DESIGN LAB

LEARN + BUILD

WELCOME EDUCATORS & VOLUNTEERS!

Bathrooms/ Logistics

WHO RUNS DESIGN LAB?

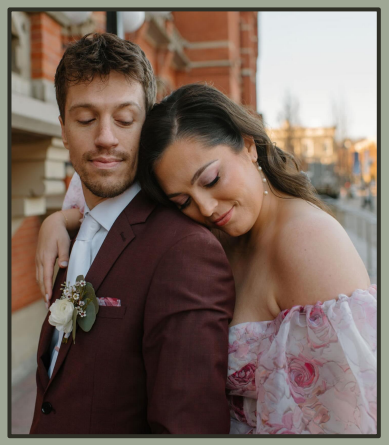
Christen Lubbers

- Executive Director
- Informal Educator of 8 years
  - Cincinnati Zoo
  - Newport Aquarium
  - Ohio River Foundation
- MA of Conservation Biology at Miami University
- Past President of USGBC SW Ohio

WHO RUNS DESIGN LAB?

Emily Storm

- Program Manager
- B.A. in Global Studies from Ohio University
- Background in customer service and technical training
- Avid reader, dog mom, Bravo! lover, foodie



Design LAB: Learn + Build

Inspire awareness, appreciation, & improvement of the built environment through education

- SEEK CINCY
- Construction Tours
- Recognition Awards
- Great House Tours
- Other Various Programming
- Building Challenges
  - Gingerbread House Competition!

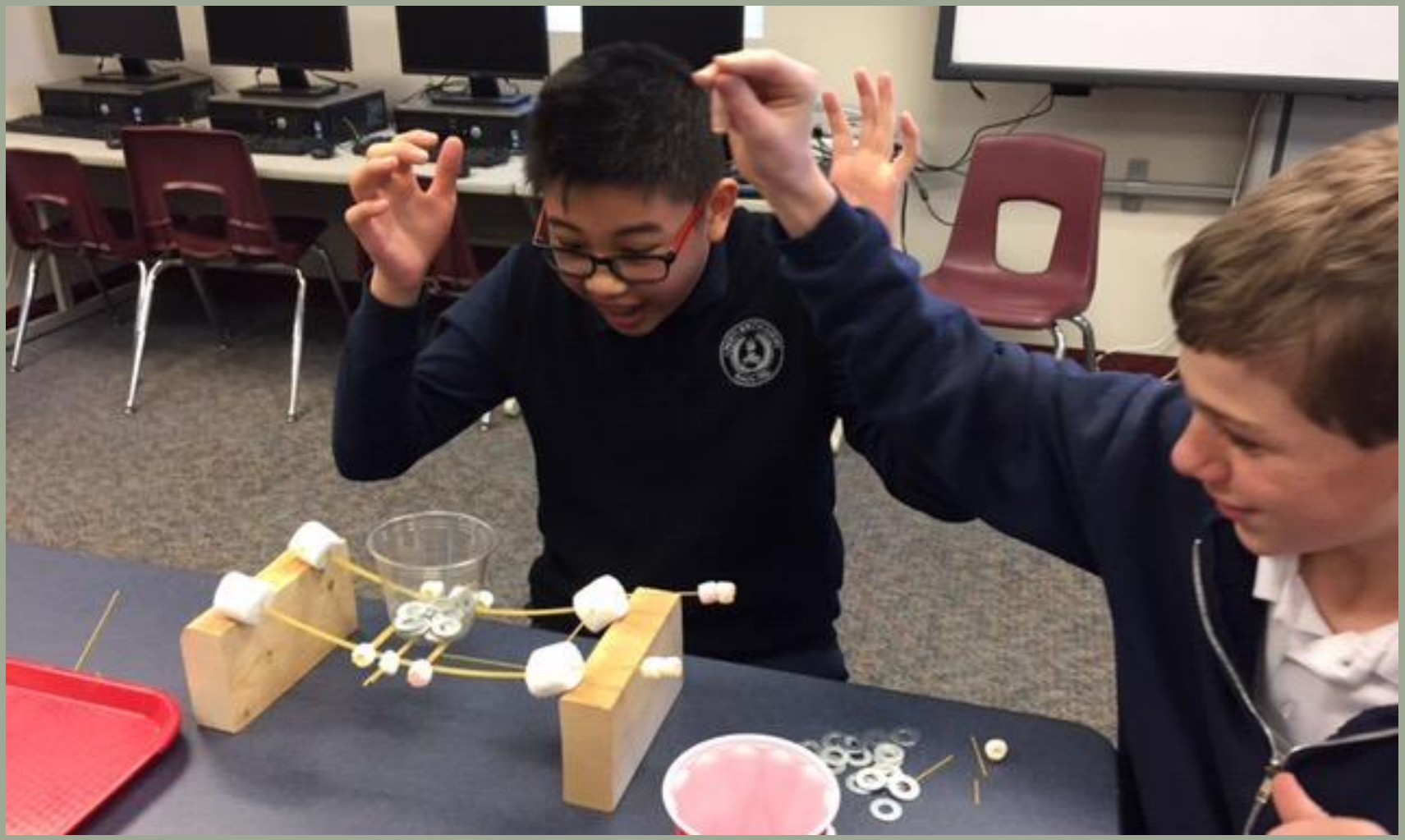
DESIGN LAB COMMITTEE

- Volunteers
  - Brad Dunn – Retired Bliss
  - Melanie Copenhaver – Champlin
  - Mary Kate Genis – KZF Design
  - Michelle Mahoney – Al. Neyer
  - Mike Benkert – Emboss Design
  - Mileek Williams - GBBN
  - Paul Michels – Black & Veatch
  - Rachel Hock – Schaefer
  - Zohet Baba Diaz - Hixson
  - Chase Eggers - Skanska
- Educators
  - Leslie Burklow – E.H. Greene
  - Kathy Grimm – Colerain Middle School
  - Cynthia Tisue – Covedale Elementary

