived most of my life. I have always had an interest in history. At times I wish that I were a history teacher. I am fascinated with periods of old. Who were the people that were here before us? How did they get here? How does their existence remain an influence on us today?

I am so very thankful that I seemed to have passed this fascination on to my own children. After we toured Fort Necessity, my son age 7, developed a passion for reading about George Washington. He now knows about the different battles in the French and Indian War and how the war set the stage for the Revolutionary War. We have read about the cast of characters in that early conflict. He knows the names of General Braddock, Henry Bouquet, and John Forbes. We have discussed how the names of places around our city that reveal regional history. My daughter has made school projects depicting George Washington and Christopher Gist travels on a raft in the advent of the great conflict.

However, I must confess that our discussion of historical events has been limited to the European settlers of the area. We have not devoted much discussion or investigation to the people who lived in the land prior to the 1600's.

In doing research for this paper, I have discovered that my own church's original goal was to establish a mission to the local Natives, in particular, to the Delaware tribe located near Newcastle Pennsylvania. The First Presbyterian Church documents record that when Reverend McClure reached the Delaware in 1772 he found well cultivated gardens adjoining a communal cornfield with the Moravian missionaries. The question remains: who were these people that Reverend McClure wrote about?

I know so much about the immigrant movement at the turn of the twentieth century. I have read about the Industrial Revolution, and the preceding periods, but the people that I know the least about are the Native Americans. I am amazed that anyone could live in the woods of Pennsylvania without a Wal-Mart, Super K and a deluxe Giant Eagle. Where would the tent come from? Dinner without a trip to Giant Eagle or the like. I can not imagine such an existence.

In this unit, I would very much like to merge my love of history, especially of my "hometown", my fascination with existence without modern conveniences, and my area of specialty biology. It is my hope that this unit will spark my students curiosity and become actively engaged in the learning process.

As I struggled to develop a topic that would merge the history of Pittsburgh and science, the idea of a garden came to mind. I am an "obsessive-compulsive," amateur organic gardener so I thought that the Native American Garden would be the perfect avenue to teach the history of the area. I know from my experience in my backyard how difficult successful gardening can be without the use of many modern chemicals. I can not imagine the added difficulties of chopping down trees with stone age tools, nor can I imagine digging without my spade or my newly acquired "claw" and other modern garden tools. I thought that it would be fun to try to use some of the techniques used by the local Natives and grow a garden.

Background Information

The Native Americans that have lived in the Western Pennsylvania region have a very complex history. It is estimated that before the Europeans began exploring and settling in Pennsylvania 15,000 Native Americans lived in the area of the Commonwealth. However at the end of Revolutionary War the population was around 1,000.

The Native Americans that were found in Pennsylvania are considered to be part of the Eastern Woodlands Group. Carrying stone tools and other typical tools of the late Paleolithic period their ancestors came from Eastern Siberia into Alaska. They lived a nomadic lifestyle as they continually needed to find food. It is speculated that these people lived in small bands and that during the summer months these bands may have met with each other and exchanged information. The evidence suggests that these groups of people migrated into what is now known as the Americas. The groups eventually made their way to the Eastern Coast and began to live throughout the Northeast. I have found various dates of the inhabitation of this area, but it is very safe to say that Natives have been in Pennsylvania for several thousand years. Some have said the Natives have resided in the Ohio valley from 100 b.c. to 5800 b.c. According to Colins in his book Stringtown, the area was heavily populated by village dwelling farmers and their were two villages within the triangle areas of Pittsburgh. The population of Natives Americans was greatly reduced in Western Pennsylvania by 1750, but the reason is unclear.

One of the most notable native groups in Western Pennsylvania were the Delaware. They were Algonquin speaking people known as the Lenni-Lenape or "original people." This group of three distinct tribes had a great impact on the history of the region and the development of the United States.

According to the Lenni-Lenape legend or tradition the group migrated to the east from the Pacific Northwest and settled in the Eastern coastal area and what is now the Philadelphia region . The Delaware eventually, because of some political fallout having to do with the "walking purchase," became subject to the powerful Iroquois Confederacy. It was this complex political maneuvering that caused the Delaware to eventually side with the French during the French and Indian War , a conflict centered in the Pittsburgh region over control of the "Belle Riviere" or the Allegheny River. An additional result of the "walking purchase," the Delaware moved from the eastern portion of the state to Western Pennsylvania. In fact the only Native Village in what is now Pittsburgh city limits were the Delaware at Shannopinstown. located in what is now the Lawrenceville section of the city.

