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# Sculpture Merit Badge



Scouts BSA

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# Sculpture



## ➤ Sculpture

- Art form that allows you to express what you see and feel by using these 3 dimensions: length, width, depth
  - Part of earliest human history
    - Using bones and soft stones: carved animals and people
  - Realistic or abstract
  - Statue, Mobile, Monument, Portrait
  - No size limitations: small as a finger or as large as a mountain
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# Sculpture

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## ➤ Different materials

- Hard stone
  - Soft stone
  - Metal
  - Clay
  - Wood
  - Food
  - Ice
  - Sand
  - Glass
  - Plastics
  - Concrete
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Mount Rushmore: Gutzon Borglum 1927-1941

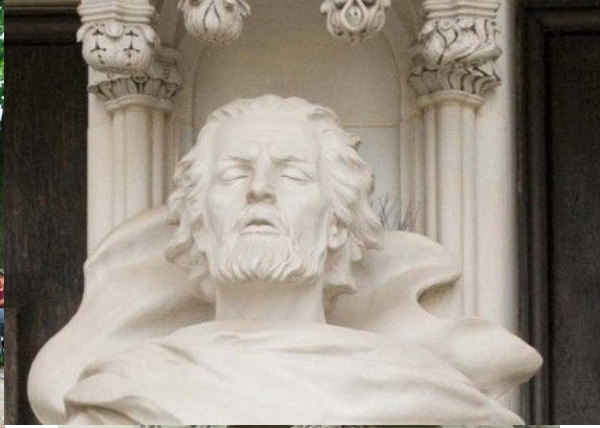
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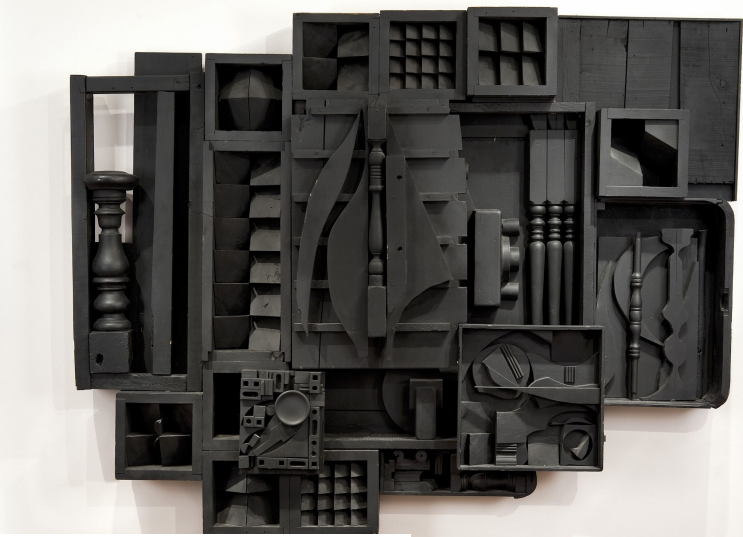
©Crazy Horse Memorial Fnd.  
Korczak, sr.

Crazy Horse Memorial: Korczak Ziolkowski 1948 to present

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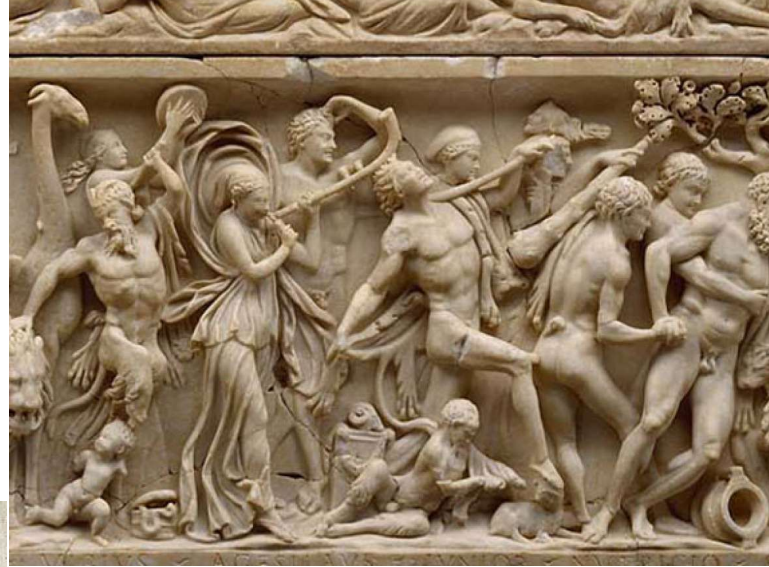
Frederick Hart