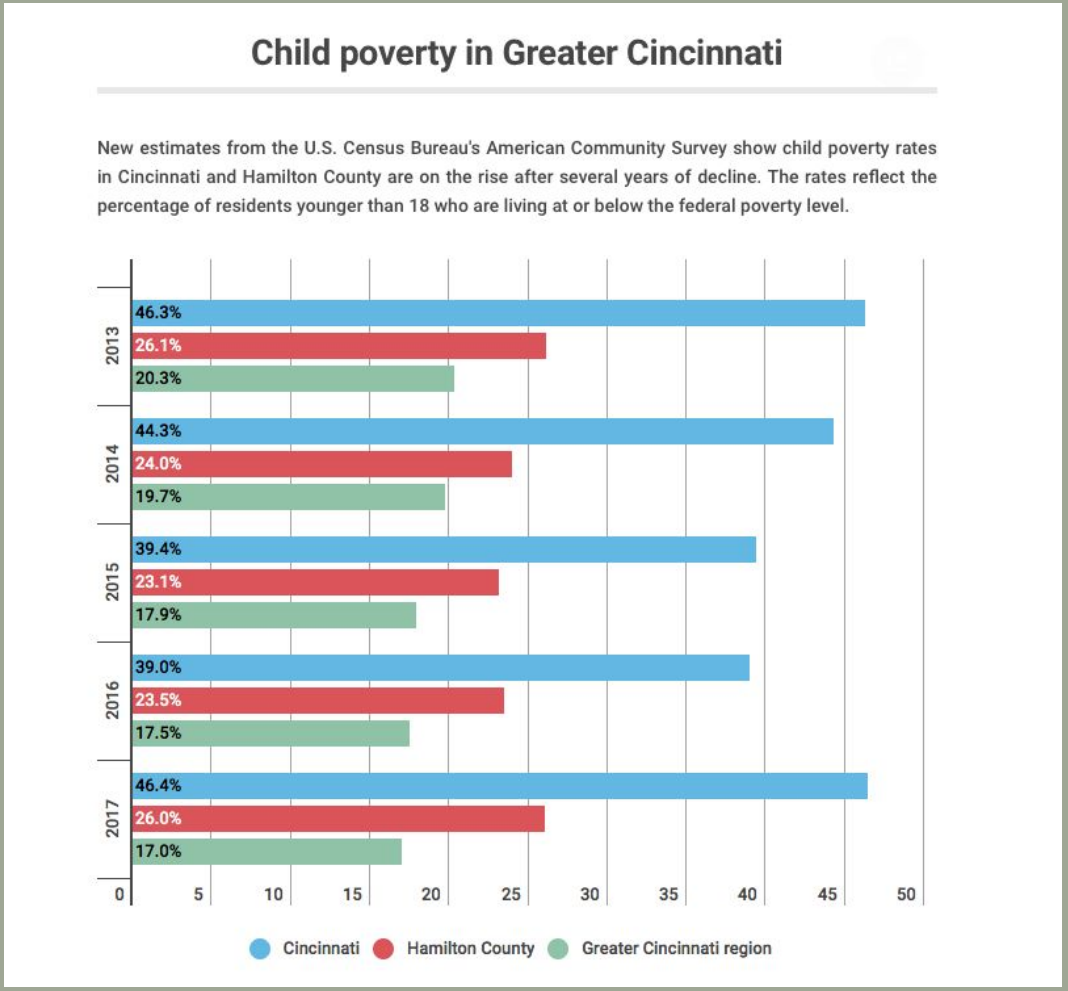
Exposing Students to Architecture, Design, and Building

- First half of the program is learning the basics and figuring out client/site/sketches
- Second half of the program is all about trying it out – playing with materials and building them up into
- Career opportunities – share your experiences!
- Teamwork is a focus

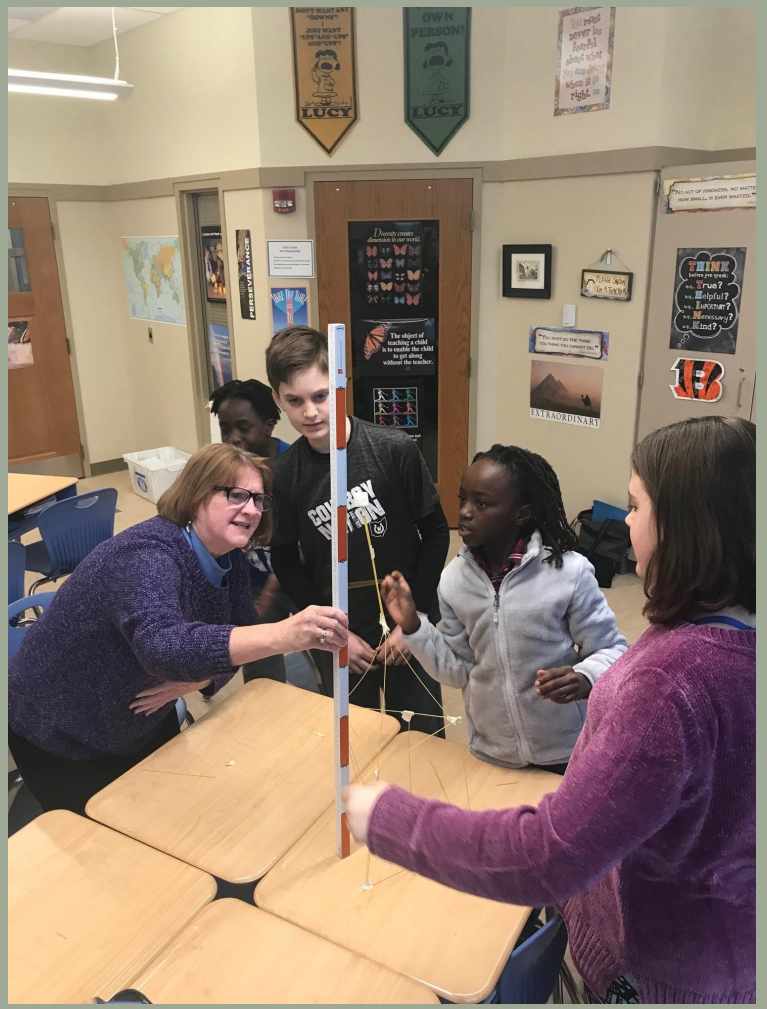
WHY DO WE DO DESIGN LAB?



WHY DO WE DO DESIGN LAB?



We Have So Much Fun!



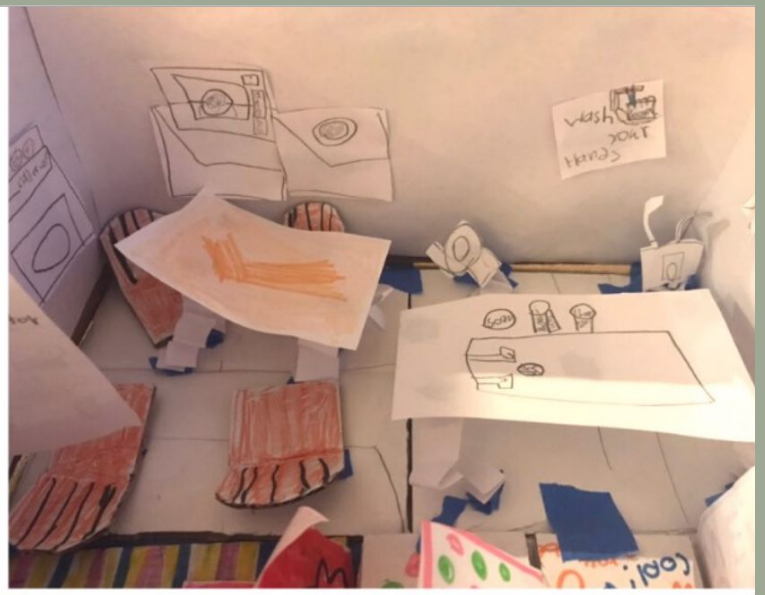
THANK YOU!!

Design LAB is only made possible with your participation and support – THANK YOU!

Design LAB 2020

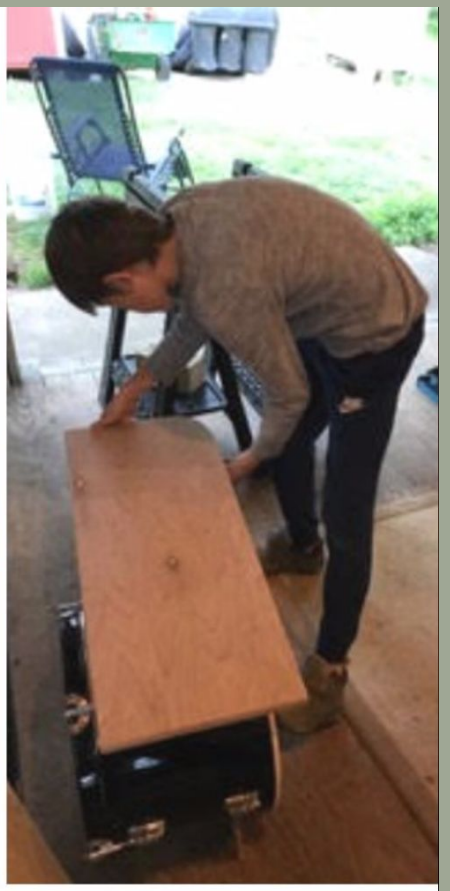
What did we learn?

