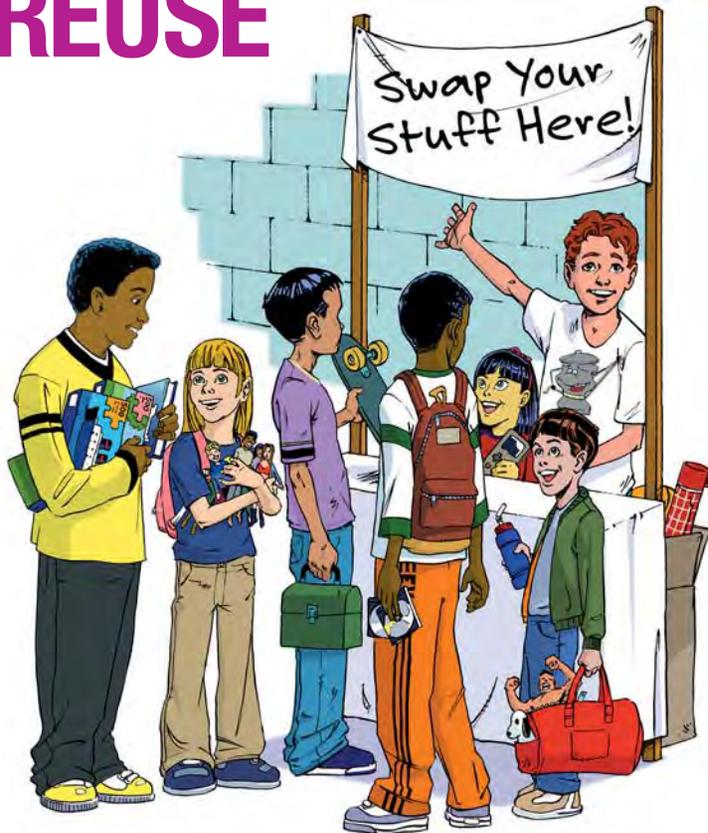


REDUCE & REUSE



Citywide Winner
High School Division

Central Park East
High School

2016 GOLDEN APPLE AWARDS

This certificate is awarded with the sincere appreciation and esteem of a grateful Department and City in recognition of your school's efforts to help make New York City shine.

City of New York
Department of Sanitation
nyc.gov/zerowaste





School Information

- School Number: M555
- School Name: Central Park East High School
- School Address: 1573 Madison Avenue
- School City: New York
- School Zip Code: 10029
- School Population: 464

Contact Information:

- Principal Name: Bennett Lieberman
- Coordinator Name: Joseph Moll
- School Phone Number: (212) 860-5929

Contest Entry:

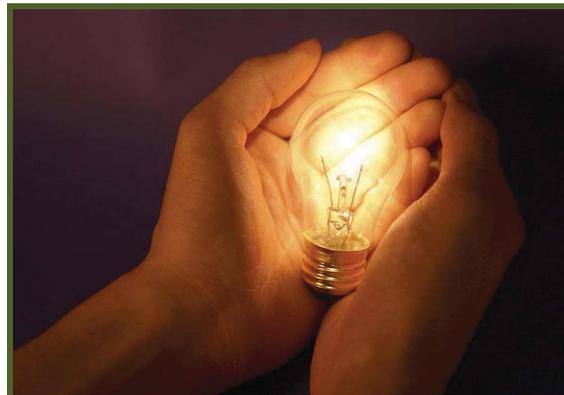
- Contest Grade Division: High school
- Contest Entry Title: Striving for Zero Waste - Where Less Really Is More
- Contest Entry Summary: Central Park East has the goal of becoming a zero waste school but unfortunately lacks the funding to do so. We have already started to reduce and reuse in our school in many ways and are taking steps such as reducing paper usage, preventing food waste, saving electricity, and reducing the number of plastic bottles that end up in landfills.

Golden Apple Recycling Grant: Reduce & Reuse Striving For Zero Waste

Reduce



Reuse



Reduce

Reuse

Central Park East High School

1573 Madison Ave, New York, NY 10029

Phone: (212) 860-5929

Monday May 2



Reduce and Reuse Central Park East High School

Waste Prevention & Reuse Projects Implementation

- *What type of waste did you target in this project for reduction, prevention, or reuse? Explain why.*

As part of our schools general culture of sustainability, we have coordinated several separate efforts to reduce the amount of waste in our school, prevent waste from being further generated and reuse materials that were originally flagged to be discarded. These efforts have been achieved through many different initiatives.

