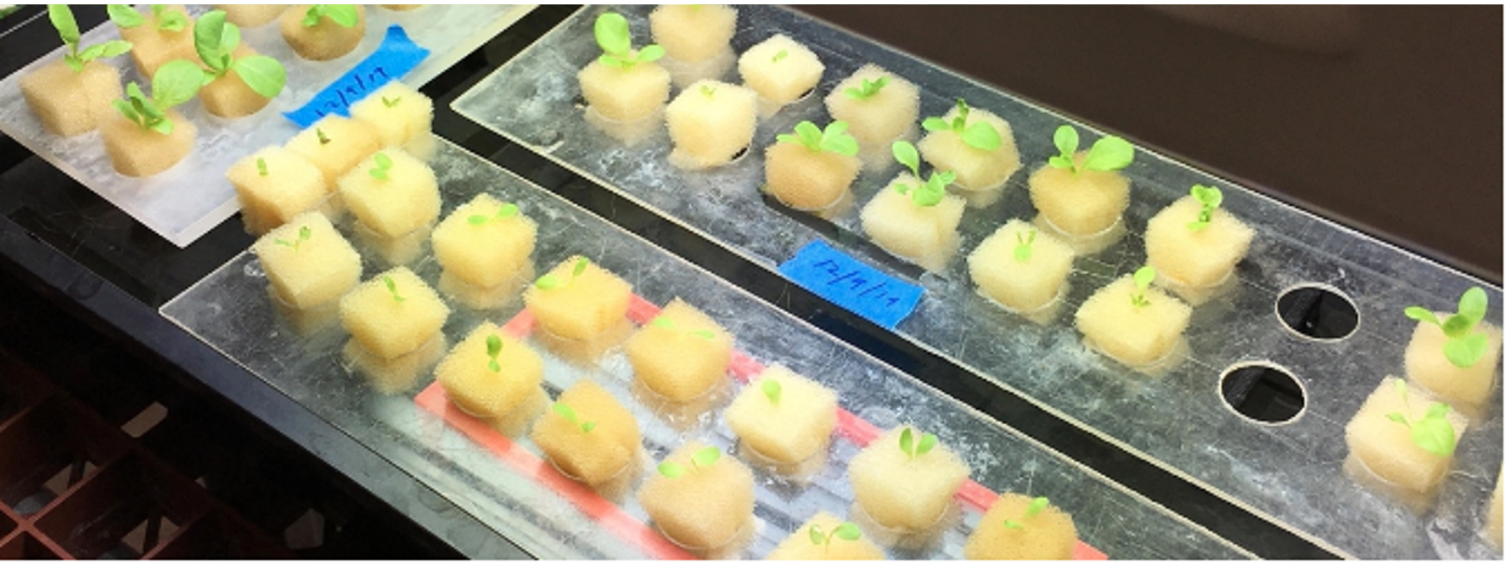
Ilima Intermediate



Hydroponics Project SY21-22
Research, System Design and Community Impact

Pacing and Outline Quarter 2 : Randall Shinn

for STEAM Entrepreneurship and Research Network– GEER Grant

v.2021

Schedule for Quarter 2

Target Date	Project Phase	Target Activity
Week 1 Oct 20-22	Phase 1: Introductions	• Introduction Video to Clients
Week 2 Oct 26-29	Phase 2: EMPATHY and ASK STEP	• REFER TO LINK TO THE RIGHT
Week 3 Nov 2-5	Phase 3: IMAGINE STEP	• REFER TO LINK TO THE RIGHT
Week 4 Nov 9-12	Phase 4: PLAN STEP	• REFER TO LINK TO THE RIGHT
Week 5-6 Nov 16-24	Phase 5: CREATE STEP	• REFER TO LINK TO THE RIGHT
Week 7-8 Nov 30 - Dec 17	Phase 6: IMPROVE STEP	• REFER TO LINK TO THE RIGHT

Hydroponic Data Record Sheet

2021.10.11 Hydroponics Data Record Sheet

PHASE 2: ASK STEP Oct 26-29, 2021

	Student Name	Student Name	Student Name
Kaimiloa Elementary School "Mr. Agatrap"	Student 1	Student 2	Student 3
Kaimiloa Elementary School "Mrs. Kawelo"	Student 4	Student 5	Student 6
Ilima Intermediate School "Ms. Arakawa"	Student 7	Student 8	Student 9
Ilima Intermediate School "Ms. Piecuch"	Student 10	Student 11	
James Campbell High School "Ms. Watari"	Student 12	Student 13	Student 14
Ilima Care Home	Student 15	Student 16	Student 17

