

**GLASS
CERAMICS
KILN**

Erika Christensen
425-256-0211
revitalized@hotmail.com

QUICK FACTS

- Each class is strongly encouraged to teach a glass lesson and a clay lesson.
- **If no one in your classroom docent group is trained to use the kiln, please have at least one volunteer attend a kiln training session.**
- If you need an immediate answer or assistance, contact me by phone/text. I only check email a couple times a day.
- Supplies for Glass and Clay are in the PTSA/Shower Room – located through the front office, on the left just after the big copy room.
- Clay is in cabinet under small counter on the left. If you need more for a project let me know. Please check off your class on the wall as you use materials.
- Glass sheets are in a locked cabinet, so contact me when you need glass for your project. Please plan ahead.
- The Kilns are located in custodian storage at the back right of the lunch room. The door is kept locked and no children are allowed. The front desk has a key (please return it promptly!)
- Please clean up after yourselves and return supplies to their proper locations.

GLASS GUIDELINES

Each class is encouraged to create art with glass! It is a privilege to have the kiln available for our use and we want to take full advantage of the opportunity. Generally, projects are created by using the clear glass as a base and layering colored glass on top of the clear. The glass is then fired in the kiln and fused (melted) together into a solid piece of art.

Materials are cut ahead of time by the art docents for the students to assemble during the lesson. Each class is allotted one piece of clear glass (17" x 20") for 24 students, and the equivalent of one and a half pieces of colored glass (10" x 10") to work with. You may divide the colored glass allotment between multiple colors of glass. In addition, we also have scrap glass from prior years to supplement with.

For project ideas, see the examples in the "Glass" binder located on the shelves by the door in the art workroom, talk with art volunteers, and search online - Pinterest! I have Fused Glass Projects and Clay Projects folders on Pinterest that I add to periodically.

MATERIALS AND PREPARATION

Materials

Sheet glass is kept locked in the cabinet on the back wall. Contact me for access to the glass to use for your projects. We have rods (pencil thickness), stringers (spaghetti), and frit (sprinkles) glass to embellish the sheet glass.

Forms of Glass:

- Sheet (17"x20" clear and 10"x10" color)
- Frit (various sizes - coarse, medium, fine)
- Rod (like pencils)
- Stringer (like spaghetti)
- Transparent or Opaque (we use the opaque but have a few sheets of transparent color glass in our supplies)
- Iridescent, dichroic, thick and thin (we generally use 3mm thick, although there may be some 2mm) (Dichroic = color changing, metallic looking glass. Iridescent = rainbow-like coating on top of the glass.)
- Striker – may change color during firing

Preparation

Please use our modular waffle grid cutting surface to cut glass. It is designed to capture the glass bits that result from cutting and will protect the counter and table from dings. **Wear safety goggles** when cutting any glass. When using the wheeled cutters to chip the glass (shape it) or for cutting rods, do so inside the empty cardboard box located with the glass materials. The box will catch the shards and chips and prevent them from flying around. **SAVE any pieces of leftover glass.**

How to cut glass:

Glass cutting is basically scoring to create a weak point, then bending the glass so it breaks along the weak point created with the score mark. Glass wants to break in a straight line but curves are possible. See Bullseyes Tech Tips for some great cutting guidelines. (bullseyesglass.com) There are also many how-to videos on YouTube and tips on Pinterest as well. Cover surface you will be cutting on with butcher paper or use one of the waffle grid cutting surfaces to catch debris. Glass cutting requires a steady, even pressure with the cutter upright.

How to get the best "breaks" when cutting glass:

- Score once - don't roll cutter back and forth over your score mark.
- Use consistent pressure and speed and move your whole body as you score, not just your hand or arm. Standing is best.
- Score on the smoother side of the glass. Use your fingers to feel the surface on each side.
- Break your glass immediately after scoring. If allowed to sit, the score line will develop fractures that radiate all along its length.
- If possible, position your score so that there is an equal amount of glass on either side of it. For example, if you are cutting a piece into 4 strips, first cut it in half, then cut each half in half.