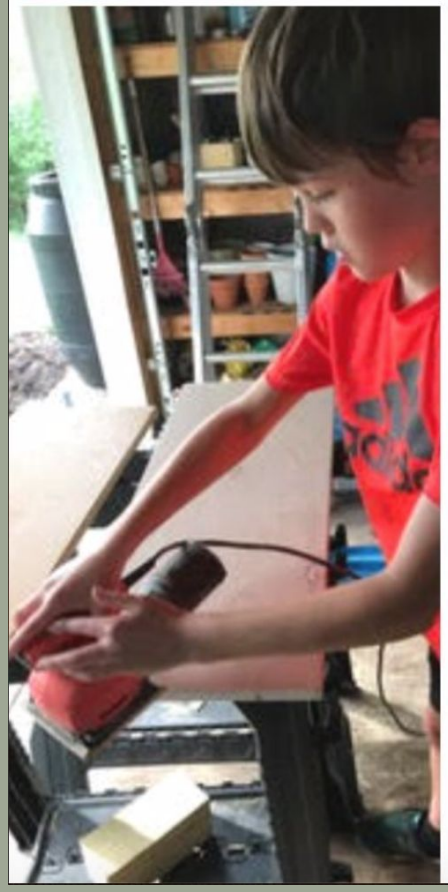

kitty
puppy

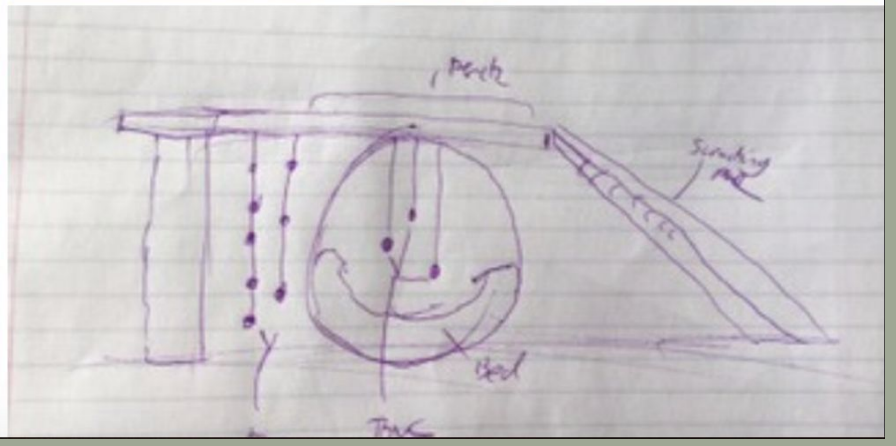

wash your hands


Bad Bunny
Space cat! saves the Galaxy!
Super Spa
Rush
puppy
kitty


kitty






Pedal
Beater
Bass

Design LAB 2024

RESOURCES

Bi-Weekly Emails & Website links

Worksheets for Ideation and Submissions

Educator & Volunteer Resource Guide

2024 SCHEDULE
(tentatively)

First Visit	December 2023
Project Intro	January
Work Period	Jan – May

- Research, Concepts, Drawings
- Modeling & Process Documents

Material Pick-Up	February 19
Design LAB Exhibit	May 11-18
Jury Event	May 14
Awards Ceremony	May 18
Appreciation Party	Summer 2024

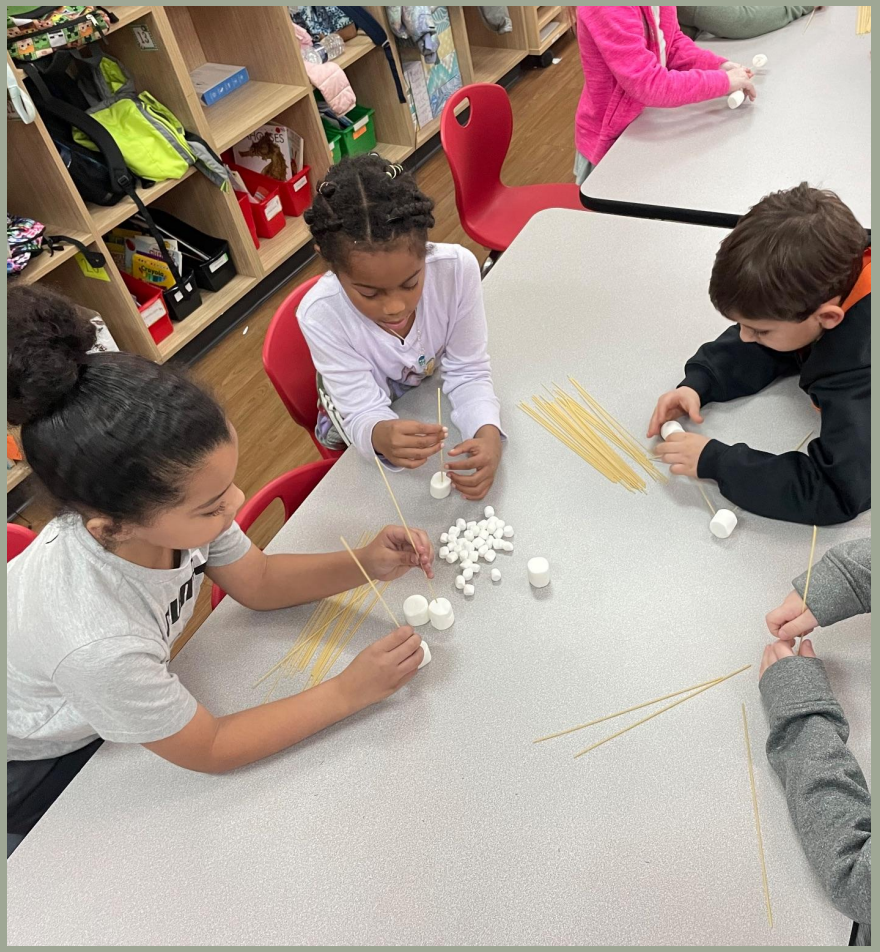
What's Next?

- Team Assignments are going out! If you haven't received yours yet, you will soon
- Reach out to your educator/volunteer as soon as possible to go over how you will tackle 2024
- I will continue to send out bi-weekly emails throughout the semester – please try to read these and let me know if you need support!

Intro Visit

Priority: Get Students Excited!

- Classroom logistics
- Marshmallow & spaghetti or gingerbread house build
- Introductions
- Pre-assessments



Week 1: Introduction

Priority: Layout Program & Theme

- Powerpoint #1
- Set Expectations
- The Design Process
- Understanding Food Spaces
- Explaining your role

Week 2:
Build Your Dream Home
Plan/Section/Elevation

Priority: Financial Literacy

- Worksheets
- Variations (everyone gets 1 loan approved or multiple levels)
- Explain how this relates to your job

DESIGN LAB
LEARN + BUILD

build your dream home activity

Choose which size of house you want:

