



Lesson Plan Seven: What Can Pot Sherds Tell Us About the Past ?

Students discover the importance of pieces of broken pottery by using them to find out how archeologists determine when sites were inhabited and other information about the ancient people who used them.



Location: classroom, or if possible an archeological site

Suggested group size: individuals, small groups, whole class

Subject(s): history, social studies, archeology, art, drama

Concepts covered: chronology and how that relates to archeological dating and archeological preservation; diversity in pottery designs

Written by: Chris Judson, Bandelier National Monument

Last updated: 2/2007

Student outcomes: At the end of this activity, students will understand how potsherds can be used to date archeological sites, and why it is important to leave them in place.



EDUCATIONAL STANDARDS

New Mexico State Standards

Social Studies

Strand: History

K-4 Benchmark I-A: Describe how contemporary and historical people and events have influenced New Mexico communities and regions

Grade 4

1. Identify important issues, events, and individuals from New Mexico pre-history to the present.

K-4 Benchmark I-D: Understand time passage and chronology.

Grade 4

1. Describe and explain how historians and archeologists provide information about people in different time periods.

K-4 Benchmark II-B: Distinguish between natural and human characteristics of place and use this knowledge to define regions, their relationships with other regions, and patterns of change.

Grade 4

1. Identify ways in which different individuals and groups of people view and relate to places and regions.

K-4 Benchmark I-D: Acquire reading strategies

Grade 4

5. Increase vocabulary through reading, listening, and interacting

Art

K-4 Content Standard 6: Show increased awareness of diverse peoples and cultures through visual and performing arts.

Visual arts

Grade K-4

A. Identify specific works of art as belonging to particular cultures, times, and places.

1. Determine the function of various works of art and artifacts within a specific culture.



2. Create art that reflects New Mexico cultural and historical influences.
3. Describe art from one's own culture and the culture of others.

Grade 5-8

A. Compare and describe artwork of various eras and cultures

Theatre

- A. Use body and voice to portray character that contributes to the action of a dramatization.
1. Demonstrate the ability to concentrate and stay in character for the duration of short improvised dramatizations.

NATIONAL STANDARDS

History

Standard 2 Grades: The history of students' own local community and how communities in North America varied long ago

2A: The student understands the history of his or her local community

Standard 3 K-4: The people, events, problems, and ideas that created the history of their state

3A: The student understands the history of indigenous peoples who first lived in his or her state or region

7A: The student understands the cultures and historical developments of selected societies in such places as Africa, the Americas, Asia, and Europe

Grade 3-4: Investigate the ways historians learn about the past if there are no written records

Social Studies

II. Time, Continuity, and Change

Middle Grades

- b. identify and use key concepts such as chronology, causality, change, conflict, and complexity to explain, analyze, and show connections among patterns of historical change and continuity





- d. Identify and use processes important to reconstructing and reinterpreting the past, such as using a variety of sources, providing, validating, and weighing evidence for claims, checking credibility of sources, and searching for causality

English Language Arts

7. Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and nonprint texts, artifacts, and people) to communicate their discoveries in ways that suit their purpose and audience.

Art

Theater

- 5—8 Content Standard 1: Script writing by the creation of improvisations and scripted scenes based on personal experience and heritage, imagination, literature, and history.

MATERIALS

Paper, writing utensils including: crayons/markers/colored pencils; scissors

Potsherd sheets found on the Bandelier website, www.nps.gov/band, under “For Teachers—Ancestral Pueblo curriculum.”

Pottery puzzle packet, found on the Bandelier website, www.nps.gov/band, under “For Teachers—Ancestral Pueblo curriculum.”

Article on pottery in curriculum newspaper, “Pueblo People Past and Present”

Photos of Ancestral Pueblo and present-day pottery, printed from the Bandelier collection website: www.cr.nps.gov/museum or click on the collections icon on the Bandelier website, www.nps.gov/band

“Maria, Indian Pottery Maker of San Ildefonso” video or DVD, available for loan from Bandelier

Books listed in Resources section at end of lesson



BACKGROUND AND HISTORICAL CONTEXT

One of the things that has long been a hallmark of the pueblo culture is pottery. Although styles in different villages are distinctive in both form and decoration, most of the basic process for making the pieces is the same. The articles “Cooking With Clay” and “Maria Martinez” in the curriculum newspaper, the video/DVD about Maria, and several of the books listed under “Resources”, provide a good introduction to present-day and Ancestral Pueblo pottery and pottery making.

