

How Dirt Changed Human Life: The impact of the Ceramic Process

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William B. Keene Elementary is located in Newark, DE. Contrary to its suburban home, Keene is a title-1 school, meaning a high percentage of our population is of unstable or struggling financial means. The students come from a drastic range of lifestyles and situations. Some life realities that my students are forced to live with includes: managing personal hygiene alone, coming home to an empty house, living in a shelter, not having food. These realities come into view when my students arrive at my classroom door. Serving grades k-5, the staff gives their all to accommodate the high student population. Averaging 700+ students a year, Keene is a bustling hive of education, socialization, and culture. Each team of core classroom educators works diligently to meet the individual needs of each student. The mix of economic and cultural backgrounds proves to be stressful on student and staff alike.

Rationale

I have the exciting benefit of being the art teacher! As the art teacher, my time is limited to once a week, due to scheduling, but I am one of the few teachers who will be actively involved with each student for the five years they are at Keene. Therefore, my class is prime grounds for deep long term instruction and understanding.

Caught up in today's technology infused life, my students are so quick to overlook the amazing ancient technology they use every day. At one point in the world there was only resources found in nature, and as humans evolved so did their ability to transform the world around them to better their lives. The ceramic process is one of those ancient inventions that changed human life.

I will teach my student about the ceramic process, from start to finish to expose and inspire them about the humble beginnings to the exciting possibilities of clay today. Just because we live in the age of technology does not mean there is nothing new to discover. Far too often do I see students look for a given answer as opposed to seeking out their own findings? This phenomenon of expecting prescribed answers to all their problems is why I run my classroom under a student-directed learning model.

Choice Based Art Education

In my art class I will never tell a class what we are making, that's just not right and it for certain isn't artistic. Instead I teach my students about techniques, process, artists, history, cultures, and material. Once loaded with their new information for the day I set my class free to use the lesson or techniques anyway they want. I encourage experimentation and celebrate the failures equally to the successes. Everything is relevant to the artist and should be used in the creative process.

I decided to "teach" in this manner after studying the level, or lack of, creativity in my students. As the teacher in the learner directed classroom I look at myself as a facilitator. I am there to make prep students and materials for self-directed discovery and making. When put in charge of a project students are not just deciding what color to paint their artwork, but rather working on a deeper level. Students in the choice based art room are thinking critically about what they want to create and how they will accomplish that. I challenge my students with think creatively about materials and techniques.

The learner directed classroom is a place where students think critically about their choices, strengthen their visualization skills, and develop collaboration techniques. Every student in my classroom must present me with their idea before a project can begin. Like a mini sales pitch, students must express how this project will be completed, what the significance is to the, and what the viewer will experience.

Visual Literacy

Visual literacy is a term used in the art education work to describe a student's ability to process and communicate with images. Every day students are bombarded with advertisements and designs aimed to change the way they think or feel. The art room is the place where students learn how images work and what parts of an image do to our eyes, brain, and thoughts.

Visualization is the ability to see a thought, it is a skill that can be taught and refined. Students with a strong visualization skill are more capable of explaining their ideas because they have a clear representation of it in their mind. When students are tasked with independently coming up with an idea they are forced to develop their visualization from scratch, pulling from their mental library of every image they can remember to craft a new and creative idea.

Visual Literacy is also valued skill when it comes to reading comprehension. The ability to build and understand images mentally allows a young reader to illustrate a text as they read it. This movie that readers develop in their head allows them to make connections, analyze characters, organize thoughts, and make connections.¹

A Personal Retrospective

I have always enjoyed making objects from clay. One of my earliest artistic memories making a clay whistle shaped like an alligator. In elementary art class I formed the vessel, added spikes, legs, a tail, and of course teeth! I was, and still am in love with clay. As an artistic medium, there is no other like it, clay is effortless and impossible at the same time. The sensation of touching, shaping, and working with clay is unmatched by any other medium. I have since progressed from the 3rd grader making an alligator in my ceramic endeavors. In high school, I took advanced ceramics twice, as well as clay sculpture, and an independent study in clay. I am a lifer.