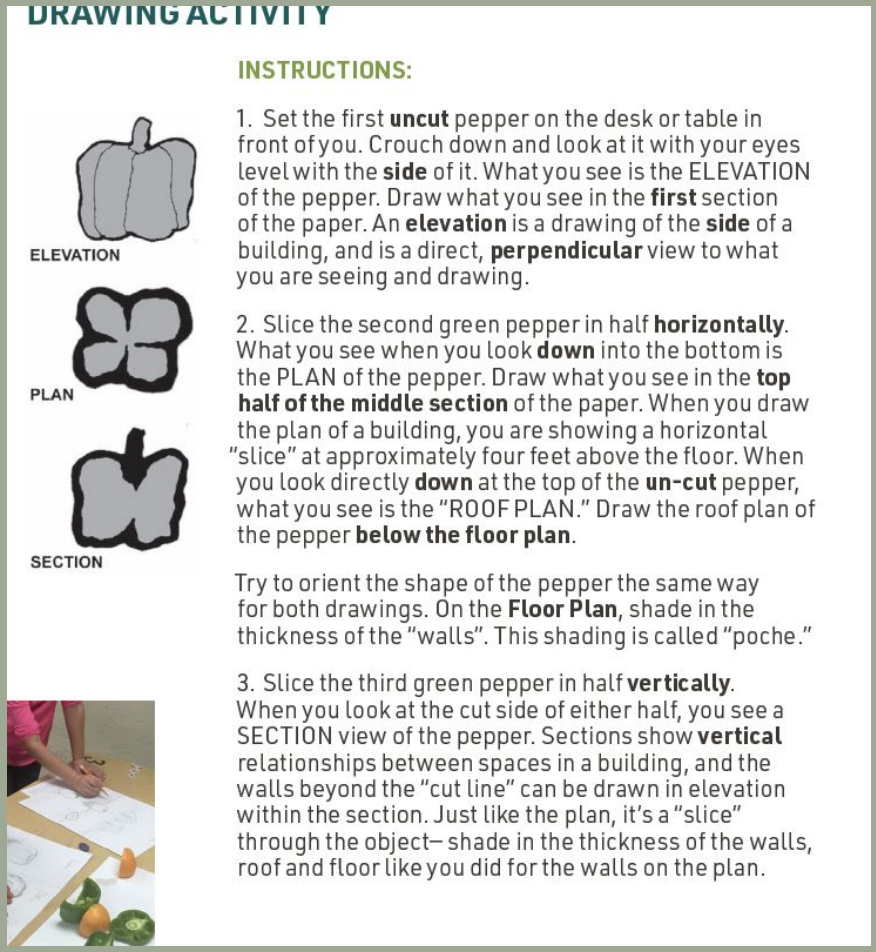
Small House	Medium House	Large House
$100,000	$200,000	$500,000

Now, choose which extras you want to help turn your house into your dream home:

Pool $20,000	Hot Tub $6,000	Garage $8,000	Patio $4,000	Security System $1,000
Yard/Garden $3,000	Soundproof Music Room $10,000	Woodshop $6,000	Driveway $3,000	Fence $2,000
Basketball Court $15,000	Solar Panels $25,000	Wind Turbine $100,000	Geothermal Heating $25,000	Helicopter & Helipad $200,000
Golden Toilet $2,000,000	Library $2,000	Indoor Slide $10,000	Treehouse $8,000	Movie Theater $30,000
Gaming Room	Fireplace	Elevator	Aquarium	Piano

Priority: Understand Plan/Section/Elevation

- Bell Pepper (cut ahead of time if needed)
- Bring documents of projects you're working on if possible
- Powerpoint available, but not necessary



DRAWING ACTIVITY

INSTRUCTIONS:

ELEVATION

1. Set the first **uncut** pepper on the desk or table in front of you. Crouch down and look at it with your eyes level with the **side** of it. What you see is the ELEVATION of the pepper. Draw what you see in the **first** section of the paper. An **elevation** is a drawing of the **side** of a building, and is a direct, **perpendicular** view to what you are seeing and drawing.

PLAN

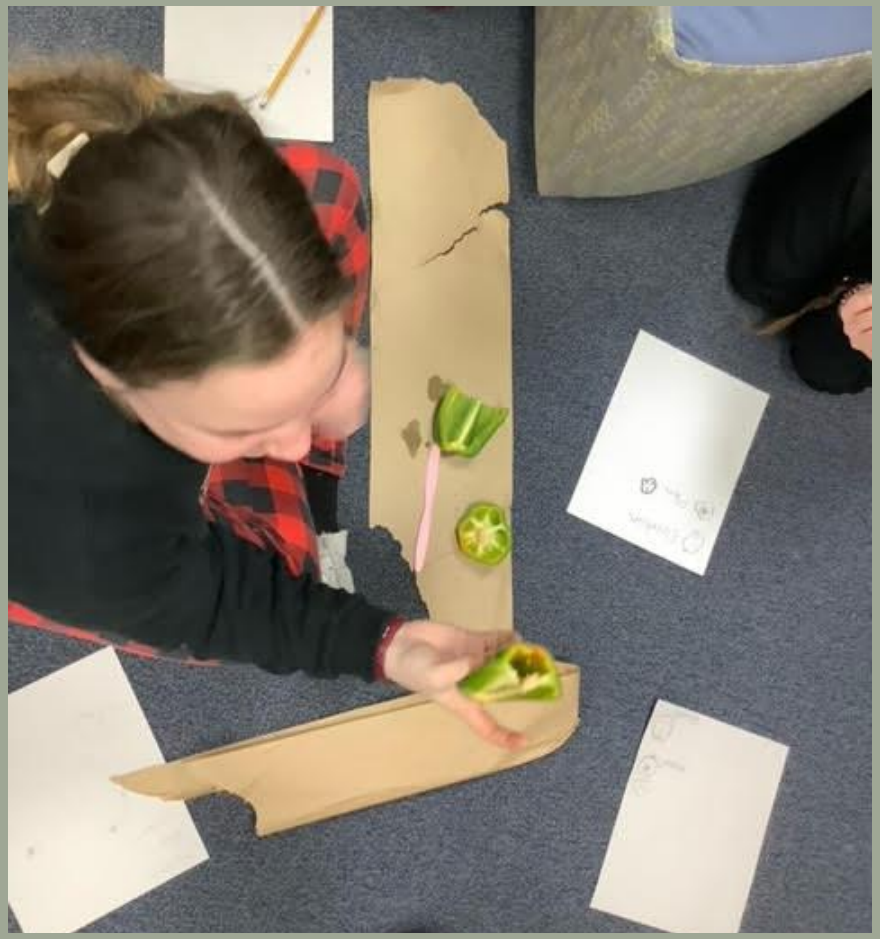
2. Slice the second green pepper in half **horizontally**. What you see when you look **down** into the bottom is the PLAN of the pepper. Draw what you see in the **top half of the middle section** of the paper. When you draw the plan of a building, you are showing a horizontal "slice" at approximately four feet above the floor. When you look directly **down** at the top of the **un-cut** pepper, what you see is the "ROOF PLAN." Draw the roof plan of the pepper **below the floor plan**.

