SCULPTURE: DEFINITION & TECHNIQUES

What is sculpture? The word sculpture originates from the Latin word sculpere, which means “to carve”. It is the art or practice of creating three-dimensional forms or figures. Sculptures can be free-standing or "in the round" (able to be viewed from all sides) or they can be in relief (form is carved or modeled from a flat background plane).

Basic Sculptural Techniques

MODELING
Modeling is the process of manipulating soft materials that can be shaped by the sculptor’s hands to create a three-dimensional form. Because the artist adds materials to build the sculpture, modeling is an additive process. Media for modeling include clay, plaster, papier-maché, and wax.

CARVING
Dating from pre-historic times, carving is a process in which the artist subtracts or cuts away from a solid material to reach the desired form. Because the artist subtracts to reveal the sculpture, carving is a subtractive process. It can be a very painstaking and time consuming method because of its unforgiving nature – once a piece is carved off the solid form, it cannot be put back! Artists make carvings from a variety of materials, from traditional media such as stone, wood, and clay, to nontraditional media such as soap and chocolate.

CASTING
Casting is the method of making a mold and casting it in a durable material such as bronze. The two most commonly used methods of casting are sand casting and the cire-perdue or “lost wax” process. Sand casting refers to the process of making a mold in sand by digging a pattern into it and then pouring molten material (such as metal or wax) into the mold, waiting for the molten material to harden, and then removing the cast from the sand. Lost wax refers to the process of creating the sculptural form in wax, then covering the wax with a ceramic shell, then pouring molten metal into the ceramic shell, and then breaking off the ceramic shell once the metal has cooled.

CONSTRUCTION & ASSEMBLAGE
Emerging in the twentieth-century, the techniques of assemblage and construction consist of combining and joining various materials to form a three-dimensional object. These methods originated from the technique collage, which was popularized by the Cubists during the early part of the twentieth century, in which artists cut and pasted pre-existing materials (such as newspaper clippings) to create their art. Assemblage often includes combining pre-existing or found objects to create the sculpture.
LINE & SILHOUETTE

Line is the path of a moving point. In sculpture, the most important kind of line is contour line, or the outline that forms the edges of the sculpture to create its silhouette. If the sculpture is composed of one solid form, the silhouette will be solid; if the sculpture is composed of multiple forms or has empty space within it, the silhouette will be more complex, with more contour lines creating it.

The characteristics of a sculpture’s contour lines determine the shape and feeling of its silhouette. Characteristics of contour lines include:

- **Width**: thick, thin, tapering, uneven
- **Length**: long, short, continuous, interrupted
- **Direction**: horizontal, vertical, diagonal, perpendicular, parallel, radial
- **Focus**: sharp, blurry, fuzzy, choppy
- **Feeling**: sharp, jagged, graceful, smooth, curved, zigzag

FORM & SPACE

A form is three-dimensional – it has height, width and thickness. Because sculptures are by nature space-occupying and three-dimensional, they are forms. While less knowledgeable viewers may refer to sculptures as having shape, in reality, they have form. Shapes are flat, or two-dimensional; forms are three-dimensional. There are two types of forms: (1) geometric forms, or forms with names, such as spheres, cubes, cylinders, cones, and pyramids; and (2) organic forms, or irregular forms with no names that may appear to have grown from nature.

**SPACE** refers to the area between, around, above, below, or within elements in a work of art.

Positive space is the part of the work that is filled with subject matter – the actual physical forms making up the sculpture.

Negative space is the empty space around and/or above, below, or within the sculpture. All sculptures have negative space surrounding them; only sculptures with hollows and voids within them have negative space intermixed with positive space within the form of the sculpture.

BALANCE & ORIENTATION

The balance of a sculpture has two aspects. First, the sculpture must have actual physical stability. This can be achieved by natural balance—that is, by making the sculpture stable enough in itself to stand firmly. Certain sculptural forms have natural balance (e.g. four-legged animals, bottom-heavy forms), while others (single-legged, or long and thin, form) must be secured to a base or suspended from supports.
The second aspect of balance is **compositional**, that is, having to do with aesthetics (i.e., whether it looks good or not). This type of compositional balance refers to the way the elements of a piece of art are arranged to be **visually appealing** and to create a **static** feeling (lack of movement) or a **dynamic** feeling (movement).

Forms in a sculpture take on **visual weight or dominance** in the piece. The more weight or dominance a particular part of the sculpture has, the more attention the viewer pays to that part of the sculpture. There are 3 main types of balance:

(a) **symmetric balance**, in which the sculpture can be divided evenly in half by one axis  
(b) **asymmetric balance**, in which the two sides of the sculpture are different  
(c) **radial balance**, in which the sculpture is in a spherical arrangement (e.g. a starburst)

**Orientation** (from Latin orien,s, orientum, meaning “the rising sun”) is the arrangement of the sculpture in space. This includes the direction of the sculpture relative to the ground and its placement in its environment, such as which part of the sculpture will be the top and which will be the bottom.

**SCALE & PROPORTION**

**Proportion** refers to how big each part of the sculpture is relative to the other parts. Use of proportion differs considerably among sculptors. Some sculptors use mathematical systems of proportion; for example, classical Greek sculptures were very preoccupied with the refinement and idealization of natural human proportions. In contrast, African and other tribal sculptors base the proportions of their figures on the subjective importance of the parts of the body (e.g. the head of an African figurative sculpture is proportionally larger than the rest of the body, pictured on the left). Some artists use intentionally unnatural proportions for expressive purposes or to make a sculpture better fit its surroundings.