My interest in ceramics progress as I entered Kutztown University, completing the ceramics requirements for my major in one semester, I added a second major – bachelors of fine arts: ceramics. It was in college that I became very interested in the relationship of pottery and food. The process of cooking and food has been part of my life for as long as I can remember. My mother ran her own catering business, thus learning to cook was natural to me as a child. I remember surprising my family with dinner prepped and in the oven for them to come home. I would cook often in middle school, as my father worked late and my mother was at the hospital with my sister for physical therapy due to a severe broken elbow. To this day I cook almost every night I am home. Cooking is a stress relief, creative outlets, and straight up fun. Scattered around my kitchen are relics from my ceramic history; a butter dish from college, coffee mugs I made last year, some bowls and dishes from high school. These are my personal artifacts of this life long relationship with such an ancient medium.

As my personal ceramic art progressed through college, I began to question the aesthetics and use of pottery in cooking, serving, and eating. There is nothing more “stereotypical potter” than a coffee mug, I of course have made my hundreds as all potters. I questioned and pondered the relationship between the vessel of foods and the experience of the viewer/diner. There are several wares to choose from to investigate the relationship a food shares with its dish, but I was looking for that extra facet of enjoyment and comfort. When I think of comfort food lots of things fly through my mind, but I settled on one, butter.

Butter

Butter is the quintessential comfort ingredient. It is rich, voluptuous, and versatile. In today’s world, especially in the United States, butter is exiled to refrigerator, wrapped in a parchment body bag, and forgotten. Beside the exception of the store-bought turkey sculpture for Thanksgiving, butter spends its life in packets and tubs.

The previous is of course an exaggerated statement about butter, but the reason to why I began making butter dishes is within it. Butter was forgotten, and needed to be elevated. I began to literally elevate the butter by constructing dishes which held a stick of butter several inches above the table. Always functional and heavily ornamental, my butter

dishes progress as any body of work from initial too extravagant, to refined. As an artist, I was using my craft to salute butter, and bring people together to enjoy a comfort food.

My personal interest in food and its serving ware is what lead me to this search of how the ceramic process changed human life.

The ceramic process is the steps taken to transform earth into a hardened ware. From the river bank, through the hand of the artisan, into the fire, and out. Clay changed human life by being the first invented inorganic material. Pre-ceramic life left early man with only organic containers, such as bones, skins, organs, gourds, baskets, and ground stone vessels to store and transport goods in. Whether these goods were water, grain, or other findings, man only had inconvenient, or decomposable options for storage and transportation.

Early bowls or plates were found pieces of stone, use to place items on or in. Stone can be sculpted or carved, but this takes much time and effort. The wooden container is easier to create than stone but decomposes eventually, cannot support long term exposure to water or other liquids, and is not suitable for cooking over an open flame. Plant based containers like woven baskets and bark products are much lighter than stone or wood, easier to craft, and last a long time, but lack watertight seems. To transport water and other liquids early humans use animal bladders and stomachs. These containers were readymade and quick, but decomposed if not treated properly. All these containers were only temporary solutions to lifelong needs. Discovered by accident, when clay lined baskets were tossed in the fire, the ceramic process allows people to create a permanent storage and transportation vessel.

The Basics

Clay is a fine particle of earth found in veins throughout the landscape and along river banks. The size of a clay particle varies from one type to another, with the coarser stoneware, or the finer porcelain. Clay is deposited, usually by water at some point, and when harvested it can immediately be shaped and formed due to its plastic nature. Clay holds moisture, and as any gardener would know, it is detectable in soil by rolling a sample of dirt into a ball. If the ball remains tight and packed, there is clay present.

Harvesting

Clay is traditionally harvested by hand from its natural location. Veins of clay can be seen along rivers and streams. Some streams create massive deposits of clay that lay on top of the riverbed. Clay can also be dug from the earth in an area known to hold clay. After the clay is removed from the earth it most likely needs to be refined, in some cases pure clay can be found and used straight from the earth.

Refining clay begins by hand picking out all the large and visible contaminants, then mixing the harvested earth with water to form a slurry. This solution is then sieved and

screen through finer and finer filters (mesh, cloth, woven mats, etc...). Clay being the finest particle of soil passes through all filtration along with the water.

After separating out debris and filtering out other particles, the slurry is left to settle in a basin. Over a day or so all the clay particles will separate from other soil particle and the water. The solution will settle into three or more layers: the water, clay, and soil remnants. The water can now carefully be poured off, followed by the clay which is spread out to dry. The remaining sediment in the basin is discarded. At this stage the clay is what is called “slip”. Slip is used to attach leather hard pieces of clay together, or it can be left to dry out and turned into usable clay.

