

The following ideas were compiled from years of ceramic monthly suggestions, things learned from workshops, conferences and the trial/error method. I hope you find them useful and I would love to hear any suggestions from you.

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## General - Materials

- **Bamboo sticks** - thick ones (usually available 100 sticks for \$2.00). Cut them shorter for ease of movement. Shorter ones are available seasonally for candy apples. Use for drawing, creating line, dots - use remainder of stick for shaping on grinder or as handles for ribbon tools (see below)
- **Bats** - to make Plaster bats- use Formica counter edging- approx. 1 1/4" width. Cut about 32" length, tape the edges, glossy side in to form a ring Affix the ring to a board or table with clay, brush soap on encircled board and on the ring as a mold release. Pour in plaster and level with ruler.
- **Craft sticks** - use for lines scraping, smoothing, texturing, carving clay work. Tongue depressors and wooden stirrers are not as durable but can do the same thing giving a variety of widths.
- Decorating tool for even divisions:
  - **Plastic coffee straws and dental floss** -cut straw into equal pieces (3, 4, or 5) string together with dental floss, place on rim of object to be decorated.
- **Clothes rods, PVC pipe, or 2" diameter steel pipe** - Rolling pins
- **Detail tools** - Home repair needles (for upholstery, canvas) wrap a narrow strip of duct tape around middle for double-ended detail tool: ask dentist for dental tools that have gotten dull
- **Scrub pads** - Smooth irregularities on dry clay forms use Used ones are softer.
- **Burnishing tools** - get a bag of polished agates at home builder or craft stores. If rubbed on leather hard clay, it will produce a shiny, very smooth surface. The shine will disappear during bisque firing higher but the smoothness remains
- **Needle tools** - make with 3/8" dowel 4" long dowels are available in 48" or 36" lengths at Michaels, Walmart. The 36" length is under \$.60 and 2" music wire .47 or .49 thickness (Ace hardware stores, KS Engineering Chicago, IL) the music wire comes in 36" lengths, 4 or 5 to a bundle or pkg. Cut into 2" lengths with heavy duty

- cutter. Hold wire in hand vise and push into dowel about ½" in) cost is about 10 cents apiece
- **Scoring tools** - easily made from toothpicks. Line up 6 round toothpicks evenly; wrap them around the middle with masking tape. These can also be used to create textures and line designs.
  - **Wooden shaping tools** - cut 1/4 " or larger dowels to length and grind ends to sharp or wedged point
  - **Ribbon or Trimming tools** - paperclips, bobby pins inserted in tip of old ball point pen, shape and glue; hairpin attached with tape to bamboo skewer work for ribbon tools; cut metal from old measuring tapes shape, attach to stick or dowel with wire or dental floss and glue; tines old steel rakes can be shaped secured to wooden dowel or handle with epoxy and tape; Stretch the spring from a pen straight by putting one end in a vice and pulling with a needle nose pliers cut in sections and bend into shape twist ends for a stem, insert in pen and glue
  - **Regular sponges** instead of elephant ear sponges - 99 cents store usually have packs of 10. Synthetic foam sponges work well also
  - **Hole cutters** - Straws or pieces of metal tubing
  - **Cutting wires** - fishing line, 40-50 lb line; 7 strand stainless steel airplane line, dental floss- attach large clay bead or washer to one end to easily locate.
  - **5 gallon paint stirring sticks** from home building stores - use for paddles, cut to various lengths, material – burlap, textured cloth can be attached for various textures; they also make good stirring sticks for glazes. The stores will usually provide them free if you tell them you are a teacher. Also can be used for rolling guides for slabs.
  - **Plastic scrapers** - good for cleanup tools for tables and wheel heads, can be cut to make ribs with a handle; use to scrape sides of clay mixer; use to cut clay slabs to size; paddles
  - **Damp box** - Quick solution - Use a Styrofoam cooler with a well fitting lid. Or for a longer storage time - use a plastic storage box with a well fitting lid - fill the bottom

with plaster and let set. After the plaster sets add water to keep plaster damp. Put pieces in and place lid on. Size of container depends on size or amount of artwork that will be placed in it. Adjustable damp boxes can be made with foam insulation and duct tape or line boxes or other containers with the insulating foam