In addition to the Delaware were the Shawnee, "people from the south." The Shawnee were Algonquian and also sided with the French in the 18th century conflict. They shared the Delaware's strong hatred for the British. The Shawnee were known as excellent cultivators of the soil. There were expelled from what is now Kentucky and North Carolina and moved north to Pennsylvania. The Shawnee had several notable characteristics: They allowed their women to sit on council and their implements showed a limited knowledge of metallurgy. First settlers found these people living on the banks of the Monongahela, "the river with skidding banks," and the Youghioghny, "the river that flows in a round about course." Later the Wyandotte the Huron and Miami resided in that section.

The Iroquois occupied very little of Pennsylvania, however their influence was felt throughout the state and beyond. The Iroquois nation consisted of the Onondaga, Cayuga, Oneida, Seneca, and the Mohawk. Later the five tribes added a sixth, the Tuscarora. The confederated nations also included the Erie, Susquehannock and tribes of Iroquian origin. The Erie lost identity as a tribe in 1654 when they were destroyed by the Five Nations. The Huron were also destroyed by the Five Nations.

An additional tribe of great importance were the Susquehannock. They were of Iroquois origin, but they did not recognize the Confederacy. They also fought bitterly with the Delaware. They aided the French to attack

against the Five Nations' strongholds in New York. The alliance between the Huron, the French, and the Susquehannock led to the destruction of the tribe by the Iroquois.

Early Swedish settlers called the Susquehannocks the "Black Minqaus," most likely this name came from the Lenape word "mingee" or "mengwe" which meant treacherous. The tribe eventually became known as Mingo. This name has created some confusion in classification of tribal units. Interesting, Captain John Smith of Pocohantas fame met with the Susquehannock in 1608.

As the Susquehannocks migrated into the Ohio Valley, another group of Natives seemed to have disappeared without a trace. This mystery group is referred to as the Monongahela people. Their native name remains a mystery, but they are believed to have lived on the banks of the Monongahela and Allegheny Rivers.

These are some brief highlights about the Native Americans in Western Pennsylvania. The history of Pennsylvania's Native Americans is incredibly full of information and consequently I felt a summary was necessary for this unit. It is not my goal to have my students remember every fact about every tribe discussed in the background information, but I would like them to have an understanding that the Native Americans were complex people, and that all "Indians" were not all the same group of people. It is important to understand that each group had some characteristics that made them unique. I would also like to hypothesize based on the reading that the interaction both of conflict and peace enabled the Native Americans to develop some of the successful agricultural practices. The Natives shared many similarities, and I am planning to spend more time of their general similarities as they relate to agricultural practices than their differences.

In this unit I would like to explore Native American farming practices as they were practiced in the Western Pennsylvania region. In addition I would like the students to experience farming the same types of crops, and prepare dishes that would have been consumed by these earlier people. I also would like the students to grow and tend to their garden, and after the fruits of their labors have been harvested, I would like the students to analyze the food for protein, carbohydrates fats, sugars and various vitamin content.

I have the benefit of having a greenhouse connected to my classroom which would allow my students to garden inside if need be. Ideally, I would like the student to create a small garden outside of the school and tend the garden without the used of modern equipment as much as possible. This garden would be free from chemical fertilizers, and, when possible, use stone aged tools. The students will need to research organic gardening techniques and have the techniques employed in the garden be as authentic to the Native American methods as possible.

A trip to the Carnegie Museum of Nature History will be of great value. Additionally a trip the Fort Necessity and Jumonville's Glen will allow my students to see, perhaps for the first time, a different view of Western Pennsylvania. This unit will be taught as part of the General Science class in the inner city of Pittsburgh. I would guess that many of my students have not experienced the vast beauty of the area and this will give my students an opportunity to see the beauty of nature that can still be found across the commonwealth.