Stages and Firing

Clay in its raw state is called “green” when shaped into a bowl or vase, those objects are called “green-ware”. Clay is formed in this green state through various methods. During its green lifespan, clay possess different properties at different times. When mixed with enough water, clay becomes a slurry called slip. Slip can be poured and cast into molds or used like glue for green-ware. Remove some water from slip and you have moist clay. Plastic and malleable in nature, this moistened state is what most think of when they picture clay.

As more water evaporates from a clay body or ware, it goes into what is called a “leather-hard” state. At this stage clay is stiff, but still bendable and able to take new shape. Leather hard clay is used to attach handles and other structurally fragile pieces. This is the last stage where large scale change can occur on a piece of pottery.

Left to sit and dry clay will enter the “bone-dry” stage where all the water capable of evaporating naturally is gone. The body itself still contains some moisture. This stage leaves clay hard, chalky, and extremely brittle. At the bone-dry stage pottery, may be decorated with clay based paints called underglazes or other stains. If the artisan wishes he or she can place the ware in a basin of water and the artwork will be reduced back into slip in a matter of hours. Clay can be recycled from bone-dry to slip indefinitely in its lifetime.

Time to fire

In modern times, there two main ways to fire, or to use the widely used incorrect term “bake” pottery. Today’s kilns are electric or gas, with various other methods to be discussed later. In an electric kiln, much like a dryer, coils run around the perimeter of the kiln, heating the wares. In a gas kiln, flames run through the wares heating them to the correct temperature. Each kiln, gas or electric, yields fully vitrified pieces of ceramic, as well as some different aesthetic results such as colors and surface textures.

Vitrification is the process of chemically changing a dry green-ware pot into a ceramic object. During vitrification the bonds between the clay particles is strengthened, their

chemical composition changes, and their ability to absorb and disintegrate in water is removed.

Other methods of firing pottery include wood fired kilns, like those in eastern Asia that were dug into the sides of hills/mountains. These noborigama style Japanese kilns were sometime freestanding and at other times built into the landscape. They featured many arch shaped chambers where the heat, flames, smoke, and ash would work past the pots and eventually out the chimney. Anagama kilns, another Asian style kiln, are elongated with the fire box at the front and chimney at the back. Anagama kilns produce, in my opinion, the most beautiful ceramic works of art. The ash, heat, and flame encounters all the pots. The smoke travels above the wares, and deposits ash onto the scorching host pots. This ash melts into a natural glaze.

Pit firing is another common technique utilized by the ancients. Used all over the world, but a symbol of Native American pottery, pit firing is the process of placing wares in a large pit, lined with combustible materials, stacked high with wood and set ablaze. Ancient pit fired ceramics were vitrified but still porous. Think of a terracotta pot, it is permanent but still absorbs water. To make their unglazed pottery cleaner and water tight, ancient artisans used a technique called burnishing. Burnishing a pot is the process of rubbing it with a smooth stone or tool when the ware is bone-dry.

Temperature

Today the temperature of kilns is measured in cones. The unit of measurement is named so due to the use of pyrometric cones. Pyrometric cones are a relatively modern invention, a mixture of different ceramic materials, the cones are engineered to bend at a certain temperature (appendix B). Using cones to fire is still practiced today, and some potters prefer it. Cones packs are created by the artist to monitor how fast a kiln is climbing in temperature. The artist rolls a coil of clay and places the appropriate set of cones in the clay. Each cone designed to bend at a specific temperature. As the kiln climbs in temperature the potter can look at the cones and note the time between cone bends. The speed at which the kiln heats is very important to monitor as heating too fast can cause explosions due to moisture rapidly changing into steam within the walls of a pot. Also, firing too slow during a glaze firing may change the outcome of the glazes.

Modern pyrometers (high temperature thermometers) have since replaced cones in most industrial kilns. The kiln I use at my school is entirely digital, as easy to use as a microwave. The computer in the kiln is pre-programmed with speed and time data, simply press the firing type and walk away.

Forming

There are three main methods of forming clay: hand-building, the potter wheel, and slip casting. The most ancient of these techniques is hand-building. This technique refers to any way the artist shapes or manipulates the clay by hand. Within hand-building there are several techniques; pinch, coil, and slab. The pinch pot is the oldest of all clay formed vessels. The artisan begins with a ball of clay, pushes their thumb, or hand into the center and begins to pinch around the pot, rotating as it grows. This method was used to create the first ceramic vessels, and is still used today. I teach how to make pinch pots to all students as we begin our clay unit. Pinch pots can be any shape, and can grow by adding coils.

