

Steps to throwing on the wheel

- **Wedge the clay**-always do this even if it is fresh out of the bag. A good rule of thumb is at least 10 times per pound. Use slam, spiral &/or ram's head method. Your clay should end in a conical form. Be sure to roll the base so that there is a "peak " it will help you when slamming it on the bat to catch.
- **Slam on center of bat, slap center, seal base** (you should not be using any water up to this point.) Firmly slam the clay on the middle of the bat. Use your hands to slap the sides of the clay down and in towards the center. Use your index finger to seal the perimeter.
- **Center- (the wheel speed should be fairly fast)** hint: *set your speed and remove your foot from the pedal. You are now on cruise control.* Begin using water or slip now and throughout, keep your left hand firmly planted and using a lot of pressure with your right hand press the clay into your left hand. (Sometimes, it is helpful to keep your left elbow lodged into your hip.) Pressure should be at the bottom of the conical shape and on the bat retaining that shape now and throughout. You then continue the pressure up the cone and up your hands and work your way up. As your clay moves past your hands, bring up the pressure with the clay to the top of the cone. This will cone up the clay. Once you have coned up, keep your left hand firmly planted on the bat, up against the wall of clay, and with your right hand (meaty part of palm or outside pad of your fist) press down on the top of the clay with a slight angle (to not flatten the top too much) from the middle to the outside perimeter, until the walls sit smoothly against the left hand. A flat top will produce a volcano effect if you need to cone up again. This is not desirable because you will more than likely create air pockets. It should be rounded in order to continue coning up properly. Continue in this manner repeating from coning up (pressure at the base to the top,) until the left hand seats steadily and does not jiggle around. Remember to keep the clay wet and slippery. If you push too hard with your right hand and your left hand does not hold it's position, you will knock the clay right off the bat.
- **Dig into the center**- using both thumbs together & keeping your fingers bracing the outside walls, press firmly down the center, towards the bat. Keep moist. Do not allow walls to go beyond base diameter. Check depth with needle tool (should be around ½"-5/8" from bat.) when desired depth is achieved, close the hole created by the needle tool by rubbing with your finger.
- **Open the vessel**- bracing your hands on the outside of the clay, and picking up where your thumbs left off, use your thumbs to pull the clay open opposing each other towards the hand (3 & 9 o'clock positions.) Move your thumbs straight over to your fingers for a cylinder (flat bottom), or slightly curve them, to create a soft rounded bottom for bowl. Continue to move the clay open until you have about an inch thick of clay for the walls. **Remember to keep your wall the same diameter as your base. Do not allow the walls to extend past the base. Remove excess puddling water from the bottom. Never leave water standing in the bottom of your vessel.*
- **Compress the bottom & rim**- compressing may help prevent "s" cracks, but it will definitely smooth out the bottom, you should not need compress the bottom again, but you will definitely need to compress the rim after every pull (the next step.) Using your fingers or a sponge, place firm pressure in a back and forth motion from the center to the right wall on the bottom. **Do not cross center to the left side. You will dig into the bottom if you do this.* You are not trying to dig in any further, just apply enough pressure to tighten the molecules back together. To compress the rim: use the index finger and the thumb of your left hand, place the index on the inside of the rim and your thumb on the outside of the rim. **fingers need to be on the right side at approximately 4 O'clock position.* Trying to compress on the left will only result in disaster. Using light pressure, grasp the rim on the inside and the outside at

the same time. Now take the index finger on your right hand and press down directly on top of the left fingers on the rim and apply slight pressure to the top of the rim. This should help level and square the rim. Do not press so hard that you lose all the height you have gained in the last throw. Remove excess water from the bottom.

