WELCOME TO THE POTTERY LAB! We are so excited to have you join our community. Enclosed in your welcome packet you will find information about the Pottery Lab, resources and recommendations for your pottery course, and a glossary of related vocabulary.

Words that appear with an asterisk (*) are listed in the Glossary at the end of the Handbook.
Introduction

Studio Arts Boulder is a 501(c)3 nonprofit organization. We manage the historic Boulder Pottery Lab. The Pottery Lab has provided community ceramics classes since 1954. It was the first city-supported community pottery studio in the country and was operated by the city’s Parks & Recreation Department for 60 years.

Studio Arts Boulder was founded in 2009 by students, staff, and friends of the Lab who saw a need for more ceramics education and programs in other studio art forms. The “studio arts” are mediums that require equipment and facilities beyond the means of most individuals, such as ceramics, woodworking, metalsmithing, glass, and printmaking.

In 2015, Studio Arts Boulder took over management of the Pottery Lab. Since then, we have expanded the program to offer a wider variety of classes and serve more members of the community. In addition to regular classes and camps at the Lab, Studio Arts Boulder provides many free and reduced-rate programs throughout Boulder to underserved members of the community, including survivors of violence, school-age children at risk of dropping out, older adults in low-income housing, youth experiencing homelessness, and adults with mental and physical disabilities.

As demand for pottery programs rises, Studio Arts Boulder continues to provide a high-quality experience for each student by carefully managing the Pottery Lab space. In 2016, a plot of land was donated to Studio Arts Boulder for a second facility, which will be located along the northeast entrance to Boulder. A capital campaign for the expansion is underway and architectural planning has begun. The facility will be custom-built for community art education in five studio art mediums, including more ceramics. There’s no facility like it in Colorado. The building is expected to open in 2022.

We are excited to have you at the Pottery Lab and hope the information provided below helps you have a rewarding experience. If you ever have any questions, please contact one of the staff members listed or consult with your instructor and teaching assistants. Welcome!

Pottery Lab Staff

There are staff on duty available to answer any questions regarding the Lab, help with equipment, get you a bag of clay*, or offer some quick guidance with throwing, hand-building*, and glazing*. You can identify staff by their name badge. Staff members are a wonderful resource, so please feel comfortable asking for help when you need it! Additionally, the Pottery Lab thrives on its community of support. Most of our long-time students are happy to assist you with your questions!

Director of the Pottery Lab: Aaron Winston aaron@studioartsboulder.org
Aaron earned a master's degree in printmaking from the University of New Mexico where he also began to practice a Japanese tradition of throwing porcelain. At the end of his studies, he was invited for a short but life changing stay with Living National Treasure, Inoue Manji, in Japan. Aaron moved to San Diego where he worked with Martin Kastner of Crucial Detail Design creating unique service pieces in porcelain and with Kouta Shimazaki at the San
Diego Ceramic Connection, operating a community studio. In 2006, he came to Colorado and started working at the Boulder Pottery Lab and in 2015 he became the Director. As Pottery Lab Director, Aaron oversees programs and partnerships of the organization as well as major facilities decisions. He manages the program staff - instructors and teaching assistants - and is responsible for fulfilling the artistic mission of the organization.

Executive Director: Kari Palazzari  kari@studioartsboulder.org
Prior to moving to Colorado in 2006, Kari earned a Certificate in Nonprofit Management from Duke University and a law degree from UNC-Chapel Hill. She served as Board Treasurer of Studio Arts Boulder for nearly two years, helping transition the Pottery Lab from a city-run program to an independent non-profit organization. Kari is primarily responsible for the growth & expansion of the organization, including the capital campaign and construction process. As Executive Director, she also manages the nonprofit support functions of the organization - finance, marketing, and fundraising - and reports to the Board of Directors.

Operations Manager: Colleen McCarthy  colleen@studioartsboulder.org
Colleen graduated from Northern Arizona University with a bachelor's degree in Recreation and Leisure Services and a Management minor. She moved to Boulder in 1989, where she and her husband have raised their two sons. She began taking pottery classes at the lab in January 2008. Shortly after, she became a volunteer assistant for the adult and teen classes, and began working part-time at the Lab in 2011. She has been a children’s pottery instructor, and currently oversees the Pottery Lab’s operations.