Coiling is a method where the artist rolls a long snake of clay and attaches it to a started pot, or base. The artist scores, or scratches, the coil and then coats it with slip to attach. Once wound around the form the coil can be left or smoothed and pinched for a refined look.

Slab building usually uses a little bit stiffer clay. Slabs allow for the creation of precise fits and sharp corners. Rolled out like cookie dough, a clay slab can be sliced and punched into any shape needed. Assembled with slip, slab building is a great way to achieve a geometric style and build large vessels.

The wheel, or more appropriately named the potter's wheel, has no hard-fast invention date. For centuries, the use of turntables has been utilized to allow the artisan to spin their pot, working on all sides and keeping it relatively symmetrical. I define the potter's wheel as a tool used to spin a mass of clay allowing it to be shaped by the artist due to the presence of centrifugal force. Centrifugal force is the force that pushes outward as an object is rotated around a central point. The speed of the pottery wheel creates centrifugal force which the potter can utilize to raise the walls of a pot. This action creates a very even and symmetrically round pot. In modern times pottery wheels are electric powered with usually 1/3 to 1/2 horsepower motor. The more ancient version, which is still used today and sometimes preferred by potters, is the kick wheel. Called a kick wheel because the artist, or their assistant, kicks the wheel to create motion. Typically, the kick wheel is comprised of two wheels, the wheel head and the momentum wheel. The wheel head is where the clay is attached and formed. The momentum wheel is the wheel that is kicked, this wheel is weighted to create and hold momentum. There are thousands of different wheel variations but they all work off the same basic physical principle or centrifugal force.

Slip casting is the most industrial technique, and is probably the way the ceramic object nearest you was created. Favored by industry, slip casting produces a uniform and precise ware that can be replicated exactly. This uniformity is due to the use of molds. Most commonly two parts, plaster molds are created of the desired object. Each mold has an open mouth where slip can be poured in. The slip is about the consistency of a good milkshake is cast into the mold and allowed to firm up. The amount of time the mold sits full determines how thick the walls of the object will be. After the prescribed amount of

time the excess slip is dumped out to be recycled. The now hollow ware is allowed to set up more inside the mold before extraction. After the ware is removed from the mold minor touch up is needed to finalize its shape. A quick internet search of the slip casting process will yield thousands of videos to this commonly used process.

Surface treatment

There are as many different surface treatments as their art artist, but a few are universal. The surfaces of raw and bisque fired pots are porous and therefore need to be sealed to be water tight, there are two ways to do so, burnishing and glazing.

Burnishing, as mentioned before, is a technique where the surface of a green pot is sanded smooth, and then polished to a sealed state. This is easily, though time consuming, while in the late leather hard stage. The crafter rubs the surface of the pot with something hard like a polished pebble (my favorite, I've had the same rock for about ten years), animal bone, back of a spoon, or anything hard and smooth. This process compacts all the surface particles so tight that they begin to shine, and seal off the surface. Once fired a burnished pot is much more water tight than an unburnished, but still has the chance of absorbing some liquid.

The ancient Greeks and Romans used the burnishing techniques on their red and black figure pottery. Ancient artist would use a slip solution called terra sigillata. Terra sigillata is made of specific clays and other substances to produce color. Iron was used to produce some of the red hues in ancient pottery. Terra sigillata is applied to green pots with a brush, and then burnished with a soft cloth (in modern times I use microfiber or stocking). Since the mixture is so pure, the surface does not require a hard polish with a stone, it produces a sheen from the cloth rubbing.

The most common and youngest, although still ancient, technique for surface treatment is glazing. Glazing is the process of coating a ceramic ware with a glass surface. Glaze goes on in a liquid form and is fired on, typically at a higher temperature than that the bisque firing. Modern glazes are chemically formulated to produce any color, texture, or luster imaginable. Ancient glazes were still chemically formulated, just in a less chemical way. Things like salts, wood ashes, sand, sea weed, animal dung, and other common materials were used to achieve the glass coating. All the basic ingredients would be harvested and refined into a usable state.

Modern clays: firing, air dry, oil based, polymer.