For archeologists, pottery is something of a fortunate paradox. Pottery vessels break easily. But the broken pieces (or whole pots) are much less vulnerable to the ravages of time than are most other artifacts, such as items of wood or cloth. In addition, pots broke, and had to be replaced, very often. Because of this, styles of shapes and designs changed more quickly over the centuries than did those of other crafts such as toolmaking or weaving. Potters use clay from local sources, and archeologists can recognize particular clays and where they were used. Over many years of work throughout the Southwest, archeologists have analyzed hundreds of styles and the locations where they are found, and related them to dates obtained by other methods for the same sites. This has led to a system in which researchers looking at a sherd or vessel can recognize its pottery type and know where and when it was made. Thus, when a pot or sherd is found at a site, it gives the researcher an idea of when people lived there and who they traded with.

Archeologists utilize several clues to recognize various types of pottery. Using a magnifying glass, they look at the broken edge of a sherd to see what kind of paste (the clay used for the body of the pot) was used. Paste can be coarse or fine, and may be different colors including white, gray, and orange. They also look to see what kind of temper was mixed in. At various times in different places, people have made temper out of things including sand of particular kinds, ground-up basalt, and ground-up potsherds. A few kinds of clay don't need temper.

If the pot has designs, they look to see if the potter used slip, which is clay thinned with water, or paint made from plants, or glaze made from minerals including lead. Designs made with slip sit on the surface of the pot, ones made with plant paints appear to soak in, and glaze sits on the surface and is shiny and often runny.

Sherds alone, however, may not tell the correct story. Ancient people would sometimes keep old pots, much as we keep antiques. Or someone passing by long after a site was no longer inhabited might drop a pot, leaving sherds from a later time. Pottery dates are used in conjunction with other dating methods, such as Carbon 14, tree-ring dating, archeomagnetism, stratigraphy, and others to come up with the best idea of the actual dates a site was in use.





POT SHERD ACTIVITIES

Unfortunately, one of the problems with getting accurate dates from pottery is caused by people nowadays who do not realize how much information is held in even just a tiny sherd. By collecting pieces that catch their fancy when they are walking through unexcavated sites, insensitive people remove important clues. When the site is studied, that part of the story is gone. Even worse, there are people who have little respect for science or for the ancient people and their present-day relatives, and will dig into a site with a shovel, or even a bulldozer, to try to find artifacts to sell. They do horrendous damage to the fragile information in the site, often desecrate graves, and remove items that do not belong just to them but are a part of the country's history and the heritage of the Pueblo people.

Unless they are part of a formal archeological study, if potsherds are removed from their original location, they lose almost all their value as information. It is their relation to the site and each other, called the provenience, not just the sherds themselves, that tells the story. If you see a sherd on someone's kitchen table, it is something like seeing a word that has been removed from a mystery novel. The more that are removed, the less likely that the detective (or the archeologist) can solve the mystery.

In addition, potsherds are not just valued by archeologists and history buffs. They are also important to present-day Pueblo people, for many different reasons. They know that these pottery pieces were made by their ancestors, and so they are an important part of their family heritage. They know that some of the pots were made to be used for ceremonial purposes, and were handled only in special ways by certain people.

When someone collects potsherds, their story is lost forever, the act of collecting may be an act of disrespect, and the person will probably just end up throwing them away anyway. When you go into a museum and see an ancient pot, there is a good chance that it was carefully studied by the scientists working in the site it came from, they have conferred with present-day Pueblo people about the propriety of having it on exhibit or even in the museum collection, and they will use it to tell you the story of the people who made it.

The potsherds used in this lesson are ones that visitors to Bandelier collected and then later, realizing the error of their ways, returned to the park. Because there is no information about their place of origin, they are not useful for archeological study; thus they can be made available for educational purposes.



VOCABULARY

Archeomagnetism: a method of archeological dating based on the last date that clay in a firepit was exposed to the heat of the fire

Carbon 14: a method of archeological dating based on the rate at which Carbon 14 breaks down to Carbon 12

Dendrochronology: a method of archeological dating based on patterns of tree rings (see the lesson "What Can We Learn From Old Trees?")