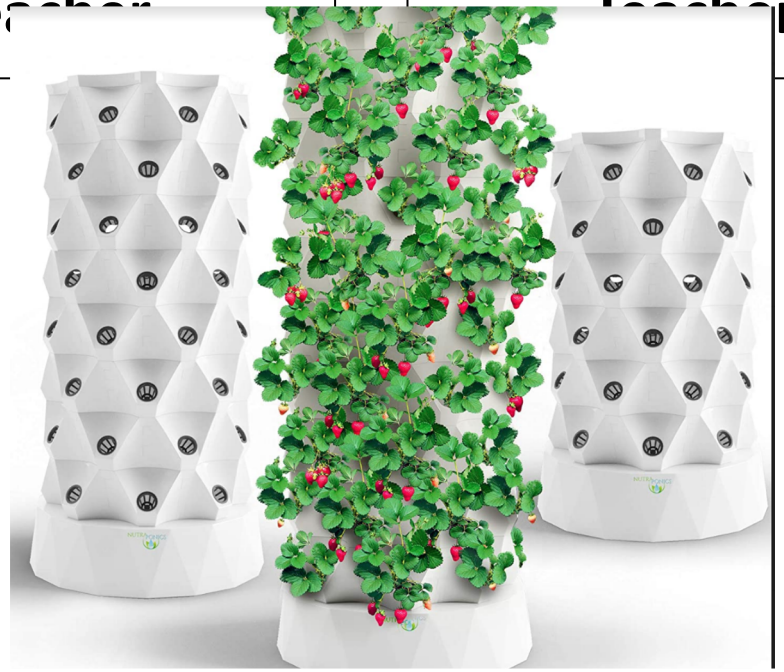
Client Interview

"Build relationship with client to care what client thinks"

KA'IMILOA ELEMENTARY

Mr. Agatrap - Te

Mrs.Kawelo - T r



Ilima Intermediate

Ms. Arakawa - Science Teacher

Option 1:
Tabletop Hydroponics

Ms. Piecuch - Cooking

Option 2:
Mobile Cart (Blue Rubbermaid-Style): Mobile because it has locking wheels but not as transportable

Client Interview

"Build relationship with client to care what client thinks"

James Campbell HIGH SCHOOL

Ms. Watari

(NR Core, Biotech /Productions teacher - Ag. Teacher)

