# Hump-mold bowl

## Art Curriculum Matrix: K - 6

<table>
<thead>
<tr>
<th>Project</th>
<th>Construct hump-mold bowl with attached coil foot and exterior texture/stamping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>K-6</td>
</tr>
<tr>
<td>Content/theme</td>
<td>The relationship between bowl elements and how form affects function</td>
</tr>
<tr>
<td>Objectives</td>
<td>• Understand and identify elements to structure of bowl form (foot, lip, belly)  &lt;br&gt;• Understand how height and width of foot change how bowl may function/perception of bowl  &lt;br&gt;• Construct bowl over hump mold with attached coil foot  &lt;br&gt;• Explore texture/stamping on bowl exterior  &lt;br&gt;• Consider how bowl form affects its function</td>
</tr>
<tr>
<td>Essential Questions</td>
<td>• What are the names for different parts of a bowl?  &lt;br&gt;• What is the relationship of a bowl to a sphere?  &lt;br&gt;• How does a foot change the way a bowl form is seen? Its function? How does the shape of the bowl relate to/affect its function?</td>
</tr>
<tr>
<td>Demos/Skills</td>
<td>Rolling slab  &lt;br&gt;Draping slab over form  &lt;br&gt;Cutting away excess clay  &lt;br&gt;Texturing/stamping exterior of bowl form  &lt;br&gt;Rolling coil and attaching foot</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>slab  &lt;br&gt;coil  &lt;br&gt;hump-mold  &lt;br&gt;texture  &lt;br&gt;lip/rim  &lt;br&gt;foot  &lt;br&gt;belly  &lt;br&gt;volume  &lt;br&gt;form</td>
</tr>
<tr>
<td>Artist/Culture References</td>
<td>Anne Mette Hjørtshøj  &lt;br&gt;Ann Charlotte Olsen  &lt;br&gt;Gerd Peterson  &lt;br&gt;Vibeke Krog  &lt;br&gt;Alev Siesbye</td>
</tr>
<tr>
<td>Materials</td>
<td>Clay (2-3 lbs. per student)  &lt;br&gt;Rolling pins  &lt;br&gt;Fettling knives  &lt;br&gt;Texture/stamping tools  &lt;br&gt;Scoring tools  &lt;br&gt;Water or slip for attaching coil  &lt;br&gt;Paper bowls for draping slab over (hump mold)  &lt;br&gt;Thin plastic for covering projects to slow drying process</td>
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</table>
### Process

#### Prep Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Steps</th>
<th>Dialogue</th>
</tr>
</thead>
</table>
| Look at bowls | Display several bowls with different shapes, lining them up so students can see the profiles | - Let’s name all the parts of the bowl  
- Why do you think a rim is called a lip?  
- Why do you think we use body names, like foot, for different parts of the bowls?  
- What do you notice is different about these bowl shapes when you look at them side by side?  
- Which bowl do you think would be best to eat cereal out of? Why?  
- Does anyone eat chips and salsa? Which bowl would be best for holding salsa and why?  
- How about a candy bowl?  
- How does the shape of the bowl affect what you would want to use the bowl for? |

#### Construction

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<tr>
<th>Activity</th>
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</table>
| Roll clay slabs | 1. Roll slab, trying to make it round and about 2-3 inches larger than the rim of the bowl  
2. Focus on even rolling (can use 2 flat 1/2” sticks as guides) | - What helps in rolling an even slab?  
- Is it better to do small tiny rolls or large rolls?  
- Does turning the slab help? Why? |
| Cut slab in a circle, using upside down bowl | 1. Place bowl upside-down in center of slab  
2. Cut around perimeter of bowl using fettling knife or pin tool | - How deep or shallow do you want your bowl to be?  
- Do you want a straight rim, a wavy rim, a pokey rim? Can you imagine what shape your rim will be when you flip your bowl upright? |
| Drape bowl | 1. Carefully drape slab over bowl form  
2. Press clay down gently to conform to shape  
3. Cut away clay to form a rim | - What kind of marks do you think this tool will make in the clay?  
- Was that the kind of mark you expected?  
- Why or why not?  
- How does the mark change if you hold your tool a different way (change the direction, add pressure)? |
| Add texture/stamping to exterior of bowl | Apply texture/stamps to clay, experimenting with pressure, direction, massing, orientation | - What kind of marks do you think this tool will make in the clay?  
- Was that the kind of mark you expected?  
- Why or why not?  
- How does the mark change if you hold your tool a different way (change the direction, add pressure)? |
| Attach coil foot | 1. Roll coil  
2. Lay coil on top of bowl to determine the diameter of the foot  
3. Mark, cut, and attach 2 ends of coil together to form a ring  
4. Score and slip coil to attach | - How deep or shallow do you want your bowl to be?  
- Do you want a straight rim, a wavy rim, a pokey rim? Can you imagine what shape your rim will be when you flip your bowl upright? |

Drying- let bowls dry upside down on top of forms overnight-2 days. Cover lightly with plastic to diminish cracking between the bowl and foot.

