Casting Concrete Blocks
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Grades 9-12

Objective: Each student will cast a concrete block with an abstract relief of their own design. Students will then arrange their blocks into a group sculpture to be installed on school grounds.

Concepts:
Abstract: Art that emphasizes abstract elements-line, shape, space, form- rather than recognizable subject matter.
Geometric: Precise shapes that can be found using a mathematical formula.
Relief: Type of sculpture in which forms project from a flat background.
Casting: Form of sculpture where a plastic material is poured into a mold. This material fills the contours of the mold creating an exact replica.
Form: Objects having three dimensions

Materials:
Sketchbook/Pencil
Modeling clay/Clay tools
6 ½” x 6 ½” x ¼” wood panels
Industrial rubber bands
Release agent (Vaseline, WD-40, Silicone spray)
Bucket and spatula
Concrete mix
Water

Procedures:
1) Discussion:
Questions:
- Where do you see concrete used today?
- Why do you think that architects/engineers choose to use this medium?
- What kinds of feelings do you get from seeing concrete? Touching it? Hearing sounds reverberate from it?

2) Read Wright’s quote on use of concrete in architecture:
Reference: An Autobiography, Frank Lloyd Wright, 1932

The concrete block? The cheapest (and ugliest) thing in the building world. It lived mostly in the architectural gutter as an imitation of “rock face” stone.

Why not see what can be done with that gutter-rat? Steel wedded to it, cast inside the joints and the block inside brought into some broad, practical scheme of general treatment. Then why would it not be fit for a phase of modern architecture? It might be permanent, noble, beautiful. It would be cheap.
All that imagination needed to make such a scheme feasible was a plastic medium where steel would enter into inert mass as a tensile strength. Concrete was the inert mass and would take compression. Concrete is a plastic material—so susceptible to the impress of imagination.

We would take that despised outcast of the building industry—the concrete block—out from under foot or from the gutter—find a hitherto unsuspected soul in it—make it live as a thing of beauty-textured like the trees. Yes, the building would be made of the “blocks” as a kind of tree, itself standing at home, among other trees in its own native land.

3) Show and talk about examples of Wright’s use of concrete in his designs:

**Reference:** Frank Lloyd Wright 50 Key Buildings by Americas Greatest Architect, Philip Wilkinson, 2010
- Bogk House, Milwaukee WI: Lintels. p78
- La Miniatura, Pasadena CA: Cast concrete block interior. p86
- Freeman House, Los Angeles CA: Pierced concrete block walls. p96
- John Storer House, Hollywood CA: Interior and exterior blocks molded into different patterns, some solid, some abstractly decorated, some perforated for glass inserts. p90
- Midway Gardens, Chicago IL: Cast concrete designs in walls and sculpture. p36,37
- Imperial Hotel, Tokyo Japan: Cast concrete designs in exterior walls. p38,39

**Reference:** Frank Lloyd Wright The Masterworks, Bruce Brooks Pfeiffer and David Larkin, 1993
- Gerald B. Tonkens House, Amberly Village OH: Corner blocks, perforated blocks, facia blocks, corner blocks that are mitered and perforated with glass inserts. p 256,257
- Ennis House, Los Angeles CA: Concrete block exterior, alternating rows and columns of plain and abstract geometric design. p92

Questions:
- What kind of lines and shapes do you see?
- How are they arranged? What kind of patterns do you see?
- Are the blocks arranged symmetrically?
- Are the blocks flat or textured?
- Do you see any recognizable images? What?
- Do you see any abstracted images? What?

4) Using their sketchbooks, have students draw three, 6” x 6”, abstract designs in pencil, using shading to show relief (raised areas of design will be lighter while low areas of design will appear darker)

Suggestions for designs: abstract images of local flora and fauna, borrow designs used by local indigenous Native American tribes, abstract symbols from students own background or culture.
5) Students will choose their most successful design and transfer to 6” x 6” x 1 ½” slab of modeling clay.

6) Explain that we will be creating a mold that we will then cast a form from by pouring concrete into it. This mold is a ‘negative’ of the form that we will be creating. Ex. Film negatives or the filter gallery option to make an image a negative of the original. Areas that students want to be raised on their concrete form must be carved out in the modeling clay while lower areas of the concrete form should be left untouched.

7) Demonstrate use of various clay tools for carving, smoothing and impressing texture into their clay molds.

8) Have students carve out designs using clay tools. (Do not exceed depth of clay)

9) Students will shore up clay relief using wood panels, securing them with industrial rubber bands.

10) Have students coat mold with release agent, being exceptionally sure lower areas of clay relief are well coated.

11) Mix and pour concrete to 4” depth. Let block cure 24 hrs.

12) Remove rubber bands, wood panels and modeling clay from cast concrete forms.

13) Have students take turns arranging and assessing arrangement of concrete blocks.

– Use Froebel play

14) Decide on a space for installation and create a sculpture specifically for that space. ( If sculpture can be installed permanently, then continue lesson with the addition of creating structural strength by using steel bars inserted between blocks and mortar poured between them as Wright did in his structures)

Evaluation:

Are concrete blocks of the correct proportions?
Does the relief design demonstrate student’s knowledge of abstract and geometric?
Does the relief of the form capture visual interest?
Is the arrangement of blocks appropriate for the space it was installed?