

Clay is constantly being produced from the decomposition of certain igneous rocks. The four miles of the earth's crust is composed primarily of igneous rocks. As the crust breaks down and decays from the weather, clay is formed. The availability of clay world-wide leads to the development of its use for improving man's quality of life. Ceramic objects have been found made by a wide variety of peoples across the world from as early as Neolithic times. The objects made depended upon the needs and beliefs of the culture that made them. Objects were created for utilitarian use, decoration, and ceremonial or religious reasons. Things made for utilitarian use include containers, cooking or eating utensils, pipes, lamps, bricks, roofing, stoves, and cuneiform writing tablets; objects for decoration included beads, buttons and medallions; and, lastly, objects we believe to have been for ceremonial uses include figurines, masks, rattles, drums, whistles, and flutes. These are, of course, only a partial list of the most common examples. This unit will focus on the pottery in the 18th and 19th centuries in this region and give students the opportunity to create something out of clay.



Lesson: POTTERY



PRE-VISIT SUGGESTIONS

- Review Background material.
- Introduce Literature relevant to art and historical period.
- Review Keywords & Vocabulary.
- Discuss Guiding Questions.
- Show video of fort potter creating pot and firing wood kiln.

KEYWORDS & VOCABULARY

bisque - a clay object that has been shaped, air dried, cleaned, and fired at an appropriate temperature (determined by the type of clay used) to produce a strong durable piece ready for decorating

bisque firing - makes air-dried green ware more durable and easier to decorate

body - the clay material from which a pot is made or the pot itself

clay - a natural product of the weathering and decomposition of rocks, comprising minerals, water, and impurities

coil - a rope-like roll of clay used in hand-building, called coiling, which is a means of building up a clay pot or vessel from coils or ropes of clay that are joined together

earthenware - pottery that is usually soft, opaque, and porous without a glaze

engobe - a layer of liquid clay or slip that is applied to clay surface as a coating. It may be painted on with a brush, sprayed on, poured on, dribbled on, or dabbled on with a sponge

feathering - a feather tip or brush dragged across wet slip for decoration or marbling

firing - applying sufficient heat for the necessary length of time to promote chemical change and eliminate all water from clay or glaze, thereby causing permanent hardening

glaze - a formulation of finely ground glass, suspended in a liquid with the aid of gums, used to decorate the surface of clay objects. Glaze melts when fired and bonds to the clay surface in a colored or clear glasslike coating. May be opaque, transparent, glossy, eggshell, matte, or textured, depending upon the formulation

glaze firing - a cycle during which glaze materials are heated sufficiently to melt and form a glassy coating when coated

green ware - air-dried, but unfired clay objects that have been shaped by casting slip, hand modeling, or throwing on a potter's wheel

impressing - a method of decorating by stamping into a clay surface

kiln - a type of oven in which clay objects are fired
leather hard - clay that is only partly dry; damp enough to cut with a knife and to handle without losing its shape

mold - a plaster or bisque clay shape from which a clay form can be reproduced

porcelain - compounded clay that is white, translucent, and very hard and glassy when fired at a high temperature

pottery - clay shapes that have been fired to 932 degrees Fahrenheit (500 degree) or more

slip - a mixture of clay and water used to hold clay pieces together, or a mixture of clay (or clays) and water with some non-clay materials that is applied to the surface of a clay piece for decorative effect

slip trailing - the use of a squeeze bottle or syringe to apply engobe to the clay to create a raised pattern

stoneware - high-firing clays, hard when fired; color ranges from light tans to dark grays

trailing - slip decoration trailed from a squeezed bag or plastic bottle onto raw pottery

Grade Ranges

K-2 students will paint a trivet

3-6 students will paint a trivet and decorate

7-12 students will emboss and decorate a trivet



Clay pot made at Pricketts Fort

Materials Needed

Fort provided RESOURCE BOX will contain the following: Period examples and all materials and tools needed for hands-on activity.

Teacher will provide the following: work space with tables, clean-up supplies, water supply. If there is no kiln at school, projects will need to be transported to Fort and fired or workshop can take place at the Fort.

Guiding Questions

Where does clay come from?

Why do so many cultures use clay to create objects?

What objects were made?

What distinguishes utilitarian and ceremonial from decorative objects?

How do objects made from clay reflect a culture's values and beliefs?

What frontier conditions do clay objects reflect?