Assistant Operations Manager: Rachael Reuter  rachael@studioartsboulder.org
Rachael graduated from College of the Ozarks with a BA in Studio Art and declared an emphasis in Ceramics and Graphic Design. In 2015, she moved to Chicago where she worked as a production potter, collaborative artist, and curator. Missing the mountains and nature, she came back to Boulder in 2018 and began working as a studio assistant at the Pottery Lab. She is now Assistant Operations Manager handling marketing, administrative tasks, special events, and routine operations. On her days off you can be sure to find Rachael working in her own studio, skiing, hiking, or playing roller derby.

Outreach Program Coordinator: Katie Koch  katie.koch@studioartsboulder.org
Katie earned a BA in Art History, with minors in Spanish and Environmental Science, from Bucknell University and taught environmental science to elementary, middle and high school students as well as seniors in assisted living facilities. She worked as a water programs coordinator at Resource Central and a logistics manager for a local snowshoe manufacturer in Boulder. After volunteering as a teaching assistant and social media coordinator, Katie became the Studio Arts Boulder outreach instructor and now serves as the outreach program coordinator as well. Katie teaches outreach classes and oversees all aspects of the program, from partner relationship building, to staffing and scheduling.

Studio Assistant: Codey Davis  codey.davis@studioartsboulder.org
Since her first ceramics class at age 13, Codey was sure she had found her passion. She graduated from Rochester Institute of Technology in 2018 with a BFA in Ceramics and an immersion in Psychology. Codey loves working with kids and enjoys inspiring young people to be their best. Eventually, she hopes to return to grad school for an advanced degree in art therapy so she can fully utilize her passions in the service of others. In her free-time she likes to hang out with her two dogs Jedi and Nox.
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General Information

Phone: (720) 379-6033
E-mail for general inquiries: contact@StudioArtsBoulder.org
The Boulder Pottery Lab is located at 1010 Aurora Avenue in Boulder, Colorado.

PARKING

Parking for the Pottery Lab is on-street only. Some street areas near the Pottery Lab are restricted to 2 hr parking during the day, Monday through Friday (marked red on the map). Other areas are less restrictive (marked green). ADA parking is available in the driveway immediately in front of the Pottery Lab.

Open Lab Hours

One of the Pottery Lab’s greatest assets is its wealth of open studio time. These hours are available for all currently enrolled, adult program students (up to 12 hours each week) and are a fantastic resource for practicing and creating outside of your class time. Lab hours are for independent work and practice, but staff members, students, and volunteers are available should you have a quick question. Open Lab Hours frequently change. You can find a current schedule online at studioartsboulder.org and posted in the lab.
For the First Class

Please note we have size limits for artwork based on dimensions of kiln shelves and stacking space in the kilns:
Height – 17” max, base must fit within the dimensions of a kiln shelf with posts (10” x 20”). Large work and flat work may take longer to be processed due to limited loading space in the kiln.

Please come prepared for the first class with the following items:
- Clothes that can get dirty – When machine washing clay covered clothing, it’s best to first soak and rinse the clay out in a bucket, pour off the water and put the settled clay in the trash. Your washing machine and plumbing will thank you!
- A towel
- Your own clay tools. We sell a beginner’s tool kit, as well as, other new and used tools at the lab. You can purchase a tool kit online when you register, and it will be ready for you on your first day.
  Tool kits include: wire clay cutter, needle tool, rib, ribbon trimming tool, metal rib, loop tool, wooden knife

What to expect in class on your first day:
All students should check in with the instructor and assistants upon arrival. There will be introductions, a tour of the facility for new students, you’ll get your first bag of clay, and there will be a demonstration as determined by your instructor.

Here are some stores where you can find pottery tools:

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<thead>
<tr>
<th>In Boulder:</th>
<th>Arvada/Denver:</th>
<th>Online:</th>
</tr>
</thead>
<tbody>
<tr>
<td>McGuckin Hardware</td>
<td>Stoneleaf Pottery</td>
<td>Dirty Girls Pottery tools</td>
</tr>
<tr>
<td>Guiry’s Fine Arts</td>
<td>Continental Clay</td>
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<td>Joanne Fabric</td>
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<td>Bailey’s Ceramic Supply</td>
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<td>Michael’s</td>
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<td>Sheffield Pottery</td>
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<td>Art Parts</td>
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The Journey of Each Pot

The Ceramic Ware Flow Chart on page 12 illustrates the work flow from start to finish.

