

2021

The Plantersville Summer Academy 2021

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CWSEC

The Plantersville Summer Academy 2021

Introduction

Plantersville, SC is a small community located in Georgetown, SC. It has a population of about 2,300 which is a smaller amount than most communities in the area. It is home to many rice fields as well as old plantations and, it holds great history within its community limits.

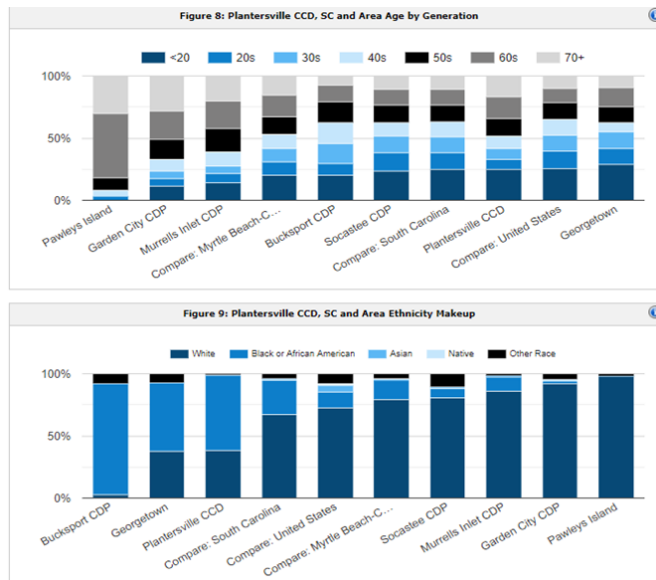


Figure 1: Charts of Plantersville Age and Ethnic Makeup from Town Charts.

Based on these charts, within the community is a variation of demographics. For example, the highest age group in the area are less than 20 and they are at 25.1%. Behind them is people who are in their 60s with 17.2%. This tells us that there are mostly younger people and older people living in the area. From the ethnicity chart, African American people mostly live in the area with being at 60.2%. But the runner up to them are the Caucasian population with 38.2%. This

information lets us know that the African American community is dominating the area. Many might ask, why is this so? Well, Plantersville is known for its Gullah Geechee culture which originates with African Americans. According to Charleston's City Paper, "the Gullah Geechee are descendants of slaves who have maintained a way of life, culture, and tradition on the sea islands along the Southeast United States coast, despite entrenched, social opposition." The people who live here are keeping the culture up by doing traditions and things that have been passed down from generation to generation.

The Plantersville Summer Academy is a program that students attend during the summer to learn about academics as well as go on field trips. This is an opportunity for students to get a chance to continue their learning through the summer and not just in school. The main point is students in this area come from poverty or low-income homes, in which they may not have the same resources as students who come from homes above the poverty line. Globally, the poverty level is 9.2%, which is about 689 million people. Of this, Plantersville, SC plays a role in it because its poverty level is above South Carolina's as a state. Because of this, not every student has the assets to get the materials and books needed to succeed. It is shown in the chart below students who do not get summer learning can fall behind in school, so, this program gives the students a chance to have equal opportunities as those privileged students so there is no child left behind.

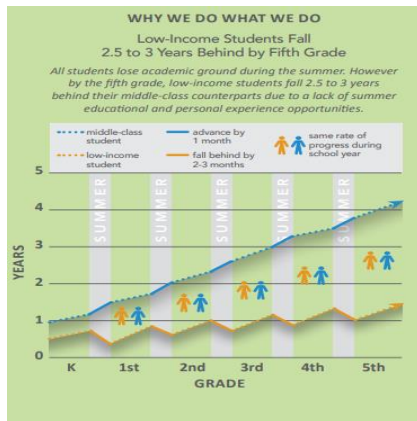


Figure 2: A chart on how students are improving in school from going to the Summer Program from the Village Group.

This program would not be possible if it were not for Mr. Funnye to start it. Mr. Funnye is the founder and the executive director of the village group. He starts off by telling the history of it. It began when he was playing baseball with his son in the backyard of their home. He saw his son advancing and gaining more skill, so he talked to other fathers in the area, and they started a group with their children. This is how the village group began as they focused on the youth in the community and aided them in ways to append to their developmental growth. The group spread out and decided to volunteer at the Plantersville Elementary School. Here, they were able to host back to school bashes that gave students school supply as well as pep rallies to get the students excited about going back to school.

Sustainable Developmental Goals (SDGs)

This internship has really been open an eye opener because of the amount of Sustainable Developmental Goals that correlate with the work that is being done. The first developmental goal that is focused on is Goal 1- No Poverty. For the number of children in the area, a program has been created for them to go and get an education during the summertime. This program is

offered to the students who are in poverty or low-income homes. In Plantersville's, SC, the poverty rate is below the states rate. According to the City Data website, Plantersville, SC has a 22.1% of poverty, and throughout the whole state, the poverty level is 13.8%. To stop this, Mayor Barber is the executive director of "Helping Hands of Georgetown". This group's mission is: "To provide compassionate care to those in crisis or poverty. To provide the opportunity to change for those able to become self-sufficient." With him as mayor, it is well assured he is going to make a change to the poverty levels in the community.