Literature Relevant to the Art and Historical Period

When Mud Woman Begins

Electricity
down my arm
through this clay
forming into
spirit shapes
of men
women
and children
I have seen
somewhere before.
Electricity
surging upward
as I mix
this mud
like my mother
as her mother did
with small
brown feet.
Folding into this earth
a decision of
joyful play,
transcending expectations
of fear
failure
or perfection.
Creating spirits
calling invitations
of celebration.
What occurs
in completed form,
bright
and bold,
is motion
from our mother's skin.

I smile
momentarily satisfied
with my play.
Electricity,
generated from star colors
far from home,
entering
through my feet
blessing my hands
and opening my heart

— *Nora Naranjo-Morse (Naranjo-Morse)*



Fort potter at work

Background



Tea Leaf Luster inside the Job Prickett House

The average New England household of the 17th and 18th centuries could contain an assortment of ceramics from Europe, the Mediterranean, and the Orient. Trade up and down the Atlantic coast was taking place among the Dutch, English, and Spanish. Boston household inventories contained Dutch and English delft; Italian, Spanish, and Portuguese *majolica*; porcelain; imported red ware; and locally manufactured red ware.

During the 17th and 18th centuries, locally produced red ware (pottery) was usually utilitarian and sometimes of poor quality. From 1680s through the Revolutionary War, potters were restricted by the British from making fancier wares and could only make the more basic shapes such as chamber pots, pans, butter pots, and other common pieces found in the kitchen and pantry. These types of wares were not economical to ship from Europe and so local production was tolerated. Refined red wares, most stoneware and all porcelain and tin-glazed wares were imported into the American colonies until the end of the Revolutionary War.

Another reason for the lack of local production of more refined ceramics is due to the fact that outside of urban areas, potters were frequently farmers or involved in another livelihood besides pottery. The farmers or potters would make pottery during the times of year when the demands of farming were low. They provided a necessary service to communities by supplying much-needed wares. Skilled potters who immigrated to America usually worked in the urban areas where more jobs were available. The rural American potter was often self-taught or taught by other potters who never had the benefit of learning the trade in one of the large well-organized European centers.

TYPES OF POTTERY

The various clay composites used in the making of pottery are categorized by their physical characteristics both before and after the hardening or firing process. There are certain aspects, however, that all clays have in common. All clays that have porosity above 5% when fired are considered earthenware. What this means is that the ability of a fired clay to hold liquids without seepage occurring must be within 5% of being completely watertight (vitrified). Earthenware can range from pure white to dark brown in color. The texture of the clays can be fine grained to coarse. Generally, earthenware fires at lower temperatures than either stoneware or porcelain. Earthenware cannot be made absolutely watertight because of its porosity although the application of glaze to the pot does help. Some glazes work better than others to prevent seepage.

Redware

Redware is a type of earthenware. What causes the red color is the amount of iron in the clay body. Other minerals can also affect the color but iron is the most important color agent. Redware can range from light orange to dark brown in color and the clay body can be fine grained or coarse. Redware clay deposits occur close to the surface and can be used as they are after processing. The color of the clay as it comes out of the ground can vary greatly from the finished pot.

Delft

Delft is also a type of earthenware. The clay is covered with an opaque tin-bearing glaze and then often, but not always painted and finally fired. The term delft is confusing and many references in the past have been inconsistent. A more accurate term is tin-glazed wares. Tin-glazed wares include delft from Holland and England, maiolica (or majolica) from Italy and Spain, and faience from France and Germany. Tin-glazed ware was never produced in America. Around 1750, Staffordshire white salt glaze, an especially refined and porcelain-like type of pottery, began in England. At the same time, refined earthenware was developed by both Americans and Europeans. Creamware and pearlware are types of refined earthenware.

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Stoneware

Stoneware clays are usually made up of blended clay bodies to produce malleable, strong clay which can be worked on a potter's wheel and fired to a vitreous state. Clay which can be fired within 2% of total vitrification is considered stoneware. The color can range from white to dark brown and texture can be smooth to coarse. Stoneware requires a higher firing temperature than that of earthenware.

Stoneware was imported from Europe to the American Colonies until the end of the Revolutionary War. Germany and England were the largest producers and exporters of stoneware. Both countries were producing gray salt glaze with blue decorations. American production began in the mid 18th century and both imitated and competed with the European imports despite trade restrictions. Large-scale manufacture did not occur until immediately after the Revolutionary War. The large centers in the North spread from New Jersey and New York into New England. The southern centers were concentrated in Philadelphia and eastern Pennsylvania. Over time, more potteries spread further south.

Salt Glazing

Salt glazing is a process whereby sodium, most often in the form of coarse salt, is introduced into the kiln during the firing. From an historic point of view, it can be assumed that a salt-glazed pot is made of stoneware.