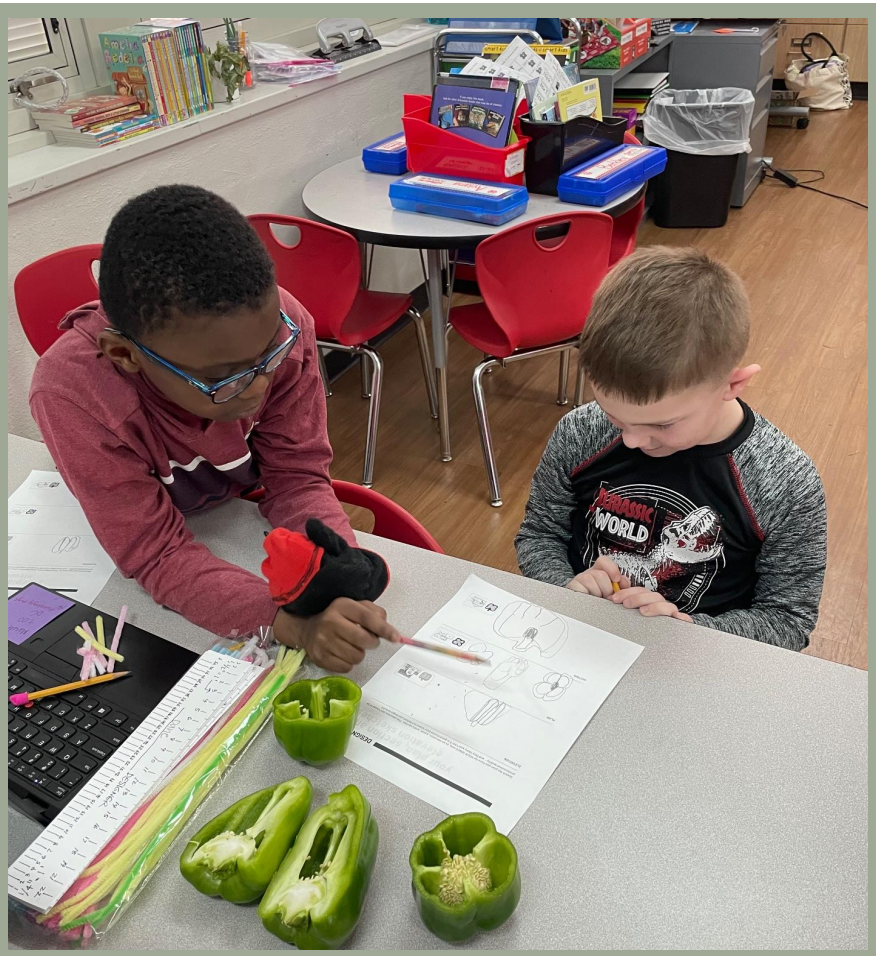
SECTION

Try to orient the shape of the pepper the same way for both drawings. On the **Floor Plan**, shade in the thickness of the "walls". This shading is called "poche."

3. Slice the third green pepper in half **vertically**. When you look at the cut side of either half, you see a SECTION view of the pepper. Sections show **vertical** relationships between spaces in a building, and the walls beyond the "cut line" can be drawn in elevation within the section. Just like the plan, it's a "slice" through the object– shade in the thickness of the walls, roof and floor like you did for the walls on the plan.

Priority: Understand Plan/Section/Elevation

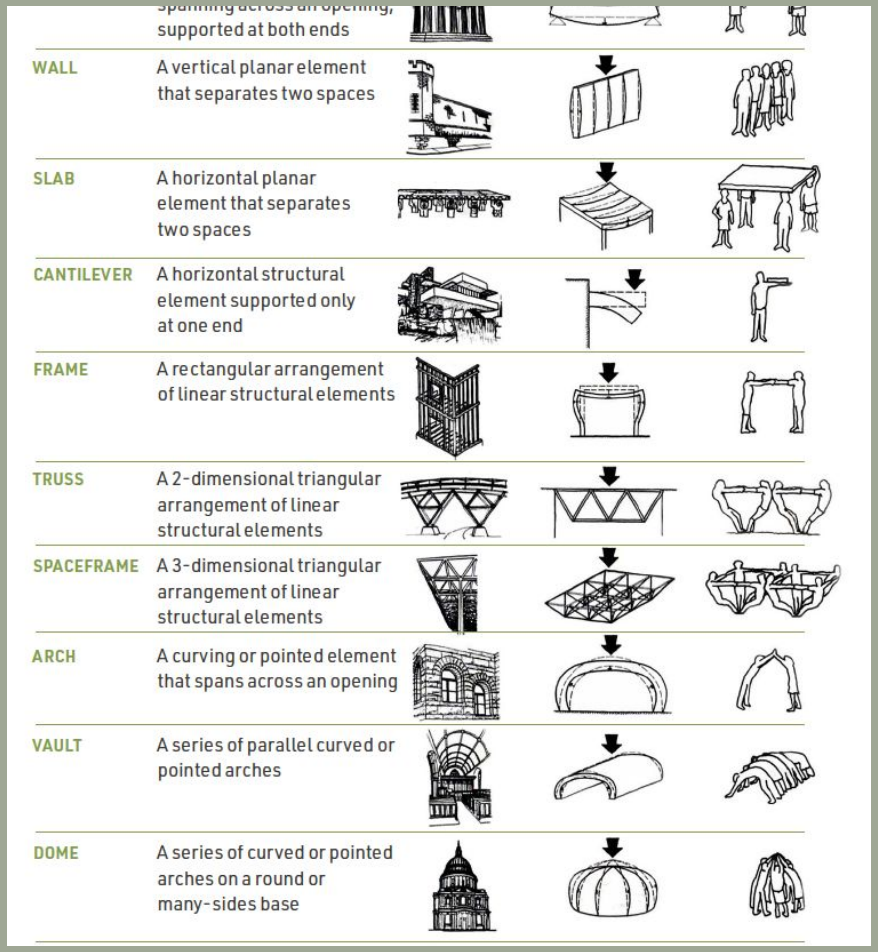




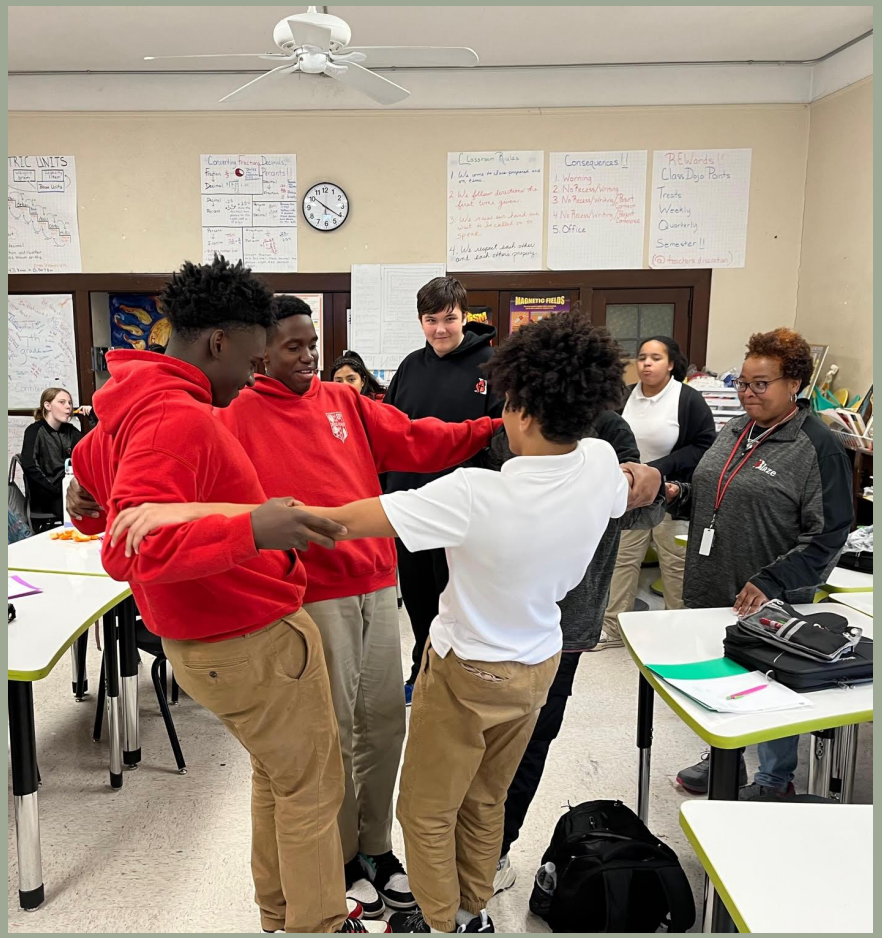
Week 3: Structures & Spatial Awareness

Priority: Understand Basic Building Concepts

- Powerpoint for reference, if you want to use it
- Very Active Lesson!
- If there is an option to do this in a larger/more open room - use it!