The next Sustainable Developmental Goal that is used is Goal 2- Zero Hunger. In this program, the students can eat three square meals a day along with snacks with each meal. For example, on Friday students received a lunch of teriyaki chicken, rice, and broccoli along with some gummy snacks and a milk carton. The teachers can eat three meals a day as well, but it is sometimes different than what the students are eating. But they receive a snack on the side of their meal to eat as well. This targets the students and staff who are not able to always get three meals a day, and it is fair for all because everyone can eat during the time they are there. The cafeteria ladies make sure everyone eats no matter what. For example, a class ran a little over the time and was in the process of putting up the kits they were using. As soon as they were done, they went to the cafeteria and was still able to get a meal even though they were a little tardy.

The next Sustainable Goal is good health and well-being. Beside the students being fed three meals, they also have a recess time. During this time, students can go outside and engage in physical activities for about an hour. They have bikes they can ride, jump ropes, a football, and other toys that they can play with to help release the energy the students may have. Recess has the benefits of improving student's memory and helping them focus on the tasks they have at hand. Finally, the school that hosts the Plantersville Summer Academy is strict on keeping the

students, faculty, and staff drug free. Carvers Bay High School is where the Plantersville Summer Academy is located for the summer. On the walls in the hallway, students can see signs such as “Bear down on smoking” or “choosing to be drug free is the way to be”.



Figure 3: The signs in the hallways promoting good health.

The students can learn a quality education from this program during the summertime. Each student gets a chance to come and learn about academic's topics that they did not know about before. But, if there is the chance that they did know about the topic, then they can get more information on it and confidently, it can aid in being a review for them.

One topic that the students are learning about this summer that is also a Sustainable Developmental Goal is clean water and sanitation. The first part of clean water that was discussed with the students was the water cycle. The water cycle is the process that water takes it as goes from the Earth to the atmosphere. This systemic movement of water has different steps in its process. The steps of the water cycle are evaporation, condensation, precipitation, and runoff. For example, it starts with evaporation, which is the sun heating up the water. Then the water leaves the lakes and rivers and oceans and turning into water vapor in the sky. The students watch a video on the water cycle and completed a worksheet to go along with it so they can understand what was shown in the video. Then the learn about the role we play with the water

cycle. People benefit from the water cycle because if water did not, we would not have clean water on Earth. We use the rain from precipitation to water gardens, and farms everywhere. If it were not for runoff, we would not have everything go back to the rivers, lakes and oceans and get ready to start the cycle all over again.

Water treatment is also under the Sustainable Development Goal of clean water and sanitation. This is what the students are learning in the class as well. Water treatment is the process of how water is cleaned by purifying, clarifying, or softening it. To explain this to the students, they watched a video on a raindrop going through the proper procedures to get it clean. For example, in the first step of the water treatment process, water goes through coagulation and flocculation. Coagulation is the step in which the water treatment process that removes the large amounts of debris and compounds in the water. Then flocculation comes along and binds those compounds together. Since the compounds are bounded together, they drop to the bottom of the container and the cleaner water stays at the top and goes through the rest of the treatment process. Some students did not know anything about how the water we used every day got recycle and this goal targets them. They get a chance to learn about how the water we are using is recycled so we can drink it and use it again as well as how water we use in our homes are treated. This helps the lower the rate of students who go to school from the summer and did not learn anything.



Figure 4: Students learning about the water treatment process through a water activity.

Student Learning Outcome

Having the amazing opportunity to be an intern for the Plantersville Academy Program for the summer, has truly been a great experience. When I first arrived, my coworkers and I had to make sure we have the number of kits needed because we are using the LEGO EV3 kits to demonstrate to the students how to code a robot. Once we did that, we then had to set up the classroom for the number of students that we are going to have. Finally, we asked Mrs. Funny for the extra supplies we would need to make sure we have enough for each student. The next day, we were able to get the COWs (Computer on Wheels) in the classroom so each student can have their own laptop to use for the next few weeks.



Figure 5: LEGO EV3 kit the students used.

My coworker and I came early in the morning to ensure we have the software that we are going to use downloaded on the laptops. The name of the program that we are using is an app entitled, “Visual Studio Code”. This is a free application that is used to, “combines the simplicity of a source code editor with powerful developer tooling, like IntelliSense code completion and debugging.” The students will use this to code the different sensors and motors that come with the EV3 robot in the LEGO kit.