Rods are cut with the wheeled pliers. Hold the rods inside an empty cardboard box when cutting to capture flying pieces. Be sure you are wearing safety glasses!

Employ the same method of holding the glass inside the cardboard box if you are shaping the glass by chipping it.

Please put all scraps and extra pieces in the plastic boxes so that they may be reused for other projects.

When you finish cutting, empty the cutting surface nooks of any collected slivers. Wipe the surface you were cutting over and any surrounding chairs with a wet paper towel or wipe to capture any remnants. Finally, please sweep the floor. Remember to check the front of your clothing for glass dust and slivers, then wash your hands. Our goal with a thorough clean up is to keep our kids safe from cuts and injuries. Glass dust and small fragments can go unnoticed on papers and surfaces, and be transported around the school. Please clean even if you don't see anything.

Other important notes

- Do NOT take the materials or tools home. Glass should be cut in the workroom.
- Do not take the rubber tips off the running pliers (used to break scored glass). They are part of the design.
- Students should not cut the glass.
- For large sheets it is helpful to have two people to break the glass, one on each end of the score mark, to help support the glass while cutting and for greater success with the long cut.
- If any of the tools don't appear to be working (i.e., cutters not scoring) please let me know!

WORKING WITH THE KIDS

Cover the tables in the classroom with butcher paper for easy clean up of glass particles.

Start the project by going over the following important rules:

1. Working with glass is a privilege; for safety reasons, playing around is not permitted (insert kid friendly language 😊).
2. When working with glass, do not touch your body, especially your face, eyes, and mouth. Even though you may not see them, there are tiny pieces of glass on your hands. (For younger students I have asked the teacher to send an email to parents requesting that long hair be tied back.)
3. Do NOT rub the glass, or slide fingers along the edges because it is sharp and will cut you.
4. Don't walk with glass in your hands.
5. Wash your hands when you finish the project.

Bring bandages, which are provided with glass materials, just in case. For small glass splinters, I have found the sticky side of tape to be effective in removing them.

It is helpful to provide the kids their main materials (glass pieces) on a paper plate. Additional small pieces used for decoration or embellishment can be put on paper plates in the center of each table. This way they are not walking around with the glass. If the students are going to be searching through small pieces of glass, provide them with popsicle sticks or plastic utensils to move the glass pieces around.

Extra art helpers are always a good thing for glass projects. The younger the children, the more helpers you'll need to make sure the safety rules are followed – aim for one adult per table or small group for youngest kids.

Don't forget to label the plate with the student's name!

GLASS IN THE KILN

- Glass must be fired **on the WHOLE** (as opposed to half) **shelves only! These shelves are treated with a wash so the glass doesn't stick and shatter during firing.** Shelves and risers are stacked so that the large whole shelf is located about halfway to the top of the kiln. Four medium risers are placed on the large shelf to hold the small circular shelf, which should be centered over the large shelf.
- **Glass pieces MUST NOT touch each other or non-coated surfaces of the kiln.** Leave enough space between pieces, keeping in mind that glass expands and contracts when it's fired; about a 1/2" or one finger width is good.
- Make a "kiln map" (on clipboard next to kiln) as you load the kiln so you know who each piece belongs to. When you remove pieces the following morning you can return them to the labeled paper plates.

CERAMIC (CLAY) GUIDELINES

Each class is encouraged to create art using clay. We want to take full advantage of the privilege of having a kiln at our disposal. Clay projects are made beginning with a lump of moist clay that is shaped into the artwork using hands, tools, and other props.

Clay is manipulated using a number of techniques from pinching to coiling to slab. There is a project to suit every age group and ability. Generally, the art program endeavors to teach a new technique or skill for each grade, building to the more complex, detailed, and challenging techniques.