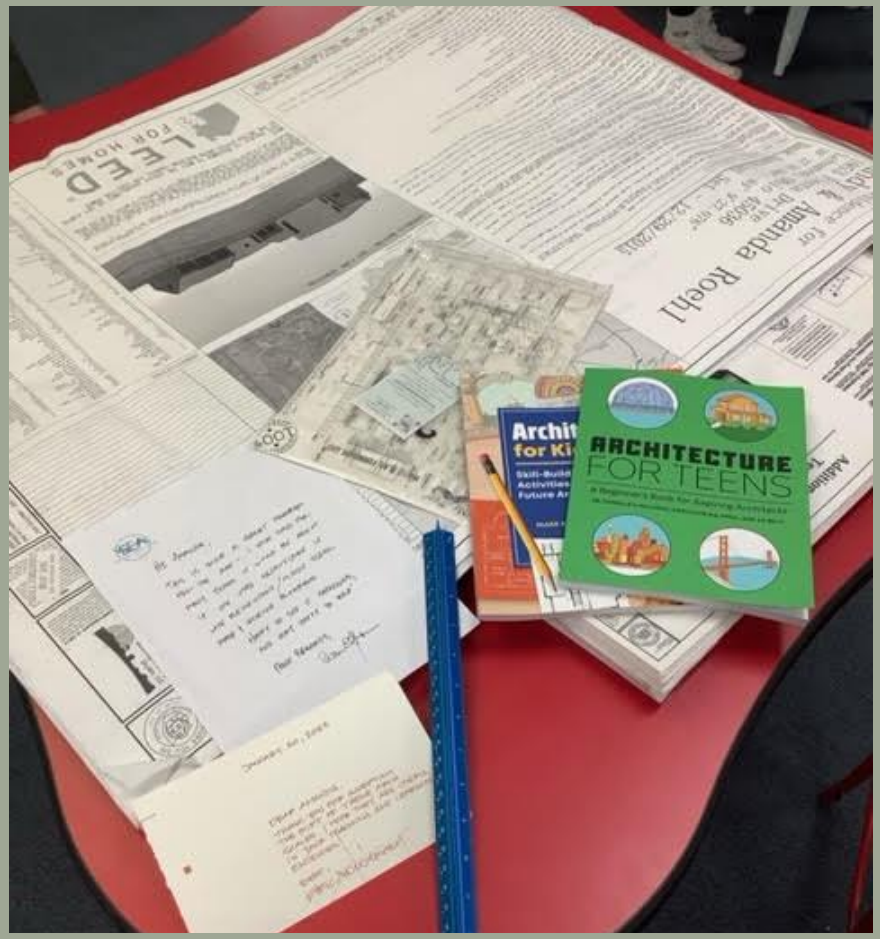
Priority: Understand Basic Building Concepts



Week 4: Sustainable Building Design

Priority: Understand Sustainability in Design

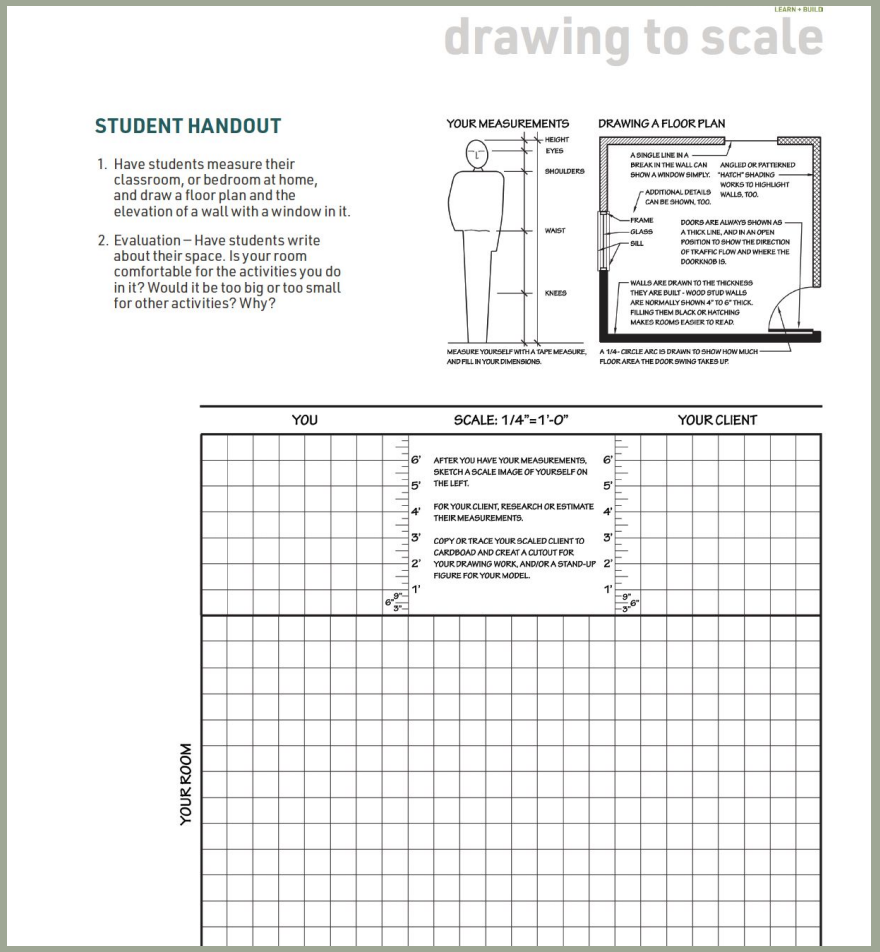
- First worksheet
- Start thinking about model
- Explain how sustainability works in your career
- Explain why it is important to build with the environment and people in mind - and why anyone wouldn't



Week 5:
Drawing to Scale

Priority: Students Understand Scale (Enough)

- No tears!
- Age-Appropriate introduction



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drawing to scale

STUDENT HANDOUT

1. Have students measure their classroom, or bedroom at home, and draw a floor plan and the elevation of a wall with a window in it.
2. Evaluation – Have students write about their space. Is your room comfortable for the activities you do in it? Would it be too big or too small for other activities? Why?

YOUR MEASUREMENTS

HEIGHT
EYES
SHOULDERS
WAIST
KNEES

MEASURE YOURSELF WITH A TAPE MEASURE, AND FILL IN YOUR DIMENSIONS.

DRAWING A FLOOR PLAN

A SINGLE LINE IN A BREAK IN THE WALL CAN SHOW A WINDOW SIMPLY.
ANGLED OR PATTERNED "HATCH" SHADING WORKS TO HIGHLIGHT WALLS, TOO.
ADDITIONAL DETAILS CAN BE SHOWN, TOO.
FRAME
GLASS
SILL
DOORS ARE ALWAYS SHOWN AS A THICK LINE, AND IN AN OPEN POSITION TO SHOW THE DIRECTION OF TRAFFIC FLOW AND WHERE THE DOORKNOB IS.
WALLS ARE DRAWN TO THE THICKNESS THEY ARE BUILT - WOOD STUD WALLS ARE NORMALLY SHOWN 4" TO 6" THICK. FILLING THEM IN BLACK OR HATCHING MAKES ROOMS EASIER TO READ.
A 1/4 - CIRCLE ARC IS DRAWN TO SHOW HOW MUCH FLOOR AREA THE DOOR SWING TAKES UP.

YOU | SCALE: 1/4"=1'-0" | YOUR CLIENT

6' 5' 4' 3' 2' 1'

AFTER YOU HAVE YOUR MEASUREMENTS, SKETCH A SCALE IMAGE OF YOURSELF ON THE LEFT.