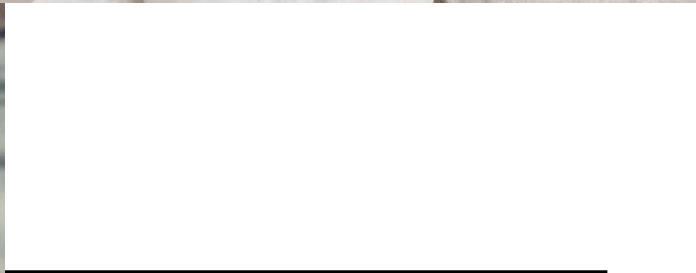


Louise Nevelson

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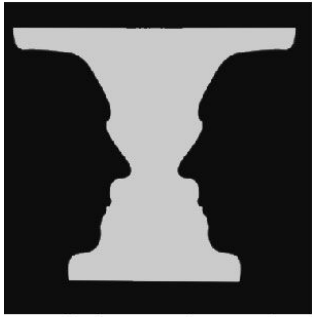






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# Sculpture



**NEGATIVE**



**POSITIVE**

- Visualize movement
    - Gesture drawings/concept drawings
  - Visible from all angles
  - Light
    - Reveals form the same way as shading with a pencil
    - Angle creates highlight and shadow in varying ways
  - Negative Space
    - Empty space around form
  - Positive Space
    - Solid form
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# Sculpture

- Subtractive Technique
    - Material is removed to reveal the form
    - Stone and wood carving
  - Additive Technique
    - Material is added to reveal the form
    - Clay
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# Materials

## ➤ Clay

- Oldest material
- Several types
- Terra-cotta, used since prehistoric times, is probably best
- Fire in kiln, a hot oven that hardens clay

## ➤ Modeling clay

- Soft, oily, synthetic clay
  - Doesn't harden
  - Can be used to make a mold
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# Materials

- **Sculpey**
    - Synthetic clay
    - Good for small projects
    - Soft and hardens in the oven
    - A version of elf-hardening clays that must be kept wet until a project is done
  - **Plaster of paris**
    - Cheap, quick hardening paste
    - Can be cast into blocks and carved with a rasp
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# Materials



## ➤ Plaster cloth

- Open-weave cloth, such as gauze, with plaster of paris embedded in fabric
- Moistened and be formed/wrapped to any shape
- Dries in approx. 15 minutes

## ➤ Tools

- Fingers
  - Loop tool
    - Wooden tool with a metal loop on the end to trim away excess clay
  - Rasp
    - Coarse file with cutting points
    - Scraping/smoothing wood or metal
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# Materials

## ➤ Tools



- Riffler
    - Metal tool similar to rasp with fine, small cutting points on one or both ends
  - File
  - Gouge
    - Handheld tool with curved cutting edges
  - Chisel
    - Sharp edged metal tools to cut away/shape stone or wood
  - V-tools
    - Used in carving fine line work
  - Mallet
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# Materials

## ➤ Tools

- Sandpaper
- Chainsaw
- Power tools
- Needle
- Rolling pin
- Calipers
- Trimming tools
- Scapers
- Sponges



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# Materials

## ➤ Armature

- A framework that gives inner strength to a soft material, such as clay
- Book Example: A piece of threaded pipe and a flange screwed to a wood base.
  - Can substitute 2x2 in. or 2x4 in. piece of wood for the pipe
  - Drill a hole in the center of the base (an 8x8 in. or 10x10 in. piece of plywood) and fasten the 12 in. piece of wood upright to the base



➤ <https://www.youtube.com/watch?v=3wI6oTqaL9g>

➤ <https://www.youtube.com/watch?v=B7jemoZtK94>

➤ <https://www.youtube.com/watch?v=CEOvrXxDF20>

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# Materials

## ➤ Ceramic

- One of the earliest ways people used clay: pottery
  - Clay body
    - A combination of clays and minerals blended for specific purpose
    - 3 types
      - Earthenware
      - Stoneware
      - Porcelain
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# Materials

## ➤ Earthenware

- Full of impurities- different color ranges and hardens at low temp.
- Not watertight, so may have a glaze
- Terra-cotta

## ➤ Stoneware

- Hardens at a higher temp. so the surface is hard and nonporous
- Opaque unless shaped very thin
- Sculptors might add grog, ground-up unglazed fired clay, to make stoneware

## ➤ Porcelain

- Pure clay fused by intense heat
  - Smooth white surface
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# Requirement 1

Precautions for safe use and operation of sculpting tools, equipment, and other materials

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# Requirement 1

- Follow manufacturer's instructions
  - Wash hands thoroughly after using materials
  - Always carve and cut away from the body
  - Wear protective gloves
  - Be aware of finger placement
  - Never carve in your lap
  - Use small, well-placed carving strokes
  - Work on a clean, sturdy surface with a sturdy chair
  - Store carving tools away from children
  - Take your time
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# Requirement 1