For project ideas, see the "Clay" binder located in the cabinet nearest the door in Glass/Clay supply room, talk to other art volunteers, see our Blackwell Art Dropbox for past lessons and project photos, and search online - Pinterest!

MATERIALS AND PREPARATION

Each class is allotted 1-1 ¼ 25 lb. package/bag of clay, as well as enough clay to make a sample of the project. The clay can be found in the cabinet under the small counter on the left. Other materials such as slab rollers, spray bottles, cutting tools, sponges, and texturing items are located in the cabinet closest to the door. Paper grocery bags are provided for the clay work surface and are located on top of the PTSA cabinet on the right beyond the sink. These can be reused even when coated with clay so please save them.

To keep the clay moist, it should be cut into pieces for the students fairly close to the art lesson time (or during the presentation if you have enough helpers). It can be covered with damp paper towels and/or saran wrap to maintain the moisture level.

PROJECT TIMELINE (More Details in Following Sections)

1 Day: **Complete Project in Class** (see Working with Clay)

7-10 Days: Project Dries for 7-10 days Until Completely Dry - art is **very fragile** at this stage. Dry unfired clay can be gently carved, or sanded to remove rough edges. Practice on your own samples first! (See Drying)

1 Day: Bisque Fire Project - now a hard ceramic piece (see Bisque Fire)

1 Day: **Glaze Projects in Class** (see Glaze)

1 Day: Glaze Fire Project (See Glaze Fire)

WORKING WITH CLAY

The clay comes to us with no air bubbles in it. **Air bubbles in a clay piece can cause it to break or burst in the kiln during firing. It is important not to fold the clay over itself which will trap air.** Once this has happened to the clay, it's best to put it aside and get another unworked piece. It's natural for the kids to immediately pick up their lump of clay and pound it flat and wad it back up. It's helpful to instruct or remind them about the air bubbles before they have access to the clay.

Help the students ensure that their projects are at least 1/4" thick which will help the pieces survive being fired in the kiln. This is an area where kids need monitoring, especially in the earlier grades. Also, solid clay portions of projects must be smaller than a golf ball or will need to be hollowed out to create thinner sides.

JOINING

Clay to be joined should, ideally, be close in thickness. Joining a thin and a thick piece of clay will result in thinner piece drying faster and possibly pulling apart at the connection or cracking. Any time you attach two pieces of clay they must be joined in the following manner: Hatch marks ///// must be made with the clay tools (forks work great for this) on any surfaces you want to stick/join together. Then spread slip (slip is a clay and water mixture) over the hatch marks of one of the surfaces, being careful not to rub away the grooves you made with the tool. Press the two hatched surfaces together firmly, with a little wiggling motion to marry the pieces, but without distorting the pieces. If you don't join the clay in this way, it may come apart when fired.

If you don't want to map the kiln when you load it, **have the students impress their initials on the bottom of the piece.** A sort of dull pencil works well for this. (careful to check for duplicate initials in the classroom).

DRYING

Dry clay projects in a safe place without cool or warm drafts. To prevent pieces from drying too quickly, cover box or shelf loosely with plastic wrap or newspaper for the first 3 days. Top of cabinets in teacher classrooms are often unused space and have worked well for this. Top of cubbies in hall is more risky as they will get picked up and moved and could break.

Art work **MUST** air dry for 7-10 days until bone dry. Most pieces are ready at 7-10 days. These dry, unfired pieces are much more fragile than fired ceramics.

BISQUE (FIRST) FIRING

Use the kiln on the right in the custodian's storage for ceramics. **Unglazed pieces** may be fired on all levels of the kiln. **They may be placed directly onto the shelves. They MAY touch each other and be carefully stacked.** Please do not use the shelves designated for glass to fire clay pieces. The shelves designated for glass are

coated to prevent glass from sticking. The half shelves used for clay have a different coating designed for clay firing.

After filling the bottom shelf, use risers to stack shelves for more room. If the student's initials are not carved on their pieces make a kiln map. Distribute items to be fired evenly throughout the kiln. Do not place pieces within 1" of heating coils for best results.