#### Analysis

<table>
<thead>
<tr>
<th>Activity</th>
<th>Steps</th>
<th>Dialogue</th>
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</thead>
</table>
| Discuss bowls either before (greenware) or after (glazed) firing | 1. Brush underglaze over impressed designs  
2. Let dry  
3. Rub off with wet sponge | - How does texture/stamping change the feeling between the outside and inside of the bowl?  
- Does a bowl with a big foot feel different from a bowl with a small foot? Narrow vs. wide?  
- How does adding a foot change how you would use a bowl and what you would use it for?  
- What kind of food would work best in your bowl? Why? |
Bowl Forms & Feet Types
Japan

**Types of Foot**

<table>
<thead>
<tr>
<th>Janome kodai</th>
<th>Wa kodai</th>
<th>Mikazuki kodai</th>
<th>Tokin kodai</th>
<th>Nijū kodai</th>
</tr>
</thead>
<tbody>
<tr>
<td>「目高台」(目高台)</td>
<td>「リングフット」</td>
<td>「ヘルメットフット」</td>
<td>「ヘルメットフット」</td>
<td>「二重高台」</td>
</tr>
<tr>
<td>「目高台」</td>
<td>「リングフット」</td>
<td>「カズキフット」</td>
<td>「二重高台」</td>
<td>「二重高台」</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Uzumaki kodai</th>
<th>Kajiri kodai</th>
<th>Tokenofushiki kodai</th>
<th>Wari kodai</th>
<th>Warijumonji kodai</th>
</tr>
</thead>
<tbody>
<tr>
<td>「渦巻高台」</td>
<td>「ケジリ高台」</td>
<td>「に行って高台」</td>
<td>「わり高台」</td>
<td>「わりじゅんまい」</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bachikodai</th>
<th>Kiri kodai</th>
<th>Kiryōmonji kodai</th>
<th>Kugibori kodai</th>
<th>Chirimen kodai</th>
</tr>
</thead>
<tbody>
<tr>
<td>「ばち高台」</td>
<td>「切り高台」</td>
<td>「きりじゅんまい」</td>
<td>「くぎはら高台」</td>
<td>「ちりめん高台」</td>
</tr>
</tbody>
</table>

*most common type*
Common Trimming Faults

Problems generally arise from trying to turn pots while the clay is in an inappropriate condition. If it is too soft, the process will cause the form to distort badly. If too dry, the pots will tend to be dislodged by the force needed to cut into the clay, ending up cracked or spoiled.

A classic example is illustrated below: the curve of the outside wall (A) does not follow the line of the interior. This creates an uneven thickness (B) and a weak point (C), where the pot may be cut through or left so thin that it may crack or slump in the kiln. The thickness and weight of the foot-ring make it too square (D) and bulky (E) in relation to the bowl's size. Inside the foot-ring, the base has been trimmed too flat, again failing to follow the interior shape and causing a distortion (F).

Mark the base and outer wall of your bowl for trimming away excess clay to create the turning a foot-ring.
Bowl Resources

Books

• A Potter’s Workbook, Clary Illian, whole book is useful but especially chapter “Bowls”
• Functional Pottery, Robin Hopper, whole book is useful, but especially pp. 133-137, 154-157, 183-4
• Ceramics, Phillip Rawson, chapter “Expression of Shape.” Excellent but a bit esoteric book on ceramics. A classic for in-depth discussion.
• The Art of the Table, Suzanne Von Drachenfels, Chapter 7, “Bowls: Large to Small.” Discussion of different bowl forms, historic development of each form, and their use in dining.

Videos

• Simon Leach (grandson of Bernard Leach), “Trimming a bowl”
  https://www.youtube.com/watch?v=7NJTOZZ9MaY
• Ben Carter, “Excellent Advice for Not Trimming Through Pots”
  https://www.youtube.com/watch?v=_uXm3P49q4E
• Lorna Meaden, “How to Throw a Large Porcelain Bowl Without Collapsing it”
  https://www.youtube.com/watch?v=Cb0-EwWfG1k
• “How to create a textured slab bowl over a plaster mold”
  https://www.youtube.com/watch?v=zrVjdnGVEMw
• Kari Radasch, “How to Handbuild a Stacked Dish Using Bisque Hump Molds”
  https://www.youtube.com/watch?v=cUZcDEyuq3E

