

AQUAPONICS

Max, Ian, Ava, Rachel, and Benjamin

WHAT IS AQUAPONICS?

MAX

Aquaponics is the use of fish excrements to fertilize plants to grow them in water. Aquaponics requires fish like catfish or goldfish and is a great way to grow organic, fresh plants! Every week, for aquaponics pH, ammonia, nitrite, and nitrate levels are tested. These things are tested to make sure that the fish have a healthy environment. The image below is a picture of the colorful test tubes.



MY EXPERIENCE AT THE GREENHOUSE

MAX

My experience at the greenhouse was amazing. Most of the days, I was measuring the pH, nitrate, nitrite, and ammonia levels of the water. When I wasn't measuring the levels, I was taking pictures, measuring the size of the plants, and misting the seeds. The greenhouse has more than just aquaponics. It has hydroponics, composting, vermicompost,

WHERE IS AQUAPONICS USED

RAY

Aquaponics is used all over the world today. For example the Caribbean island of Barbados just created an aquaponics system to help create a better ecosystem. Bangladesh is a very poor country to make up a better economy they created an aquaponic system which spread all over the country. Now the country has many fruits and vegetables they grew from their aquaponics system. Many other countries also use aquaponics like, Barbados, North Dakota, Bangladesh, Australia, Palestine, Gaza Strip, Israel, Denver and many more.

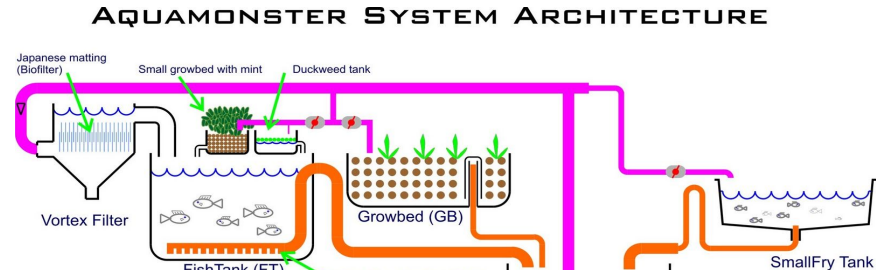
Max and Benny are checking the ammonia and the pH in the fish tank



WHY IS AQUAPONICS USED?

Ava

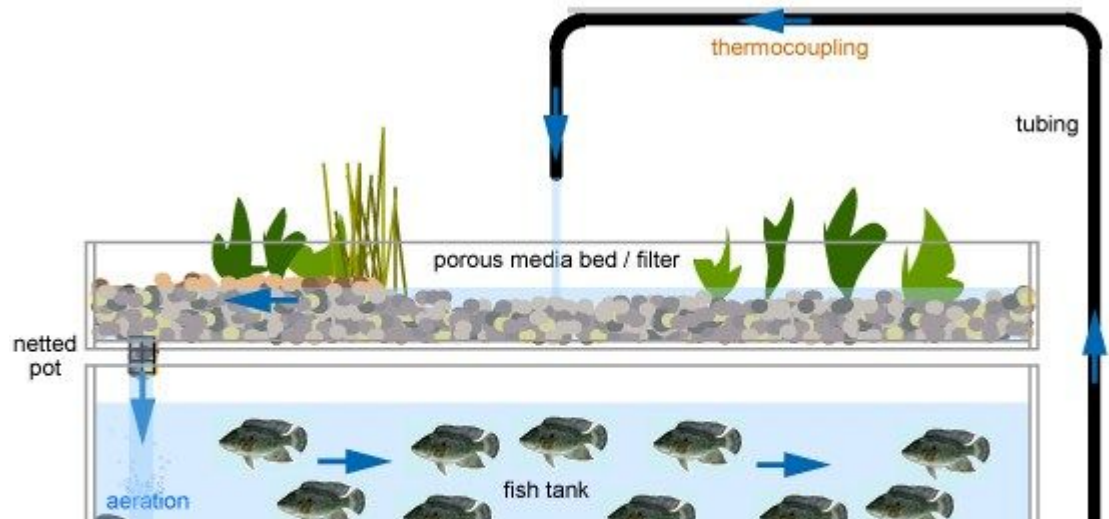
Compared with Hydroponics, Aquaponics does not need to use chemical nutrients for the plants, on as the fish waste provides these nutrients to the plants. Compared with Aquaculture, **Aquaponics** systems do not have a buildup of wastes in the system that causes the water to become toxic due to the nitrites.”



WHO WOULD USE AQUAPONICS?

Ava

Some people who use Aquaponics are farmers, supermarkets, and even just home gardeners. Supermarkets use aquaponic for their luscious green plants and herbs for selling at stores, farmers use aquaponics to sell for money, and home gardeners use it for cooking!