As part of the introduction to the unit, I am planning to read to them accounts describing the Pennsylvania that the early settlers discovered. I would like them to write a short essay comparing and contrasting the Pennsylvania of old from description found in the various readings, and from their visit to some historical sites, to the Pennsylvania that they know. I am hoping that this will spark some desire in them to appreciate nature and the natural beauty that can still be found around us. I want them to see nature as something to be enjoyed and preserved.

I hope to develop a sense in my students that food comes from the ground, the "dirt" as my students call the soil, and not the local grocery store. I have found that my students are reluctant to dig in the dirt or plant anything. I am hopeful when they discover history of agriculture they will have a new found appreciation for the "dirt", and all of nature. Additionally, I would like my students to realize the importance of corn in the diet

of many Native American cultures, and still in our diet today. I would like the students to discuss the pro and cons of the native American diet from a nutritional aspect.

I would like the students to appreciate the energy that the native Americans expended for survival. An example of the energy required for survival is acorn flour. Acorns were ground to with a mortar to produce a flour. Acorns contain tannins, the chemical responsible for the bitter taste in tea. The tannins in the acorns needed to be eliminated before the flour could be eaten. The Natives dug a hole in the ground and lined it with bark or sand and then filled the hole with ground acorn flour and water. The tannins are a water soluble substance and would be dissolved and carried away with the water as it drained through the sand. The leaching process worked well but it was a considerable amount of work to make mush or bread.

I would like my students to appreciate the energy that this process took, and to help them experience the process, I am planning to bring in several bags of acorns, and have the students grind some of the acorns into flour using mortar and pestle in the lab. Then we will set up a mini-leach bed so they will see what the leaching process requires. The process needs to be repeated several times, and the final leaching is done with hot water.

With the exception of the Shawnee, the Indians did not have the technology of metallurgy, and therefore to make hot water they needed to heat stones in the fire and then place the hot rocks in a basket of water.

This exercise could also allow a discussion of the leaching process in general. It could be a springboard to further investigation of the dangers of chemical leaching into the ground water once the concept of leaching has been understood.

Native Americans developed a more systematic agriculture when they developed maize. The cultivation of corn allowed the Natives to settle in to villages and made them somewhat less dependent upon hunting and gathering. The development of corn changed the course of history for these people and the succeeding generations.

One activity, that I have planned to introduce the importance of corn is to have the students brainstorm and generate a list all food products that contain corn, and then list all the other benefits of corn other than for food. After this activity, I want the student to research the history of corn. Because it took thousands of years, to cultivate the corn we now eat, I would like my students to gain a better understanding of the time. I am not sure that some of my students can conceptualize 1000 years, and it will be difficult for some of my students to conduct advanced research but I want to develop a time line of 1000 years. I teach many special education students, and these students need guidance conducting research and when they are dealing with complex abstract ideas. Therefore, I think that we will start with the present and work backwards one thousand years.

All of my students perform better when time is devoted initially so that they have a clear understanding of what is expected as the final outcome. I want them to have a proper perception of time for when we discuss the history of the development of corn. I do not want 1000 years to be just a number. I was awestruck when I began to think of the time span of development of corn and other agriculture in general in the Americas. I think of the developments made to cure or treat AIDS and the great strides that have been made in a decade or so, and how we think that the progress is not rapid enough to solve the problem. A decade is only 1 percent of the time it took to cultivate one of the most influence crops known to man. I want to impress this long development time to my students.

As I did my research I discovered that corn has its origins in the area now known as Mexico, and that some of the history of corn is still a mystery to this day. The evidence suggests that corn has been cultivated for the past 3000 years. Corn seems to have been introduced to North America from the South America approximately 1700 years ago. It appears that some trading existed between Natives in conjunction with spread of corn from the South to the Northeast. Corn remained a minor crop for 800 years. However, as the Natives developed a system of trading, corn migrated to the Northeast and eventually became a staple in the diet.

The evidence also suggests that agriculture began 10,000 years ago in South America. Plant domestication appears to have started later in the eastern North America. The oldest archeological research indicates that humans began to occupy the Mississippi River basin during the summers approximately 7000 years ago. This occupation allowed for the growth of weeds which have edible seeds, including: sunflower, gooseberry, sumpweed and curcubita. The Natives began cultivation of these plants, and as of 3000 years ago differences could be seen between wild and cultivated varieties.