FOR YOUR CLIENT, RESEARCH OR ESTIMATE THEIR MEASUREMENTS.

COPY OR TRACE YOUR SCALED CLIENT TO CARDBOAD AND CREAT A CUTOUT FOR YOUR DRAWING WORK, AND/OR A STAND-UP FIGURE FOR YOUR MODEL.

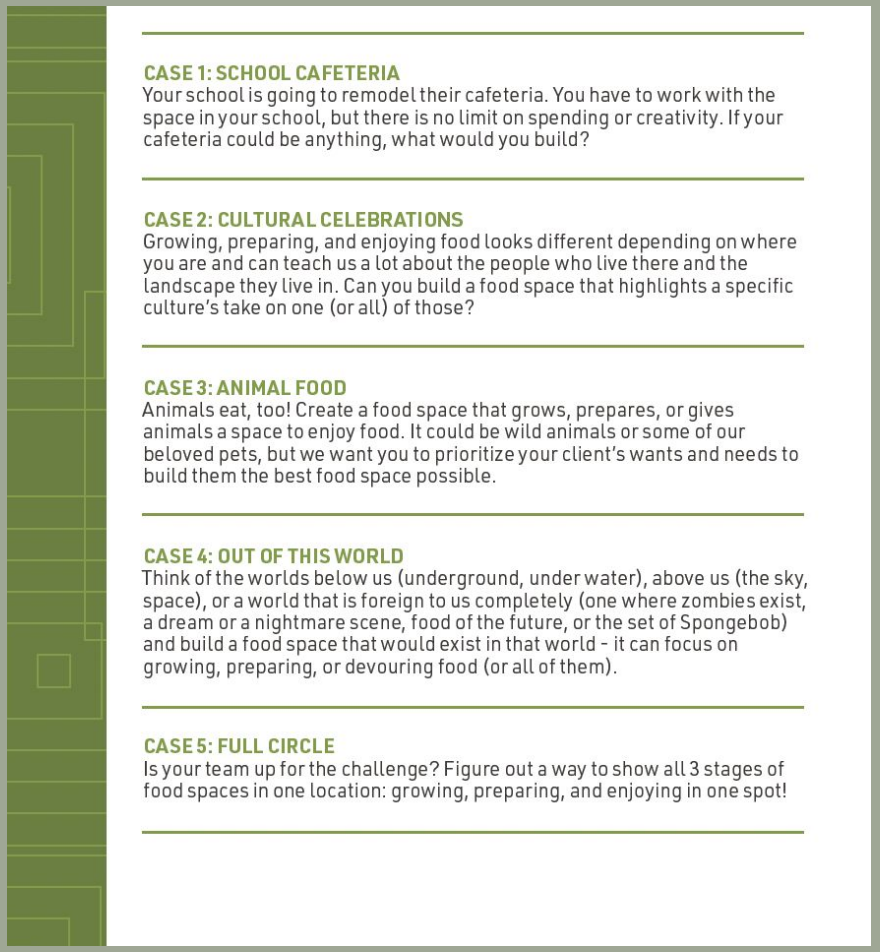
6' 5' 4' 3' 2' 1'

YOUR ROOM

Week 6: Client & Site Selection

Priority: Students Decide Site & Client

- Teams should be decided on by now (we recommend 4 per group)
- Research-heavy section
- Trifold Material
- Explain how this process is similar to or differs from how it works in your career



CASE 1: SCHOOL CAFETERIA
Your school is going to remodel their cafeteria. You have to work with the space in your school, but there is no limit on spending or creativity. If your cafeteria could be anything, what would you build?

CASE 2: CULTURAL CELEBRATIONS
Growing, preparing, and enjoying food looks different depending on where you are and can teach us a lot about the people who live there and the landscape they live in. Can you build a food space that highlights a specific culture's take on one (or all) of those?

CASE 3: ANIMAL FOOD
Animals eat, too! Create a food space that grows, prepares, or gives animals a space to enjoy food. It could be wild animals or some of our beloved pets, but we want you to prioritize your client's wants and needs to build them the best food space possible.

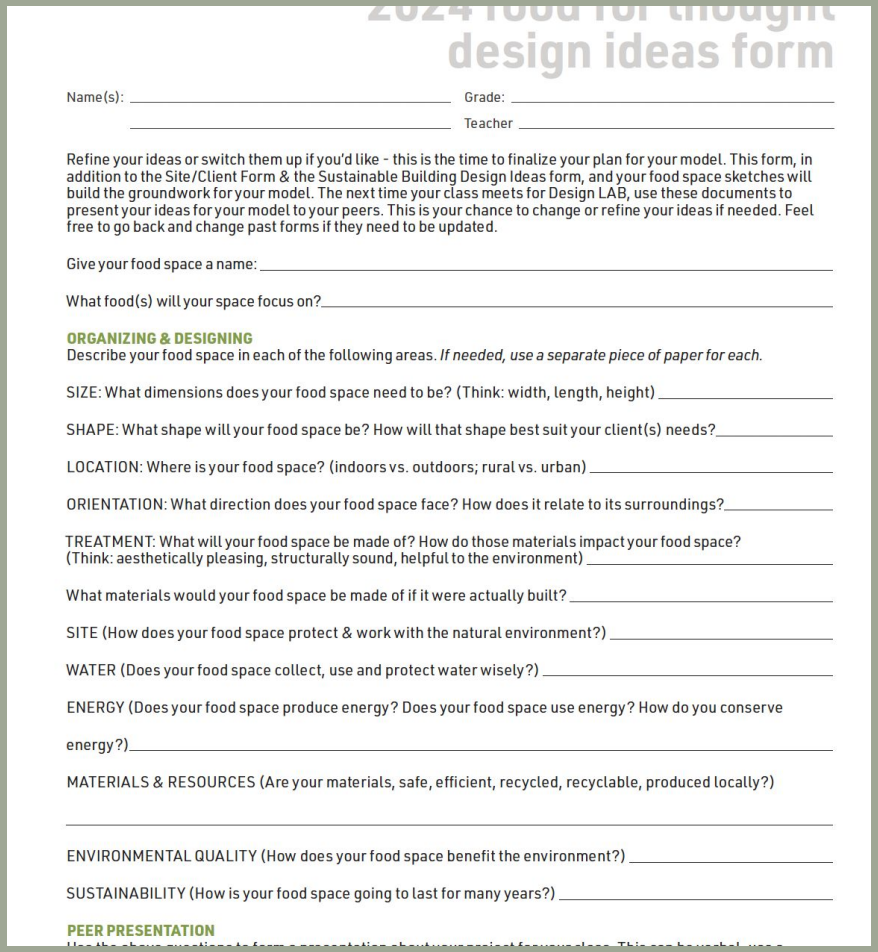
CASE 4: OUT OF THIS WORLD
Think of the worlds below us (underground, under water), above us (the sky, space), or a world that is foreign to us completely (one where zombies exist, a dream or a nightmare scene, food of the future, or the set of Spongebob) and build a food space that would exist in that world - it can focus on growing, preparing, or devouring food (or all of them).

CASE 5: FULL CIRCLE
Is your team up for the challenge? Figure out a way to show all 3 stages of food spaces in one location: growing, preparing, and enjoying in one spot!

Week 7: Design Ideas

Priority: Solidify Ideas

- Worksheet #2
- Decision making day
- Explain how this exercise relates to the real world - how does this look in your career?



2024 food for thought
design ideas form

Name(s): _____ Grade: _____

_____ Teacher _____

Refine your ideas or switch them up if you'd like - this is the time to finalize your plan for your model. This form, in addition to the Site/Client Form & the Sustainable Building Design Ideas form, and your food space sketches will build the groundwork for your model. The next time your class meets for Design LAB, use these documents to present your ideas for your model to your peers. This is your chance to change or refine your ideas if needed. Feel free to go back and change past forms if they need to be updated.