The **scale** of a sculpture refers to its size relative to the size of its surrounding environment. Because viewers automatically relate the scale of sculpture to their own human size, the emotional impact of a colossal figure and a small figurine are quite different. Artists are aware of this difference and may intentionally manipulate scale to better communicate their ideas. For example, they may intentionally distort the scale of the forms in their sculptures, such as by turning normally small objects into massive sculptures, or by shrinking normally large objects to fit a small sculptural environment.
TEXTURE


TEXTURE is the way something feels when you touch it. In art, there are two kinds of texture: (1) real texture and (2) implied texture. Real texture is the actual surface quality of the work of art, or how the actual sculpture would feel like if you touched it. The materials the artist used to construct the sculpture determine the real texture of the piece (e.g., metal creates a smooth, hard real texture; fabric creates a soft real texture). Implied texture is the illusion of texture that an artist creates to simulate the texture of objects in real life (e.g., realistic hair, brick, or leaves in paintings and drawings). Because sculptures are made of physical objects, real texture is far more common than implied.

LIGHT, VALUE & COLOR


Value is the lightness or darkness of a color. Artists create the different values of a color by mixing its shades and tints. Shades are a color’s dark values; they are typically made by mixing the color with black. Tints are a color’s light values; they are typically made by mixing the color with white. In sculpture, value is often created by the way light hits and/or passes through the piece. Value makes objects or spaces in artworks look 3-dimensional, thereby creating the illusion of space (a.k.a. perspective). Value contrast is the difference between the shades (dark values) and tints (light values) in a piece of art; with enough value contrast, the piece is eye-catching (passes the squint test) and appears three-dimensional.

Color is the way light waves are absorbed or reflected by everything around us. White light consists of all of the colors mixed together. A rainbow is white light that is broken apart by the moisture in the air. The way we see the color of an object depends on how it absorbs and/or reflects light. For example, if an object absorbs all wavelengths except red, we see it as red. Artists use different pigments (colored powders) to imitate the colors of light. Artists use the color wheel to organize visually how our eyes interpret colors when we use them in different combinations. The color wheel shows the primary colors – red, yellow, and blue – which cannot be mixed, and the secondary colors – orange, green, and purple – which are made by mixing two primary colors. It also shows the complementary color pairs, or the colors that sit opposite each other on the color wheel (red-green, yellow-purple, and blue-orange) and the warm (red, orange, yellow) and cool (green, blue, purple) colors. The color wheel helps artists think about color contrast, which helps make artwork eye-catching.

In sculpture, artists must consider not only the values and colors they choose to put within the form of the sculpture itself, but also how the value and color of the sculpture relate to its environment. Without enough value and/or color contrast between the sculpture and its environment, viewers will not notice the artwork!
MOVEMENT & EMPHASIS

Movement in art has two definitions: (a) the arrangement of visual elements to cause the viewer’s eyes to move over the artwork in a specific direction, sequence, or pattern; (b) the illusion of motion in a piece of art. A sculpture with a strong use of movement will guide the viewer’s eyes throughout the entire piece. Meanwhile, a sculpture with the illusion of motion will give the viewer a sense that the form in the sculpture is dynamic (moving), as opposed to static (still).

Emphasis refers to the creation of focal points, which are the part(s) of the sculpture that take on the most visual weight or dominance (relating to balance), demanding the most visual attention. Focal points pull the viewer’s eye to important parts of the work; therefore, they determine the way the viewer’s eyes move around the piece (relating to movement). The primary focal point is the first element the viewer notices in the piece, and is the part of the piece that demands the most attention; secondary focal points are what the viewer notices after noticing the primary focal point, and are the second-most emphasized parts of the work.

Artists create focal points by using the following elements and principles: isolation, scale, color and/or value contrast, location in the piece, direction of lines or forms, etc.

PATTERN & RHYTHM

Pattern is the repetition of elements within a piece of art (forms or colors, for example). The principle of pattern is closely related to several other principles of design: movement, unity, emphasis, rhythm, and balance. Thus, when analyzing the principle of pattern in a piece of art, one must also consider how pattern relates to the other principles of design at work in the piece.

Left: the illusion of motion (dynamism)

Eduardo Chillida. How profound is the Air (Lo profundo es el aire), 1996. Alabaster.


Rhythm is a visual tempo or beat. Artists create rhythm by carefully placing repeated elements which make the viewer’s eyes jump rapidly or glide smoothly from one repeated element to the next. Because rhythm relies on repeated elements, it is closely related to pattern. Further, because rhythm impacts how the viewer’s eyes travel around the piece, it is closely related to movement and balance. (Origin: Greek rhythmos, meaning measured flow, which passed to Latin as rhythmus, meaning movement in time.)

**CONTRAST**

Contrast refers to the juxtaposition of forms, objects, textures, values, or colors to stress the differences between them. **Value contrast** is the noticeable difference between the shades (dark values) and the tints (light values) within a single form or within a piece of art as a whole. **Color contrast** is the difference between warm and cool colors. Artists also use textures and objects to create powerful side-by-side comparisons. Contrast makes art eye-catching, reinforces the illusions of dimension and space, and directs attention to focal points.