- **Wet clay storage** - drill a hole in bottom of 5 gallon buckets, insert plastic bag and pack with clay cover, to remove invert container, the hole and plastic will prevent the suction from holding the clay to the bucket. Peel back the plastic, slice off amount from bottom, return bagged clay to upright bucket and cover bucket; in plastic tub-layer sections with heavy plastic in between - lift out section as needed. Mattress stores have thick plastic pieces that are regularly thrown away. Checkout construction sites for 5 gallon-lidded buckets from drywall mud and sink cutouts for ware boards, ribs, etc.
- **Reclaiming dry clay** - put dry or leather hard clay scraps, rejected unfired pieces in bucket or tub- break into small pieces with shovel- good activity for those hyper students - add water to cover, let sit overnight or over the weekend. This slurry can be used in the mixer to moisten clay that has been handled by students – I add a shovelful of this (drain off water) to the clay before each class and remix. If you don't have pug mill or mixer an idea from Ceramics monthly was to use an old pair of jeans and tie off the bottom ends of the legs- fill with thick slurry and hang jeans outdoors over a branch, sturdy clothes line, fence, etc. Let moisture evaporate until it seems pliable, untie a leg and wedge for more use.
- **Ribs** – cut old credit cards, Formica samples from home improvement stores, 1" dowels about 2-3"long; coffee can lids, cut interesting shapes with fancy edge scissors.
- **Stamps** - make your own from clay - students can make signature stamps (remember to reverse letters on any writing) Stamps made from silicone caulk will yield fine details. Press object you wish to make a stamp of into moist clay and remove, Fill the indentation with 100% silicone caulk by placing a gob of it in the center and spreading it out to edges - this avoids bubbles. Keep fingers moist with

solution of water and detergent - 2 drops per quart of water. Add silicone as needed to the top- not next to- of the first gob. Back the silicone with a piece of fabric, coating both sides with silicone. Allow drying thoroughly, this can take up to a week. The stamp will be flexible but if you want a rigid stamp add a wood backing. Stamps also can be made from the inner core of an old mouse pad - cut to shape, glue to dowel or wooden block with waterproof glue, old playground balls or inner tubes work well also.

- **Slump molds**- Heavy-duty plates, bowls - cut an X in bottom for easier release. Styrofoam rings, balls, etc – place paper between Styrofoam and clay.
  - Dry slabs between plastic blocks to prevent warping, look for plastic, smooth edged bowls at yard sales theses can be used for forms or to drape clay over
  - Styrofoam meat trays, plates – use for drying slabs and tile works they can be stacked four or five tall and allow work to dry flat –rotate every few days
  - Fill a balloon halfway with casting plaster, let set on flat surface as it starts to set up, nipple side down
- **Water -based markers** - to transfer designs - draw in reverse on newsprint or tracing paper, place on moist or leather hard clay face down, smooth the back with flat rib let sit for a few minutes, peel off paper; \*\*Dried up ones can be soaked in oxides or stains and used for decorating
- **Ware boards** – foam insulating, plasterboard, wood boards; Formica scrap cut to size needed.
- **Wedging boards** – place a painting canvas upside down on a flat surface, fill with plaster, or use wooden boards covered with canvas or duck or other material stapled to back of board; large pieces of flagstone.
  - Portable: Old canvas bags - place sturdy piece of cardboard inside. Use each side for different color clay. It can also be used to carry tools back and forth to a class or workshop or for an individual student's tool storage.