A first major item we targeted for reduction was paper. Unlike many New York City schools, our school has never restricted the amount of paper that teachers can use for their lessons. We have done this to ensure that the quality of the lessons is not diminished by arbitrary and unfair restrictions from administration. Teachers at the school really appreciate this policy, however, it has occasionally allowed more photocopies to be generated than necessary. For example, teachers will print handouts and worksheets on only one side or use whole sheets when half sheets would suffice. This year, as part of our school-wide effort to reduce waste in our school, instead of creating a quota for paper usage, we tried instead to encourage practices that save paper. We did this partially by tracking paper usage compared to last year and partially by encouraging practices (such as more assignments being given on Google classroom) that facilitated reduced paper usage.

A second item targeted for reduction was the water bottles used by students. As a school, we noticed that many students were getting a new water bottle daily. This was expensive for the students and incredibly wasteful. However, the school drinking fountains were in such a state of disrepair (the water actually came out yellow and cloudy from some of the drinking fountains), that many students would simply avoid ever refilling their water bottles. To help combat this, our school paid for the installation of two brand new drinking fountains with filters (with a hope to install more in the future). The water that comes out of these drinking fountains is incredibly pure and refreshing. These drinking fountains also track water usage so that we have a better idea of how many plastic bottles we are saving.

Thirdly, we also targeted electricity used in the classrooms for reduction. This was achieved by installing motion sensitive lights. The lights turn off after several minutes without sensing motion. This way even if students, teachers or custodians forget to turn off the lights when they leave a room, this does not greatly increase our electricity usage. In the library, new shades were installed to help reduce air conditioning usage. The library is on the third floor and has ceiling to floor south facing windows. The shades significantly reduced the amount of energy that was needed to air condition the library.

Finally, our school has partnered with elementary schools in the building to help reduce food waste. This other school has a strict requirement to order the USDA recommended servings of fruit for each student in their school. Unfortunately, their students do not eat that much fruit. Initially, this elementary school was throwing away approximately 14 boxes of fruit each week.

Reduce and Reuse Central Park East High School

Our parent coordinator stepped in and took over the task of distributing these boxes to teachers and as a healthy snack for our students.

- *What did you do? How did you reduce this waste?*

To reduce the amount of paper used by students and teachers, we encourage students to submit assignments electronically through websites such as TurnItIn and Google Drive. More teachers than ever (including the entire 9th grade team) have converted to Google Classroom, an online platform where teachers can post homework and assignments that students hand in electronically. This allows teachers to significantly reduce the amount of paper used by the students. We also encourage teachers to print worksheets double-sided to reduce the number of sheets used. In the copy room we have posters above the copy machines promoting paper reduction. These posters include the following suggestions: 1.) Give online assignments. 2.) Print double sided sheets. 3.) Recycle paper. 4.) Use half sheets when possible. 5.) Make booklets. The last suggestion was pioneered by our schools Earth Science teacher. Her tests are printed in booklet form which uses one eighth the paper of a test printed single-sided on a full page.

Recently, we had new filtered water fountains installed in the school with pour-over taps and proximity sensors. This helps reduce plastic waste by encouraging students to refill and reuse water bottles with clean filtered water, rather than getting a new bottle every time they need water.



Figure 1: One of our schools brand new drinking fountains.

In our classroom, we have added motion sensitive lights, which turns off the light automatically if there is no one in the room it turns off the light. This helps reduces the electricity usage in our schools.

Our school building is also the home to other schools. As mentioned previously, two of the elementary schools in the building have been ordering excess boxes of assorted fruits, such as apples, pears, bananas and sliced seedless oranges. Previously, they were throwing out whatever

Reduce and Reuse
Central Park East High School

their student hadn't eaten, which amounted to around 14 full boxes of fruit per week. Rather than throwing the fruit out, the boxes of fruits are now being donated to us every week. We then take those boxes and distribute them to our students and staff, helping to reduce the amount of food wasted in the building.



