

Glazing

Pottery glazes are complex mixtures that fuse to pottery when placed in a kiln at high temperatures. The glaze is not lying on the surface but actually melts somewhat into the surface at the interface. Glazing your ceramics serves several purposes. Not only does it add a safe, sealed coating to your bisque-fired wares making them waterproof and food safe (usually, depending on the glaze), it also brings your work to life with color. Depending on the type of clay used, the bisque pieces may be white or red. The possibilities of glazing are endless and the techniques and patterns you can create with them have no limit.

There are three ways to glaze: dipping, brushing and pouring. We use the brush method primarily. For the 5th grade vase project we combine brushing for the outside of the vase and pouring to cover the inside of the vase, making it waterproof and able to hold water.

Glazes are comprised of various elements and compounds. Every glaze is made of 3 materials: Silica – creates glass; Alumina – stiffens the glaze so it doesn't slide off the clay; and Flux – causes the glaze to melt at a low enough temperature to be used in ceramics. Some glazes embed crystal pebbles of varying sizes that burst in the kiln revealing an explosion of multi-colored flecks. All glazes used at FHE are non-toxic and food safe with the exception of: *Ocean Mist, Monet Garden, Night Frost and Grape Splash, which are non-toxic but not food safe.*

Glazing Tips

- After bisque firing, keep your creations clean and dry. Only handle your pieces with clean, dry hands. Lotions, or even the oils from your hands, can create resist spots where glaze adheres unevenly or not at all.
- Mix the glaze well before use. The heavier compounds in glaze sink to the bottom of the bottle. First shake the bottle then use a stir stick, assuring you scrape the bottom and mix it well for a smooth consistency and even color.
- Since the glaze is thick, a lot adheres to the stick. With a finger, paintbrush or spatula, wipe as much glaze as possible back into the bottle. Glazes are quite expensive (\$14 to \$18 per pint), so please try to minimize any waste.
- Each glaze color has a unique formula, some are very thick, and some are very thin. Glazes can thicken over time, this is normal. However, if you think a glaze is too thick, add a few drops of water and stir well. Repeat until desired consistency is reached.

Glazing with Children

Too many glaze choices often make your glazing experience a bit chaotic. We recommend giving students 4 to 5 different glaze choices. It also works well to create 1-3 glazing stations where 4 -5 students glaze together. Rotate the students to the stations to glaze. As one student finishes another student rotate in.

- You can use glaze mats or tablecloths (available in PTA closet) to cover the work surface. Do not use the clay mats or newspaper. After use, clean glaze mats or tablecloths with a wet sponge or paper towel.
- Use the glaze color-matching bowls for your glaze (bowl color matches glaze color). Pour no more than about ½ to 1 inch of glaze into the bowls at one time. Or ¼ inch if using a glaze as an accent color.

- Obtain the standing glaze color tiles for your glazes and place on the table so that the children can see what each glaze will look like after it has been fired. Some of the glazes look completely different in the liquid form than they do after firing.
- Rather than give each child his or her own paintbrush, put two or three brushes of various sizes in each color. This eliminates the need for the children to rinse off their brushes with each color change, which wastes a lot of glaze.
- *Please impress on the students, and monitor them, to put the brushes back in the correct color. Glazes should not be mixed.*
- If using crystal glazes, do not stir the glaze initially. Apply 2 coats of glaze before stirring, then stir the glaze to incorporate the crystals before applying the 3rd coat of glaze.
- Educate the children that crystal glazes have flecks of glass crystals in it, which are sharp and can cut the skin.
- Instruct student to wash their hands after they've finished glazing their bisque.

TIPS for the Students

- Instruct children to glaze lighter colors first, then apply darker colors. They should glaze the larger background areas first, let it dry, then put the smaller details on top. Glaze generally dries quickly, within a few minutes.
- Teach them to keep brushes with the same glaze and use a different brush for each glaze.
- *Glaze mistakes can be corrected easily by wiping off the glaze with a wet sponge, then repainting.* Small amounts of dry glaze can be scraped off using a metal cutting tools.
- Any brush bristles stuck in the glaze will simply burn away in the kiln; there is no need to remove them.

Glazing the Underside of Projects

The bottoms or back of many clay projects, especially small animal figures such as fish and frogs or wall plaques may not need to be glazed because it makes firing them more difficult. Small pieces are very difficult to stilt when firing in the kiln. However, some projects such as the Gingerbread Man Spoon Rests, Ornaments, Coil Mugs, Plates and others should be glazed on the bottom for reasons of aesthetics and waterproofing.