- Wear protective goggles
  - Wear protective respiratory mask
  - Wear clothing that will not get caught in your equipment
  - Work in well ventilated area
  - Keep clothes separate from regular laundry and wash them daily or at least weekly
  - Do not eat or drink in work areas
  - Use premixed clay to avoid exposure to clay dust
  - Be careful when using a kiln and oven
    - Avoiding burns and toxic fumes
    - Have adult supervision
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# Requirement 2

Do TWO of these:

- a. Model in clay a life-size human head. Sculpt in modeling clay, carve in wood or plaster, or use 3D modeling software to make a small-scale model of an animal or person. Explain the method and tools used to sculpt the figure.
  - b. Make a plaster mold of a fruit or vegetable. In this mold, make a copy of the fruit or vegetable. Explain the method and tools used to make the copy.
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## Requirement 2

c. With parent permission and counselor approval, visit a museum, art exhibit, art gallery, artists' co-op, or artist's studio. After your visit, share what you learned. Discuss the importance of visual arts and how it strengthens social tolerance and helps stimulate cultural, intellectual, and personal development.

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# Requirement 2a and 2b

- Sculpture Pamphlet
    - <https://www.troop109nj.com/app/download/5843957/Sculpture+Merit+Badge+Pamphlet.pdf>
    - pages 24-51
  - <https://www.youtube.com/watch?v=LyYM8SgatOI>
  - <https://www.youtube.com/watch?v=6dnyYu4Ff7U>
  - [https://www.youtube.com/watch?v=hNTFd\\_LZgwo](https://www.youtube.com/watch?v=hNTFd_LZgwo)
  - <https://www.youtube.com/watch?v=na9W5GGiXm4>
  - <https://www.youtube.com/watch?v=26wj4kLJ9bw>
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# Requirement 2c

➤ <https://www.mentalfloss.com/article/75809/12-world-class-museums-you-can-visit-online>



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# Requirement 2c

- Studio
    - Where an artist works
  - Co-op Gallery
    - Artist members pay to get exposure and present their work
    - “Discovered” here
  - Commercial Gallery
    - Business to sell art : often gets 40-60% of the profit
    - Attracts a larger, more serious customer base
  - Museum
    - Presents art for the public
    - Never for sale
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# Requirement 2c

- Self expression of the artist's particular viewpoint based on personal beliefs and theories
  - Provokes a reaction
    - Joy, anger, shock, confusion....
  - Improves the world by getting people to think different about it, exposing them to new ideas and alternative viewpoints
  - Increases self awareness by understanding your reaction to it
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## Requirement 2c

- Become more socially aware and tolerant, culturally sensitive, and compassionate
  - Develops awareness and understanding of social topics or problems
  - Produces enjoyment for the artist and viewers
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## Requirement 3: Careers

- Sculptor
  - Foundry worker
  - Mold maker
  - Agent
  - Gallery owner
  - Museum curator
  - Conservator
  - Restorer
  - Museum educator
  - Workshop instructor
  - Artist-in-residence
  - Art teacher
  - Art appraiser
  - Art auctioneer
  - Art consultant
  - Art dealer
  - Art historian
  - Art librarian
  - Art critic
  - Art writer
  - Art reviewer
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# Requirement 3: Industrial Designer

## ➤ Definition

- Professional practice of designing products, devices, objects, and services used by everyone around the world
- Focus on the appearance, functionality, and manufacturability
- Increasing lasting value and experience for the end user
- <https://www.youtube.com/watch?v=qAot698gTgo&feature=youtu.be>

## ➤ Education

- Bachelor degree: architecture, design, engineering

## ➤ Training/Experience

- Basic art and design skills
  - CAD (computer aided design) software
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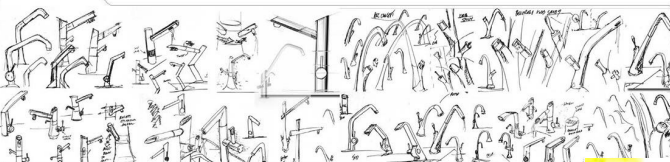
## Zuvo Stratus Development

Company: CDM for Zuvo Water  
Role: Industrial Design/Consultant Onsite with CDM Team  
Description: Design process for Zuvo's new Bright Line utilizing their patented water purification system and cloud service reliability. In production are two in-flow and one beverage faucet. This page shows some of process with iteration with team at phases.

### 1. Research & Strategy



### 2. Concept Sketches



### 3. Product Development



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### The Brief

Design a new HDPE bottle that could be manufactured using existing Nampak technology and infrastructure.  
Move milk into convenience and impulse drinks market to improve milk prices for local farmers.

**Improving Down Time**  
Failing to remove handles  
biggest cause of down time.



Images by Robert Cooper