Figure 2: Combined our drinking fountains have saved over 26000 bottles of water.

Reduce and Reuse Central Park East High School

- ***Project planning.*** *What were your objectives, and the planning and organization that drove this project?*

Much of the work that we did around reducing waste at our school sprung up organically based out of our school's culture of sustainability. For example, when our parent coordinator Sherry Lisbon noticed that an elementary school in the building was throwing away boxes of fruit each week, she stepped in (even though this added to her workload) and made sure that perfectly good fruit was not destined for the trash. As part of our culture as a school, our goal has always been to spread awareness and reduce as much waste as possible. Similarly, our director of student activities, Melissa Fleming, stepped up and helped fundraise for new drinking fountains when she saw they were needed.

All of this being said, there was also a lot of planning that went into our waste reduction efforts. As far as paper reduction was concerned, we wanted to be very careful to make sure that our efforts gained the support of teachers. We knew that some schools have strict limits on how much paper teachers may use and that this tactic is rarely well-received by the staff. Instead of taking this approach, we wanted to work to encourage teachers on their own to reduce the amount of paper they use. As part of this, we decided to create an emotional appeal. Instead of telling teachers how much paper we had used in the previous year in terms of number of boxes (a relatively abstract number), we instead told them how many trees our school had killed. This had additional educational value for our students who had to figure out how to do this conversion.

We posted this directly behind the photocopier machine so that every time teachers made copies they would be aware of the real world impact. In addition, we wanted to make sure that teachers were aware that there were relatively easy ways to reduce their paper usage. We came up with a list of ideas, such as giving online assignments, printing booklets and giving out half pages when that was all that is needed. These were also placed on a poster near the photocopier machine so that teachers would regularly see them.

For our reduced bottle usage initiative, our school community had known for a long time that old drinking fountains in our school were detrimental to any effort to get the community to use reusable water bottles. Many students referred to the water that came out of the old fountains as 'toilet water'. Students found other options to get their fluids for the day including buying water bottles, or worse soda bottles from vending machines. Not only did these options cause our school's ecological footprint to increase, but they were also detrimental to both student's health and wallets.

Our school principal, Bennett Lieberman, and our school Director of Student Activities, Melissa Fleming, were determined to fix this situation. Ms. Fleming researched information on the cost of state of the art drinking fountains and found that they were in the neighborhood of \$800 with replacement filters. A Donor's Choose page was set-up to help raise the money. Although most of the money was raised through this page, in the end both Ms. Fleming and our principal, Mr. Lieberman contributed some of their personal money and a portion of the school's budget to help bridge the gap.

Reduce and Reuse
Central Park East High School

- **Student involvement.** Describe student efforts to plan and implement the project. Include activities conducted by classrooms, cluster, grade, school-wide, team, club, or afterschool program.

At our school, we have a Green Team that works to promote greener habits within the school. This includes helping promote waste reduction. One way they do this is by creating upcycled crafts so that materials that were destined for a landfill can be turned into something useful like classroom decorations. Students on the green team also tie-dyed t-shirts that were donated from our partner 'The Recycling Champions' for use as our club shirt. This way we avoided purchasing brand new shirts and helped further reduce the clubs ecological footprint.



Figure 3: Members of the Green Team making tie-dyed t-shirts.



Figure 4: These t-shirts were donated by our outside partner, The Recycling Champions.

We also have two Sustainability classes that work together to help make the school a green school. During the beginning of the year, we had the Sustainability students go into classes and give a presentation on recycling and waste reduction. The Green Team and Sustainability classes have created posters to put around the schools in the classes and lunchroom. The students in our school are so dedicated that two of our peers, a junior and a senior, took the time to count the boxes of paper on a weekly basis to see how much paper had been wasted.

Reduce and Reuse Central Park East High School

In addition, our school's student council has been instrumental in helping to reduce the waste stream in our school. Student council voted to make installing new water fountains a priority for the school and selected the appealing water fountains that have so far garnered so much use in our school. Student council helped create the Donor's choose link to raise money for these fountains and the members of student council distributed it widely through social media. Because of this, huge numbers of our high school community donated toward these fountains.