Paste: the clay used to form the body of a vessel

Pollen analysis: a method of finding out what environment surrounded an archeological site when it was inhabited, based on what plant pollen is found

Potassium-Argon: a method of archeological dating based on the rate at which potassium converts to argon

Potsherd: piece of broken pottery (see also sherd)

Provenience: the relationship of a sherd or other item in an archeological site to everything else in the site, which provides its value for information

Slip: clay thinned with water to the consistency of paint, often used to make designs on unfired pottery; it is used as the background color for the pot's design and sometimes also for the designs themselves

Sherd (sometimes spelled shard): a piece of a broken pottery vessel (see also potsherd)

Stratigraphy: a method of archeological dating based on finding items at different levels in a site where people lived over a long period; usually the deepest are the oldest

Temper: material, such as sand or ground-up pottery sherds, added to clay to help spread the heat evenly during firing.

Tree rings: circular growth patterns that form inside of tree trunks every year that a tree lives; they are wider in wet years, narrower in dry ones (see also "Dendrochronology ")

Vessel: an item of pottery, such as a bowl, jar, etc





PRE- AND POST-EVALUATION

Pre-Evaluation:

Ask the class what they would do if they were walking along and found an unexcavated archeological site with pieces of broken pottery lying about. Write the responses on flipchart paper and keep for later.

Post-Evaluation:

Divide the students into small groups and have each write a short play in which an archeologist or a present-day Pueblo person encounters someone who is walking through a site, collecting potsherds to take home. What would they say to each other? Will they argue and get angry, or have a good discussion? Can the archeologist / Pueblo person convince the visitor to act with better understanding, and enjoy the sherds where they are? Be sure that the dialog in the skit includes ideas about why broken pieces of pottery are dear to Pueblo people, how archeologists can use them to date the sites where they are found, and how even one sherd can change our understanding of the site. Have each group act out its play for the rest of the class. If the students are not familiar with writing plays, perhaps it could be done as a whole class activity, or as an exercise in story writing.

Bring out the pre-evaluation flipchart list and review it with the class. Do they still agree with what they said before? Do they have anything to add, delete, or change?

PROCEDURES: ACTIVITIES TO CHOOSE FROM

(Note: as an introduction to these activities, have the students read the article "Cooking With Clay" in the newspaper "Pueblo People Past and Present". It is only 2 pages long, so it could be xeroxed out as a one-sheet handout if you wish.)

- 1A. Looking at the scanned images of the potsherds, see if the students can recognize any of the clues that archeologists use to tell the different types apart. These clues include slip color, design color, design motifs, and its location when found.
- 1B. Looking at the dates on the sherd labels, imagine you are a team of archeologists trying to figure out when a site was inhabited, and you have found all these types of pottery there. What are the earliest and latest dates shown by the sherds? That can give you an idea of when people lived there, and for how long. Of course that only works if nobody has removed sherds from the site!



2. Using the pottery jigsaw puzzle, distribute puzzle pieces to students and have them put together the drawing of a pot. Each student can fit their “sherds” into the right places to make the pot complete. (Almost complete! The teacher will keep the critical piece) Have students look at the almost complete pot and tell what they think it might be, how it was used, how it might have gotten broken, what methods an archeologist would use to tell who made it and if it was made locally or came here by trade, etc. After the discussion, the teacher reveals the last piece. What does that piece tell us? Point out how the lack of that one vital piece would cause archeologists to completely misunderstand what they had found. Work at an archeological site can be similar. If some passerby has walked off with even a small piece of pottery or other evidence, the information is incomplete and the conclusions can be far from accurate. Even little pot sherds are important!
3. Have each student draw a picture of a pot, in the colors and design they choose. These are not Pueblo pots, but the students’ own. Have them decide what year it was made and where. Be sure each drawing is large enough to fill most of the sheet of paper, and write the date and location along one edge of the paper. Have the students cut their pot into 7 or 8 pieces and hold onto the information on the date and location.

Divide the class into groups of 4 or 5. Have all the students in a group put their cut-up pieces together in a bag and shake them up, then spread them out on a desk or table. Have the group try to divide the pieces up as to which ones are from which pot. Each of the groups of pieces is a pottery type. An archeologist who was familiar with the date and location it was made would have clues on when people lived in that site, what kind of pottery they made there and who they traded with to get kinds from other places.