- **Pull up the walls (slow the wheel down)-** Hint: take your foot off the pedal! Once the proper speed is achieved, taking your foot off the pedal will give you one less thing to worry about. You will be able to get a sense of timing for each consecutive pull if you maintain a steady speed. This is difficult to do with your foot on the pedal. Your left hand will always be inside the vessel and your right hand will be on the outside. Relax your shoulders and breathe. Placement of your hands should be around 4 o'clock. You should only ever work on the right side of the wheel from here on out otherwise, you are going against the grain so to speak and it will torque & twist your pot. (The only exception is when collaring) Your hands should be connected to each other whenever possible. I do this by allowing my thumbs to intersect with each other. Your left hand will be slightly higher on the inside and your right hand will be lower. Using the tips of your fingers (this is why you don't want any length on your nails or you will dig into the clay wall) I mainly use my middle and ring fingers, with even pressure from both hands (be wary of your dominant hand and try not to over compensate with your less dominant hand) begin to pull the clay wall up. (Your left hand will be pushing out and up & your right hand will be following underneath & pulling up.) Try not to use too much pressure. It is ok to move the clay up slowly. Maybe 1/8"-1/4" each pull. Try to pull with the rhythm of the wheel. If the wheel is fast then you should be coming up fast, if it is slow, you should be coming up at the same pace so your fingers move up incrementally during each revolution. Complete the pull. Do not stop in the middle. Remove your hands away slowly after going all the way up and beyond the rim. I do this by waiting at the top for the right hand to catch up then release the pressure at the same time. Breathe. Relax your shoulders. Compress the rim! Mop out the water laying in the bottom. Repeat until the desired height is acquired. The goal is to have even thickness all the way through each pull. The rim should not be allowed to get thinner than the rest of the wall. Thick & thin areas up the wall are mostly due to uneven pressure, but could also mean, the clay has not been wedged properly. Make note: when throwing a bowl with a rounded bottom, as you make your pulls, you will be applying slightly more pressure on the inside than the outside to continue with the round shape and pull out the walls.
- **Air pocket-** common when clay is not wedged or coned properly. Using the needle tool, poke several holes and with gentle pressure, use your finger to compress the area. Repeat if necessary.
- **Collaring-** At times. the walls may begin to come out further than you want. (It is natural for the top to widen with each pull. Generally, you do not want the rim to come past the base too soon.) When this happens, you will want to bring them back in. Using both hands, placing them on either side of the vessel, (you will be trying to keep the rim in a circle or oval NO triangles or any other shape) apply even pressure from both hands at the same time just below the area you are trying to bring back in on the outside walls aiming to get your middle fingers and thumbs towards each other. Remember to keep the shape round. Compress the rim. Continue pulling up the walls.
- **Cutting off an uneven rim-** using basically the same hand positions as compressing the rim. Only this time, use the needle tool in your right hand and allow the needle part to rest on thumb of your left hand instead of outside the rim unsupported. Keep the tool steady and level as you are entering the wall. It's ok to brace your forearms on the splash pan or your body. Slowly bring your tool to the rim of the pot, slowly go through the top of the rim until the point touches your left index finger. Quickly lift off the cut rim. Compress the rim.

- **Ribs-** After you have gotten your vessel to where you like it (or you just want to quit while you are ahead,) you can use a rib to shape the inside of the vessel (do not cross the center in the bottom or you will dig into it with the rib) or remove excess slip on the outside. Be sure to support the opposing side with your other hand (left on the inside/right on the outside) or use a sponge or another rib. If you use another rib they should not be angled at exactly the same degree (edge to edge, ie; both facing straight up side by side.) The opposing rib should be tilted to give a larger surface areas for the other rib to push against. Removing the slip and extra moisture will strengthen your vessel.
- **Removing excess clay from bottom of vessel-** using a wood knife tool (stick of death,) hold it like a pencil. Use the point and try to follow the angle (contour) of the inside of your vessel, slowly push the tip all the way down to the bat. **Remember to go at the same pace as your wheel speed.* While still spinning, use your needle tool, press it down flat to go under the excess clay all the way through to the base of the vessel. Stop the wheel, slice the excess and remove.
- **Dress the rim-** using a chamois, you can smooth & shape the rim. With the left palm facing you, make the “Spock “ sign (a “v” separation between the middle and ring finger) and lay the shammy between from top of your hand to palm. Squeeze your middle and ring finger together to hold the shammy. Hold the other end of the shammy with your right hand. Gently position the chamois under your index and thumb of the left hand forming a “C”. Bring them down gently onto the rim of the vessel (fingers should be in the same position as when compressing the rim.) Your index will be on the inside and the thumb on the outside of the rim. Gently squeeze the index and thumb together rubbing the chamois on the rim. Release pressure from both fingers at the same time and slowly lift off the chamois.
- **Wire it off-** using your wire tool, wrap the tool around both hands and using your fingers or thumbs, firmly place the wire on the bat and pull towards you without lifting your fingers up off the bat. *Hint: make the wire tool slightly bigger than the base. Too much exposed wire area may cause you to remove more clay that you want to or create an uneven base.* Rotate the bat 90 degrees and repeat. With dry hands, grasp your vessel at the base where thick clay is. Carefully remove the vessel onto a ware board. Sometimes giving just a little tilt will help remove it from the bat. I like to start placement in the middle so I do not have to reach over a previous piece. Cover or place in the drying cabinet until clay gets to leather hard.

