

Art Curriculum Matrix: K - 6

Project	Slab vases with bisque stamp/roller impressions
Grade	K-6
Content/theme	Vessel and Pattern
Objectives	<ul style="list-style-type: none"> • Create simple slab vase using template around pop can • Create bisque stamps and rollers and use to create impressions in clay • Observe how impressed pattern changes from concave to convex • Understand how placement of stamps creates different designs and emphasis especially in relation to belly, foot or rim of vessel
Essential Questions	<ul style="list-style-type: none"> • How does an impression change from a stamp, to its impression. to how it looks on a 3D form? • How can you use stamped pattern to change the look of a form? • What does decoration add to the way a vessel feels or is valued?
Demos/Skills	Rolling slab Cutting slab (with template) Making bisque stamp/roller Impressing/carving marks into stamp/roller Organizing stamps/roller impressions to create pattern, emphasize areas, relate to base/rim/edge Constructing vase form with template around pop can using underglaze wash to highlight texture after bisque
Vocabulary	Stamp Rolling stamp Impress Slab Tile Template Underglaze Orientation Juxtaposition Abstraction Inlay Resist Elements and Principles of Design
Artist/Culture References	Roman Korean German salt-glazed Kondo Yukata Lana Wilson Jason Bige Burnett
Materials	Pop can per student covered with newspaper Clay (5 lbs. per student) paper (11x17") Scissors Pencils for tracing Bisque stamps (students can make during assignment) Rolling pins Fettling knife/pin tools (cutting slabs & scoring) Plastic for covering work Underglaze Sponges

Process

	Activity	Steps	Dialogue
1	Make clay stamps/rollers	<ol style="list-style-type: none"> 1. Roll clay into small cylinder 2. Using tools/found objects, impress into the stamp/roller 3. Bisque 	<ul style="list-style-type: none"> • What is a stamp? • Why would you use a stamp? (pattern, easy repetition, interest, symbol/signature) • What is a pattern?
2	Practice using stamps/rollers in clay	<ol style="list-style-type: none"> 1. Shape clay into ball. 2. Pound clay down into slab. 3. Press stamps into clay, experimenting with pressure, direction, massing, orientation 	<ul style="list-style-type: none"> • What kind of marks do you think the stamp/roller will make in the clay? • (Once stamped) Was that the kind of mark you expected? Why or why not? • Why would you use a stamp/roller to create a pattern rather than making each mark individually? • How does the mark change if you hold your stamp a different way (change the direction, add pressure)? • How does the pattern change if you impress them close together? Far apart?
3	Cut template to fit around pop can	<ol style="list-style-type: none"> 1. Trace around can base onto piece of paper for template 2. Wrap paper around can to measure and mark to make cylinder template 3. Cut paper templates for base and cylinder 	
4	Roll slab	<ol style="list-style-type: none"> 1. Roll slab, making sure it is larger enough to fit both templates 2. Focus on even rolling (can use 2 flat 1/2" sticks as guides) 	
5	Cut slab using template as guide	<ol style="list-style-type: none"> 1. Lay both paper templates on slab 2. Cut around perimeter of templates using fettling knife or pin tool 	
6	Impress design on slab knowing it will become vase	Impress/roll stamps with attention to placement on surface	<ul style="list-style-type: none"> • Where are you going to impress your texture onto your slab? • How will the design change when you construct your vase? What edges meet? • How can you use your stamp to emphasize different parts of the object/tile/vessel?
7	Assemble vase around pop can	<ol style="list-style-type: none"> 1. Using pop can as guide, roll slab around pop can. 2. Score and slip seam 3. Attach base using scoring and slipping 	<ul style="list-style-type: none"> • What should the lip of a vase look like? • How can you shape it so it feels finished?
8	Bisque		
9	Underglaze application on texture	<ol style="list-style-type: none"> 1. Brush underglaze over impressed designs 2. Let dry 3. Rub off with wet sponge 	<ul style="list-style-type: none"> • What do you notice when you wipe off the underglaze? • How does it change the impressions?
10	Glaze fire		
11	Reflection		<ul style="list-style-type: none"> • How does where you put your pattern change how you see the object/tile/vessel? What do you notice? • Does having stamps on the object/tile/vessel change how you feel about the object or what it could be used for?