As a biology teacher, I should have known that corn can not re-seed itself like other grasses, but I have re-discovered why. Corn needs to be planted by humans because hundreds of seeds are tightly held on the cob, which is itself covered with leaves. The protective wrapping of the cob prevents the seeds from being scattered. In addition, the seeds or kernels are much too heavy to be transported by air and the seed does not have anything that would allow it to be carried by animals. I will demonstrate this to my students by bring several ears of unshelled corn to class and some corn seeds so that my students could see the special needs of planting corn because its design.

In addition I will show them how corn is a monocot like other grasses. Corn also has special planting needs to ensure pollination, and thus seed production. Corn is pollinated by the wind and needs to be planted in blocks of four or more rows. This helps to ensure the develop of complete kernels. To this date scientists have not found any corn that has grown without the help of people. The lack of written record would indicate that corn was not found in Asia, Europe or Africa. Archaeologists believe that corn sustained the civilizations in the Americas.

Most Native American did not used domestic animals to assist in planting, but used primitive tools such as a hand jab planter. The gardening tools were simple but effective, such as hoes, spades of stone wood and bone. Some groups had sophisticated methods of planting. Most of us are familiar with the method of planting corn along with fish for fertilizer as we recall the story of Native Americans teaching the Pilgrims the art of farming in the poor soil of New England. The Native American in Western Pennsylvania chopped the trees down with stone aged tools and then burned the trees and use the ashes as fertilizer. In addition, if the soil needed to be fertilized women used leaf mold, manure, muck and sediment from the swamps. These methods of fertilizing are still used today among organic gardeners. Women tended the gardens and this activity gave them an elevated position in the tribe. In fact, a women was worth twice the blood money as a man.

I would like the students to conduct a mini-research project after they have visited the Carnegie Museum of Natural History and Fort Necessity Battle Field and Jumonville's Glen. I want them to determine what the native plant species would have been in the area in pre-colonial Pennsylvania, and I will have them find the names of the different species by using a key to determine the names of the plants and then decide which plants were/are edible. Thankfully, I have inherited from my predecessor a guide to native trees, common wild flowers and shrubs found in Pennsylvania.

While in the woods I would have the students work in groups of three or four and give each group a disposable camera so that they could take pictures of different species of plants. I would also give them a field guide to Native Pennsylvania flora. I would have the students simply generate a list of edible plants with a description of each plant that they recorded on film. I would then use these pictures and descriptions in my classes as a display of Pennsylvania flora. This would also serve as excellent material for the students portfolio.

I would also have the students draw some of the flora that they observed. I have discovered that many of my students have a wonderful talent to art, and therefore I will arm each group with a sketch pad along with a notebook. In addition to naming the foliage, I would emphasize to my students that the Native Americans needed to be excellent taxonomists. They needed to distinguish characteristics so not to confuse edible plant with toxic plants. These skills are the same skills needed today by scientists who study taxonomy. The taxonomy skills of the Native American could be a matter of life or death and the young Native needed to be an excellent student if he or she wanted to survive.

The above activities would give the students an idea of some of the plants that the Natives ate before corn became a major source of food. Even after corn became a staple in their diet other foods were still consumed. When corn began to be a major food source it was planted with beans and squash. This mixture is known as the "three sisters." The mixing of the three plants was ingenious: The corn stalk provided a pole for the beans to climb. The beans provided nitrogen to the soil ensuring a good crop, and the squash could grow between the plants to prevent the other plant from crowding out the corn. This will be the method of planting for my students. This entry of beans, corn and squash seems to have replaced to some extent the cultivation of the sunflower, and the gooseberry. At this time throughout the North America many crops began to diversify. The diversity of corn indicates the Natives had knowledge of crop breeding.

In Pennsylvania pumpkins, melons, peppers, sweet potatoes and tobacco were grown. Later some Native American developed peach orchards, after it had been introduced by the Spaniards and found its way north. I would like my student to research the different varieties of corn and have them research the similarities and differences between varieties, and discuss the interesting history of each variety. I want them to see the importance of corn in the history of Americas, and how the Native Americans had tremendous knowledge in the area of science known as agriculture.

