

The **SCIENCE** of Sculpture

Science plays an important role in the creative process. Chemistry and physics are often at the core of artistic visions. This Educator Guide examines several works of art from the Sydney and Walda Besthoff Sculpture Garden at the New Orleans Museum of Art, focusing especially on how artists utilize changing states of matter and simple machines in artistic practices. Physical changes in matter allow sculptors like Henry Moore to turn bronze into sinuous figures. Kinetic artists such as Lin Emery and George Rickey rely on simple machines and wind energy to propel their works through the air.

List of **WORKS**

Window with Ladder—Too Late for Help, 2006, Leandro Erlich (Argentinean, b. 1973), metal ladder, steel, fiberglass, aluminum, gift of Frederick Weisman Company Fund and De-accession Fund, 2009.21

Corridor Pin, Blue, edition 3/3, 1999, Claes Oldenburg (American, born in Sweden, 1929) and Coosje van Bruggen (American, born in The Netherlands, 1942 – 2009), stainless steel, gift of Sydney and Walda Besthoff, 2004.118

Four Lines Oblique, 1973 – 77, George Rickey (American, 1907 – 2002), stainless steel, gift of Sydney and Walda Besthoff, 1998.145

Wave, 1988, Lin Emery (American, b. 1928), polished aluminum, gift of Frederick R. Weisman Foundation, 88.365

Travelin' Light, 1999, Alison Saar (American, b. 1956), bronze, gift from the family and friends of Sunny Norman on the occasion of her 90th birthday, 2001.248

Virlane Tower, 1981, Kenneth Snelson (American, b. 1927), stainless steel, gift of Sydney and Walda Besthoff, 1998.148

Reclining Mother and Child, 1975, Henry Moore (British, 1898 – 1986), bronze, gift of Sydney and Walda Besthoff, 1998.141

The Labors of Alexander, 1967, René Magritte (Belgian, 1898 – 1967), cast bronze in two pieces, gift of Muriel Bultman Francis, 1971.37

Tree of Necklaces, 2002, Jean-Michel Othoniel (French, b. 1964), glass and stainless steel, 70 inches (each necklace), gift of Sydney and Walda Besthoff and the River Branch Foundation, 2002.209. 1 – 6

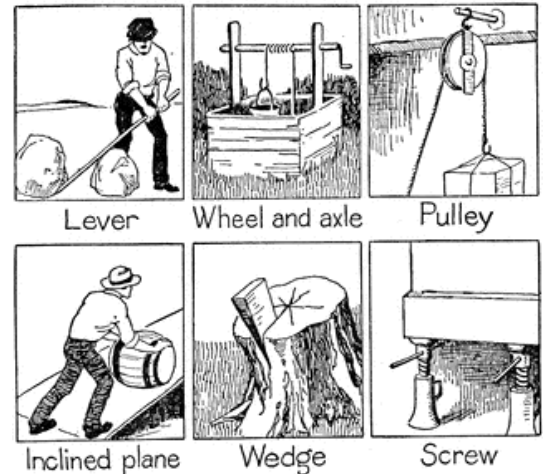
SIMPLE MACHINES MAKE WORK EASIER!

The six most common types of simple machines:

1. Lever
2. Wheel & Axle
3. Pulley
4. Inclined Plane
5. Wedge
6. Screws

How do they make work easier?

- ✓ Transfer force from one place to another
- ✓ Change the direction of a force
- ✓ Increase the magnitude of a force OR
- ✓ Increase the distance or speed of a force.



What simple machines can we identify in works of art at NOMA?

Screws: allow movement in kinetic sculptures by Lin Emery and George Ricky, also anchor many sculptures to a base (ex. *Corridor Pin, Blue*)

Lever: Anchors Ehrlich's *Window with Ladder – Too Late for Help*

Pulley: Installation and bell pull in Alison Saar's *Travelin' Light*

Wedge: The axe-blade in Magritte's *The Labors of Alexander*

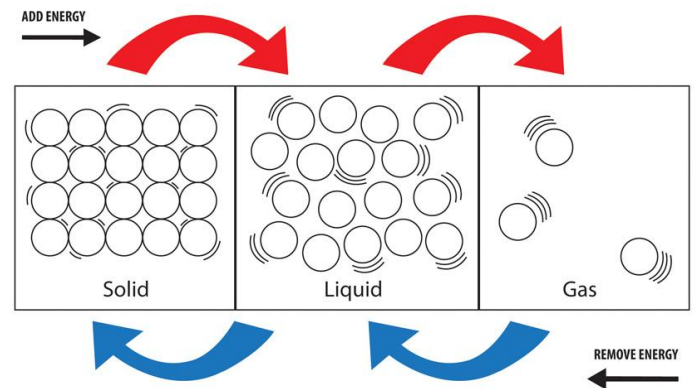
Activities to explore the functions of simple machines:

- Create human machines in pairs or small groups.
- Build a sculpture from found materials and incorporate at least one simple machine.

