

# Homegrown Hydro [ GLOBAL ISSUES ]

PROJECT STEPS	WAYS OF PROBLEM SOLVING AND SHARING YOUR PROJECT		
Dream It!	<b>SOLOIST</b> We/I had no need for brainstorming ideas, we only listened to one person who had a pretty good idea How many ideas did you explore?	<b>COLLABORATOR</b> We/I took turns brainstorming and discussed various solutions according to our constraints and time and different perspectives How did you choose an idea to explore deeper?	<b>INNOVATOR</b> We/I studied other ideas for inspiration, brainstormed and discussed multiple options, then came up with a unique solution How did you choose an idea to explore deeper?
Draw It!	<b>EXPLORING</b> My model or drawing can be explained by the makers	<b>EVOLVING</b> My model drawing can be understood by anyone because it is clearly labeled, to scale	<b>EXPANDING</b> I used 3D sculpting tools, like TinkerCAD, Fusion 360
Build It!	<b>EXPLORING</b> This is all new for me, I am trying new tools or materials and I am not sure what will happen	<b>EVOLVING</b> I am experienced with the tools and materials, I am able to make several iterations of my idea with ease	<b>EXPANDING</b> I am experienced with the tools and materials, I am able to make several meaningful iterations of my idea based on testing and feedback
Share It!	<b>PEER PUSH</b> Share your global solution with someone who did not make it, ask them for their feedback and suggestions on how to improve the design	<b>COMMUNITY CONNECTION</b> Share your project in a school wide or online family share showcase where you can explain the process of how you made your design	<b>GLOBAL GURU</b> Share your global solution with others so they can learn from you. Consider using TikTok, Instagram, Tumblr or Twitter if you are 13 or older
Expand It!	<b>SOLOIST</b> I took my design and tried various changes to its design based on my testing	<b>COLLABORATOR</b> After documenting, testing, and listening to the feedback of others, I changed my design and it is better with the help of others	<b>INNOVATOR</b> I created something that we have never seen or mashed together different crazy Ideas to make something new.
<b>Makers Choice</b> Is there a criteria that you feel your project or efforts should be evaluated on that is not listed yet? If so, write it here:			

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## RATE THIS PROBLEM:

How hard was this project over all? (Check appropriate box)

1	2	3	4	5	6	7	8
EASY							HARD
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## REFLECT ON YOUR PROBLEM:

What made it hard (lack of ideas, knowledge, time, materials, help, tools, etc.)?

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All designers and engineers get stuck when making something for the first time. When I got stuck or needed inspiration what did I do?

- ☐ Did I use a tutorial? (listen and watch to learn)
- ☐ Did I discuss my ideas with others in person or online? (discuss to learn)
- ☐ Did I start to build even before I totally knew what I was doing? (tinker to learn)

1. Hydro and aquaponics work because the essentials needs of the plant are met without soil. What are the essential needs of a plant to grow and be healthy?
  
  
  
  
  
  
  
  
  
  
2. How might a hydroponics system be better than traditional farming on land? How might a hydroponics system be worse or more challenging?
  
  
  
  
  
  
  
  
  
  
3. According to some sources, a hydroponics system can expect about 40 pounds of food per square foot, per year. How large would your indoor hydroponics system need to be in square feet to yield 140 pounds of food each year?