A notebook that tracks your pieces through the system can be very helpful. (See attached template, pg 14.)
Here are some useful things to track:
- Description of ware*: size, weight, shape (perhaps a photograph or illustration), and any noticeable alteration or decoration
- Location and state, make notes as the piece moves through the process from wet clay to glazed ware as described in the Ceramic Ware Flow Chart
- What glaze you applied: name of glaze, how it was applied and/or other decoration

You must recognize when your work is ready to be fired. Staff will only load work into the bisque firings when the work is dry and you have placed it on the “to be bisque” carts.
Recognizing the Stages of Greenware

**Wet**: Fresh out of the bag. Still able to be manipulated and sculpted without much breakage. The surface of the clay will easily take an impression and attaching is easy.

**Leather hard**: When the piece is stiff enough to work with, without it becoming distorted. This is the time to do carving, apply decorative slips, or just leave it alone! Leather hard clay is ideal for trimming. When leather hard, clay should come off in ribbons – when squeezed in the hand, it will stick together. If trimmings are crumbly like grated chocolate, the clay is almost too dry. However, some people like to trim porcelain when it is drier. The trimmings will come off and crumble like soap shavings.

**Bone dry**: Stoneware and terra cotta will be much lighter in color and feel room temperature. At this point, the piece is ready to be bisqued. Pieces are quite fragile during this stage, so handle with care. Move your piece carefully to the to be bisque carts. Ask if you are unsure whether the clay is ready to fire and, “If in doubt, leave it out!”

How To: Tips & Instruction

*There is a library at the Pottery Lab! Ask your instructor where to find it, and feel free to look through its books for information, techniques and inspiration!*

**Be Patient**: This takes a lot of practice. Accept that there will be many accidents and mistakes, recognize and celebrate what you learn from them, and keep working!

**Cutting Clay**: Use a wire or string tool to cut your clay from the bag. It is best to cut your clay evenly / horizontally, so that you can seal your bag as tightly as possible. This helps to maintain the moisture content of your clay. Place the wire or string around the back of the block of clay. Then, with one hand, press against the front to hold the clay in place, and pull the other straight back toward you. Making a loop with a wire and pulling it tight is not recommended as it will kink, and the wire will soon fray.

**Clay Fees**:
- The first bag of stoneware or recycle clay is included in the cost of class, there is a surcharge for any other clay that we may carry (bmix, porcelain, terra cotta, etc.)
- Second and third bags of clay cost $20, $25 for specialty clays unless otherwise indicated
- Clay purchased or obtained outside of the Pottery Lab cannot be brought in and will not be fired

**Wedging**: There are different reasons to wedge clay before throwing: to remove air bubbles, to mix different clays, consistencies of clay or additives into clay, to evenly distribute moisture content, to make stiff clay more malleable and to prepare yourself for throwing. There are also many ways to wedge: cut and stack, ram’s head, spiral, chrysanthemum. Most methods blend the clay in a repetitive, kneading motion that presses the clay out and down then rolls or lifts it up to repeat the motion. Done properly, this stretches and folds the clay, homogenizing moisture and clay particles while removing any existing air pockets.
Some Hand-Building Techniques:

- **Pinch pot:** Make a ball and push your thumb in the middle. Pinch with your fingers on the outside, turning the ball slightly between each pinch as you work your way around the ball in a slow, tight spiral until you reach the top. Try not to open the top much wider than your thumb until the very end. Go back over the pot, pinching where needed to achieve an even wall thickness.

- **Slab:** You can throw a slab out by hand by pounding out a piece of clay then picking it up and dropping it on the table in a sweeping motion. Change direction each time to maintain the same relative proportions. You can use a rolling pin with sticks on either side of the clay to set consistent thickness. You can use a slab roller but please make sure that you pound the clay to an inch thickness or less before you roll and make sure all cloth is contained within the side rails so as not to damage the machine. *Please ask staff to assist you the first time using the slab roller as they can show you proper set-up, usage and clean up!*

- **Coil:** Start by rolling the clay in your hands to form a thick rope. Place the rope on the table and roll quickly and evenly from finger tips to the bottom of you palm, applying light pressure and spreading hands apart to stretch the coil out. Repeat. Quick movement and low pressure help to make an even, round coil. Pressing too hard tends to flatten the coil.