- **Supports** - Large bags of plastic or old jean legs tied at the ends filled with Styrofoam chips, beans, or peanuts can be a when decorating large pots; Ace bandages can be used as a clamp or support for work it will stretch to fit and contract along with the clay as it dries; Foam pipe insulation - use for support for narrow cylindrical forms, coil, slab or extruded. They also can be cut in half lengthwise as a narrow rounded support
  - **Drying pieces** - To weigh down tiles, - cut sections of panty hose, knot one end, fill with beans and knot other end, place on corners and middle for a light even pressure. Dry tiles between plaster slabs -- cut tile larger than planned finished size, place on plaster, and score lines to final size, place plaster slab on top
- **Hand problems** - ½ tsp sugar, ½ tsp of olive, vegetable, peanut or baby oil in your palm and mix together. The sugar works as an abrasive rinse in warm water; or for cracked skin, add powdered sugar to lotion
  - Glove in a Bottle, Cornhusker's Lotion (Wal-Mart), Avon Silicone Glove, Udderly Perfect, Bay balm- also is an antiseptic look for at Feed stores,
- **Alternative Surfaces finishes** - shoe polish; paint with acrylics, then mixture of white glue 60% and water 40%; spray paint; Spray piece with black spray paint, dry brush copper, bronze or gold paint over it for metal finish

### Hand-building Tips

1. If clay is too wet to use, wedge it on a synthetic foam piece
2. Sticking stamps rolling pins, working surfaces - use talc. Cornstarch, baby powder
3. Bamboo handle Clay cutter- soften the handle in water for about an hour, the stretch the line between the looped ends and let it harden again
4. Drying tiles or flat slabs- dry in between plasterboard or plaster blocks to pull moisture evenly. Make tile larger than finished size- when ready to dry, scribe finished size lines in clay and indent a circular hole on the outer edge of the corners, dry between plaster. Let plasterboard thoroughly dry in between uses.
5. Forming cylindrical slab containers- wrap the form a few times with newspaper or any thin paper. After pot is constructed, the paper allows the form to be removed easily.
6. To round edges of a tile, cover with plastic wrap, and then cut the slab use this method for cookie cutter shapes also. Clay won't stick to the cutter
7. Extruders – old meat grinders can be used for coil extrusions, caulking guns- use empty caulking tube, and cut the tip close to end of tube ; cookie presses
8. Rubber bands can be used as a resist for slip or glazes- variety of widths and lengths are easily applies and hold tight
9. Slip trailers- see below glaze applicators

## Wheel-throwing Tips

1. To reach the bottom of deep or inaccessible by hand areas-attach sponge (cut to fit) - or cosmetic sponges to the end of a dowel or wooden spoon with a small elastic hair wrap or use foam brushes
2. Old 78rpm phonograph records can be used for bats
3. Strips of plastic cut from the clay bags can replace chamois cloth strips attach either to a cork with a staple so it floats if it falls in water bucket
4. If working under cold conditions- use an aquarium heater in your bucket of throwing water
5. Wallpaper bats- try throwing on a circular piece of cloth backed vinyl wallpaper cut to the size of the wheel head. Attach the wallpaper- vinyl side down with slip and smooth with a flat rib. After throwing, run a wire under the wallpaper and lift or slide vinyl and pot off the wheel onto a ware board. When the piece is leather hard, the bat will peel off, tarpaper was also suggested
6. To prevent rim damage when trimming- cover a bat with 1/4" foam rubber, carpet pads, grip shelf covering or old upside down mouse pad
7. In place of calipers to record the size of the mouth of a covered jar, gently press a piece of newsprint or paper towel over the opening.
8. A permanent chuck for trimming narrow necked forms can be made by centering a flowerpot on a wooden bat, screw it securely through drainage hole. Change size of flowerpots as needed. To protect shoulder of piece cut a square or circle of grip shelf paper with an X slit in the middle, place between the flowerpot and bottle.