CHANGING STATES OF MATTER!

What are the possible states of matter?

- **Solid** – particles hold a stable shape and definite volume
- **Liquid** – takes on shape of container and maintains consistent volume
- **Gas** – expands to fill container with no definite volume
- **Plasma** – no definite shape or volume but conducts electricity and holds magnetic force



How does matter change from one state to another?

- ✓ Increase or decrease in energy (temperature, pressure)

How do sculptors take advantage of this physical condition?

- ✓ Liquids such as glass and metals are pourable in a liquid state. As they cool and become a solid, they take a new form.

Activities to explore changing states of matter:

- Salt dough or Jello sculptures
- States of Matter Scavenger Hunt

About the **ARTISTS & SCULPTURES**

Sculptor **Leandro Ehrlich** grew up in Buenos Aires, Argentina in a family of architects, where he became interested in the emotional quality of architectural spaces rather than its functional role. Ehrlich wasted no time in becoming one of the most well recognized young artists of Argentina. Ehrlich's first solo exhibition took place in New York in 1999 and in 2001 he represented Argentina in the Venice Biennale. Since then he has participated in many solo and group exhibitions internationally. Ehrlich is known as an installation artist who often juxtaposes emotionally charged architectural spaces with everyday objects in ways that both confound and inspire the audience.

Window with Ladder-Too Late for Help was originally placed in an empty lot in New Orleans' Lower Ninth Ward, an area particularly devastated by Hurricane Katrina, as part of the U.S. Biennial Prospect 1. This piece stands over fourteen feet tall and creates the illusion of a ladder leading up to an open window. In its original setting, it evoked the strong feelings of loss and hope associated with disaster. Yet the open window and ladder can also be interpreted as a promising escape route and the juxtaposition of these everyday objects may be viewed in a comical light. As is often the case with Ehrlich's sculptures, *Window with Ladder-Too Late for Help* appears to defy laws of gravity and physics as the brick-encased window hangs in midair. The bricks are formed from fiberglass, making them much lighter than they first appear, and the ladder is anchored underground, incorporating a lever to hold the work in place.



Claes Oldenburg turned to popular culture and mass marketing for inspiration. He is sometimes referred to as the "Pope of Pop" and is famous for monumentalizing ordinary objects such as clothespins, typewriter erasers, safety pins and shuttlecocks. Oldenburg was born in Stockholm, Sweden and moved to Chicago in 1937. He studied literature at Yale University, taking art courses only in his senior year. He continued his art studies during night classes at the Art Institute of Chicago while working during the day as art editor and cartoonist for *Chicago Magazine*. By 1956 Oldenburg moved to New York City and became particularly fascinated with the window displays he saw in neighborhood shop windows. In 1960 he established *The Store*, an environment piece in which he filled a vacant shop with sculpted parodies



Educator Resources

www.noma.org/learn

NOMA
New Orleans Museum of Art

of consumer goods including pastries, ice cream sundaes and articles of clothing made from painted, plaster-dipped burlap. After the exhibit closed in 1961, the shop became his studio and was renamed the Ray Gun Manufacturing Company. From small-scale painted plaster objects, the artist moved on to create large-scale soft, or collapsible, sculptures of common objects out of vinyl and canvas. These works were often collaborations with his wife, **Coosje van Bruggen**. Eventually, the duo translated these giant works into more solid forms using fiberglass and bronze.

Corridor Pin, Blue extends 21 feet above the garden path as visitors to the Besthoff Sculpture Garden walk underneath the outstretched arm of the pin. It's colossal scale adds a tinge of surrealism to the garden. Oldenburg and van Bruggen's work intrigues viewers who recognize the familiar form, yet become awe-struck by its excessive size. Oldenburg's work is found in many cities and sculpture gardens including *Giant Lipstick* at Yale University, *Clothes-pin* in Philadelphia, *Geometric Mouse* at the Hirshhorn Museum and Sculpture Garden in Washington DC, *Spoonbridge and Cherry* at the Walker Art Center in Minneapolis.