- **Molds:** There are many bisque molds, press and drape molds and various dishes etcetera that can be used as molds. They can be found near the slips, under the slab roller and under the porcelain wedging stone.

Using the Extruder*:

There are countless ways to use the forms you can create with an extruder. From hexagonal tubes to casserole walls, it is ideal for quickly creating hollow or solid forms of varying shape, diameter and height. *Please ask staff to assist you the first time using the extruder as they can show you proper set-up, usage and clean up!*

- We have two extruders, one mounted on the end of the slab roller, the other mounted on the wall close to the front door. All necessary equipment to use them is stored under the stoneware wedging table.

Setting Up Your Wheel:

- When you are ready to throw, you will need: a bucket with water, a sponge, and your tools.
- For the most effective centering* and safer posture, it is recommended that you sit with your hips slightly higher than your knees.

Centering*:

- Centering can be very challenging, and repeated practice is the best way to build muscle memory.

- One very effective method for centering clay is to press the clay away from your body and against the rotation of the wheel. Make sure your back is straight; arms are braced on your legs, splash pan or body while you push. Then, when the clay is under control, let go slowly and release gently, allowing the clay to come back to and stay on center.

- Squeezing the clay up into a cone as the wheel spins, then pushing it forward and down, back into a ball or puck, is a great way to center the clay. This also continues the wedging process, creating even moisture levels in your clay.
Opening Your Piece & Cylinders: There are many ways to open clay on the wheel and pull up into a cylinder. Here are some good things to keep in mind as you go:

- Make sure at least one arm is braced on your leg, splash pan or body. If possible, keep your hands connected.
- Use the wheel rotation to find the center from which you’ll open. If you press slowly into the top of the solid mound of clay, increasing pressure as you go, the rotation will cause your fingers or thumbs to be drawn into center. They’ll go “down the drain”, helping to stay centered as you press toward the bottom.
- As you pull the wall, keep the inside hand higher than the outside. Inside hand presses the clay out, outside hand pushes in and up. Follow the clay up in a steady rise that allows the changes you are making to the clay to be distributed 360 degrees, one full rotation at each increment of height.
- The bigger/taller/wider the piece gets as you work, the slower the rotation of the wheel.
- The thinner the walls get, the less contact you should have with the clay. You may start with full hand contact and end with finger tips.

Making Rainbows:

- If, during the process of throwing on the wheel, a piece collapses or is knocked too far off center to fix, stop the wheel and cut off your clay. Because this clay is very wet from all the water added during the throwing, you can form it into an arch and leave out to dry on your wheel or a table.
- You can put the “rainbow” back in your bag when you are finished throwing.
- When you are ready to use the rainbow again, slice and wedge it into some fresh clay from your bag.

Taking Pieces Off the Wheel:

- Clean loose clay and water from the wheel head and base of your pot with a sponge.
- You can undercut slightly with a wooden knife or similar tool to help guide the wire and keep the piece from sticking after being cut.
- Using the wire tool, cut the vessel from the bat* or wheel head. Grab the handles of the wire firmly. You may have to wrap the wire around your hands to shorten the length, leaving just enough to cut through the piece with an inch or two to spare on each side. Pull the wire tight and press it firmly to the wheel as you push or pull it, wheel spinning slowly or not, making sure to go all the way through the piece.
- Have a ware board ready to store your pieces.
- Most small pieces can be easily lifted on one side, slide your hand carefully under the pot and lift. Reverse the movement as you place the piece on a board.
- Some people prefer to use pot lifters (found under the stoneware wedging stones), or scrapers to help lift pots off the wheel.
- Another helpful method is to put water on the wheel head next to the piece and draw the wire (and the water) under the piece until it releases and can be twisted and slid off the wheel onto a bat or board.

Wrapping Pieces & Shelf Etiquette:

- Keep your piece wrapped during storage. This can help the piece dry evenly and slowly. Plastic (for wrapping) is in a bin between the storage shelves. Please bring in extra bags if you have some (best ones are from dry-cleaners)!
- Label your wrapped piece so that you can find it later. Using labeled clothespins to gather and seal the plastic is an easy and efficient way to mark your work, making it easier to find later.
- ** Please be sure to tuck your plastic wrap securely around your piece or board – hanging plastic can get caught when placing and removing boards from shelves, damaging work!! **
- Leave the top of the shelving units open for storage of tall pieces.
- Please be extra careful and aware while placing your boards on the shelves. Once you bump another person’s pots, it is nearly impossible to return the form to its previous state and the pieces are most often ruined. Be mindful and considerate.