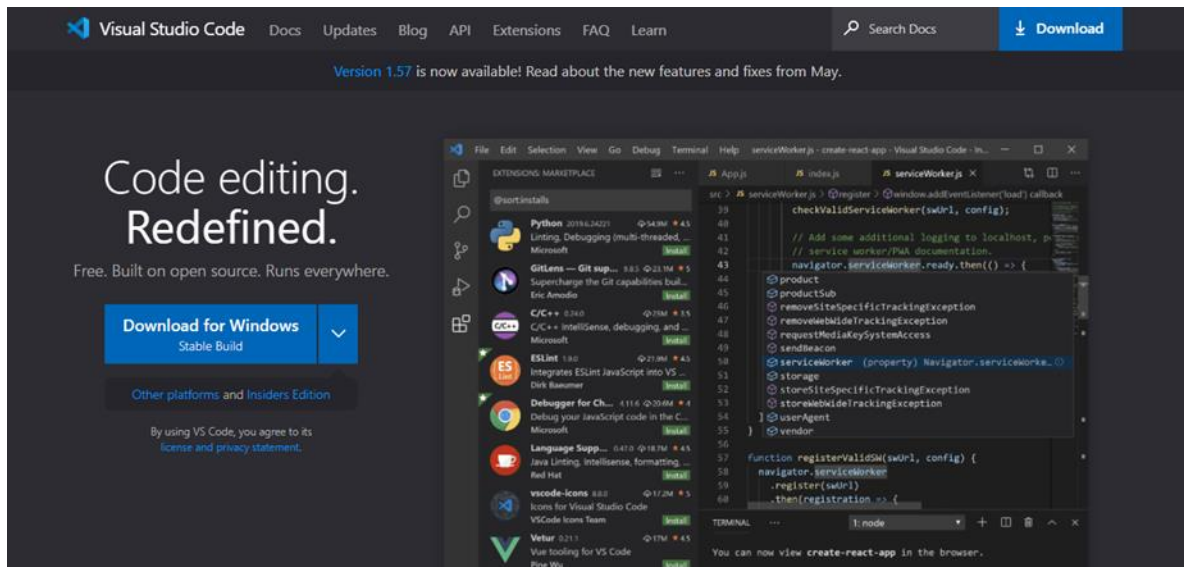


Figure 6: The Visual Studio Code website.

On our first day of class, we had the second graders from 1-3:30 pm. When they first arrived, we were able to get them to write their name on the cards so it can be their name tag and explain some instruction to them. They were a little rowdy because they had just come from lunch and wanted to play. So, we decided to focus that energy into them doing the Marshmallow Challenge. Marshmallow challenge is where people are tasked with 20 spaghetti noodle sticks, a yard of string, a yard of tape, and one marshmallow. They had to work in their groups and figure out how to create the tallest structure with the materials given and it must be able to hold a marshmallow at the end without anyone touching it. They were given a time constraint of eighteen minutes. They had to use some steps from the Engineering Design Process to aid in their construction. For example, they had to develop a prototype/solution to create the tower and then test it to make sure it could withstand a marshmallow. My coworkers and I walked around the room and monitored the students as they worked together to create their structures, and it was interesting to see their thought process and how they started designing their towers. A few of

them tried to ask us to help them build it but I told them I could not, it was for them to figure out and plan together. In the end, one group won with a standing tower of 19 inches.



Figure 7: Students working on the Marshmallow challenge in groups.