Porcelain

Like stoneware, porcelain is most often composed of a mixture of different clays. It too is fired at higher kiln temperatures.

THE COLONIAL POTTER

Farmer- craftsman-environmentalist

The colonial potter most likely was not a full time craftsman in this trade at the time that Pricketts Fort was first constructed in 1774. He would have been creating common utilitarian wares for the community during a time when he was not working at farming or preparing for winter survival.



Fort potter at work

Materials used in the making of colonial pottery would have been gathered from the local environment. Clay would be dug from a close by streambed or riverbank. Local firestone, loose sandstone also used for

making blast furnaces and smelting ovens, would be used to create an oven to bake the clay vessels. Temperatures of 1800 degrees Fahrenheit required for earthenware would be needed to bake the utilitarian wares to a useable state, and higher temperatures would be needed for the stoneware that would have been made in post Revolutionary Times. The firestone kilns would later be replaced by kilns constructed of firebricks. Kilns may have been built into the side of a hill, using the earth for insulation. Fuel to fire the kiln would be wood or in some cases coal.

Most items produced would have been formed on an apparatus called a potter's wheel like those commonly used in potteries in Germany and England. Items of a less symmetrical nature such as buttons, tobacco pipes, tombstones, and the occasional whimsy, such as a child's whistle, would have been made in molds or simply formed by hand. The process of making wheel-thrown pottery is the same basic function today as it was 230 years ago during the time of the Pricketts settlement.

Due to the restrictions placed upon the colonies by the British at the time, the potter would have been

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restricted in the type of goods created. Such items might have included candlesticks, chamber pots, butter pots, baking pans for breads and pies and other pantry needs such as mugs, plates, bowls, milk bowls, flasks, vinegar and drink vessels, sugar bowls, inkwells, salt containers to be hung near the stove, cuspidors, pitchers, churn bodies, and crocks.

The process of creating clay wares was very labor intensive. First of all, the craftsman would have had to dig his clay from a nearby clay source, most likely along a local creek bank or the edge of a water source. We know that local clay was located on Prickett land because the Prickett brothers used it to build the bricks to construct their homes in the 1800s. One of the original brick molds is on display in the permanent collection. Below is a photograph of the Job house showing the brick's red color.



Job Prickett House

Clay is a wonderful material that is widely available. In its wet, raw state it is said to be plastic. This means it has the ability to hold the form into which it is modeled. Earthenware is one clay body that can be used as it is found from the ground without adding other components to it. This is especially handy given the difficulty in importing raw goods to the Fort's location. Things had to be brought in by packhorse or mule over the mountains, since adequate roads did not exist for wagon travel. Once a vein of useable clay was located, it had to be dug and transported to the potter's shed. There, organic materials such as twigs, leaves and pebbles had to be removed from the collected mud.

After clay was cleaned and processed so that it was of a consistent malleable state, it would be weighed and rolled into smaller lumps and wedged. Wedging is a process used to rid the clay of trapped air before it is made into an object. English potters call this action kneading, because wedging is like

kneading bread dough to remove trapped air pockets. Air bubbles impede the throwing process during wheel work much in the same way a pot hole impedes the smooth travel of a car. If a bone dry item has air pockets, it will explode in the kiln. The clay can be slammed down repeatedly to force out air pockets or can be expertly rolled over and over upon itself, making the mound take on a kind of wedge shape, hence the term wedging.

Often a potter would have apprenticed helpers who would assist with the more laborious aspects of the operation. The apprentice would first learn to wedge and keep the potter an ample supply of ready-measured clay to form upon the potter's wheel. This act is called throwing. It was done by throwing or hitting the clay mound upon the damp wheel head to make it stick. Once attached securely to the wheel head, the clay would be formed while the potter made the wheel head rotate at varying speeds of force according to the act being performed. The wheel head was made to rotate by kicking at a shaft connected to a larger weighted bottom wheel. Water was used to allow the clay to slip between the potter's hands and fingers while guiding the clay to grow into a desired symmetrical form.

Some tools were used to help the potter produce the desired shape. Kidney-shaped ribs and sharp-tipped wooden trimming tools were made from whatever materials were available at hand, such as wood, bone, antler, or leather.