Cleaning Up:
- Please clean up your wheel and the floor around it after you are finished. We ask that you do this AT YOUR WHEEL, so we can avoid a long line of students waiting to use the sinks.
- Please wipe down any surfaces you used in addition to the wheel (wedging table, sink, other tables).
- Starting by cleaning your hands, then use your sponge to clean off the wheel, splash pan and all tools.
- Once you have wiped down everything at the wheel, take your bucket with dirty water and slop to the sink. Dump only the water into the sink. Before you see any chunks of clay go into the sink, take your bucket to the recycle bin and wipe all slop onto the grate then push it through and into the bin.
- Then, clean your bucket in the tool rinse bucket at the sink, rinse off your tools and bucket, fill the bucket up with clean water, grab a big sponge, go back to your wheel, and wipe the whole thing down with clean water. That water can then be used to wipe down other surfaces.
- There is no reason to take your splash pan to the sink, clean it with a sponge at the wheel
- You should only run water at the sink to rinse. Sponges clean, water rinses! Conserved

Trimming:
- Before centering and securing the pot to the wheel or chuck, determine where you need to trim by looking carefully for changes you need to make in form. Then hold the pot while feeling for necessary corrections in weight and balance.
- Centering your leather hard pot on the wheel is often the most difficult part of trimming. There are many ways to center:
  - You can align it to the concentric circles found in the surface of the wheel head.
  - Tap centering (this method is highly recommended and will save you much time and hassle): Place the pot in the center of the wheel and apply gentle pressure to the pot with one hand. While turning the wheel at medium speed, use your other hand to tap the pot on the side just after it goes as far off center as it will go in that direction. Repeat; using less force the closer you get to perfect center.
  - Mark the bottom: Place the pot as close to center as you can then spin the wheel at medium speed. Carefully draw a circle close to the edge on the bottom of the pot. If the circle is not centered in the bottom of the pot, find the widest part of the discrepancy and push the pot toward the narrowest part. Repeat
  - Mark the side: Place the pot as close to center as you can then spin the wheel at medium speed. Slowly bring a tool next to the side of the pot until it comes in to contact with the pot. If the piece is not centered, you will make a mark only on one side of the piece. Find the center of the mark and push from that mark toward the other side. Your piece is centered when the mark completely circles the pot.
- When centered, hold the pot firmly in place, take at least three small balls or short coils of semi–soft clay, space them evenly around the pot so they are touching the sides then push straight down. This clay will hold the pot in place as you trim.
- If you can tap center, you can try putting a small amount of water on the wheel head, tapping the pot into center then patting down to create suction. Done properly, this will hold the pot firmly to the wheel. Tap it from the side with an open hand after trimming to release.
- When trimming, place one hand lightly on the pot. This hand can help hold the pot steady, catch it if it
suddenly comes loose, and can brace the hand holding the tool, or the tool itself. Careful to hold the tool steady, remove a ribbon of clay as the wheel spins, the use a flat part of the tool to remove the groove left behind.

**Recycle Clay Trimmings and Unwanted Greenware:**
- Gather all trimmings and store in a paper bag until completely dry.
- Break up all large pieces of clay such as unwanted greenware, slab cut-offs and any clay too dry to use.
- Once the clay is bone dry*, completely submerge it in water, leaving it long enough to completely dissolve
- Pour off excess water.
- Scrape and wipe all clay slop into the recycle bucket.
- Please do not leave bags of trimmings or buckets of slop behind. It is your job to make sure reclaimed clay goes into the recycle clay container.