There are many different mediums available today that are sold as "clay" only clay bodies that go into a kiln are true ceramics. Firing clay is the modern term for ceramic type clays. There are three main types of firing clays: earthenware, stoneware, and porcelain. Earthenware clays are often red or brown in color and were the clays of ancient man. Commonly found in a relatively pure state, earthenware is fired to a lower

temperature than most clays, thus making it perfect for the ancient potter to vitrify in their campfire. Stoneware clays are often gray in color when raw, and buff when fired. Stoneware is stronger when fired than earthenware, it is fired to a much higher temperature, around cone 6.

Porcelain sometimes isn't even clay at all, instead modern porcelains are comprised of mainly kaolin, a mineral commonly found in clay. Porcelain clays are translucent when fired and extremely strong. Totally white and pure, porcelain is regarded as the highest quality of ceramic objects, but in modern times it does some pretty tough jobs. Today porcelain is used to insulate electrical situations as it does not conduct electricity, make false teeth and dental work, and as a component in vehicle brake pads, it is tough against the elements, and able to shape easily.

Air dry clays are not true clays, but rather fancy putty. They are a composition of different bases, fillers, and water. The base can be stone based like cement or plaster. The filler material can be wood pulp, or other fibers. These clays need no heat to set up.

Polymer clay isn't actually clay at all; it is made of different plastics and chemical compounds that act like clay. Polymer clay is common cured in the home oven or toaster oven. Cheap and colorful this is a common clay to find in the classroom or craft store.

Oil clay is a mixture of color, a fine base, and oil. This clay is the type of clay used in Claymation films. Oil clay never dries out, due to the use of oil instead of water. Oil clay is able to be reshaped over and over again, a necessity in animation.

The Accidental Invention

The ceramic process was a discovery, widely attributed to the burning of unwanted clay lined baskets. Organic woven baskets were lined with clay to help with food preservation/transportation and water tightness. When these baskets were no longer needed, or worn out they were often tossed into the campfire. The clay lining that had been smeared inside was heated, and eventually fired. The next day, or after the fire had died, ancient man was left with a pile of ash and newly created ceramic shards.

There is no one culture credited with the invention of pottery. Due to the widespread availability of clay and the use of fire, cultures across the globe facilitated their own discovery and use of ceramics individually. In the book *The Emergence of Pottery*, William Barnett and John Hopes state "The origins of ceramic technology are as widely varied and idiosyncratic as the origins of stone tools, agriculture, village life, political organizations, writing systems, and religions. Pottery was invented by a number of different societies, economic, and social conditions."²

Jomon

The Jomon site in Japan is regarded as the home to the oldest ceramic objects. The late Paleolithic inhabitants of Jomon produced large cooking vessels decorated with a cord pressed design, a technique still used today. These cooking pots had pointed bottoms, to be wedged in the fire and built around. The artifacts from the Jomon site date back to 10,500 – 8,000 B.C.³

As each ancient society was transitioning from nomadic hunters/gatherers to a more sedentary agricultural based society the need for more permanent tools arose. Pottery in its final state is heavy and breakable. The process of making ceramic wares does not lend itself to the mobile lifestyle. The process needs permanent tools and facilities to produce ceramics, the development of pottery walks hand-in-hand with the rise of a domesticated agricultural society.

The Fire

Man has invented millions of things on the face of this earth: the wheel, electricity, government, money, computers, but none of them can hold a candle to fire. When Homo erectus and Neanderthals began to use fire daily about 300,000 years ago,⁴ it was a game changer. Fire offered a reliable source of heat, light, and protection in a world where our human ancestors were the prey, not just the predators.

Ancient humans learned to use fire to benefit them, through cooking, and controlled burns. These small brush fires were set to clear impassable plots of land, this would undenounced to ancient man, fertilized the soil. After a burn, ancients would forage for charred animals, nuts, and tubers.⁵

Pottery and Food

Cooking

As ancient humans developed into farmers and the idea of village life won out over camping and travel, the use of ceramics increased. Pottery allowed for new methods for storing and cooking food such as boiling, baking, toasting, brewing/fermenting, and soaking. “The sterilization of foods through boiling, facilitated by ceramic vessels, improved and extended those foods’ edibility and shelf life. Food preparation techniques such as soaking and cooking increased the nutritive value of plants such as maize and beans. Pottery could also be used to introduce new methods of food processing, such as baking, toasting, and brewing.”⁶

For the first time, ancient cultures had a way of conveniently preserving and making meals. Not only did the new cleanliness of food benefit ancient societies but these new cooking process allowed for the food to be better digested, “...vessels that made it possible to increase the nutritional value and/or quantity of available foods are likely to have had a direct impact upon the health of the most vulnerable segment of human societies – babies and small children.”⁷ By soaking foods like cereal grains, maize, and

rice, the ancient cook was able to increase the nutritional value of otherwise intolerable foods. Boiling these grains allowed for new sources of carbohydrates and proteins.