The thrown form would then be removed from the wheel head by sliding a wire or string beneath its bottom to release it. It would be placed aside until it reached a leather-hard state when additional forming and handles would be applied. Sometimes a large open form such as a bowl would need to have excess clay trimmed from its base, an act the English potters call turning, while today's American potters call it trimming. Handles were applied as rolled coils or were thick rectangular blocks attached to the mug or jug after its surface had been scored to insure good adherence. They then would be thinned and elongated by a method known as pulling the handle. At the leather hard stage some surface decoration might be applied in the form of scratched designs (sgraffito), painted oxides, slipped trailed designs as in the

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Pennsylvania Dutch, stencil designs, or salt-glazed wares; however, it is most likely that the wares made in the 1780s were quite simple and lacking in much surface decoration. A glaze containing lead would be applied to the ware. Pottery allowed to reach a bone dry state would be stacked into the kiln to be fired once it was full.

Usually the potter would continue to throw the same basic forms and then move on to the next step of development, making this one of the first types of American assembly line work.

To make a profit, the potter could not afford to make any large mistakes. Kiln firing was the next phase requiring a knowledgeable and watchful eye. Pottery was loaded into the kiln carefully because it was in its most vulnerable state at this time. Bone dry ware broke easily and represented a great loss of time if destroyed.

The art and the craft of the colonial potter demanded great physical labor, knowledgeable coordination and skill, and attentiveness to kiln firing. To many onlookers, this may appear slow and meticulous work, but to any who have experienced the pure joy of the successful firing of one's own pottery, it is a true labor of love. There are no known intact pieces of pottery made at the Pricketts Fort location.

There is good documentation of a pottery that was established in nearby Morgantown as early 1785. Andy Harny in *National Geographic* wrote that, "In the 1750s colonial pottery was coming into its own, emphasizing regional character and selling in quantity. Nearby, the Pennsylvania Germans were producing bright earthenware. The most representational of these works would have been from 1774.



Artist Profile

Anna Mitchell

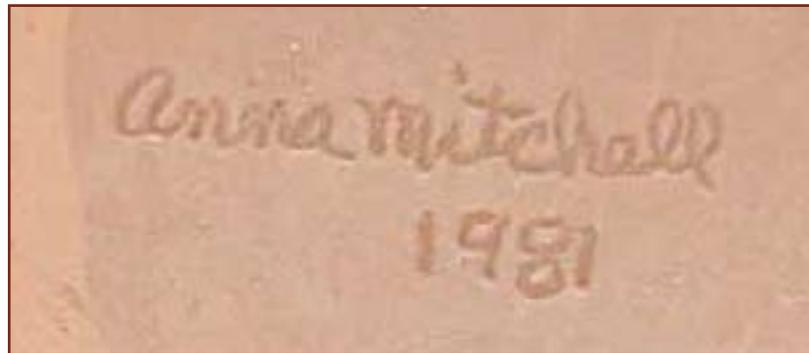
Cherokee potter Anna Mitchell has worked hard for more than 30 years on her pottery and has done much research to make it authentic. She is known today for creating Southeastern and Eastern Woodlands-style pottery, but faced a few obstacles when she began making pottery 34 years ago. There was no guide on creating Cherokee pottery, and few Cherokees were making pottery when she began creating objects from clay found in a pond near her home in Vinita, Oklahoma, in 1967. After creating these small objects, including a pipe for her husband, Robert Clay Mitchell, she became curious about clay and how her Cherokee ancestors created their pottery. "I knew Cherokees hadn't really done pottery since removal, there wasn't anyone doing it or people who knew how to do it," Mitchell said. "But I thought surely it could be done again." When she realized the art of making Southeastern pottery was in danger of being lost, she became more determined to help preserve it. "I believe without art you don't have culture and without culture you don't have art," she said. Mitchell began studying tribal cultures and their artwork, searching for instructions on making Southeastern pottery. There was very little. The knowledge of creating Southeastern-style pottery had lain "dormant" for many years, she said.

She creates her pottery in a small studio near her home, and only works on her pottery in the warmer months, saving the fall and winter to spend time with her family. She usually works on three pieces at a time, working on them at different stages. Depending on the size of each piece of pottery, she can usually prepare a piece for firing in two weeks. She fires her pieces using wood behind her studio

in an area surrounded by bricks. The clay pieces are placed on a metal sheet above the fire for an entire day. The pottery hardens over the fire and gradually cools as the fire cools.

"I try to follow as much as possible what my ancestors did," she said. She decorates her pottery with leaves and other ornaments, which are placed on the outside of her pottery before firing. She has also created her own unique fired-clay stamps, which she uses to stamp different designs on her pottery before firing. Central American Indians used similar stamps, she said.