Congratulations, You did it! Next up: TRIMMING

TRIMMING YOUR VESSEL

- **Leather hard-** Your vessel needs to be at a certain stage during the drying process called leather hard. Too soft and the clay will be too sticky and not trim easily. Too hard and you will need to apply more pressure and it could cause cracking that you might not see until it is glazed. Not to mention that dry clay is hazardous to breathe in. Leather hard is exactly what it sounds like. It feels similar to leather. The rim will be firm and will not wiggle. If you apply pressure to the edge of the base, the clay will not move, but you can imprint with your fingernail if you use light pressure.
- **Measure the depth of base and walls-** using 2 rulers, you can measure the depth of the base and know how much clay you have (or not) to create a foot. Place one ruler laying across the rim. Stand the other

ruler inside the bowl and outside the bowl and take measurements. Subtract the difference to give you an estimate of the depth. Use your fingers on the inside and outside of the walls to determine the areas that have thickness that need to be removed to create even walls. You should feel thickness the closer to the base that you are. Make note of the shape of the interior of your vessel. You will want to try and mimic this on the outside of the vessel.

- **Mark where the foot placement should be-** while looking inside, at the bottom of your vessel, try to determine where the floor meets the walls. Place one finger on the inside and one on the outside of the bottom. Eye up your fingers so they are directly opposite of each other and make a mark with your nail on the outside bottom. This will mark the outside perimeter of the foot. **Make sure to make the mark on the bottom, not the inside.* Next you will want to mark the inside of the foot about $\frac{1}{4}$ " inside the first mark on the bottom of vessel.
- **Center on the wheel head-** turn your vessel upside down directly to the wheel head. **Give yourself an advantage. Use the lines on the wheel head and place your piece as close to centered as possible.* With your needle tool, slowly approach the side of your vessel. As the tool touches, it will make a mark on the side. *Hint- make your marks where you are going to trim!* Place a finger from each hand on either end of the mark. Place your thumbs completely opposite in the middle of that line, slightly push the vessel away from you. Repeat until the mark goes all the way around.
- **Attach to the wheel head-** using 4 "lugs" of clay, place 2 at the same time, directly opposite from each other (3 & 9 o'clock) to the wheel head right up against the rim of your vessel. Do not push the clay to firmly up against the rim or you may damage or distort. With even pressure and at the same exact time, use your thumbs to press the lugs down to the wheel head next to the rim being careful not push into the rim. Push first in the center of the lug then on either side (front & back.) Place the other 2 lugs at the same time opposite from each other and repeat. Check to make sure your vessel does not move.
- **Make the marks on your foot obvious-** using your needle tool, carefully line up with the marks you made previously with your nail and make a continuous circle on the inside and outside marks.
- **Foot (your wheel speed should be moderate)-** Using your small ribbon tool (the square end is approximately $\frac{1}{4}$ ") start at the side of the vessel $\frac{1}{4}$ " down, keeping the tool perpendicular to your vessel, (do not go in at an angle) and start "peeling" away the excess clay towards the outside your foot that you marked. If you are needing to go in pretty far, you will start to create a ledge. Use the ribbon tool to remove that clay so that the side walls softly round in to the foot. Once you get the outside of the foot established, you can start on the inside. Remember to remove any "shelf" that may occur. Begin in the center, use the corner of a ribbon tool slightly tilted until your tool grabs the clay then flatten out and move towards the inside mark. Continue with a back and forth motion until you remove the amount of clay needed to establish your foot or to a depth that you pre-determined with the rulers. Consider shaping this area to compliment the inside of your bowl (flat or rounded.) Once you have completed your foot, use your fingers to soften the edges.
- **Sides of the vessel-** you can use the wide ribbon tool down the side of your vessel to even things out. Try to remove the excess clay that you noted while looking inside the vessel. If you want to burnish the sides, you can use a rib. This is a good time to play with texture too!
- **Finish your piece-** after you have finished trimming your piece, make sure that you use a pencil or needle/ball tool to sign your piece. Carefully remove the lugs. You can now add handles to your piece. Don't forget to slip and score. If you add anything to your piece, you should wrap it up tightly for a couple days to have them start drying together evenly. After a couple days, you can lightly cover them, then eventually fully uncover to completely dry. Place on the greenware shelves and wait till bisque.