Have the students tell the others in their group when and where their type was made, and have the group figure out what they could deduce about their site from the pottery types they found.

4. If possible, have an archeologist come to the class and talk about archeological methods and preservation, and the types of pottery found in local sites and what archeologists can learn from them.
5. If possible, visit a local archeological site with an archeologist who can show the students various kinds of potsherds and explain what information they hold. A site being excavated would be ideal, but an unexcavated one would work and give the archeologist the opportunity to talk about why not all sites have been excavated.



6. Consider linking this lesson with the next one, “Making Pueblo Pottery” and its activity 4, which involves inviting a Pueblo potter to visit your class.

EXTENSION IDEAS

1. Have the students look through their kitchen cabinets at home and see how many kinds of pots, pans, and dishes we use today and how many places they come from. What would archeologists several hundred years from now be able to tell by studying objects found on the site of our homes? Does anyone collect antiques? Would they confuse a future archeologist about when our homes were inhabited? Can you think of other ways that those archeologists could find out the dates we lived there? (Hint: do we have any dates written down that might survive?)
2. It is fun, and can you make a useful link between people now and in the past, to look at each sherd and think about the person who made it so long ago. Perhaps the mother of the family gathered the clay, formed the pot, and painted the designs. Perhaps the father gathered the firewood and helped with the firing. Perhaps the son used the pot every day to eat his meals, or the daughter used it to carry water to their house from the stream. Then one day someone dropped it, and the pieces were gathered up and put in the trash area outside. All those years ago it was touched by all those people, and now its image is in your hands. You can really find the connection in some pieces of corrugated pottery, when you find the potter’s fingerprints in the pinch marks. Do you think it ever occurred to those people that someone centuries later would treasure their broken pot? If you had a chance to ask them about the pot, what would you ask, and what might they say to you? If you had a chance to ask them about their lives, what would you ask, and what might they answer? What do you think they would wonder about your life?



RESOURCES

Books:

Baylor, Byrd, *When Clay Sings*, Simon and Schuster, NY 1987.
(ISBN 0-689-71106-9)***

Hayes, Allan, and Blom, John, *Southwestern Pottery—Anasazi to Zuni*.
Northland Publishing, Flagstaff, AZ 1996 (ISBN 0-87358-656-5)

O'Donnell, Joan K, ed, *Here, Now, and Always—Voices of the First Peoples of the Southwest*, Museum of New Mexico Press, Santa Fe, NM 2001
(ISBN 0-89013-387-5)***

Panchyk, Richard, *Archeology for Kids, Uncovering the Mysteries of Our Past*,
Chicago Review Press, 2001 (ISBN 1-55652-395-5)***

Peckham, Stewart, *From This Earth—The Ancient Art of Pueblo Pottery*.
Museum of New Mexico Press, Santa Fe, NM, 1990 (ISBN 0-89013-204-6)

Swentzel, Rina, *Children Of Clay, A Family Of Pueblo Potters*. Lerner Publications,
Minneapolis, MN, 1992 (ISBN 0-3225-9627-X)***

Trimble, Stephen, *Talking With the Clay, The Art of Pueblo Pottery*. School of
American Research Press, Santa Fe, NM 1987 (ISBN 0-933452-18-7)***

U.S. Department of the Interior, *Intrigue of the Past, Discovering Archeology in New Mexico, manual of Project Archeology*; for information on workshops, contact the Heritage Education Team, Bureau of Land Management, Anasazi Heritage Center, PO Box 758, Dolores, Colorado, 81323, (303) 882-4811

Video or DVD:

"Maria", *Indian Potter of San Ildefonso Pueblo*, (video or DVD) 30 min. All the stages of making traditional San Ildefonso matte-on-black pottery ***

*** Materials available for free loan from Bandelier, (505) 672-3861 x 517

Web Resources:

Bandelier website: www.nps.gov/band

Bandelier museum collection items: www.cr.nps.gov/museum/exhibits/band
(or go to the Bandelier website and click on the collections icon)



Teacher Resource for Activity 2

Teacher: make a copy of the picture of the pot and cut it up as a jigsaw puzzle (you may want to glue the sheet on a piece of cardstock before cutting). Be sure that the "Made in Brooklyn" label is all in one piece and that you hold on to that piece while the students are assembling the puzzle.