**Weighing in Bisque Ware (Firing Fee):**
- There is a weigh-in time during each class and at least once each open lab block. Your instructor will determine an appropriate time for your class. Weigh-ins for open lab will be listed with posted lab hours.
- Charge per piece:
  - cost is $1/pound of bisque ware
  - minimum charge of $0.25 per piece (applies to small pieces, loaded individually)
  - $2 additional, flat rate, for pieces under 2” tall AND larger than 9” in diameter
  - weight rounded up to nearest ¼ pound
- Weighing and Payment:
  - Pieces need only be weighed once, between the bisque and glaze firings
  - $20 & $10 punch cards are the only accepted form of payment during weigh-in times. Cards can be purchased online during registration, or at the lab. To expedite the weigh in process, please purchase your punch cards ahead of time.
  - Punch cards can also be used to pay for clay and new or used tools at the lab
  - Your pieces will be weighed, the transaction logged, and you will be given one ticket for each piece
  - Pieces will not be fired unless accompanied by a ticket
- There are no refunds for firing and clay fees. No exceptions.
- Credit may be issued in the event of equipment failure, or breakage by staff, resulting in loss of ware. Otherwise, no credit will be given for dissatisfaction with firing result.

**Glazing*:**
- There is a glaze sample board in the glaze room that shows lab glazes as they are likely to look on different clay bodies.
- Glazes are grouped by color / type. Please return the bucket to its proper place after use.
- Samples are fired to cone 10 in reduction*, unless otherwise indicated.
- There are sheets with glazing and sieving instructions kept on the wall to the right of the water dispenser.
- Completely mix the glaze before application. This may require sieving of a glaze.
- Next to the glaze shelves, a white board lists glazes recently sieved. Sieving a glaze is the only way to completely mix the glaze and removes any unwanted debris.
- Before glazing, wipe off your piece with a cleaned and well wrung sponge, or rinse off and let dry. This will remove any dust or debris that would negatively affect the glaze.
- A standard application is a total count of three for all glazes applied by dipping. Glazing too thick can cause glaze to run down during firing or to flake off, falling on shelves and pots, while glazing too thin can
keep the glaze from looking or feeling as expected.
- Wipe the glaze off the bottom of the piece. When fired, glaze will attach to any surface it touches. This can ruin your piece, shelves and other pots
- Please clean up after yourself in the glazing room, which includes wiping down the surfaces you used, cleaning up spills, and returning sponges, buckets, brushes, etc. to their original place.

Decorating Work & Altering Forms:
- When clay is green (unfired), it can be sculpted, incised, carved, darted, assembled, attached, slipped and stained, just to name a few methods of decorating or altering.
- When bisqued, it can be underglazed*, stained*, glazed, painted, decaled, sand blasted, enameled and much more.
- The ways of working with clay and finishing it are limited primarily by imagination. If you have questions regarding technique and material, please ask. We love to talk shop and do some creative problem solving!

Finished Work:
- Show your finished work, both pieces you are proud of and those that have issues, to your class. It is a great way to get feedback and to help others learn.
- Every Fall there is a big fundraiser held at the Pottery Lab called “Chili Bowl”. All funds from this benefit the Pottery Lab outreach programs. During Chili Bowl, there is a pottery sale full of student work. Making and donating a piece for this sale is a great way to give back to the community. Throughout the year, the Pottery Lab will host throw-a-thons and or provide lab clay for those wishing to donate work. Thank You!

Ceramics Glossary

**BAT** – Generally refers to a slab or platform (wood, plastic, plaster) that can be attached to a wheel head. By lifting the bat, a pot can be easily removed from the wheel without damaging the form. If storing a pot and letting dry on the bat, cut with a wire after throwing to help prevent cracking and make it easier to remove. Scrape, clean and return bats to the storage area as soon as your pot is dry enough to handle.

**BAT PINS** – Many bats have holes made to pair with bat pins to secure the bat on the wheel head. Bat pins can be ordered online, though we like to go to the local hardware store. Ask for, ¼-20 allen or hex head cap screws and matching wing nuts.

**BISQUE FIRING** – The process of firing unglazed clay to a temperature lower than that of the following glaze firing. This hardens the clay and drives the physical water from it. Bisque ware is stronger than greenware, is porous but cannot be dissolved in water. Bisqueware is safer to handle and easier to glaze than greenware.

**BONE DRY** – Refers to clay allowed to dry as completely as possible without firing. Clay is very fragile at this stage.

**CENTERING** – Using the rotation of the potter’s wheel to align clay to the center of the wheel.

**CERAMICS** – Clay objects changed by heat to become durable.

**CLAY** – Naturally, clay is made of decomposed igneous rock eroded and deposited in areas of similar particle size. Commercially, clays are mixed of various materials to create ideal levels of plasticity, work-ability and firing temperature for specific uses.
COILS – Clay rolled into a rope like shape.