Congratulations!!! You now have a piece that is nearly complete.

Next up: GLAZING!!!!

Glazing

- ***Clean the inside of your pot-*** using as little water as possible, wipe out the inside of your vessels to remove any dust or dry materials from the kiln. Note: If your vessel has been sitting around for an extended amount of time, it may be necessary to be wash them more thoroughly. If this is the case, then they will need to dry for 24 hrs.
- ***Wax your bottoms-*** **This step is not mandatory, but it certainly makes clean up a heck of a lot easier.* using a brush, apply a light coat of wax to the bottom and at least ¼” up the sides. If you can’t figure out visually a 1/4”, you can use a pencil by placing it flat on the table and turn your vessel up against the lead to make marks. You will need to apply the wax to cover the pencil mark. Not below it. Be careful not to get the wax where you do not want it. Wax will repel the glaze and your vessel will not have glaze adhere to the area where it was left. Any oily substance on your hands could result in the same issue. Let the wax dry a bit before glazing. **After glazing be sure to wipe off the glaze that is on the bottom and up to ¼” up the walls. The wax will not prevent the glaze from sticking to the shelves or cookies.* Whether you use wax or not, you are required to clean off any part of your piece that will touch the shelves and ¼” up the walls.
- ***Determine how you are going to glaze in advance*** – In other words, you should know if you are going to dip, pour, or brush the glaze on your vessel.
- ***Take detailed notes-*** Name your pots so that you can identify them later when they come out of the kiln. Write down, in order, everything that you did. Even drips that you may not want to remove. This will give you an accurate account of what you did in case you want to repeat (or not.)
- ***Basic rules you will need to adhere to!***
 - 1.) Have a glaze plan. Know how and why you are doing whatever to your pots. This will help with being more organized.
 - 2.) You will only have one glaze out at a time. Many of the glazes look very similar in their wet state. So, it is very possible to accidentally contaminate a glaze by pouring the wrong one back into the bucket. This would be an expensive and probably a tragic event. Choosing all of the pieces that you are going to use a particular glaze on, and doing them all at the same time, will help. Occasionally, that may not be a perfect solution ie; a different glaze on the inside, which needs to be applied first. This why step #1 is included.
 - 3.) Glazes must be mixed well or you may not get the desired results. Commercial glazes will need to be stirred with a wood stick. They are generally a little thicker than house glazes, but occasionally you may need to add water if they are too thick. Each of the house glazes buckets have their own toilet brush to help eliminate contamination possibilities. There are also, emersion blenders, & a larger mixer for the 5 gallon buckets. If you elect to manual mix the glaze, you will need to agitate the mixture for a minimum of a minute to be sure that all chemicals are completely suspended. Especially if the glaze has not been used yet that day. Some of the glazes will need to be stirred just prior to using for successful results, but most just need an occasional stir if it’s been a several minutes in between uses.
 - 4.) Each layer of glaze must be completely dry before applying another coat. **some of the commercial glazes require 3 or more coats to get the desired effect.* You must also remember to remove any

residual glaze left on the waxed area so you do not contaminate the next glaze. Generally, the first coat will dry in 5 minutes or less, second coat 20+ minutes, third coat could take an hour or more. Four coats will need overnight. Failure to follow this rule may result in a “crawling” effect. Generally an ugly bear spot left on your vessel.