George Rickey was born in South Bend, Indiana, the son of an engineer and grandson of a clock maker. His family moved to Scotland when he was a young boy. Rickey studied at Oxford University, where he participated in drawing classes but ultimately finished his degree in history. After Oxford, he settled on becoming an artist and during the 1930s he spent time in Paris, New York and various universities in Illinois and Michigan. In 1941, he was drafted into the Army Air Corps and worked maintaining the computing instruments for B-29 bombers. It was during this time that Rickey discovered his genius for mechanics and interest in sculpture. He began his career in sculpture by making mobiles, and eventually started to make kinetic sculptures.

Rickey said, "...I never considered making any sculpture that didn't move." He typically incorporated simple geometric shapes and lines made of stainless steel, and balanced them in such a way that the elements moved only by the forces of nature, gravity and wind. Rickey did not incorporate mechanical devices to provide motion. His search of the essence of movement led to the evolution of a new spatial vocabulary in visual art and influenced sculptors such as Lin Emery and John T. Scott. Rickey himself best described the delicate dance of ***Four Lines Oblique*** when he said, "I wanted whatever eloquence there was to come out of the performance of the piece—never out of the shape itself."



Educator Resources

www.noma.org/learn

NOMA
New Orleans Museum of Art

Lin Emery grew up in New York and Florida, and chose to make her home and studio in New Orleans because she felt it lacked the prejudices that female artists encountered in other parts of the country. Although Emery's early work was figurative, she eventually found abstraction to be the best means of expressing herself. Emery was greatly influenced by the artist Ossip Zadkine whom she apprenticed under in Paris. His philosophical approach more than his style provided the foundation for Emery's aesthetic convictions. The desire to show multiple perspectives spurred Emery's addition of a kinetic element to the sculptural object.

Emery's aluminum abstract sculpture, **Wave**, becomes part of its environment. The crescent motif evokes the physical configuration of the wave while the kinetic motion of each individual section of the sculpture creates a rhythm. Emery seeks to represent the spiritual harmony of nature and energy in her sculptures. Shapes that dance through the wind, graceful movements of the shadows, and soft reflections on the water beneath it depict nature at its purest and best. Each moveable arm is attached to the whole using ball and socket joints, allowing for a range of motion.



A native of Southern California, **Alison Saar** is the daughter of famed African-American artist and educator Bettye Saar. Following in her mother's footsteps, Alison Saar's art addresses the special challenges facing women artists and people of color. She dwells on themes of the African Diaspora in installations and sculptures. Her work also deals with the role of women in a patriarchal society. She brings together found objects such as string or dust which, within her constructions or assemblages, take on ritualistic connotations.

A thought-provoking memorial, **Travelin' Light** presents a formally dressed man hanging by his bare feet, a powerful but dignified reference to torture and abandonment. Saar has made the figure into a bell, inspired by Japanese temple bells, which are rung during purification rites. When the chain on the back of the figure is pulled, a mournful, sonorous sound is heard, ringing for all victims of violence and terror. The title is taken from a popular Billie Holiday song of the same name: "I'm travellin' light / Because my man has gone / And from now on / I'm travellin' light".



Educator Resources

www.noma.org/learn

NOMA
New Orleans Museum of Art

At 45 feet high, the ***Virilane Tower*** is the largest sculpture in the Besthoff Garden. Composed of stainless steel tubes, the whole tower is held together and supported by cables, instead of by bolts or welding. The delicate soaring sculpture seems to defy gravity. It is based on what the artist termed “floating compression,” the force created by tension and compression. Snelson combined steel wires and rods, put together in such a way so that each piece is vital to the integrity of the structure as a whole. This gives the appearance that the steel rods are magically suspended in mid-air, when in reality, the wires and rods work together to form a very stable whole and make the invisible visible by portraying the patterns of physical force in space.

Kenneth Snelson began his artistic career as a student of painting and drawing. His interests changed, however, after studying alongside the architect Buckminster Fuller, the developer of the geodesic dome. Fuller’s theories of structural design encouraged Snelson to turn from painting to sculpture. He added engineering to his studies in order to better understand Fuller’s pioneering concepts and the physics of his complex structures.



Henry Moore was born in Yorkshire, England in 1898. At his parents’ insistence, he trained first as a school teacher, but enrolled in art school after World War I. Moore developed a personal, figurative style that moved towards greater abstraction throughout his career. In 1940, after his London home was damaged by a Nazi bomb, the artist purchased Hoglands Estate in Perry Green in Hertfordshire. Hoglands would eventually become a huge complex of arts related facilities. Moore was a member of the Royal Academy and received more than seventy awards and honors during his life, including international sculpture prizes at the 1948 Venice Biennale and the 1953 Sao Paulo Biennale.