### Glazing Tips

1. Resists – wax, white glue, rubber bands, dampened paper under and over glaze
2. Nail polish remover can be used to remove errant drips of wax resist to avoid rebisquing
3. Foam brushes works well for applying wax resist. They wash out easier than regular brushes.
  - If using regular brushes try rinsing them in glass cleaner that contains ammonia or soak in rubbing alcohol
4. A thin coating of silicone around the bristle end of a bamboo brush will stop or check cracking
5. Glaze trailers - ear syringes or accordion refill bottles for inkjet printers, small plastic bottles, insert a few small ball bearings if possible - when you shake it they will help mix up the slip or glaze, use old shoe polish applicators or bottles with square foam applicators for stamping or large strokes of color. Add small ball bearings to slip or oxide containers to help mix. Shake before using
6. Technical (drafting) pens can be filled with oxide washes for drawing. 1.5 point was suggested
  - Water based markers- dried up ones-soak in oxide or stain overnight and draw on design
7. A few drops of glycerin to slips, oxides, stains, englobes retards drying and increases workability.
8. Colorant storage - look for a wall hanging old spice rack in thrift stores or yard sales. The bottles are airtight and the contents can be marked and easily seen.
9. Sieving glazes through a screen - work the batch through the screen using a toilet brush- a plunger was also suggested
10. Attach scoop from powdered laundry soap to glazing bucket for easy pouring ladle
11. Sharpen chopsticks in pencil sharpener use for going around and tidying up glaze line above foot.

12. Hydrometers for glazes—use unsharpened pencil wind copper or brass wire around eraser end about ten times and put weighted end in the correctly mixed glaze batch and mark the point at which the end emerges from the batch. Use this to check the specific gravity of you next batch. If the glaze is too thick, the pencil will emerge above the surface and more water is needed until it floats at the mark
13. Glaze stirrers- 5 gallon stirring sticks and toilet brushes
14. Create your own screens for glaze buckets - throw a bowl to desired size, trim a foot and cut out bottom leaving about 1/4" edge by foot Fire and epoxy screen inside bottom of foot.
15. Supports for pouring glaze on exterior bowls - first glaze inside - use stilts on top of posts or thrown and glazed goblets they won't mar the rims like sticks
16. Suspension of Glazes - to avoid settling, add bentonite and put water in kitchen blender add bentonite by teaspoons until mixture is thick-to make liquid bentonite.
  - 4oz jar of glaze- add 5-10 drops liquid bentonite and shake. Liquid bentonite should not exceed 2% of weight of the glaze if you mix your own glazes.
  - 5 gallon bucket of glaze add 1-2 tablespoons of any fabric softener and let sit overnight to keep glazes suspended- this idea was from 1989 and formulas may have changed as this was an alternative to Calgon which has been reformulated
17. Reglazing - mixture of glaze and liquid starch 1/6 starch by volume added to glaze mixture could be sprayed on or spray with hairspray and then reglaze
18. Remove unwanted dry glaze from bottom of pot - apply paste of fine silicone carbide and water. Twist this against the bottom of another pot, adding water as needed. Works on tight fitting lids - add paste to rim and swivel around rim until its fitting smoother or attach a piece of foam or green scrubby to a board, dampen and make a few passes with the pieces over it.
19. Transporting glazed pieces to be fired- spray with hairspray before transport

20. Avoid glaze clogged holes in teapot spouts – before glazing, hold teapot, spout down and spray water up the spout, soaking the strainer and limiting the amount of glaze it can absorb

