Planting Science Journal

Data Table

02/22/24

Research Question: Does the amount of soil affect how quickly a plant, starting at a seed, can grow? We came up with this question because we know soil is necessary for plants to grow, so we wanted to see how much soil affects how quickly a plant can grow.

Experimental Design: We would like to experiment what would happen when we decreased the regulated amount of soil by half and then that by half. We would like to perform this with three of each soil amount. So, we will be putting six seeds in each pot. This will help to support our claim more strongly with more evidence. We are conducting our experiment on radishes. We think that this will be the best possible plant because radishes have to grow in the ground and we are excited to see what will happen with less soil. We would give our plants 20 ml of water measured from a granulated cylinder every other day of the week and give it the same amount of sunlight just with less soil. We are planning to conduct our experiment over 5-6 weeks. We are hoping that doing this will help us see if the growing process can be sped up and if plants can truly sprout and grow with less soil. We are planning on using six seeds per pot.

Prediction: We think when the radishes are exposed to less soil it will take longer for it to sprout and it would look different and be a different size then the typical radish would.

03/04/24

What We Did Today: Today we planted our radishes. When we were planting we made sure to evenly water our pots before putting the seeds in them. Before we did that, we carefully measured the soil to make sure we had the right amounts of soil in each control group. After our soil was wet we planted six seeds in each pot. We plan to water our pots weekly on Fridays. Hopefully at the end of this experiment all of our plants will grow and be healthy.

03/07/24

What We Did Today: Today we checked on our plants. Originally we were gonna water our seeds once a week. After checking on our pots and seeing no growth and very dry soil, we decided to change our watering plan. With our new watering system we plan to give our plants sixteen ml of water five times a week. As I stated before, our plants showed no growth. In fact some of the seeds in the pots with less soil were resting on top of the soil.

03/08/24

What We Did Today: Today we looked at our plants and saw that one of our plants that had ½ cup of soil had sprouted. Also, we decided to water our plants every other day to avoid flooding our plants seeing as they were still wet from yesterday. We also noticed that some of our plants with less soil amounts were starting to sprout because the seeds were opening up. Ultimately, the plants with more soil are sprouting faster than the ones with less soil. For example, the plant with ½ cup of soil had already sprouted overnight, whereas the plants with ¼ cup of soil and ⅛ cup of soil are only just starting to begin sprouting. We are also going to put our plants in the sun today. They weren't in the sun before because our whole grade is doing this experiment and we have to rotate which plants get sun and which don't. We put all of our data in our data table. Hopefully when we come back to school on Monday after the weekend our plants will have sprouted even more and grow even taller.

03/11/24

What We Did Today: Today we saw that our plants had sprouted even more. We also watered our plants and moved them into the sun. We measured our plants and found that the plants with the normal amount of soil for radishes are the tallest at 6.04 cm tall for ½ cup 1, 6.375 cm for ½ cup 2, and 4.8 cm tall for ½ cup 3. The plants with less than ½ cups of soil however, are only starting to crack their seeds open. Tomorrow we plan on seeing even more growth.

03/13/24

What We Did Today: When we arrived in class today we water our plants. After we water our plants we measure them. Our average plant heights for each plant are: 7.1 cm for ½ cup 1, 6.875 cm for ½ cup 2, 5.4 cm for ½ cup 3, and 0 for all three ¼ cup pots and all three ⅛ cup pots. Even though the ¼ cup pots and the ⅛ cup pots are at zero, they are still making progress in cracking their shells and starting the beginning stages of sprouting. The plants so far have very light green stems that are almost white with small green leaves. They have a habit of not standing up and just

flopping over. We also took our plants out of the sun today to give our other classmates plants a chance to get some sunlight. Hopefully tomorrow or Friday our plants can go back in the sun. We are glad to see that every day we come into science we are seeing growth in our plants.

03/15/24

What We Did Today: Today when we came into class we water our plants. After our plants were watered we measured them. The average measurements were : 8.5 cm for ½ cup 1, 10.17 cm for ½ cup 2, 7.6 cm for ½ cup 3, and everything else is at zero. Although ¼ cups 1-3 and ⅛ cups 1-3 are at zero cm, they are still making progress by breaking through their seeds. Even though it isn't sunny today, we still moved our plants by the window. The plants had tremendous growth between Wednesday and Today. Most of them grew at least 1 cm, with the tallest being 13 cm tall. The plants are still the same color green as they were on Wednesday. Hopefully when we come back to school on Monday the plants will have grown even more.