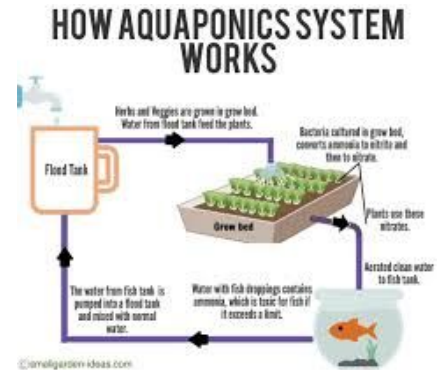
MY EXPERIENCE IN THE GREENHOUSE.

Ava

My experience in the greenhouse was superb. We measured plants height (in centimeters), pH, Ammonia, Nitrate, Nitrite, and water levels. This was done to make sure that the fish are healthy. We also feed the catfish and goldfish. We also learned about different types of plants.

HOW DOES AQUAPONICS WORK- IAN AND MAX

Aquaponics uses a big tub filled with water, a filter, and little ceramic pebbles. The fish excrements fertilize the water. Tubes bring the water up to the pebbles, where seeds are planted. Once a week, water is misted onto plants and they grow. Once they are harvested, they taste just like regular organic fruits and vegetables.



WHAT EACH PERSON DOES IN THE GREENHOUSE- IAN AND MAX

Each person does a certain job like cleaning and feeding fish and watering the plants. We also check the pH of the fish tank, and the Nitrite and Nitrate and each person switches every time and there is someone taking pictures that's what we do in aquaponics. These jobs are done to ensure a healthy environment for the fish.



WHAT DOES AQUAPONICS LOOK LIKE IN THE WMS GREENHOUSE - IAN AND MAX

Aquaponics in the WMS greenhouse has a lot of different parts. For one side, there is a fish tank where the fish live and get fed. Above these tanks are big plastic containers with clay balls where plants are stored and grown. Some plants that grow here are red leaf lettuce, arugula, spinach, picasso's paintbrush, croton, tomato, and more! All these plants are surrounded by even more things like hydroponics and vermicompost.

MEASUREMENTS IN THE GREENHOUSE

BENJAMIN AND MAX

3/6/17-First time in the greenhouse

Ph: 6.4 (This is not good because it is basic to the fish and can kill them if they are not being moderated)

Ammonia: .50 ppm (This is not good because ammonia transforms into nitrite, which is poisonous)

Nitrite: 0 (This is good because nitrite is poisonous to the fish)

Nitrate: 160ppm(This is not good at all because if the nitrate is high then the fish can't breathe)

MEASUREMENTS IN THE GREENHOUSE

BENJAMIN AND MAX

3/24/17-Second time in the Greenhouse

Ph:6.0(This is not good because it is basic and can kill the fish if not in moderation)

Ammonia: .25 ppm(This is better than before. The ammonia is best at 0 ppm, but the fish are still healthy like this)

Nitrite:0ppm(This is perfect because the fish will be healthy this way)

Nitrate:160ppm(This is still not good because the fish do not have Oxygen)

MEASUREMENTS IN THE GREENHOUSE

BENJAMIN AND MAX

3/27/17-Third time in the greenhouse

Ph: 6.0(This is basic, which is not good)

Nitrite: 0 ppm(This is good, and means that the fish are healthy)

Nitrate: 80 ppm(This is better than before. It means that the fish are getting healthier with their Oxygen)

Ammonia: .50 ppm(This is not good because it converts to nitrite, which is poisonous)

MEASUREMENTS IN THE GREENHOUSE

BENJAMIN AND MAX

4/19/17-Fourth Time

Ph:6.6(This is better but it is still basic)

Nitrite:0ppm(This is perfect conditions for the fish)

Nitrate:160ppm(This is not good because the fish could be oxygen starved)

Ammonia:1.5ppm (This is not good at all, and can convert to deadly things)

GREENHOUSE?

MAX AND BENNY

When in the greenhouse...the average temperature ranges from 75 degrees fahrenheit to 85 degrees. It is important that the temperature stays like this because it keeps the plants growing well. Many things are grown in so many different ways. Specifically what was being grown while our group was in the greenhouse was Red leaf lettuce, Arugula, Spinach, tomato, and much more. Also when in the greenhouse, we recorded the measurements of the plants and the four main measurements of the water. pH, Ammonia, Nitrite, and Nitrate. The plants were being grown by Aquaponics.

SUMMARY

RACHEL K

Aquaponics is used everywhere and for many things. People use the aquaponics to make the world a better place. They recycle old objects and connect to a tube of water with fish. The poop of the fish is used as fertilizer to help the plants grow. After the plants grow they are able to have fresh grown plants. They use aquaponics all over the world like in Barbados, North Dakota, Bangladesh, Australia, Palestine, Gaza Strip, Israel, Denver and many more. While you have fish and you're using them for aquaponics you need to clean the water and check for pH, nitrate, nitrite, and ammonia. People who use aquaponics would be farmers, landowners, homeowners and many other people. While we were in the greenhouse we each were able to water the plants, check for nitrate, nitrite, pH and ammonia. We had fun and learned a lot in the greenhouse.

In this image you can see the fish they use in the WMS greenhouse for aquaponics. (goldfish)