Option 1:
Tabletop Hydroponics

'Ilima AT LEIHANO

Assisted Living for Residents

Elevated Bed Self Watering

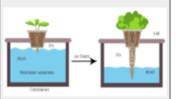
'Ilima AT LEIHANO

Raised Keyhole Garden Bed

Inspirational Message Stones

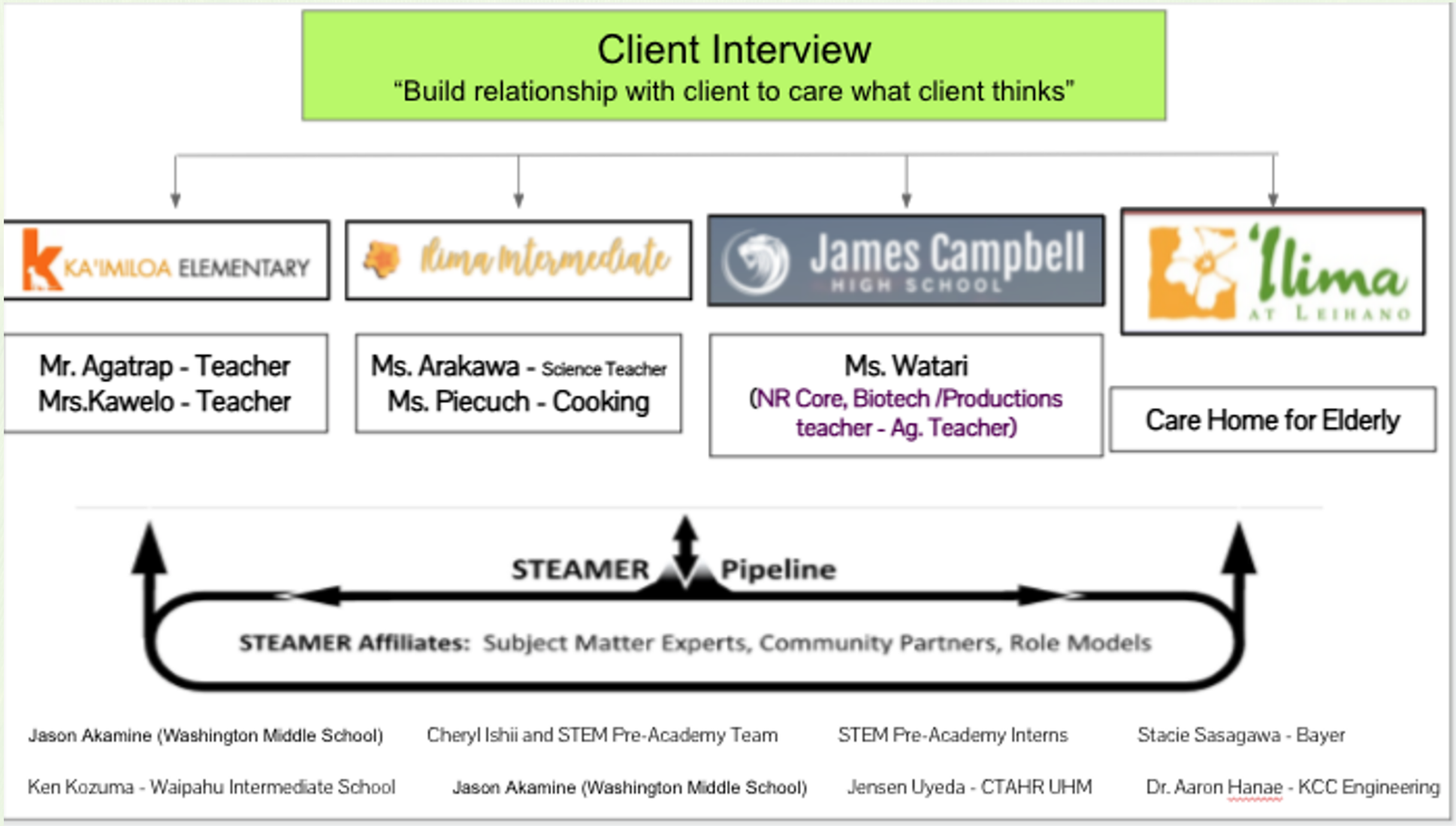
Elevated Bed Self Watering

Kratky Vessels



StoryBoard for Introductions

PHASE 2: ASK STEP Oct 26-29, 2021



PHASE 2: ASK STEP Oct 26-29, 2021

Hydroponic Option for Teachers

Select one option:

- Each student group will work with you to create a prototype that will work for your classroom needs! The option that you choose can be modified to support your needs in the classroom.

Option 1:
Tabletop Hydroponics

Option 2:
Mobile Cart (Blue Rubbermaid-Style): Mobile because it has locking wheels but not as transportable

Option 3:
Portable Carts: Portable because the cart can fold up and stored or transported easily.

Option 4:

Your own idea!

Note: Sensors will not be included in the prototypes that you will receive. However, sensors can be borrowed from the STEM Pre-Academy.

PHASE 2: ASK STEP Oct 26-29, 2021

	Option #
Kaimiloa Elementary School "Mr. Agatrap"	
Kaimiloa Elementary School "Mrs. Kawelo"	
Ilima Intermediate School "Ms. Arakawa"	
Ilima Intermediate School "Ms. Piecuch"	
James Campbell High School "Ms. Watari"	
Ilima Care Home	

PHASE 2: ASK STEP Oct 26-29, 2021

Empathy

Empathy is the first step in design thinking because it is a skill that allows us to understand and share the same feelings that others feel. Through empathy, we are able to put ourselves in other people's shoes and connect with how they might be feeling about their situation.

Some questions to consider:

- What is the age group of your students?
- How many students are in your classroom?
- Are the students in your classroom active and constantly moving and touching everything?
- What makes your students excited each day?
- What does your layout of your classroom look like?

Ask

Consider the customer's requests. Which criteria seem the most important to them?(this will require you to interview your customer to find out more information)

Possible Questions to Ask:

- Do you have a basic understanding of hydroponics? Kratky system?
  - If not, would you like a handbook on it?
- What is the average height of your students in your classroom?
- What are your plans for this system in your classroom? Are you planning on having students interacting with it or just a demonstration?
- What did you like about the option that you selected? What did you not like about it? What changes would you like to see?

Phase 3: Imagine Step Nov 2-5, 2021

IMAGINE

- Conduct some background research on the design option that your client selected.
- Use what you learned from your client (empathy and ask) to sketch your design, making sure to label your diagrams with materials for each component.

Insert Design Here

Phase 4: Plan Step Nov 9-12, 2021

- Write out the steps for constructing your design with as much detail as possible. Remember to include measurements, shapes, and materials.
- Be sure to think through each step of the process. Which components will need to be built first?
- Evaluate your written plan. Would your teacher be able to construct your design based on your instructions?

Phase 5: Create Step Nov 16-24, 2021

- Follow your written procedure to assemble your hydroponics system for your client.

Phase 6: Improve Step Nov 30-Dec 17, 2021

- Show your system to the client.

- What recommendations does your client have to say about improving the system?