

I. **What is glaze?** Glaze is a mixture of finely ground minerals suspended (some are dissolved) in water. Glaze consists of raw ingredients that provide a source of flux, alumina, and silica. Minerals such as Calcium, Sodium, Potassium, Lithium, Strontium, Magnesium, and Zinc are fluxes that help the glaze melt. Alumina adds viscosity. Silica is the glass of the glaze. These materials are applied to the bisqueware in a thin powdery coating, and then heated in the kiln until they melt. In our case the work is fired to 2350° F in reduction. Reduction is the opposite of Oxidation and means we reduce the oxygen available to the kiln creating long flames that burns up the O₂ in the clay and glaze leaving carbon, making the clay a warm and toasty color and the glazes the colors we want like celadons, copper reds, and iron reds.

II. **Safety.** Latex gloves and dust masks are available. We do not use Barium or Lead, but you should not make glaze dust since all dust is harmful. Colorants such as chrome oxide would be the most toxic. These are used in small percentages such as 1-2%. Some ingredients such as soda ash & wood ash are caustic and will burn sensitive skin. Use blenders to mix up glazes before use; do not use your arm. If you have cuts on your hands you should wear rubber gloves.

III. Glaze Steps

A. Study the Tile Board and **Plan** out your glazes in your notebook. Decide if you are doing Glaze Overlay or Glaze Inlay. You must have this info for critique.

1. Mask and Resist to Glaze Overlay and Glaze Inlay.

a) Glazes can give different results if overlapped and glazes can be inlaid next to each other. Wax resist, Masking tape, and liquid latex allow you to mask certain areas and apply a second glaze to create patterns on your forms. Warning: be very careful with the wax. If you spill wax on bare bisqueware it will be difficult to impossible to glaze the waxed area. It can be removed by sanding or by refiring, but doing so may alter the texture of your piece and take up time and space in the kiln. Clean Brushes and Sponges before wax sets in warm water! Also be careful not to touch sticky wax then the bare clay.

b) Glaze Overlay: Use wax resist on top of the first glaze applied then apply a second glaze to do Glaze Overlay.

c) Glaze Inlay: Mask an unglazed bisque piece to create patterns on the form. Apply the first glaze. Wax over the first glaze, Pull off the tape. (Be sure to score the edge of the wax so the tape does not pull off the wax. Then apply the second glaze. This technique will allow you to do Glaze Inlay, which is the glaze next to each other.

B. Dust off bisqueware before glazing. Work must be BISQUE FIRED.

Use compressed air to blast off dust with the spray booth on. You may also rinse or sponge the bisqueware with water. This must be done quickly, only a few seconds. If the bisqueware is saturated with water, your piece will not absorb water which means you will not be able to glaze it.

C. Wax broad feet with wax to make it easier to clean glaze off the bottom.

Be careful not to spill wax on bare bisqueware. The wax will prevent you from glazing over the wax.

D. Apply glazes.

1. Four basic ways to apply glaze.

- a) Dipping Best way to glaze. Gives an even coating.
- b) Pouring Best for glazing inside of piece.
- c) Spraying Best for large work. Wear a dust mask.
- d) Brushing Best for detail work and brushwork decoration.

2. Glaze should be applied to about a thumbnail thickness 1/16" or 1mm. You can time your dips 3-6 seconds or dip once and dip a second time to build up more glaze. Wait long enough between dips for glaze to firm up. The glazes are thin enough to overlap to prevent overly thick glazes which cause runs. Total dipping time should not exceed 6 seconds. If too thick your piece will be rejected from the firing and placed on the Reject Shelf. Note dipping times are a suggestion. In the end you have to judge the glaze thickness by sight or doing a scratch test. Scratch through the glaze so you can see how thick it is. Then rub back to smooth.

3. Glaze inside first. Pour glaze in with a cup and pour it out as you turn the piece.

E. CLEAN GLAZE OFF THE BOTTOM! *If you do not do this the piece will be rejected from the firing. Wax makes it easier to clean the bottoms, waxing alone will not prevent glazes from sticking your piece to the shelf. If it gets past the kiln loaders it will be stuck to very expensive kiln shelves. If you have a bevel on the bottom of your piece you can glaze down to that bevel. If not you must stop the glaze 1/4" from the bottom.*

F. Put pieces on the right shelf. *After glazing, your work should go on the Cone 9 Reduction Shelves. Raku pieces use different glazes that melt at a lower temperature; those should never be put in the Cone 9 Reduction.*

G. CLEAN UP YOUR MESS! *Glazing gets messy and no one else will clean up your mess. Clean up all drips and spills off of glaze buckets, lids, and tables. Mop the floor of the glaze area when done.*

Glaze Application Worksheet.

Overlay with Wax Resist

1. Dust pot.
2. Apply first glaze _____.
3. Apply wax resist.
4. Apply second Glaze _____.
5. Clean foot of pot.
6. Put on glaze fire shelf.

Overlay with Masking Tape

1. Dust pot.
2. Mask off a pattern on pot.
3. Apply first glaze _____.
4. Remove tape.
5. Apply second Glaze _____.
6. Clean foot of pot.
7. Put on glaze fire shelf.

Inlay with Masking Tape and Wax Resist

8. Dust pot.
9. Mask off a pattern on pot.
10. Apply first glaze _____.
11. Apply wax resist on glaze.
12. Score wax at edge of tape.
13. Remove tape.
14. Apply second Glaze _____.
15. Clean foot of pot.
16. Put on glaze fire shelf.