## Firing Tips

1. Bisque mender - Sairset refractory cement – stir well and apply to moist bisque ware, then glaze; use Paperclay
2. Freeing stuck lids - when tight lids are stuck after bisque firing, put in the freezer - for about a half hour or so - depending on size, the smaller lid will contract first and release. Sand the flange and lid a bit prior to glaze firing.
3. Glazed small objects-moisten base with water gently touch with clean dry sand to prevent sticking to the shelf- don't just put the piece on sand already on shelf- it will sink down
4. Slab pieces ¼" thick, high fired can be used to extend height of kiln posts
5. Tile setters - make your own by cutting corresponding grooves in two firebricks 2 parallel 1' deep cuts using an old saw (a Zawsaw blade with an end wrapped in tape works for this) and then scrape out the grooves with a chisel or flat screwdriver. Wipe out dust and add kiln wash to the grooves
6. Bead holders can be made by drilling holes in soft firebrick and inserting nickel chrome wire or for cone 04 or lower firing glazes make a rack by setting iron screws upside in a slab of clay. Coat the tips of the screws with kiln wash
7. Placing mirrors on the floor under burners beneath an updraft kiln allows you to check the flame's presence, size and color without getting down on the ground
8. Reusable Cone holders saw 1x1x2" sections from a soft firebrick, then carve 2 or 3 slanting holes in the top surface to accommodate cones
9. Firebrick refractory adhesive, thinned with water and applied to soft firebrick, dries to a tough coating that protects bricks from chipping during loading and unloading kilns
10. Defunct kiln elements can be used as stilts by imbedding them in clay, then bisque firing. They also can be used as hangers on clay pieces- snip, imbed and fire
11. Cone viewing aid - lightly brush iron oxide on tips of cone to see easier during the white heat. Be sure not to let the cones get wet with the oxide to avoid accuracy

12. To repair broken or cracked firebrick, mix liquid sodium silicate with fireclay to paste like consistency and apply. This works well for electric kiln lids.
13. Sandblast silicon carbide kiln shelves to restore to mint condition
14. Cleaning kiln wash off glazed pieces - glue car body sanding disc to bat and put on electric wheel as needed. Toothbrushes can clean up clogs in sanding disc
15. Kiln posts - make your own - cut a 25 lb block of cone 11 sculptural clay to desired size. Pierce down middle of each with an ice pick about 5 times and bisque fire

- **Raku tips:**

- Over time if Raku luster's dull, brighten them with this mixture: 1 pint rubbing alcohol,  $\frac{3}{4}$  cup sudsy ammonia, 1 teaspoon dishwashing liquid and 1 gallon of water (works as glass cleaner also)
- Dip Rakuware in a sink full of water and 1 cup vinegar to reduce the smell of reduction newspaper or hay.
- Cleaning up Raku from too much carbon buildup or black deposits from copper oxide finishes. - Use pink rubber eraser
- Waterproofing raku — soak in commercial silicone product, Thomson Water seal, Revere's concrete shield, or Tung oil

## Cleanup Tips

1. Tables - Plastic scrapers and a small bowl lets students remove dry clay from tables and put in bowl instead of on the floor- this gets put in dry clay barrel when 1/2 full.
  - a. TSP in water to wipe down tables and cabinets without leaving residue
2. Sinks - plastic fruit tray or container with holes to drip dry sponges, tools, brushes, etc.; Avoid clay clogged drains. If you don't have a clay trap, get a large plastic dish basin or bucket that fits in the sink. Drill a hole about 3' up the side-large enough to fill with a cork, after the water settles, release the cork the clay particles will settle and can be reclaimed.
3. Floors\_- Squeegee attached to pole – push dust-to-dust pan rather than broom to avoid dust problems; mop floor; minimize dust in studio air by using vaporizers in the room or use a spray bottle of water to spray the air
4. Wheels - Wheels are numbered each wheel has a bucket that has a corresponding #. A signup sheet is by those numbers. If someone leaves a mess I know whom. The buckets contain a sponge, cutting wire attached with clothespin, narrow paint scraper and numbered needle tool. Buckets, pan and wheels are expected to be clean. Electric wheels turned off.
5. I use a dot system - four dots: red, blue, yellow and green. Each has a job and the person sitting by the dot does the job. The jobs rotate weekly. Other tips- first one at the door gets to mop the floor. Dirty tables lose points. Cleanest classes for a month get homemade brownies. That works the best!
  - a. Red - makes sure tables and floors are cleaned
  - b. Blue - checks tools are away
  - c. Yellow - puts clay in mixer
  - d. Green - checks glaze area, clay area, wheel area or sinks.