- **Promotion.** Describe your efforts to promote this project; include samples of relevant announcements, memos, flyers, posters, letters, web pages, skits, songs, assembly programs, media coverage, or other special events.

We have promoted reducing and reusing in our school by putting up posters at copy machines informing teachers to reduce the amount of paper we use. School wide emails to teacher and students have also been sent to keep student informed and promote reduction of wastes. The posters located in the copy room are there to encourage people to use less paper.

The posters have facts on the effect of using too much paper. As well as what can and can't be recycled. Additionally they have suggestion on ways to reduce the amount of paper used, along with pictures to show the importance of reducing and the aftermath if we continue not to recycle. The posters say to recycle and reduce the amount of paper used. The posters are clear to see and have played an important part in our schools reduction of paper as compared to last year.



Figure 5: Signs placed near the copy machines to encourage teachers to use less paper.

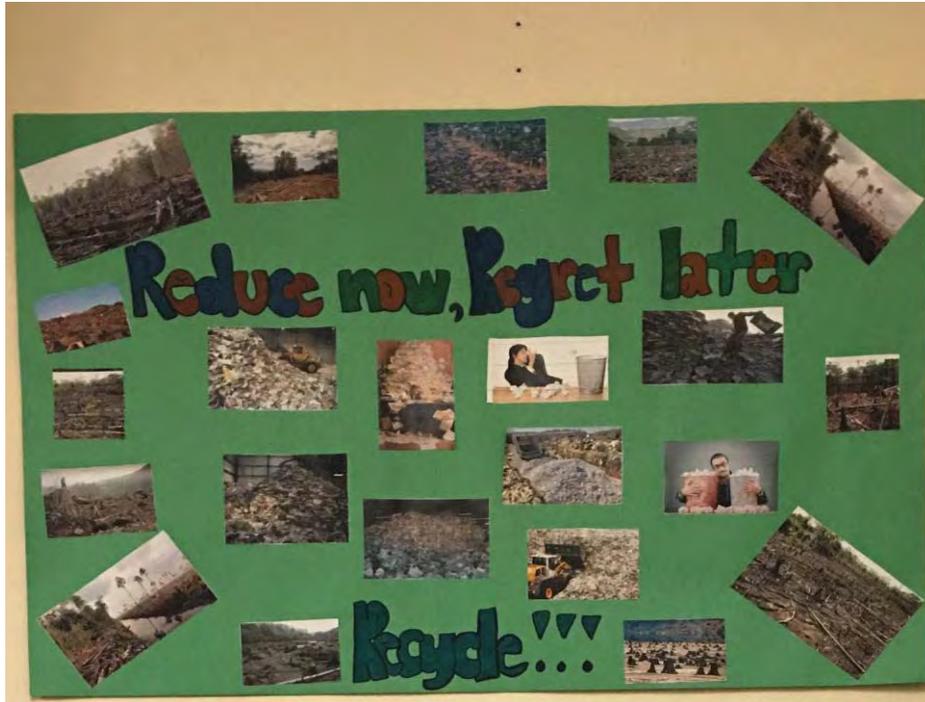


Figure 6: We used our signs to make an emotional appeal.