Moore was fascinated by sculptural traditions from all over the world and was particularly interested in non-western art, especially African and pre-Columbian. He often chose the reclining figure or a mother and child as his subjects, seeking to convey the timeless, universal qualities of humanity. He felt the bond between mother and child expressed this perfectly. Characteristic of Moore’s work is his exploration of the voids, the negative space created by the surrounding form. The arrangement of interpenetrating solids and voids creates tension, yet the organic feeling of his voluptuous form is somehow comforting.

Educator Resources

www.noma.org/learn

NOMA
New Orleans Museum of Art

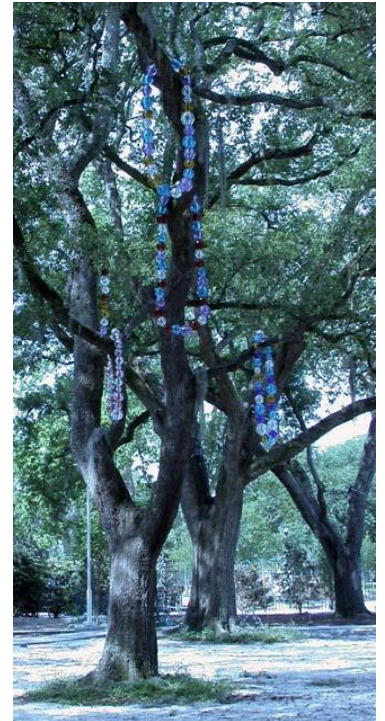
René Magritte was a Surrealist whose work features wit, irony and the juxtaposition of images to startle and amuse the viewer. Unlike other Surrealists, Magritte did not rely on subconscious expression, but on the interplay between images and words and strange juxtapositions. Like other Surrealists, the Belgian artist calls into question the ability of the mind to rationally discern seriousness from humor or reason from chaos. Magritte is probably most known for his series of paintings of a faceless, nameless man in a bowler hat, as well as a series of paintings of a man's smoking pipe with the words "Ceci n'est pas une pipe (This is not a pipe.)." The titles of his paintings are usually as elusive and dumbfounding as his paintings.



Late in his life, Magritte commissioned eight of his paintings to be reproduced in the three-dimensional bronze form. In 1967, Magritte chose the paintings that were to be transposed. The models of the sculptures were cast in wax and Magritte approved and signed the works to be completed in bronze. Unfortunately, the artist died before the sculptures were completed. The inspiration for this sculpture, *The Labors of Alexander*, was originally painted in 1950. Magritte had previously used the image of the tree stump in several paintings. This image, like many of the artist's works, questions the common sense of the viewer. A tree has recently been cut, and the ax is now secured underneath the root of the tree stump. Who could have chopped down the tree? Where are they now? Could the tree be responsible for its own demise? How did the ax get under the tree root? These questions are, of course, left unanswered.

Jean-Michel Othoniel was born in 1964 in Saint-Etienne in the Loire Valley in France. He currently lives and works in Paris. As a young artist with international renown, Othoniel has participated in several expositions of contemporary art and represented France at the 1997 Venice Biennial. Othoniel works in many non-traditional media including glass, film and sulfur. In 1997, he began working with Murano glass to complete an exhibition at the Peggy Guggenheim Foundation in Venice where he created a “Garden of Eden” that included large scale glass necklaces and pieces of fruit.

Tree of Necklaces was commissioned for the Sydney and Walda Besthoff Sculpture Garden. The piece consists of six, multi-colored strands of glass beads suspended from one of the historic live oaks that populate the garden. New Orleanians are accustomed to the sight of beads draped in the trees along Mardi Gras parade routes, and Othoniel’s extra large variety of beads should be a familiar sight. The artist created the large blown glass beads in Murano, Italy and personally oversaw the installation of the necklaces in New Orleans.



Online Resources:

Bill Nye the Science Guy, “Simple Machines,” 2014,
<https://www.youtube.com/watch?v=E-Egj-ya3qQ>

Columbia Museum of Art, “States of Matter,” 2009,
<https://www.youtube.com/watch?v=HAPc6JH85pM>

Discovery Channel, “How It’s Made Blown Glass,” 2013,
<https://www.youtube.com/watch?v=xNkRx7ZG4og>

Discovery Channel, “How It’s Made Bronze Sculpture,” 2013,
<https://www.youtube.com/watch?v=E-Egj-ya3qQ>