



Smart STEM Challenge

Urban Hydroponic Farming

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Category: Insert here one of the following categories:

1. Environmental Science

Age Group: Junior (Grade 7-9) Senior (Grade 10-12)

ABSTRACT: The modern world that we live in today is plagued with issues and it is time for us as the new generation to come up with solutions to solve the dilemmas that we will face in the near future. One issue that pops up many times in my community is the issue of food poisoning due to the use of too much fertilizers in the crops. Once the consumer takes in the vegetable, the harmful fertilizers will affect the person's health. My team has come upon a great idea to help those living in the city try to prevent misfortune. We are here to present the idea of pisciculture-hydroponic farming. To explain our proposed method of farming, we want people living in urban areas to grow crops using hydroponic method but instead of leaving the water beneath empty, we recommend adding a fish farm below so that they can develop a symbiotic relationship with the plants. The fish will eat the dead root tips of the plant as a source of food and the plants will use the waste of the fish as a natural fertilizer. To see the reason why this method should be put to use on a large scale, we need to examine the cost and benefit of this technique. The cost of this method is very minimal and it requires a single investment as you can reuse it several times. The benefits of this farming method strongly outweigh the cost as there are countless positive outcomes. One instant benefit is that you have more control over your vegetables since you are growing them yourself. This is safer as you want to avoid the crops that are heavily bombarded with fertilizer. Another benefit is the effect that it has on the environment. Most of the vegetables that you find in your super market nowadays are from a large plantation a few hundred kilometers away. Just imagine the process required to transport the vegetable. The truck needs to take it from the farm to a storage facility somewhere in town and then another truck needs to transport it to the super market. We need to drive our own vehicle to go get it from the supermarket. That is a lot of air pollution that can be easily cut down by growing food on your rooftop. If we grow crops on your rooftop, then your food is basically a flight of stairs away. If we are able to convince enough people to use this method, we can help create a cleaner air for the city because green crops are able to do photosynthesis that help the environment. The effect might be minimal but on a large scale it can make a difference. Some may say that this process is too time consuming or too tiring but they will need to ask the question of whether they prioritize their health or 5 min of their day everyday. The areas that my team wanted to focus on is environmental science and we believe that this process is an example of how we can do small things together to help the environment that we are living in today. Please proceed to watch the video that our team has prepared to further get a better grasp of this idea.