Fixing Broken Pieces

Bone dry greenware and bisque is very fragile and is easily broken. Take care when handling and transporting. On occasion, a project may crack and break during the drying process or when it is fired for the first time. Joined pieces may also fall apart during drying phase.

- Broken projects and projects with separated parts can usually be repaired after the final firing. Do not throw the pieces away. Keep them together and glaze them as usual, except instruct the child to keep the glaze off of the broken surfaces.
- The break must be kept clean so that the pieces can be properly glued back together. An industrial strength adhesive such as E60000 has been very effective after the final firing. We do not stock E6000; it is available at Michaels or other craft stores.
- Please do not try to glue bisque pieces together with glaze unless the broken piece sits on top of the base piece, where gravity will assist in melding the two pieces together. However,

if the broken pieces are side by side, glaze melts during firing and the pieces will slide off each other and weld to the kiln shelf or a nearby piece of ceramic.

- Patch-A-Tatch is a product made by Duncan (the maker of our glazes) and can be used to repair breaks greenware. It's in the PTA closet, in a 4 ounce jar, to the right of and behind the crystal glazes. Follow the instructions on the bottle.

Absent Students

- If you are not doing a make-up session, have another student, volunteer or teacher glaze the absent student's project.
- If you are doing a make-up session for absent students, make arrangements with the teacher for absent students to glaze their projects when they return.

Over-Glazing with A Clear Coat

All our glazes have a gloss finish and if the kids do a good job covering their piece with glaze, a clear coat overcoat is not necessary. However, any unglazed surfaces will remain rough and will result in the dull texture of bisque, making the project look unfinished.

- For younger grades, almost all projects will require a clear coat overcoat, but many of the older students will do a great job of glazing their pieces and no overcoat is required.
- Only parent helpers should apply the clear coat overglaze and it should be done in the PTA closet or at one of the tables outside the classroom. The clear coat can be applied as soon as the regular glaze has dried, usually after about 5-10 minutes.
- Only the areas that were left unglazed by the student need the overcoat. Applying clear glaze to the entire piece is a waste of glaze.
- Clear glaze is supplied in large gallon bottles and is mint green in color. It will dry to an opaque green. Don't worry, once fired the colors underneath will be clear and glossy.
- When applying a clear coat, use the large brushes, and quickly apply a heavy coat with a patting technique. Excessive brushing may dissolve the glaze underneath, blurring the colors on the project and tainting the unused clear glaze.
- If you do a project where there is supposed to be white, perhaps a snowman ornament where you're only using glaze to make the face, hat, scarf and mittens, there will be a lot of unglazed white bisque. Applying a clear coat over glaze will give the white areas of the snowman a shiny glossy finish.

Cleaning Glaze from Holes

Some projects have holes in them for stringing an ornament or hanging on the wall. After the projects have been glazed, the parent helpers must clean out any accumulated glaze from these holes. Glaze melts when fired and drips into the hole will permanently fuse the hole closed.

Toothpicks or the sharp cutting tools work well to clean glaze from the hole.

Cleaning Up

- Please use the spatulas to scrape as much glaze as possible out of each bowl and back into the glaze bottles. Wipe the excess glaze from the brushes back into the bottles.
- After use, wipe off the top of the bottle and threads, then wipe the threads on the lid with a damp sponge before replacing the lids. Glaze left on the threads can make it difficult to open and crusted remnants end up in the bottle.
- Wipe any drips off from outside of the bottles as well.
- Wash paintbrushes thoroughly in clean water.
- Wipe off the glaze mats, tablecloths and tables with a wet sponge or wet paper towels
- Wash the glaze bowls thoroughly and dry
- Put glazes, color tiles and other supplies away in the PTA closet on the same shelf and location where you found them.

Transporting Projects to Kiln Shed

It is strongly recommended that you hand carry your cardboard boxes with the finished clay projects from the classroom to the kiln shed. The shaking and vibration generated by the transport cart could shake loose parts and pieces or topple some of the clay projects. Your project boxes should be placed or stacked on any of the empty shelves in the kiln shed. Make sure your boxes are labeled with the teacher's name and the date the project was created.

After Glazing, Next Step

After the projects have been glazed, they can be fired as soon as the glaze is dry. This is called firing your Glazeware. If you have small-medium size wares or flat pieces, it is very likely you can fire your projects with another class. Keep this in mind when scheduling the kiln.