Instructions for starting the kiln for the Bisque fire are located on a clipboard near the kiln.

GLAZING

Glazes are expensive and should be used respectfully, but generously. Glaze should flow on like paint. You can distribute glaze into Dixie cups or small palettes (stored with glazes). Start with less and add more as needed. Apply glaze in thin even layers using paint brushes. Apply each coat at a 90* angle to the previous coat (up and down, then side to side, then up and down). Three layers of glaze will produce uniform, solid color. Be careful not to cross contaminate colors. Return unused, uncontaminated colors to the bottles.

Glaze will stick to the kiln shelves! Students should avoid getting glaze on the bottoms of the pieces. If the entire piece is glazed, it must be fired on stilts so that it doesn't fuse to the kiln shelf which ruins both the piece and the shelf. Should glaze drip or puddle onto the bottom of the artwork, it can be easily cleaned off after the glazed piece is dry by rubbing a damp sponge on the bottom surface or sanding it off with sandpaper. Glaze needs to be completely dry before firing. Pieces can be fired the next day.

Reminder: If there is glaze on the bottom of the piece, set it on stilts (metal points holding the project). The glaze won't stick to the metal tips.

GLAZE (SECOND) FIRING

Check pieces before loading to ensure that the bottom surfaces are free of glaze. Glaze will fuse to and ruin the shelf and the art pieces if it makes contact with the shelf. If there is glaze on the bottom of the pieces, place them on the stilts, (metal points holding the project). The glaze will not fuse to the metal points. **Glazed pieces CANNOT touch each other or the shelves during firing or they will be fused together!**

Instructions for starting the kiln for the Glaze firing are located on a clipboard near the kiln.

THE KILN

- **Please load and start the kiln only if you have been trained to do so.**
- **You must sign up to use the kiln with Linda Kramer (lkramer@lwsd.org) or Lisa Nelson (lnelson@lwsd.org) in the front office. Stop by or email them.** Please provide them with the teacher's name, date requested, and whether you are firing glass or clay (specify bisque or glaze). Maintaining the kiln calendar is courteous and necessary, so cancel unneeded dates promptly. Do not reserve extra days, especially during the holidays. Each class should use 1 day for glass, 1 day for bisque firing, and 1 day for glaze firing.
- The kiln is located in the room at the back right of the lunch room. Custodial supplies are also stored here and the door is kept locked.
- Plan to start loading the kiln at 8:45a or earlier. **The kiln needs to be started by 10:00a on your scheduled load day.** The starting time of the kiln is very important because the kiln CANNOT be running after business hours.

- **Have the kiln completely unloaded the following morning BEFORE 9:00 am** so that it's ready for the next person.

Glass, dry-unfired clay, and glazed clay are each fired using a different kiln program. The information you need is located on the clipboard to the right or left of the kiln you will be using. There you will find sheets labeled with the appropriate program and directions for starting that kiln. You will also find blank kiln maps for your use.

It is important that you clean up after yourself when you use the kiln. Make sure you remove all paper plates and any carts or boxes cart from the room when you are finished. Do not store or dry artwork in the kiln/custodian room. Please clean the kiln shelves of all dust and debris (brush it into trash can) after each firing so that the kiln is ready for the next person.

There are hot mitts available for unloading the kiln although items should be cool enough to handle by the next morning when you unload.

CRUNCH TIMES: There are a few times during the school year when everyone wants to do their glass and clay projects. These tend to fall around the winter holidays and at the end of the school year from April on. I encourage you to plan in advance to make sure you have the kiln days you need to fire your project. Ideally, decided at the beginning of the year when you are putting your art schedule together and book the kiln then.

Usually there will be one or more volunteers in your class' docent group that are trained in using the kiln. **If no one in your group is trained to use the kiln, have at least one volunteer attend the training classes.**

Updated September, 2018