Mitchell is hopeful the pottery-making she reclaimed from her studies will continue with the next generation. What started from a lump of clay from a pond has opened many doors for Anna Mitchell. As much as she enjoys creating art and learning more about her culture, she cherishes the things that have come with being a recognized artist. (Anna Mitchell)



Anna Mitchell

American Indian and Multicultural Connection

Woodland Indians would fire their pottery using a pit fire. A shallow pit was dug. It was lined with combustible materials and wood. The air cured pots were layered in the pit with additional combustibles. The fire was built around and then slowly placed on top of the pottery. After the fire burned out, the pots were

left to cool. Pit fire pots have a distinctive gray color with some black. Discuss the methods of construction and firing used by American Indians from the Eastern Woodlands areas. How were these similar and different from colonial pottery? (See the pit firing activity suggested for Extended Learning.)

CLAY VOCABULARY WORD SEARCH



BISQUE

FIRING

HARD

POTTERY

STONEWARE

COIL

GLAZE

KILN

SGRAFFITO

THROWING

EARTHENWARE

GREEN

LEATHER

SLIP

TRAILING

ASSESSMENT CLAY TEST

Name _____ Date _____ Score _____

How do you think the general conditions surrounding the settlement in 1774 would have affected the activities of the colonial potter?

Explain why clay-made objects are important for learning about other cultures?

Name three reasons or uses for which ceramics have been made.

ASSESSMENT CLAY TEST

Name _____ Date _____ Score _____

Complete the following vocabulary sheet and check it against the key words/vocabulary list.
20 words X 4 points = 80 Answer each question: 5 X 4 = 20 points

Pottery:

Clay:

Clay body:

Plasticity:

Wedging:

Throwing:

Bone dry:

Leather hard:

Centering:

Opening:

Firing:

Earthenware:

Stoneware:

Porcelain:

Glaze:

Glaze firing:

Green ware:

Kiln:

Wheel:

Rib:

ASSESSMENT CLAY TEST

Describe what activity of the potter left the greatest impression:

Number the following activities in the order that they would be done in pottery making:

- ___ Wedging
- ___ Digging and cleaning clay
- ___ Firing
- ___ Glazing
- ___ Adding handles
- ___ Throwing

Describe the act of throwing pottery. Use at least 4 of the vocabulary words.

Name three naturally occurring elements that the potter would have used from the local environment to make his wares.

ASSESSMENT RUBRIC

Name of student _____

Title/topic of art lesson _____

Date _____

Analytic Performance Rubric:

Ratings:

1. Takes ownership of the skill or art learned with mastery.
2. Takes ownership of the skill or art learned with proficiency.
3. Takes limited ownership of the skill or art learned.
4. Takes little ownership of the skill or art learned.
5. Takes no ownership of the skill or art learned.

_____ A. Knowledge of the art/skill.

_____ B. Knowledge of the historical connection.

_____ C. Knowledge of the guiding and evaluation questions.

_____ D. Skill of the art presented.

_____ E. Total points.

Feedback to student:

Constructive direction to student for further learning:

Conversion of analysis to grade: _____

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POST-VISIT

Suggestions for Extended Learning

Students can create a pendant from commercial clay using geometric or animal designs. Be sure to make a hole large enough for a string or wire to pass through. Once air cured, place into coffee can surrounded by sawdust. Place whole can into fire. The can will smoke as the sawdust burns. Cool can and dump out pieces. Beads can also be made this way.

Students can visit Pricketts Fort to witness the period potter at work in an authentic historic environment. Compare his workshop to a modern day potter's studio.

Students can make rolled press-decorated beads and medallions for jewelry.

Students can study Iroquois style false face masks and create them out of clay.

Students can create containers using the coil building method.

Students can decorate a clay hand-built pot by scribing simplistic pictograph forms and primitive pit-fire.

Using slab construction, students can make a box and utilize scraffito methods of decoration.

Students can create clay trivets using slip decoration and words impressed with metal type to create plaques commemorating a significant personal event.

Students can work with a wheel to create items common to domestic and table use: mugs, milk bowls, pitchers, deep dish bowls, pie plates, or open-mouthed canning crocks.

Examine historic pottery forms such as small necked liquid bottles-vinegar and whiskey jugs. Create your own.

Students can make clay wind chimes utilizing textures of the natural environment common on the frontier.

Students can build a bird house or feeders using rolled coils of clay stacked similarly to log construction.

Students can create clay tiles utilizing stencil methods showing motifs common to both woodland natives and European immigrants after 1790s.

Students can research clay instruments from the Americas and beyond (rattles, flutes, whistles, drums, chimes, rasps) and design and decorate their own.

Related Lesson: Woodworking and Tinsmithing

Students can study historic containers made from wood, metal, and pottery and compare forms, decorative features, functionality, and production processes.