Fish and Plants Working Together to Help Each Other Grow

Mr. Wade's 4th Grade Class
Derby Ridge Elementary

How fish help the nitrogen cycle work.

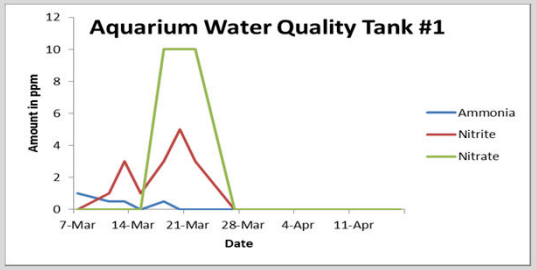
We wanted to know what happens to Fish waste in an aquarium.

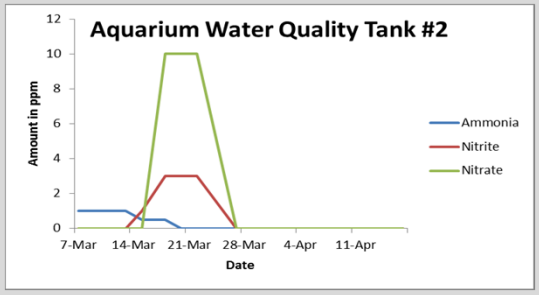
So, we wrote a grant to get money to Buy fish, tanks, food, and testing supplies.

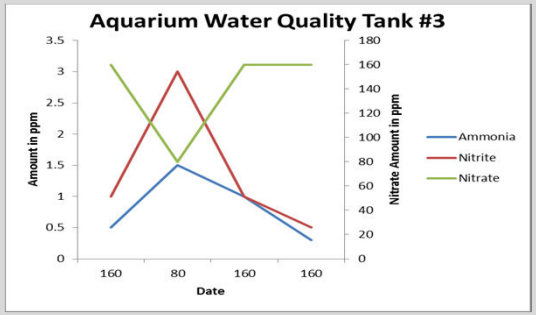
Then we tested the water over time and tested the temperature.
We tested for ammonia, nitrite, and nitrate.

We observed that ammonia went up first, then nitrite went up second, and nitrate went up third. Nitrate went up the highest. Then all three dropped to zero.

This makes sense with the nitrogen cycle because we see ammonia turning into nitrite and nitrite into nitrate. We see ammonia going down when nitrite goes up and nitrite going down when nitrate goes up.







Conclusions:

-We observed the nitrogen cycle in our aquariums.

-We noticed that the nitrate went down to zero instead of going up. We think this is because we saw algae growing in the tank eating the nitrate.

Future Experiments:

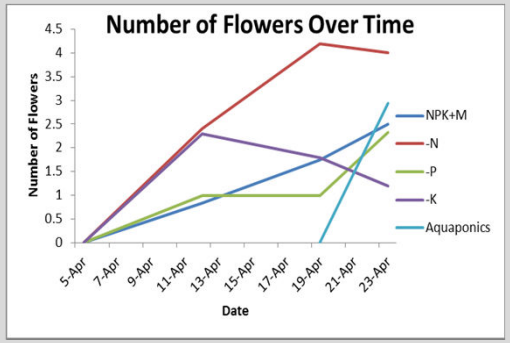
To test if algae can remove nitrate we would do this again but test for algae or kill algae with algicide, snails, or suckerfish. With our aquaponics experiment we would like to do the expierment over using the same light and at the same height.

How plants are affected by fertilizer they get.

What we did:

We gave plants different nutrients to see how it would affect the way they grew.

Some plants died and some grew better. Some were bigger but didn't have very big leaves and some didn't grow as fast.



Results:

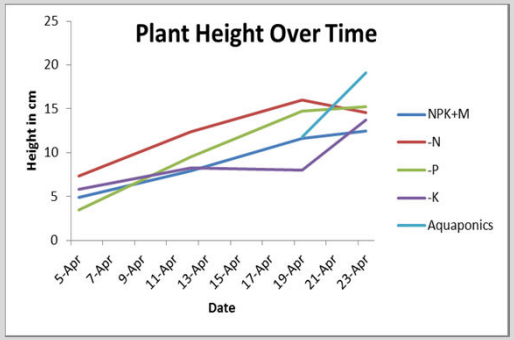
-Plants with no nitrogen fertilizer had the most flowers.

-The plants without potassium had the least amount of flowers.

-The plants without phosphorus grew the tallest and the plants with everything were the shortest.

-The plants without phosphorus had the most leaves and the one with all fertilizer had the fewest leaves.

-We didn't see a huge different in mass for our fertilizer treatment, but the ones without phosphorus were the heaviest and the ones with all the fertilizer was the lightest.



Aquaponics Experiment:

Because we measured so much nitrate in aquarium 3, we thought the water would make the plants grow bigger.

The plants growing in aquarium water grew really well even though we didn't fertilize them because of the extra fish, frog, and crayfish waste in the tank.

We can't compare the aquaponics plants to the other ones because they got different light.