According to folklore and historical evidence women Natives did the work of the gardening, and the men hunted and conducted warfare. As the division of labor developed between men and women both men and women did extremely difficult work in order that the tribe survived. Farming was invented by women as a result of cultivating the various plants that they gathered for food. The development of farming gave women an elevated position in the culture and caused a woman to be worth twice that of a man. This custom is known as blood money. Indian law required a double payment to the victims family if a woman was killed. In Native American economies, farming was major source of food, and when there was an inadequate crop or crop failure the men needed to provide the additional food by hunting.

Although the area of Western Pennsylvania had been hunted for centuries, at the time of the European arrival those early settlers found a wilderness full of game, lakes and streams full with fish and at times the sun was obscured by dense flocks of migratory fowl. In addition, the area had opossum, skunk, deer, beaver, wild turkey, ducks and many other animals that could be used as a food source.

The entire corn plant was used for various purposes. The husks were made into mats, dolls, masks and the stalks could be used as fuel. The students should see some of these items or replicas at the museum. Possibly the students could try their hand at making a corn husk mat. Possibly my creative students could try making a mat or doll from corn husks. This would make a connection to the art standards.

It is documented that by the 1700's many Native Americans like the Delaware planted large corn fields. This can be seen on a map of Western Pennsylvania that lists certain tribes as corn planters. After reading about the history of the development of corn and the development of agriculture in the Americas, I have a new appreciation for the Native Americans as Geneticists.

Conclusion

I think that is important for students to see the pro and cons of modern farming and food storage, and compare the old way of conducting farming. I think that as Americans we tend to take things for granted. When we are hungry we run to the grocery store and buy the fixing of a wonderful meal. However convenient, I am concerned that many young people are ignorant of where their food comes from or the history of agriculture or the hard work and centuries that it took to develop the art and science of agricultural.

I am equally concerned that many students do not realize the impact that the Native Americans have had on the development of our nation. I think that it is important to learn from the past so that we as a society do not repeat the same mistakes. I want my students to see the Natives as a people who had a great deal of knowledge

about their environment. I want them to understand that the Natives used the land and their action did have a measurable effect of the environment, but these effects were not disastrous to the entire environment. An underlining goal of mine is that I communicate that people need to be good stewards to the nature around them. I want my student to have a better appreciation of the beauty in the world around us. I want my students to develop an understanding of past that can enrich their life.

This unit could easily be used to teach ecology. I am planning on using this in my general science class as part of the life science section and the ecology section. It could easily be adapted to be used in a biology or history class. I am planning to write a mini grant to help with the cost of implementing this unit. I plan to use this unit during the fourth report period as the weather in late spring should be conducive to the field trips that I have planned, and the weather should be cooperative for the outside gardening lessons. Incorporated into the four report will be lessons types of plants i.e. monocot dicots parts of the flower and plant reproduction. Planting the garden will be helpful in illustrating the differences between various types of plants.

I am hopeful that an emphasis of the local history and the various field trips along with several dates in the library the students will see the continuity in the unit, and enjoy the many experiences in the unit by participating in variety of activities. When the unit is implemented we will need to spend several days outside preparing and planting the garden. Because the weather does not always following the weatherman's directions daily "back-up" or just in case activities will be used in the classroom. These will be centered around gardening in general or Natvie American readings

The activities that I have planned are aligned with Communication, Math, Science and Technology and Social Studies Standards.

Lesson Plans

"Scientific Method approach understanding to History" -- the rationale of this lesson is to communicate that the scientific method can be used in a historical investigation. In a general way all science is an attempt to understand the world around us. In this unit of study we will attempt to understand and recognize the influence of the Native Americans in Western Pennsylvania by using the historical record. The students will need to review the major steps in the scientific method which are defining the problem, observation, measurement recording and reporting observations hypothesis and development of theories. After the review, we will discuss how we as a class will use this a model to study history. First we will need to state the problem. This usually involves research. I will explain that we will conduct some basic research by reading about the History of Pennsylvania. From these readings we will established the problems that we will set out to answer. Who were the first people to live in Pennsylvania? Where did they come from? How did they get here? How did they live? What did they eat? How did they influence us today? This lesson will be used to introduce the unit. I plan on showing a few clips for two videos set the backdrop for the unit: "The Last of the Mochicans" and a documentary of Native Americans of the Northeast. The introduction will take 2 days.