- 5.) 3 second rule! Timing is everything. In on 1, stay on 2, out on 3. It can make or break your results, even if you have done everything else properly. When dipping and pouring you need to get the glaze off and out of your pot in a timely manor. Too long will result in a thick application and pin holing, running and an assortment of issues. Too thin a coat will result in a different color (most likely a brown or watered down look.) Different glazes have different viscosity. For thicker glazes, it is imperative to get out in 3. Thinner glazes may have more flexibility. **Doing some practice runs outside the container may help you get in the rhythm.*
 - 6.) You will want to pour inside of the vessels first. That way it easy to clean up any errors (drips) that you may not want. If you had glaze on the outside of your vessel first, you would not be able to clean these accidents without damaging the layer underneath. Use a beaker that will hold more glaze than you will need to completely fill the vessel. Pour it in as quickly as possible and immediately dump it out. **It is better to have to go in and glaze again after it dries to fix any parts that you missed rather than to try and stay in the glaze bucket to finish all the areas that you wanted.* Shake out or off excess glaze immediately once you exit the glaze bucket. Clean any residual glaze on waxed areas. Let dry before glazing the outside.
 - 7.) *Never touch* dry glaze with any moisture on your fingers. You will pull the glaze right off.
 - 8.) Any repairs to the glazed area of your vessel that you need to make ie; drips, runs, cracking, etc. can be done when the glaze is dry and must be done over a bucket of water. **HAZARD!!!** Suspending dry glaze material in the air is the same as inhaling glass. Working over water will prevent the particles from hitting a hard surface and bouncing back up to your nose.
 - 9.) After your piece is completed and dry, you will need to clean off any residual glaze off any area that will be touching the kiln shelf and ¼” up the walls to allow for any possible running. We use a protective “cookie” so that our very expensive shelves are protected. If you fail to do this step, your vessel will most likely be attached to this not so pretty piece of clay. The studio does not accept the responsibility of checking your pieces.
- **Brush**- typically done with commercial glazes. Our house glazes are not meant to be applied with a brush except with a minimal amount of repair work (in this case, do not brush on. Instead, dab it.) You will need to read each individual glaze to see what the recommendation for number of coats is. Some of these commercial glazes can be dipped and poured, but not in the state that they are in the container. You will notice that the commercial glazes are considerable thicker than our house glazes. Be absolutely sure to let each coat dry completely before putting on the next coat. Crawling is most common if they are not dry in between.
 - **Pour** - You may want to use this method for the inside of your vessels if you will putting one color on the inside and then a different one on the outside. Be sure to use a container that will hold more glaze than your vessel. Fill the container, even if it is more than you will need. Holding your vessel over the glaze bucket, as quickly as you can, pour in the glaze to fill, then immediately dump out glaze and shake out excess glaze till it no longer drips. Try not to worry about the glaze spilling over on to the outside of your pot. You will be able to clean off any unwanted areas. The most important step here is to get the glaze in and out quickly. Do not keep the glaze inside your vessel until you feel you got all the areas you want covered. Get it out, then you can go back and hit those missed areas later. This will result in a better application and less problems. To clean up any unwanted areas, hold your piece over

a bucket of water and use a sponge or fettling knife to remove the glaze. Staining may occur, but should not effect the next glaze application. After you are finished with the glaze, be sure to put the brush and the lid back on.

- **Dip** – Use this method especially if creating a bi or tri-colored sections with overlapping. Also for glazing the outside of a vessel. The 3 second rule still applies! You can mark in pencil (it will burn off) where your first dip goes to if using overlapping technique. Do a practice run on the outside of the bucket. Be sure to tilt the piece so it does not sit on the rim. Shake off excess when exiting the glaze until there are no more drips. **Remember that only commercial glazes need multiple coats!* House glazes are meant to only be applied once. Overlapping is an exception. You must clean off the bottom and any place wax was used before dipping in the 2nd glaze, 3rd glaze , etc.
- **Clean up**- after all your pieces are dry, you can give them a once over to make sure there is no residual glaze material left where it shouldn't be. Then you can clean the tools, & glazing area. Don't forget the floor. ** if you use newspaper on the table the clean up will be easier.* All the glaze material in the bucket used can be recycled in the white bucket under the spray booth. Pour water and all chemicals in there. This will be used to make a one of kind glaze at a later date.
- **Glaze shelves**- The glaze shelves are located down the basement. You may use a board to help carry all your pieces at once. Be careful of the first step. Lights are located on the right wall at the bottom of the steps. You can carefully place the board on the lid of the kiln while you unload. Carefully place your pieces on the shelf being careful not to touch anyone else's work that could easily result in knocking glaze material off pieces. I reserve the top shelves for tall pieces. So, begin on the second shelf. Work from the back forward. That way no one will feel the need to touch your piece to make room.

Some sage advise: Do not fall in love with your piece until it comes out of the final firing. Many things could interfere with achieving the perfect results. A wise person once told me “ if you are happy with one out of seven, then you did a good job” Let's all pray to the kiln Gods for a perfect firing!

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