COIL CONSTRUCTION – Clay coils attached to one another to create an object. This technique is one of the most commonly used hand-building methods.

CONES – Pyrometric cones. Made from clay and glaze materials, these cones are placed inside the kilns and used as a visual reference of heat work. In this way, they give a more accurate indication of the temperature of ware during a firing than a pyrometer which measures only temperature of the atmosphere.

CONE 10 – A cone formulated to soften at approximately 2300ºF, the temperature of maturation of high fire clay and glazes.

CONING, CONE UP – A way of centering on the wheel; pulling all the clay up into a cone shape. This continues the wedging process.

EXTRUDER – A tool used to extrude clay into various uniform shapes and of various lengths.

EARTHENWARE – Clay that remains porous after firing. Generally, a low-fired clay (fired below 2012ºF), earthenware requires an application of glaze to be waterproof. At lower firing temperatures, a wider range of color is possible in glazes. Terra Cotta is a type of earthenware.

FIRE – To heat up in a kiln. When clay is heated to a temperature of at least 1112 ºF, it undergoes what is called “ceramic change.” After this change, it can no longer be dissolved in water and is, in some cases, completely non-porous.

GLAZE – Layer of glass fused onto the ceramic surface by heat. The base ingredients of glaze are silica, flux and alumina.

GLAZE FIRE – Firing to the temperature at which glaze melts to form a glasslike surface. The temperature can vary depending on how the clay and glazes are formulated. We glaze fire to cone 04 for terra cotta (approx. 1940 ºF) and cone 10 for stoneware and porcelain (approx. 2380 ºF.)

GLAZE WARE – Pieces that have been glaze fired.

GREENWARE – Unfired pottery that is bone-dry, a state in which clay forms are the most fragile.

HANDBUILDING – One of the oldest craft techniques in which objects are constructed entirely by hand. The basic methods are slab, pinch and coil.

INCISING – Indenting a line into a flat surface.

KILN – Simply, a structure created to retain heat. Kilns can be built of a variety of materials and heated with a variety of fuels. At the pottery lab, our indoor kilns (used primarily for bisque firing and terra cotta) are fired using electricity and are constructed of soft, insulating brick which conserves heat allowing attainment of high temperatures. Our outdoor glaze kilns are fired using natural gas and are also built of soft, insulating brick.

LEATHER HARD – Refers to clay that is somewhat dry, but still damp enough to be joined to other pieces or carved without distortion. Clay at this state resembles leather. Hard to bend and soft enough to be carved.

OXIDATION – Refers to the atmosphere in a kiln firing where there is no restriction or reduction in the amount of oxygen within the kiln. An oxidizing atmosphere does not create carbon monoxide, soot or char, which are all necessary to change the color of the clay and glaze through the process of REDUCTION (see below).

PINCH POT – A simple form of hand-made pottery produced from ancient times to the present. The pinching method begins
with a ball of clay: after making a hole with your thumb, it is widened by pinching the sides and bottom to find even thickness all around the piece, while rotated by hand.

**PLASTICITY** – Quality of clay that allows it to be manipulated, stretched, bent, curved, and otherwise shaped without cracking or sagging. Clay that is not plastic is called SHORT (see below).

**PORCELAIN** – Clay that, when fired, is vitrified, white, translucent and resonate. Porcelain has fine homogenous particle size giving it a smooth, dense quality. Generally fired to cone 10.

**POTTERY** – Pottery was one of the first art forms explored by mankind. There are many extinct cultures throughout the world that did not leave behind any written record of their existence. For some of these civilizations the only evidence of their daily lives comes in the form of pottery. Some pots were for daily use and some were for ceremonial purposes. Pottery and other forms of ceramics have left behind an important archeological record.

**REDUCTION** – During a firing where combustion is used, you can limit the amount of oxygen in the atmosphere, creating carbon monoxide and soot or char which donate electrons to metals in the clay and glaze, changing the color of those materials.

**SCORING** – Roughing up of the surface of clay for joining.

**SGRAFFITO** – This is a decorating technique where a slip is applied to a leather-hard piece of clay and left to dry. Once the slip is dry a host of different tools are used to carve into the clay to remove the slip and leave an embedded decoration.