Decorative Materials

Material	Description	Decorative techniques	Stage applied	Can combine with...	Source	Advantages	Low/Mid/High Fire
Slip	Colored liquid clay that is decoratively applied to the surface of a pot	<ul style="list-style-type: none"> Slip trailing Mishima/inlay Paper resist/stencils Sgraffito 	leather hard	<ul style="list-style-type: none"> underglazes washes/stains 	Commercial or individually mixed	Changes the color of the pot; used with many decorative techniques	Formulated for low, mid, and high fire. Need to use slip that corresponds with clay body and firing temp.
Engobe	Similar to slip but has more flux (melter). "Engobe" often used as synonym of "slip."	<ul style="list-style-type: none"> Same applications as slip 					
Underglaze	Can be used under clear glaze; can be used like like slip; can be used on top of texture and wiped off	<ul style="list-style-type: none"> Brush on wipe-off stamps/impressions Paper resist/stencils Brush onto bisque surface (under the glaze) 	leather hard, bone dry, or bisque	<ul style="list-style-type: none"> washes/stains slip 	Commercial	Consistent; commercially available; bright colors	All work at low-fire. Most at mid-fire. Some darker colors work at high-fire but need to be tested.
Washes/Stains	Metallic oxide or Mason stain combined with flux + water	<ul style="list-style-type: none"> Brush on wipe-off stamps/impressions Brush on top of raw glaze (over the glaze) Brush onto bisque surface (under the glaze) 	bisque; can be applied to bone dry work but takes more skill	<ul style="list-style-type: none"> slip underglazes 	Individually mixed in 1:1 ratio of Flux:oxide/Mason stain + water	emphasizes texture/impressions; strong color that will impact glaze color	Will work at any temperature and is not temperature specific.
Terra Sigillata	Finest particles of clay applied in layers and burnished to get glossy sheen	Good for raku, pit firing	bone dry	<ul style="list-style-type: none"> slip can be applied over terra sigillata so glossy/matte contrast like Maria Martinez 	Individually mixed	lightly seals surface; glossy sheen and doesn't cover up clay; historic connection	Low-fire only



Decorative Surface Material Definitions

Slip/Engobe

Material: A homogenous mixture of clay and water. Decorative slip differs from slurry used for joining pieces or produced in the process of throwing. Decorative slips are usually mixed from a recipe and have more flux (melter) than a slurry-slip which is just clay + water. They also often have a colorant added. “Engobe” is often used synonymously with “slip,” but technically, an engobe has more flux than a slip as sits between a slip and a glaze. Slip recipes are designed for specific temperatures (low, mid, high-fire) so that they melt in-unison with the clay body. Therefore, it is important to make sure you choose a slip that corresponds to your clay body and firing temperature.

Source: Slips are commercially available pre-mixed or in powdered format. Casting slips are different from decorative slips in they have a deflocculant added which makes the slip behave differently. While it is possible to use a casting slip to decorate, it can cause problems, and it is probably best to purchase only a true decorative slip for classroom use. It is much cheaper to mix a slip by measuring recipe of dry chemicals than to purchase it pre-mixed. This is easy if you have a gram scale, and there are many recipes online for decorative slips at every temperature.

Mixing: Slips can be the same color as a clay body or they can be colored with oxides or Mason Stains to create a color that contrasts with the clay body. The most often used slip is a white slip to cover a red, low-fire, terra-cotta clay body in order to get a white ground. To mix a slip, measure ingredients, add water, sieve, let stand for 24 hours for full water saturation. To mix colored slips, start with a white slip recipe and add Mason Stains or metallic oxides to the slip base. To get light pastel color, add 5% Mason Stains. To get a more saturated color, add up to 20% Mason Stains. Metallic oxides can also be added to color slip, however, the percentages vary from oxide to oxide. In general, oxides are much stronger than Mason Stains and should be used from 2-6% in slips.

Use: Slips are used with a variety of decorative techniques, including sgraffito, slip trailing, paper resist/stenciling, and inlay/mishima.