Articles

• “Tips for Trimming Bowls on the Pottery Wheel”
  http://ceramicartsdaily.org/clay-tools/pottery-trimming-tools/tips-for-trimming-bowls-on-the-pottery-wheel/
• Creating Forms with Hump Molds, Steve Howell
  http://ceramicartdaily.net/booksales/ExtMoldTileHowell.pdf

Bowl Graphics

• Illustration of tea bowl shapes and feet
  http://flyeschool.com/content/japanese-tea-bowl-shapes
• Illustration of non-traditional feet on pinch bowls
  http://larkcrafts.com/wp-content/uploads/2014/02/feet1.png
Online Lesson Plans

• Lesson plan on throwing and trimming bowls
  “Serving Bowls – Continuation or Completion
  http://ceramicartsdaily.org/education/college-level-ceramics-assignment-serving-bowls-continuation-or-completion/

• Lesson plan on hump molded bowl with stamps
  “Making an Impression,” Nancy Zoller

• Empty Bowl Rubric
  http://www.slideshare.net/ColleenDowling/empty-bowls-41972467

Contemporary Minnesota-ish Potters who make bowls from the NCC Collection

• Lisa Buck
  https://lisabuckpottery.com

• Guillermo Cuellar
  http://www.guillermopottery.com

• Mike Helke
  http://mikehelke.com/home.html

• JD Jorgenson
  http://jdjorgensonpottery.com/home/

• Warren MacKenzie
  http://warrenmackenziepottery.com

• Alleghany Meadows (not MN, but great bowls)
  http://www.art-stream.com/exhibiting-artists/alleghany-meadows/

• Steve Rolf (Western WI)
  http://www.scrolfpotter.com/index.html

• Pete Scherzer (formerly MN)
  http://petescherzerpottery.com/home.html
Bowl & Rim Profiles
Late Iron Age, Roman Pottery

Area L
Roman New Forms Infrinsics continued
# Decorative Materials

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
<th>Decorative techniques</th>
<th>Stage applied</th>
<th>Can combine with...</th>
<th>Source</th>
<th>Advantages</th>
<th>Low/Mid/High Fire</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Slip</strong></td>
<td>Colored liquid clay that is decoratively applied to the surface of a pot</td>
<td>• Slip trailing&lt;br&gt; • Mishima/inlay&lt;br&gt; • Paper resist/stencils&lt;br&gt; • Sgraffito</td>
<td>leather hard</td>
<td>• underglazes&lt;br&gt; • washes/stains</td>
<td>Commercial or individually mixed</td>
<td>Changes the color of the pot; used with many decorative techniques&lt;br&gt; Formulated for low, mid, and high fire. Need to use slip that corresponds with clay body and firing temp.</td>
<td></td>
</tr>
<tr>
<td><strong>Engobe</strong></td>
<td>Similar to slip but has more flux (melter). “Engobe” often used as synonym of “slip.”</td>
<td>• Same applications as slip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Underglaze</strong></td>
<td>Can be used under clear glaze; can be used like slip; can be used on top of texture and wiped off</td>
<td>• Brush on wipe-off stamps/impressions&lt;br&gt; • Paper resist/stencils&lt;br&gt; • Brush onto bisque surface (under the glaze)</td>
<td>leather hard, bone dry, or bisque</td>
<td>• washes/stains&lt;br&gt; • slip</td>
<td>Commercial</td>
<td>Consistent; commercially available; bright colors&lt;br&gt; All work at low-fire. Most at mid-fire. Some darker colors work at high-fire but need to be tested.</td>
<td></td>
</tr>
<tr>
<td><strong>Washes/Stains</strong></td>
<td>Metallic oxide or Mason stain combined with flux + water</td>
<td>• Brush on wipe-off stamps/impressions&lt;br&gt; • Brush on top of raw glaze (over the glaze)&lt;br&gt; • Brush onto bisque surface (under the glaze)</td>
<td>bisque; can be applied to bone dry work but takes more skill</td>
<td>• slip&lt;br&gt; • underglazes</td>
<td>Individually mixed in 1:1 ratio of Flux:oxide/Mason stain + water</td>
<td>Emphasizes texture/impressions; strong color that will impact glaze color&lt;br&gt; Will work at any temperature and is not temperature specific.</td>
<td></td>
</tr>
<tr>
<td><strong>Terra Sigillata</strong></td>
<td>Finest particles of clay applied in layers and burnished to get glossy sheen</td>
<td>Good for raku, pit firing</td>
<td>bone dry</td>
<td>• slip can be applied over terra sigillata so glossy/matte contrast like Maria Martinez</td>
<td>Individually mixed</td>
<td>Lightly seals surface; glossy sheen and doesn’t cover up clay; historic connection</td>
<td>Low-fire only</td>
</tr>
</tbody>
</table>
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.
**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.