03/18/24

What We Did Today: Today when we came into the classroom we checked our plants and immediately saw noticeable growth. The average measurement for each plant is : 9.4 cm for ½ cup 1, 10.6 cm for ½ cup 2, 7.8 cm for ½ cup 3, 4 cm for ¼ cup 1, 0 cm for ¼ cup 2, 0 cm for ¼ cup 3, 0.875 cm for ⅛ cup 1, 1 cm for ⅛ cup 2, and 0 cm for ⅛ cup 3. Noticeably multiple seeds sprouted over the weekend. However, due to not being watered over the weekend, some of the plants are a little droopy. They are still a light green on the leaves and even lighter on the stems. We also put our plants into the sun. Since they are droopy we plan to stake some of them to help them stand. When we come back to science tomorrow we are hopeful that we will see more growth and less droopiness.

03/19/24

What We Did Today: Unfortunately when we came in today, we saw that our plants were really dry. In fact, ½ cup 1 was so dry that the sprouts in that pot are crispy to the point where they are almost dead. We have decided to up our water to 20 ml of water every other day to try to prevent this from happening again and instead of putting them in the sun today we will put the pots in the sun tomorrow so they have time to rejuvenate. Although we are upping the water to 20 ml, we put in 24 ml in the pots that were extra dry today and plan on putting 20 ml in on Thursday. Since the

plants are dry, the plants didn't grow and are the same height. Hopefully tomorrow when we come back into class tomorrow our plants will no longer be dry and will have grown taller and stronger.

03/22/24

What We Did Today: Today when we came into class we decided to un-stake our plants. We decided to un-stake them because we didn't want our plants to become bruised. Also, we watered our plants with 20 ml of water yesterday. Today we gave the plants an extra five ml of water so that over the weekend they don't dry out again. Unfortunately when we took the stakes out, some of the plants that were with the stakes were so crispy and dead they broke off and got pulled out of the soil. When we were taking measurements we noticed that our plants shrunk. Although some of the taller ones shrunk, the ones that had not yet sprouted, have grown. The measurements for the plants are: 6.3 cm for ½ cup 1, 10 cm for ½ cup 2, 6.5 cm for ½ cup 3, 3 cm for ¼ cup 1, 0.5 cm for ¼ cup 2, 0 cm for ¼ cup 3, 1.2 cm for ⅛ cup 1, 0 cm for ⅛ cup 2, and 0.10 cm for ⅛ cup 3. So, even though some of them shrunk, some of them also grew. We also decided to put the pots out in the partial sun today and over the weekend. Hopefully when we come back to school on Monday our plants will be revived at least a little bit.

03/25/24

What We Did Today: Today when we came into class we noticed that our plants needed to be watered and that some of the plants were dry. Some of the plants are still a little bit crispy but even though some of them aren't standing up, they are looking a lot better. One of the plants in ½ cup 3 is looking much stronger than the rest of the plants in any of the other pots. We plan on putting the plants in the sun today. Most of the plants have very thin, white, stems, with light green to a darker green gradientented leaf. By the looks of it the pots with ⅛ cup of soil and ¼ cups of soil did grow over the weekend. Hopefully over the next few days the plants will get stronger.

04/01/24

What We Did Today: Today we came into class for the first time in a week and saw that almost all of our plants were dead. Since we weren't in school for a week, our plants couldn't be watered. Therefore, our plants died, and the plants that didn't die, shrunk. The measurements for the plants are: 2.67 average cm for the 1/2 cup, 0 average cm for the ¼ cup, and 0 average cm for the ⅛ cup.

Although the plants are dead, we still gave them 20 ml of water each. We also put them in the window to give them some sunlight. Hopefully tomorrow our plants will be a little stronger.

04/02/24

Conclusion: The control plants (the plants that had the correct amount of soil) grew the strongest, fastest, and healthiest. The first possible explanation of our results is that the more soil a plant has, the more water it can hold. Therefore, the plants don't get dried up as easily. The second possible explanation is that due to being out of school for multiple periods of time, we were unable to water and care for our plants. So, the plants started to shrink and dry out. Sadly, because of this, none of the plants survived. However, our data still supports our claim. Our original prediction was that the pots with less soil would take longer to grow, be smaller, and be weaker than the pots with more soil. The data collected supports our original prediction by showing that the plants with more soil grew faster, taller, and stronger than the plants with less soil. Some future experiments that could be done to expand on the results of this experiment consist of seeing if doing this experiment long term would affect the outcome and what would happen if we had a better routine for caring for the plants. The fastest, strongest, and healthiest plants were the plants with the largest amount of soil (or the control plants).