Application: Slip is usually applied to leather-hard ware before it is bisque fired. There are slips recipes designed to be applied to bisque ware, but they have to be specially formulated for shrinkage. Common examples of these are “flashing slips” applied to bisque ware for wood firing.

Artists often manipulate the consistency of slip through adding a deflocculant or flocculant. This will affect the look of the slip after it is applied. A few drops of saturated solution of epsom salts and water can be added to a slip to flocculate or thicken it. Darvan 7 or Sodium Silicate can be added to a slip recipe when it is initially mixed to deflocculate it or make it appear fluid without adding a lot of water.

Wash/Stain

Material: A solution of a metal oxide and water. Often a flux is added to this mixture to help with melting and adhering to clay body.

Source: Not commercially available, but easy to mix by hand.

Mixing: Mixed by measuring 50/50 by volume (1 tsp./1 tsp.) of metallic oxide/Mason Stain to flux. For a flux, most people use Gerstley Borate, Gillespie Borate or Frit 3124. Water is added to the powdered chemicals until it is fluid and brushable.

Use: Can be used to highlight impressed designs and create color contrast. Wash/stain is brushed on surface and sponged off so it remains only in recessed areas. Also used in combination with glazes to create color variation or used with brush to paint an image. Washes/stains are very strong concentrations of colorants and in many ways can be used as a very strong underglaze. Washes/stains can also be used over glazes. A common technique is brushing a rutile stain over Tenmoku (iron saturate glaze) to create an amber line.

Application: May be used under or over a glaze. Usually used on bisque ware but can be used on green ware if careful. Washes are very strong and concentrated. If used too heavily, all washes/stains will look black regardless of the color. Because the metallic oxides are very concentrated, you should always use gloves when handling washes/stains.



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Underglaze

Material: Underglazes are an oxide(s) combined with a small amount of flux (melter) that binds them to the clay body and integrates them with the glaze. Underglazes also have gums added to them which make them very brushable. Underglazes gain their full color with the 'wetting' action of the covering glaze.

Source: Commercially available. Purchased wet-mixed in 4 or 16 oz. bottles from ceramic supplier.

Use: Underglazes are used for their intensity, a wide range of color, and stability of that color. They are most often used as low temperatures (cone 04), but some colors (darker colors with cobalt, chrome, copper as dominant oxide) are still effective at cone 10 temperatures. Underglazes are used much like slips to add color to a ceramic surface. They can also be used instead of stains/washes to highlight impressed designs. They can also be used in a painterly way and combined with other colors (although it is often hard to tell the intensity and hue of the color before firing).

Application: Underglaze can be applied to pieces before or after bisque firing. They should be applied under a glaze (not on top). They are a very uniform and stable decorative material and the raw color you see is dull but similar to the fired color. Often, several layers of brushed underglaze are needed to get an opaque and uniform color. Underglazes are often used in classroom settings because they are commercially available, easy to use, come in a broad range of colors, provide an intense saturated color, can be applied to both green and bisque ware, and are easy to clean up. However, they are expensive!!

Terra Sigillata

Material: A liquid suspension of the finest particles of clay that is applied to a bone dry pot. If polished or burnished just after application, may give a high gloss. Acts as a seal or porous clay, making it less prone to absorb moisture. All ancient Greek red-black pottery, Roman red wares, and most Native American pieces were finished with terra sigillata, without the use of glaze. Many contemporary potters who work in earthenware use terra sigillata to seal the foot of their pots.

Source: Individually mixed. Not available commercial. To mix = deflocculant + wet + dry materials, blunge, let sit for 2-3 days, siphon off fine-particle mixture. The color of the terra sigillata is determined by the color of the clay used. Most terra sigillata are red, buff or white. However, white terra sigillata (mixed from EPK or OM4 ball clay) can be tinted by adding Mason Stains.

Use: Does not make a piece food safe nor vitreous. Does not work above cone 04 since the molecular structure changes at high fire, destroying the glossy sheen. Does not work under a glaze but will be dissolved by glaze over it. Terra sigillata works very well with pit/sawdust firing techniques.

Application: Apply to bone dry clay. Usually 3+ coats are needed. Often burnished with a rock, spoon or cloth to help get sheen. Burns out at cone 04 and above.