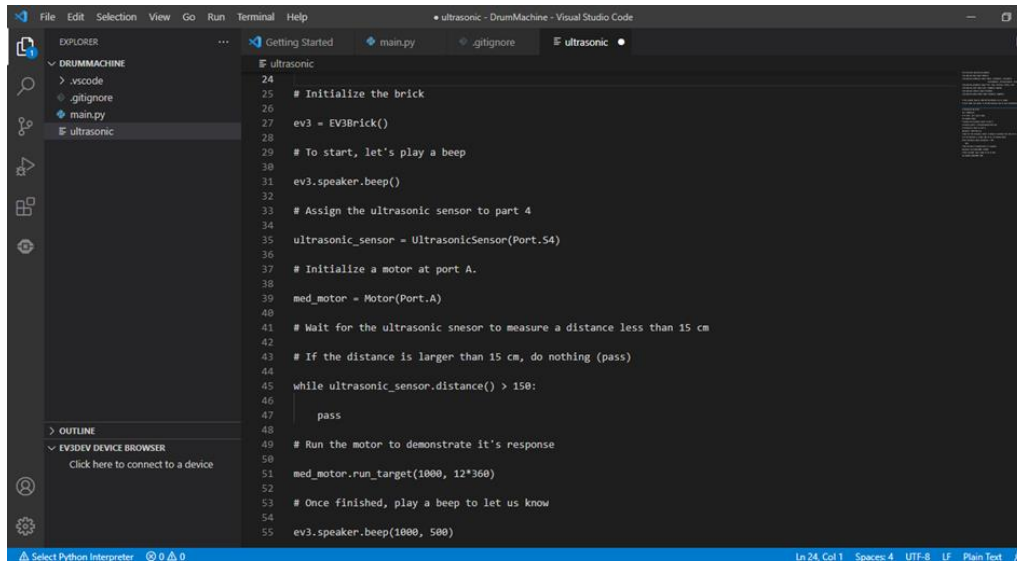
The next task that we did with them was the watershed. We told them what a watershed was and how it works for the communities that are around one. We had a small-scale demonstration model that we showed them, then we gave each group their own smaller scale model that they could paint and look like the model we had. Once they finished their models, we let them take it outside in their groups and pour a Kool-Aid packet on it. This is to represent the dirty, debris from areas, pollution, etc. Then we let them take a squeeze bottle with water in it to represent the rain, and I let each student squeeze the bottle on their watershed and let them know that this is what happens when the rain comes. This showed them what happens when it rains, and all the debris and pollution is on the road and how it goes into the waterways around us. With this, we were teaching the students to make sure they always throw their trash away in the trash can, and if they have an item that can be recycled, then they can put it into a recycling bin. We must take care of our waterways because water is recycled, and we want the best purified water when it comes back around so we can drink it, cook with it, take showers, etc. It is important to know about a watershed because the Waccamaw River supports a large water shed that is spread across

the Carolinas. It runs through Georgetown County and can provide drinking water, water sports, support marine life, etc.



Figure 8: Students working on their watersheds.

The following day, we had the grades of seventh through twelfth. These were the oldest children in the program, so we had a different approach with them. We did start off with the marshmallow challenge because it is a challenge for everyone, and it is great to see how their minds work while they are in a group. They did an amazing job as they built great structures like these below. Once we finished the challenge with them, we were able to start working with the LEGO EV3 kits. These are the kits that they are going to use to program the robots to do function and do what they want it to do. Since this was the first day we introduced them to the students, we started off with a small amount of code for them to get the medium motor going and for them to get the feel of using the touch sensor. This is the code we used, we printed it out and passed it to each student to copy onto the Visual Studio Code Program.



```
24
25 # Initialize the brick
26
27 ev3 = EV3Brick()
28
29 # To start, let's play a beep
30
31 ev3.speaker.beep()
32
33 # Assign the ultrasonic sensor to port 4
34
35 ultrasonic_sensor = UltrasonicSensor(Port.S4)
36
37 # Initialize a motor at port A.
38
39 med_motor = Motor(Port.A)
40
41 # Wait for the ultrasonic sensor to measure a distance less than 15 cm
42
43 # If the distance is larger than 15 cm, do nothing (pass)
44
45 while ultrasonic_sensor.distance() > 150:
46     pass
47
48
49 # Run the motor to demonstrate it's response
50
51 med_motor.run_target(1000, 12*360)
52
53 # Once finished, play a beep to let us know
54
55 ev3.speaker.beep(1000, 500)
```

Figure 9: The code used to show the students how to use the medium motor and touch sensor.

For many of the students in the program, this was their first time even looking at a program to code, and they were able to get the hang of it. They followed the instructions given by my coworker and my supervisor to get the robot to read it and execute the actions that it was supposed to do. Many of the students were excited and could not wait to come back next week to do it again and learn more about how to teach the robot to do something else. “I had a lot of fun doing this”, said one boy in the class. One young lady in the class was familiar with the robots and wanted to know what the name of the program was that we used because she wanted to practice more of it outside of the classroom. The students had a great time learning about how to code the robot and for them to see that it worked and watch the motor and touch sensor work was a great outcome.

Conclusion and Recommendations

In conclusion, these are just a few of the activities that were done with the students during this program. The students also were able to go on enrichment trips to see a water

treatment and get a real life visual of how the water is processed. The students in the program were excited with the different challenges they did as they learned how to work with a team to solve problems, as well as get work done. With the different topics being taught in the class, they were interested in them and for some it was their first time learning about them which they were ready to gain as much knowledge as was given. One student was asked, “are you glad you got to learn about robotics and environmental science this summer?”, they replied, “yes, I had a great time and learned a lot more.” From here on out, I hope Coastal can continue having interns come to the program and teach the students about robotics. They should come together as team every week and organize what amount of information they want the students to learn. I hope more programs like this happen in more areas where the poverty levels are low so the students can get an education. Globally, I know there are many programs like this. I used to work for one during the summertime in Columbia, SC, it is called Upward Bound. This is where high school students come and stay on the college campus for 5 to 6 weeks and get an education. At the end they go on an enrichment trip as well as get a stipend. It is for low income housed students, so they get a chance to get a quality education for the summer.

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