**SHORT** – A quality of clay opposite of plastic. Short clay will crack and separate when stretched, bent or otherwise shaped, even though it has the water content of workable, plastic clay.

**SLAB** – A sheet of clay formed by cutting, beating, stretching or rolling.

**SLAB CONSTRUCTION** – Handbuilding technique in which slabs are joined together to create a larger form.

**SLAKE** – To slake out dry clay is to soak it in water until it becomes completely saturated with water, losing all structural integrity, creating slop or slip. You also slake dry glaze

**SLIP** – Clay and water mixed to liquid consistency. Can be used for decorating ware, attaching one piece of clay to another and cast in a mold to create forms.

**STAINS** – Ceramic stains can refer to ceramic colorant oxides suspended in water or prepared coloring oxides (commercial stains). Colorants generally are sold in powder form and commercial stains may be sold either in powder or liquid form. Stains can be used alone as an underglaze color, in slips, in clay bodies, in glazes, painted on glazes, and in overglazes. One of the biggest draws of using stains is that you can achieve a very consistent color, as sometimes using a coloring oxide can have a less predictable outcome.

**STONEWARE** – Clay that when fired is hard, strong, vitrified and has formed an integrated clay/glaze layer. Stoneware clay has various sized particles of sand and grog. Generally fired to cone 5-10.

**TERRACOTTA** – A type of earthenware clay that is reddish, brown. This clay cannot be fired to high temperatures and must be kept separate in process from stoneware and porcelain clays.

**THROWING** – Forming clay on a potters` wheel.

**TRIMMINGS** – The clay removed during the trimming or altering of a form. They should be dried fully, slaked out, and the
resulting slop put into the recycle bucket.

UNDERGLAZE – Ceramic colors applied usually to bisqued clay, then coated with a clear glaze. Nice intensity and range of color particularly in lower temperature firing.

WARE – A product. In pottery, your pots are your wares.

WEDGING – Method of kneading clay to make it homogenous in moisture content. Wedging makes the clay easier to throw as it makes the clay consistent in texture and plasticity. This also removes the clay of air pockets. Can be used to mix different clays or different consistencies of the same clay.
Ceramic Ware Flow Chart

1. **drying rack upstairs**
   - Once the work is dry enough to fire, students move it to the “to be bisqued cart.”

2. **to be bisqued cart**
   - From here, ware is loaded by staff into the electric kiln and fired. Firings occur overnight and take 2 days to cool.

3. **bisque firing**
   - When the ware in the kiln is cool enough, staff unloads the work onto the “Bisqueware Cart.”

4. **bisqueware cart**
   - From here, students find their work and take it to the glazing room where glaze is applied.

5. **glaze ware shelves**
   - Kilns are fired to cone 10 (2,380 degrees F. or so) over 12 hours then cooled for three days. Once cool, staff unloads ware onto glaze ware shelves.

6. **glaze firing**
   - Ware is taken by staff (often by helpful, capable students) downstairs and outside to the kiln yard and is loaded into the kiln and fired!

7. **glazed shelf**
   - With glaze applied, ware is stored on the shelves in the glaze room until the next firing.

8. **green ware**
   - Wet work (throwing, hand building, trimming, etc.) is stored and finished downstairs. Once it is completed and ready to dry, students bring the work upstairs to the drying rack.

9. **home!**
   - once completed and ready to use, students bring this ware to their homes.
UPSTAIRS FLOORPLAN OF DRYING AREA AND KILN ROOM: Bring finished work upstairs to dry (1). When bone dry, move them to the “to be bisqued” carts (2). Staff will load kilns with work from these carts. After pieces are fired and cooled, they will be placed on the bisque-ware carts (3). Pieces left on the bisqueware carts will be moved to create room for newly bisqued work (4). Get ready to glaze!
# Pottery Lab Tracking Sheet

To track pieces from start to finish, fill in dates and make notes at each step of the process.

<table>
<thead>
<tr>
<th>Date Made</th>
<th>Description/Sketch</th>
<th>Date Trimmed</th>
<th>Date Drying</th>
<th>Date to Bisque</th>
<th>Date Bisque Fired</th>
<th>Glaze(s) Used</th>
<th>Date Glaze Fired</th>
<th>Comments</th>
</tr>
</thead>
</table>

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