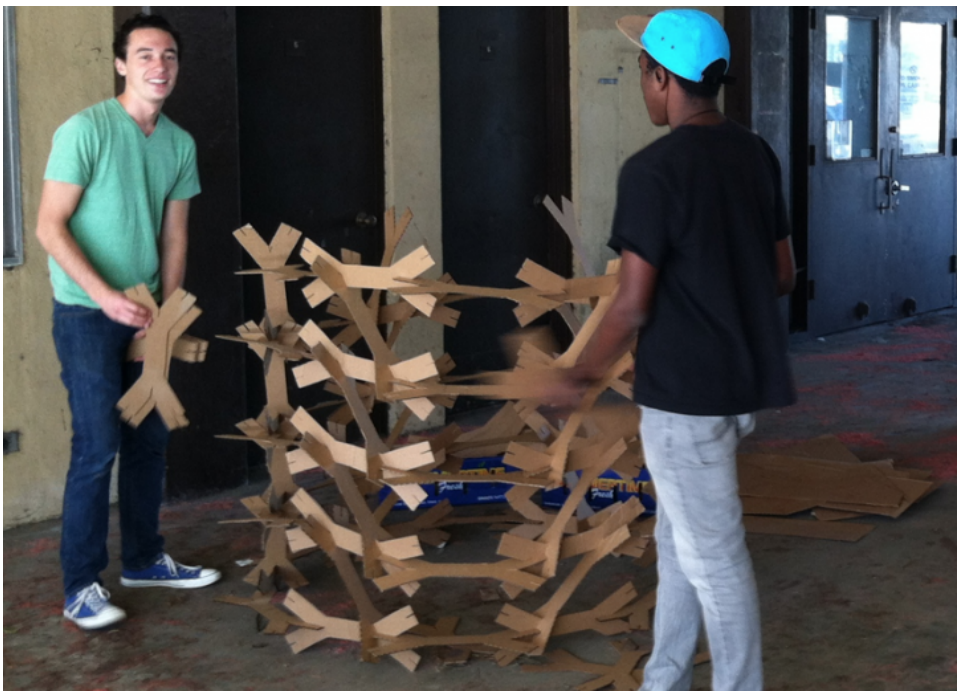
Unit(ed): Cardboard Structures



Lesson Plans & Activities **Architecture** **Applied Core Subjects** **Making**

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Objective: To design a two-dimensional cardboard unit which, when produced in serial (100 units), is a versatile modular unit for creating architectural structures and space.

Best for: High school students, in small groups of 4-5 students

Concepts and skills: Geometry, graphic design, patternmaking, craft,

production, prototyping, basic structural concepts.

Materials:

1/8″ cardboard

Tools:

Exacto knives

straight edges

cutting mats

Time: Approximately 10 hours (1-2 weeks of classtime)

Assignment:

1. Research and precedents: look at and look for existing building units found in the real world: bricks, CMU block, straw bale housing, scaffolding, geodescic domes, etc, as well as graphic units: tesselations, textile patterns and repeat geometry, etc. Ask students to find, examine, and report back to the class on one building unit and how it works individually and in serial. Questions to answer: what makes a building unit structurally sound as a single unit, and how does its stacking/combining in serial make it stronger? What geometries are most versatile or stable in multiple configurations?
2. Using this knowledge, begin sketching in two dimensions with your group. Draw geometric shapes that, in cardboard, could connect to other units using stacking, slotting, or other connection points.
3. Prototype a few of these potential units by cutting six of each unit. Test their ability to connect, stand, create space and structure. The goal is to design and refine one unit to be produced in multiples that might create a sturdy, strong, beautiful architectural structure.
4. Once the unit has been design, cut one out in cardboard and use it as a

template to trace and cut a total of 100 units. This should be a done as a group. It sounds like a lot, but will teach patience, repetition, focus, craft, and care of production.

5. Design challenges: Use all 100 units to construct the tallest structure possible. Use all 100 units to create an archway. Use all 100 units to design an enclosing structure to house one of your team members.

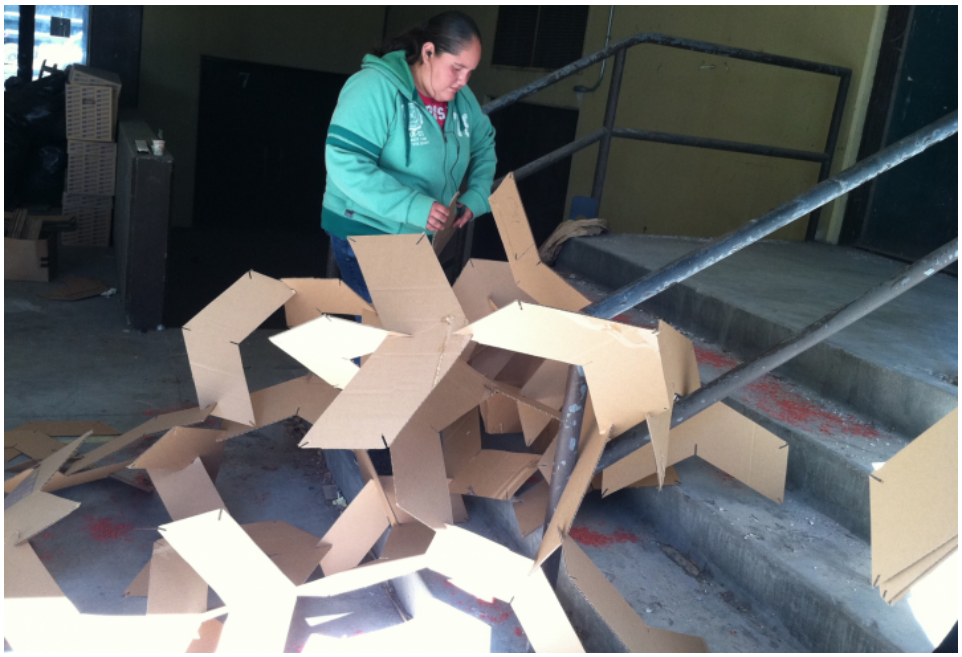
Assessment:

25% product

50% process

15% teamwork / group dynamic

10% documentation



More Tools

Topics:

Applied Core Subjects **Architecture** **Construction +**
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Design **Making** **Materials** **Metal** **Products** **Skateboarding** **Theory + History** **Urban Planning** **Wood**