Along with the direct benefit to infants and their mothers, cooking allowed humans to expand their diets and spend less time chewing. “Some scholars believe there is a direct link between the advent of cooking, the shortening of the human intestinal tract, and the growth of the human brain”.⁸ Early cooking, however primitive, changed the path of human evolution. Through the new need to cook, ancient humans now needed new ways to cook food. If it were not for ceramic wares, early man would have still been roasting his dinner on a spear. There is a gap in history between the invention of cooking, and the use of ceramic vessels to cook in, but it is the need that drives the invention.

Fermentation

Fermentation is one of the oldest methods of preserving food, and was not possible to control until man had inorganic containers. In the Netflix documentary, *Cooked*⁹ host Michael Pollan describes the desire to ferment as driving factor if not the main push for mankind to settle down to an agriculture based society. Pollan talks about man’s desire to make and consume alcohol. Naturally occurring in rotting fruit, alcohol producing yeast break down the sugars in their food, and as a waste product make alcohol. Other foods such as sauerkraut and kimchi are also fermented to preserve them. Large crocks made from clay made it possible to keep the environment sterile and controlled. Along with the process of making fermented foods, ceramic vessels now allowed for trade of these prized goods.

Trade

Clay played an important role in ancient trade. The clay pot allowed for liquid goods to be traded and transported. In ancient Greece, the amphorae were invented and used to transport a range of materials such as oil, grain, olives, and wine.¹⁰

Women and Clay

It is challenging to identify specific gender roles in ancient cultures around the time of the invention of agriculture, but the use of ceramics in food preparation was beneficial to all, especially women. As an expecting mother a woman’s mobility is limited, thus limiting her range of foraging and gathering for edibles. Post child birth, mothers face not only a weakened body, but also the vulnerability of their new born baby. Ancient pottery allowed pregnant women/mothers to spend less time foraging for food by providing long term storage containers, and cooking vessels.

Women also played a role in the manufacturing process of ancient pottery. A new mother or pregnant woman was tied to the home-site to take care of the baby, or her own health. I know from personal experience that the most practical and beneficial way to manufacture wares is to have a designated facility. Ancient woman was perfectly set to

harvest clay, form wares, and facilitate firing. As stated previously, the ceramic process is one of time and patience. Woman's role in pottery seems to get blurred as time goes on and cultures progressed. In ancient Greece, it was male artisans who claim the fame of manufacturing elegant works of ceramic art.

Although clay progresses into a male dominated medium by the time of the ancient romans and civilized Asia, woman's role in the early use ceramics is akin to textile and basketry in ancient culture. These stationary crafts/necessities are better suited to the woman who stay within the village/community to do their work, as opposed to the man who was away hunting game, or waging battle, etc.

Classroom Activities

Big Ideas

In my classroom, I guide each student through the artmaking process with a series of "big ideas". These ideas are large umbrella terms used to inspire and challenge student artist. Every time a new big idea is debuted we discuss it as a class and look at some art that coincides with the idea.

Nature:

- What role did/does nature play in human life?
- How did ancient humans interact with nature?
- How do humans today interact with nature?
- What did nature provide for ancient life? Modern life?

Invention:

- What does it mean to invent?
- What was invented?
- Are humans the only inventors?
- How do inventions change our lives?

Transformation:

- How do artists transform materials/ideas/lifestyles?
- What makes something art?
- What is the ceramic process?
- How did the ceramic process change human life?

Challenge Day

To introduce new material or centers I often like to give my students a challenge day. This is a class devoted to exploration and a little competition with a new medium. I always introduce sculpture with a challenge day. The class is divided into teams of 3 and given a tray of obscure materials. For sculpture, I try and give students some materials they see every day like paper, tape, pencils, paper clips, scissors. The challenge is to make a sculpture. We end this challenge with a group discussion and a fake art sale where each student can bid their money on a sculpture they would want in their house.

To introduce clay, in respect to its ancient invention, I will challenge my students with holding one cup of water, and transporting it from the work station to the display area. Students will get paper, newspaper, cardboard, tape, glue sticks. Students will have 20 minutes to design a vessel that can hold the water and transport it to the display area.