Lesson 2

After the introduction, we will go to the library and read about history of the area. The students will need to complete a one page summary report of the history of the past Western Pennsylvania. They will need to describe the physical of western Pennsylvania during the eighteenth century, who were the natives, tribe names, how did they live, what types of houses, what did they eat, and who were some of the first white settlers in the area and why. I want them to see that the European settlers wanted control of Western Pennsylvania because it could be use as a gateway to the west and to the south and the Port of New Orleans, via the Ohio River. I am currently compiling bibliography for the students to use. This will greatly reduce the amount of time needed in the library. This will be a component of the background research critical to the observation step in the he scientific process. Time necessary to complete 2 days. The students will be given a list of question to answer and from this list they will write a minimum one page report. They report will be

discussed in class. Additional time will be allow both in the library of in the classroom for the student to complete the assignment.

Lesson 3

The students will construct a time line. As stated earlier in my narrative, I will have the student make a time line of the last 1000 years. Again we will use the school library as a resource. I will supply the students with a ditto of several sheets of paper with the centuries marked on the top, and the students will need to write 2 major developments or events for each century. They will need to record the decade that the event occurred. I do not want this assignment to become burdensome, but I want them develop a sense time. This assignment will take two class periods in the library. This will be an individual assignment.

Lesson 3

After the completion of the time line will we travel two miles down the road to the Carnegie Museum of Natural History. We will be most concerned with the displays of the Native Americans. The students will need to answer a series of questions as they travel thorough the exhibits, working in pairs. Hopefully this trip will give the students more insight to the questions that we are trying to answer. This will be also be part of our observation step in the scientific method. Observations in science can be qualitative involving description of quantitative, measurable quantities. Hopefully, the students will be able to discern that most of our observation will be qualitative. Some of our observations will be quantitative.

Lesson four

The students will read about the history of corn. I will provide them with some insights as to the mystery of the development. We will read about the development of agriculture. I will break the students into groups of 2 and assign them a topic to research in the library. Each group will need to give an oral report to the class. This will take 3 days. Two day in the library and one day to present reports.

Lesson 5

After the history of agriculture has been discussed, the students will use there knowledge to plant a Native American garden. It will include the "three sisters." They students may also plant any of the plants that the Native Americans planted in the area. The planting will take several days. Once the garden has been planted it will be tended once or twice a week. This will be an all organic garden. If it fails to thrive, the students will know that if they were Native Americans they will need to hunt more and gather more berries or they and their children will perish.

Lesson 6

Making trail mix. Trail mix has it origin in the Native American culture. Hunters would make a mixture of nuts and seed to take with them on hunting journeys. The class will make such a mixture to take to Fort Necessity where the students will meet with park rangers and have a lesson of animals of Western Pennsylvania. They will also take a tour of the battlefield. Hopefully with much of the background information, they will be able to identify this as the start of the French and Indian War. This tour lasts no more that 2 hours. After Fort Necessity the students will take a tour of the Toll House located on the property. This tour is insightful as to the life on the frontier. We will then visit Jumonville's Glen. During our time a Jumonville, the students will take notes on the flora that they have observed. This will include taking pictures for later use in the classroom.

Lesson 7

The students will make a list of all the plants that they observed in the field that are edible. They will write a brief description of the plant next to the picture and create a display for the classroom. They may include recipes for dishes that use these plants. This will take one to three periods. It will depend on how involve the students become with the assignment.

Lesson 8

The students will use simple laboratory methods to analyze the contents of the food that the Native Americans ate. This will take 3 day. After they complete analyzing of the main staples of the diet, they will place them into categories of carbohydrates, proteins, fats and simple sugar. They will see that the Native American could have a very balanced diet during good times. I will provide them with corn, squash, beans, berries, meat, and possible other food materials.

Lesson 9

The students will write an essay comparing and contrasting Western Pennsylvania of the past and present. They will also write a summary of everything that they are learned in this unit, and state why it is important to have an understanding of the past.

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