Give your food space a name: _____

What food(s) will your space focus on? _____

ORGANIZING & DESIGNING

Describe your food space in each of the following areas. *If needed, use a separate piece of paper for each.*

SIZE: What dimensions does your food space need to be? (Think: width, length, height) _____

SHAPE: What shape will your food space be? How will that shape best suit your client(s) needs? _____

LOCATION: Where is your food space? (indoors vs. outdoors; rural vs. urban) _____

ORIENTATION: What direction does your food space face? How does it relate to its surroundings? _____

TREATMENT: What will your food space be made of? How do those materials impact your food space? (Think: aesthetically pleasing, structurally sound, helpful to the environment) _____

What materials would your food space be made of if it were actually built? _____

SITE (How does your food space protect & work with the natural environment?) _____

WATER (Does your food space collect, use and protect water wisely?) _____

ENERGY (Does your food space produce energy? Does your food space use energy? How do you conserve energy?) _____

MATERIALS & RESOURCES (Are your materials, safe, efficient, recycled, recyclable, produced locally?)

_____

ENVIRONMENTAL QUALITY (How does your food space benefit the environment?) _____

SUSTAINABILITY (How is your food space going to last for many years?) _____

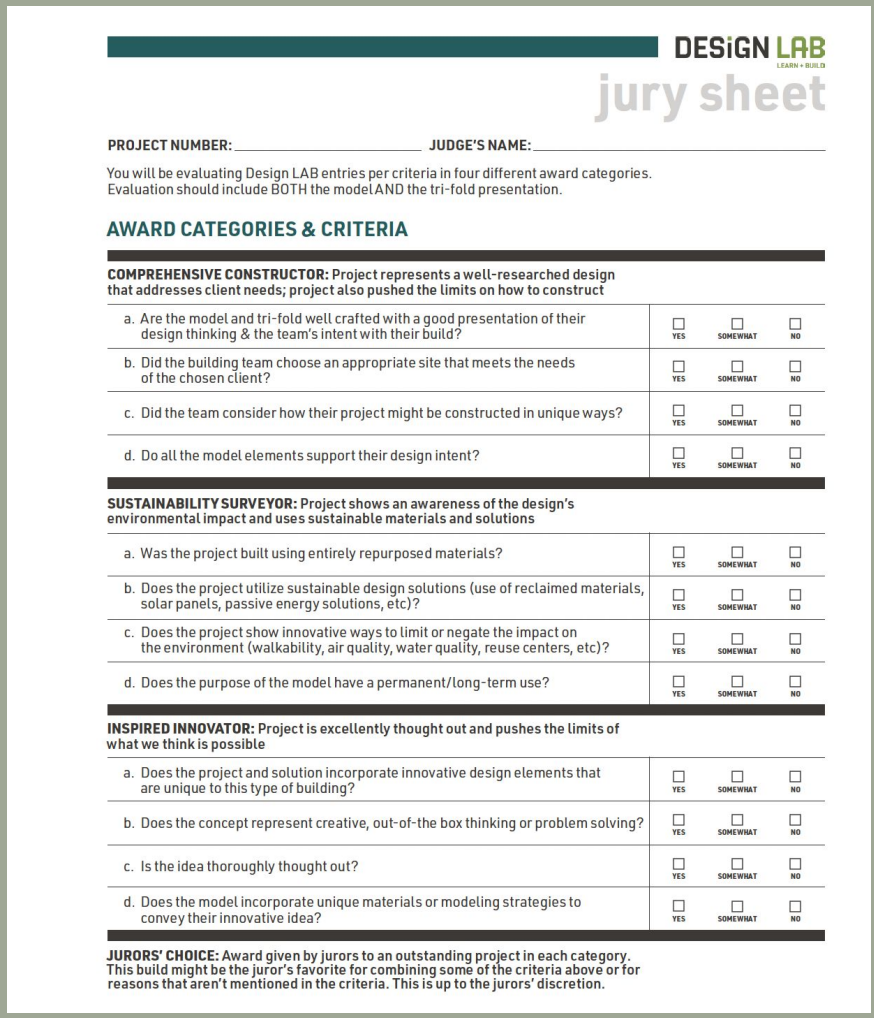
PEER PRESENTATION

Week 8: Peer Presentations

Priority: Practice Critiques & Presentations

- Revamped Jury Sheet to be more student-friendly

- Peer-reviews are an important part of this process, but can be done in different parts of the process



DESIGN LAB
LEARN + BUILD

jury sheet

PROJECT NUMBER: _____ **JUDGE'S NAME:** _____

You will be evaluating Design LAB entries per criteria in four different award categories. Evaluation should include BOTH the model AND the tri-fold presentation.

AWARD CATEGORIES & CRITERIA

COMPREHENSIVE CONSTRUCTOR: Project represents a well-researched design that addresses client needs; project also pushed the limits on how to construct

	YES	SOMEWHAT	NO
a. Are the model and tri-fold well crafted with a good presentation of their design thinking & the team's intent with their build?	☐	☐	☐
b. Did the building team choose an appropriate site that meets the needs of the chosen client?	☐	☐	☐
c. Did the team consider how their project might be constructed in unique ways?	☐	☐	☐
d. Do all the model elements support their design intent?	☐	☐	☐

SUSTAINABILITY SURVEYOR: Project shows an awareness of the design's environmental impact and uses sustainable materials and solutions

	YES	SOMEWHAT	NO
a. Was the project built using entirely repurposed materials?	☐	☐	☐
b. Does the project utilize sustainable design solutions (use of reclaimed materials, solar panels, passive energy solutions, etc)?	☐	☐	☐
c. Does the project show innovative ways to limit or negate the impact on the environment (walkability, air quality, water quality, reuse centers, etc)?	☐	☐	☐
d. Does the purpose of the model have a permanent/long-term use?	☐	☐	☐

INSPIRED INNOVATOR: Project is excellently thought out and pushes the limits of what we think is possible

	YES	SOMEWHAT	NO
a. Does the project and solution incorporate innovative design elements that are unique to this type of building?	☐	☐	☐
b. Does the concept represent creative, out-of-the box thinking or problem solving?	☐	☐	☐
c. Is the idea thoroughly thought out?	☐	☐	☐
d. Does the model incorporate unique materials or modeling strategies to convey their innovative idea?	☐	☐	☐

JURORS' CHOICE: Award given by jurors to an outstanding project in each category. This build might be the juror's favorite for combining some of the criteria above or for reasons that aren't mentioned in the criteria. This is up to the jurors' discretion.

Week 9-15: Modeling

Priority: BUILD!

Modeling

- Best practices
- Material Drive
- Glue/hot glue/tape
- Scissors, zip snip, etc
- Allow for mistakes!
- Fail Forward
- Let the students do the work

Priority: BUILD!

Week 16:
Mini Design LAB Exhibit

Reality:
19 Weeks

Priority: Choose Your Class' Model!

- Only one model can represent each class
- Utilize Jury Sheet for this
- Utilize Trifolds
- Up to teacher how this goes - students can decide, other classes can, teachers can decide, etc

See You at the EXHIBIT!!

- Project Drop Off
- Exhibit Opens
- Jury Event
- Exhibit Reception
- Awards Ceremony
- Exhibit Closes

HEAR FROM THE EXPERTS!

- What role should the volunteer and teacher have in the program?
- What if the volunteer cannot make it?
- What if class is cancelled?
- What leads to success in the program?
- What are the best & worst things to do in Design LAB?
- What other questions do you have?
- Stickers