At the end of the activity I will place one cup of water in a vessel I have made from clay. We will discuss the use and invention of the ceramic process lightly, as well as what success and challenges students had with the water challenge.

Pinch Pots

As it is the oldest forming technique, pinch pots are the perfect starting point for young ceramic artist. Every student will make a small pinch pot as an introduction to clay and from there will have the choice to work in clay or not. I have found that a flipped classroom works very well for teaching clay. A flipped classroom is where students do a chunk of learning at home through online research and video. I have a clay page on my website for Keene where I direct students to review the day before art class. Using the flipped classroom method allows for at least a handful of students to be familiar with the material before it is taught. A quick You Tube search can yield a plethora of videos on how to construct a pinch pot. Aside from actually making a pot, these videos are the next best thing.

During the pinch pot lesson, I teach all students to add at least one coil to the top of their pot. This demonstrates how to attach clay pieces together using the score and slip method, and how to increase the size of a pinch pot.

Free Choice Clay

After creating their pinch pots students may choose to continue working with clay. Now students must relate their artwork to the big idea. This can be done in any way, and I stress to my students that I am looking for the obscure as opposed to the obvious relation. Students who want to work with clay will need to sketch their idea for a creation and fill out a proposal form and create a sketch.

Sketches and Proposals

Art class teaches students much more than how to use clay, or blend colors. The goal of the free choice part of this unit is to challenge students to think critically about what they want to make and how. The sketching process is where students can illustrate the visualization they have in their mind. The sketch is an important planning stage where students can assess their ideas for practicality, aesthetic, and functionality. The sketching stage is also the key time to teach students. Individual or small group conferencing with students is a major part of the choice pedagogy, it allows the instructor to deliver relevant and appropriate knowledge to the students who need it most.

Proposal forms are used to create a time to conference with each student (see appendix C). Every time a student needs material for a new project they must fill out a proposal. I explain the form to students as a working contract between me the teacher/facilitator and them. I want them to make smart, rigorous decisions and use materials wisely. This form and the conference that follows is my opportunity to teach students one-on-one while still holding a class for thirty. Once approved students will be provided with the materials they need to complete their design.

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Appendix A

National Art Standards.

VA:Cr1.1.5a: Combine ideas to generate an innovative idea for art making. – This standard will be met as students make sketches and brainstorm different design for their ceramic vessels.

VA:Cr2.1.5a: Experiment and develop skill in multiple art-making techniques and approaches through practice. – Students will meet this standard as they begin to work with clay. As each student constructs a pinch pot they will begin to see the need for careful work. Students will be allowed to recycle and retry. Students will be encouraged to try multiply different techniques and versions of their clay vessels to analyze what is working and what is not.

VA:Cr2.2.5a: Demonstrate quality craftsmanship through care for and use of material, tools, and equipment. – On challenge day, craftsmanship will play a big part in the success or failure of holding a liquid. When students are constructing their clay vessels specific techniques must be used to ensure success through the entire ceramic process.

VA:Cn10:1.5a: Apply formal and conceptual vocabularies of art and design to view surroundings in new ways through art-making. – This standard will be addressed through the challenge day activity. Student will question that materials and construction of objects they use in their everyday lives. Through the introduction of the ceramic process students will have new insight on the everyday, but ancient, material.

Interdisciplinary Standards

CCSS.ELA.LITERACY.W.5.2: Write informative/explanatory text to examine a topic and convey ideas and information clearly. – Students meet this standard through the successful completion and approval of a project proposal. Each proposal must explain their idea fully in all aspects. This show student have preplanned their process and can clearly communicate them.

Appendix C

New Project Proposal

Name: _____ Class: _____ Date: _____

Big Idea: _____ Center: _____

On back wall

what station?

My Idea is: (explain what you are going to make in a few sentences)

What does your idea have to do with the big idea? (explain how the two relate)

Materials I will Need:	I know how:	I will need help with:
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This project should take: 1 2 3 4 5 6 classes to finish (circle one)

Sketch your idea, when finished chat with Mr. Graham

Approved On: _____

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- 1 Manitone and Sabine Smead, 4
 - 2 Barnett and John Hopes, 1
 - 3 Art
 - 4 Harari, 12
 - 5 ibid
 - 6 Barnett and John Hopes, 3
 - 7 ibid, 6
 - 8 Harari, 12-13
 - 9 Cooked
 - 10 Amphora
 - 11 Using Orton Pyrometric Cones