

Name Key Period _____

Ceramics Study Guide (turn in the day of the test for points)

History of Ceramics and Vocabulary Terms

1. The first evidence of the use of clay date bate to the Paleolithic people 30,000 years ago.
2. They made baskets and reinforced them with what they thought was "mud" but actually it was clay. When they became corroded they would throw them into the fire.
3. The baskets would burn but the "mud" would harden.
4. 3 different types of clay are:
 - a. earthenware
 - b. stoneware
 - c. porcelain
5. After clay is fired it becomes ceramic

The 3 Properties of Clay are:

1. Plasticity:

- a. Clays workability is directly related to the amount of water in the clay
- b. If Clay is too plastic you can wedge it or let it dry out.
- c. If clay is not plactic enough you can add water

2. Porosity:

- a. Clays ability to hold or absorb water

3. Shrinkage:

- a. As water evaporates from the clay, the clay particles start to come closer together creating shrinkage.
- b. It shrinks 3 times
- c. - Greenware / Boneydry

d. - bisque fire

e. - glaze fire

4. Problems associated with shrinkage:

a. new clay cannot be added at ~~some~~ ^{different} stages

b. must ~~cross hatch~~ score and slip well or it will fall apart

c. different thickness will make it crack.

How do we use ceramics in our daily life?

1. Historic uses:

2. Modern uses:

There are 5 stages of Clay

1. Wetware:

a. Most plastic and may be used & reused to form different shapes

b. Easiest stage for:

i. - Potter's Wheel

ii. - Rolling out slabs

iii. - coil building

2. Soft Leather Hard:

- a. Lost some plasticity.
- b. Clay is dried to the point of stiffening up like leather, but still somewhat flexible.
- c.
- d. Best Stage For:
 - i. - Alterations
 - ii. - Trimming
 - iii. - Assembling
 - iv. - Stamps
 - v. - Carving

3. Leatherhard

- a. Stiff enough to better support its own weight. TOO stiff for finger prints or severe flexing.
- b. Best stage for:
 - i. - precision cutting
 - ii. - Carving details
 - iii. -decorative slip
 - iv. -single- fire glazes (engobe and underglaze)
 - v. -removing armatures (supporting device while sculpting)
 - vi. - burnishing
 - vii. - clean up & final preparations before firing

4. Greenware aka Bone Dry

- a. Completely lost all plasticity, completely dried, and ready to be bisque fired.
- b. This is the MOST fragile stage, so be careful when handling

your project.

- c. If your project breaks at this stage, it is nearly impossible to fix.
- d. Best stage for bisque firing or recycling

5. Bisqueware

- a. Clay has been fired for the first time. It will become hard but can still hold moisture but will not deteriorate.
- b. Best stage for:
- applying glaze
 - high fire
 - alternative surface treatment
- c. Broken pieces cannot be repaired or recycled.

6. Glazeware

- a. clay has been fully vitrified (to change or make into glassy substance or a hard material through heat fusion)
- b. Glaze has been fired
- c. Final stage. Enjoy it or destroy are the only options.

3 Keys to attaching clay

- Score: cuts that allow moisture to penetrate into the clay.
- Slip: mixture of clay and water
- Pressure: What makes the clay "stick"
- Looting (optional): "Taking/stealing" clay from one piece and blending it with the other.

Building Technique

1. Pinch Pot

- simplest technique
- can be used in combination with other methods, primarily modeling

2. Modeling

- a. Building the clay up by adding and possibly subtracting methods.
- b. Most projects use at least some modeling.
- c. with or without an armature.
- d. If built solid, clay will need to be hollowed out while leather hard.

3. Coil

- a. Building up a form using small coils of clay
- b. Often used in conjunction with paddling and sometimes modeling.

4. Slab Construction

- a. Easiest way to make "walls" for containers or sculpture pieces.
- b. Usually with an armature.
- c. Requires GOOD joint attachment.
- d. Walls can be straight, curved, bent, twisted, etc.

5. Casting

- a. Clay is formed using a mold
 - i. a mold is a negative form
 - ii. clay is pressed or poured into the mold
 - iii. Once it becomes stiffer, the clay is removed
- b. Molds are great for making repeated pieces.
- c. Can be straight cast or "cast and altered".
- d. Different types of molds: slip casting, press mold, and multi part single piece molds.

6. Throwing on a Potter's wheel

- a. takes LOTS of practice

- b. Makes forms very quickly
- c. Works great for functional pottery: vases, bowls, cups, plates, etc.
- d. Can be "straight thrown and thrown and altered"

General Rules of Clay

- NO THICKER than 1/2" (the thickness of your thumb) in at least one direction.
- Clay thinner than 1/8" becomes very fragile, especially while _____.
- Clay fired while still wet will explode
- Trapped air pockets will cause clay to capture moisture and crack/explode in the kiln.

Terminology you should know

Slip:

clay and water

In liquid form

Can be used for casting, joining or decorating (slip trail)

Kiln

a thermally insulated chamber, a type of oven, that produces temperatures sufficient to complete some process such as hardening, drying or chemical change (glaze).

Most kilns reach temperatures of 1800 F. High fire can reach temperatures of 2400 F.

Dry Footing

leaving the bottom of bisque fired clay glaze-free so the glaze does not stick to the kiln in firing.