

# Stages of Clay and Clay Vocabulary




*Sculpting Hands*


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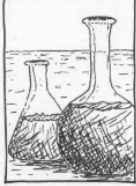
# Clay

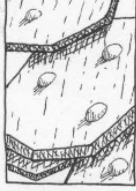
Fine grained, firm, earthy material that is plastic when wet, brittle when dry and very hard when heated.


**WHAT IS CLAY?**

 Clay is a product from the earth that when heated becomes hard.

 Geologically, clay comes from decomposed rock. It is typically carried by water and settles together in a particular area where it is mined.

 Chemically, clay is a combination of Alumina, Silica, and water:  
$$\text{Al}_2\text{O}_3 \cdot \text{SiO}_2 \cdot 2\text{H}_2\text{O}$$
along with other minerals.

 Physically, clay's crystal structure is that of tiny sheets with water between them. The sheets are held together by suction but can slide past each other like a deck of wet playing cards.

 Heat causes the clay to harden. At  $600^\circ\text{C}$  the water is driven off and leaves a bonded alumina silicate structure. Further heat,  $800^\circ\text{C}$ , causes melting of the free silica and other materials into a vitrified, or glass like, substance.

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# Clay

- Clay often has to be sifted to remove impurities such as rocks, pebbles, sand, twigs, branches and roots.
- Most potters today do NOT mine their own clay





# Types of Clay

★ Earthenware - Most common type of clay found; highly plastic and sticky. Often contain iron (making them red in color) and other impurities. Low-fire.

Stoneware - Very plastic and often gray when wet. Can be mid- or high-fire.

Ball Clay - Highly plastic and contain very few mineral impurities. High-fire.

Fire Clay - Free of impurities, often used in other clays to give extra roughness or "tooth." High-fire.

Porcelain - Not very plastic and can be difficult to work with. SUPER high-fire (3200 degrees!)

# Slip

Potters glue. Slip is used to join clay to clay and as decoration. It is the consistency of toothpaste when used like glue. Slip is made of clay and water.



# Plastic

Term used to describe working clay that can be bent and shaped without cracking or breaking

- To test the plasticity of clay, wind a small coil of clay around your finger, if it breaks, it is not plastic enough.



Not plastic enough



# Wedge

Kneading clay in order to remove all air bubbles.

Ram's Head  
Wedging Technique



# Leatherhard

The condition of a clay body that has dried somewhat but can still do be joined to other pieces or carved into. There are three stages:

1. Early - Still able to move clay without cracking or damage.
2. Middle - Can no longer mover clay without cracking or damage. Good time to create texture or carve into clay.
3. Late - Clay is still cool to touch, good time to do detail carving, clean edges, fine tune, etc.





# Drying

Once your piece is finished, allow it to dry.

Slow drying is best because it allows the moisture to escape more evenly from all parts at the same time.

Clay that dries too quickly may warp or crack.



# Greenware

Clay that has completely dried and is ready to be fired in the kiln.

- Sometimes this stage is called bone-dry.
- Greenware is VERY fragile at this point.



# Kiln

Super hot oven that is used to heat the clay to make it permanent. Reaches temperatures over 2000 degrees!

- Earthenware is a LOW fire clay - it fires at about 1850 degrees.





# Firing

Heating clay to make it permanent.



# Bisque Firing


First firing of unglazed ware at low temperature. Removes all moisture and makes the clay easier to handle.


- ★ Bisqueware - the term for clay that has been fired once.

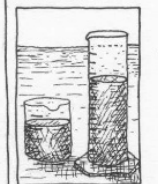
# Glaze


A combination of minerals that is applied to the surface of bisque ware and forms a glassy coating when heated.


**WHAT IS GLAZE?**

 A glaze is a glassy surface covering. It makes the pot waterproof and adds decoration.

 Geologically, the major components of a glaze come from the same place as clay. However, some of the lesser materials may be mined from a variety of sources.

 Chemically, you'll find 3 major compounds in a glaze: Silica, Alumina, and a Flux. These occur in various proportions along with other substances that give color.

 Heat causes the glaze ingredients to melt and form a glass. The Silica melts to a glass. The Flux allows the silica to melt at a lower temperature. The Alumina keeps the molten glass from flowing off the pot.

 The look of the glaze, its color and opacity, depend on the proportion of the 3 main ingredients, the additional colorants, and the firing of the kiln.

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# Applying Glaze

- 2 Functions of glaze
  - seal
  - decorate
- 4 Most Common methods of Glazing:
  - Brushing\*
  - Pouring\*
  - Dipping
  - Spraying
- For best coverage, apply 2-3 thick coats of glaze!



# Pinch

Creating a piece of pottery by pinching and molding a solid piece of clay with your fingers/hands.



# Slab

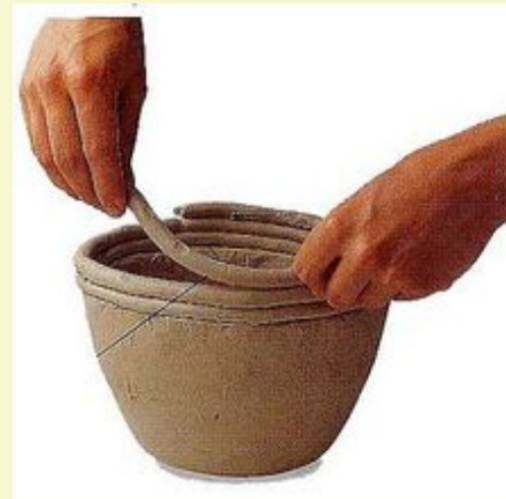
Type of clay construction where rolled out or flattened slabs (or squares) of clay are scored and slipped in order to attach them together.





# Coil

Clay hand-building technique that uses rope-like pieces of clay to form the pot. Once the desired size has been reached, coils can either be smoothed out or left showing.



# Wheel Thrown

To form ceramic ware on a potters wheel.