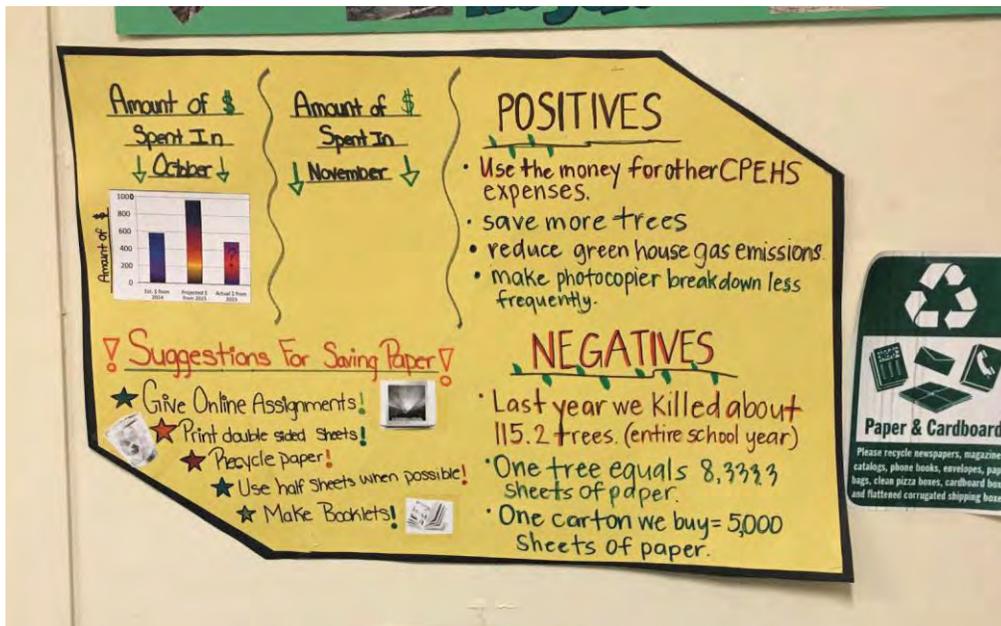


Figure 7: Signs included a quantitative tracking of paper usage as compared to last year as well as suggestions for teachers to reduce paper usage.

The distribution of fruits is promoted through weekly e-mails by our school's parent coordinator, Ms. Sherry Lisbon. This is an ongoing task as the arrival of new boxes of fruits is a

Reduce and Reuse Central Park East High School

bit unpredictable and the fruits are in constant danger of over ripening. Two to three times a week, Ms. Lisbon sends out emails to teachers letting them know about the arrival of fruit. Teachers are then encouraged to collect the fruit. Much of this fruit ends up in classrooms as a healthy snack for students during dedicated tutoring time and whatever cannot be used for this purpose is taken home by members of the school community.



Figure 8: Green team members sharing 'saved' fruit at our school's club fair

When the drinking fountains were first introduced in our school, they were promoted in the daily announcements. However, for this particular project, minimal promotion was necessary. As soon as students realized these drinking fountains existed, they immediately began flocking to them. The word of mouth around these drinking fountains was so strong that almost immediately, all students in the school were using them. Even though the fountains were only located on the first floor of our building, many students would travel all the way down from the third floor to get water. Amazingly, these drinking fountains are even used by teachers and staff from other parts of the Jackie Robinson Campus. Teachers from the elementary buildings in the school regularly come to fill up their water bottles, showing there is a huge need for the fountains.

- **Collaboration.** *What other schools, professionals, businesses, or community organizations did you work with on this project? How did you solicit donations or help?*

As part of our efforts to reduce waste at our school, we have partnered with several groups. We partnered with the charter schools in our building to make sure that fruit was not being wasted. We have also partnered with the cafeteria and custodial staff to reduce the waste flow in our school. Student members of our sustainability class have reached out to the person who submits purchasing orders at our school so that we can better track paper usage. Outside of our building, we have partnered with the NYC Recycling Champions. They have been an invaluable resource and inspiration for strategies to help reduce wastes. In addition, they donated t-shirts that we were able to use for our Green Team members.

Reduce and Reuse Central Park East High School

- **Educational components.** Include learning standards met, lesson plans, and exemplary samples of student work.

For the first time this year, our school has created a Sustainability class. This has provided an opportunity for students to work in a hands-on way to make the school more sustainable. As part of that class, students took an integral role in planning out how we could best convince teachers to reduce their usage of paper. This took place during class discussions at first and culminated in students making mock-ups of the posters that they intended to create. To properly make their advertising campaign, students had to reach out to several staff members and teachers at our school to track down data on paper usage from last year. In this class, we also used the video ‘The Story of Stuff’ to track how materials make their way through the US economy. As part of this, we talked about where in the overall process of creating stuff for our economy there was room for us to reduce waste produced and reuse materials.

In addition to the above, the sustainability classes have worked on writing several different grants, including the Golden Apple Recycling grants. This process of grant writing has also helped educate students on waste reduction in our schools.

In our schools sustainability oriented club, The Green Team, we have also had educational components that have focused on reducing waste and more. These have primarily revolved on ways we can use items destined for the trash or recycling to instead make beautiful crafts. These crafts have included plastic snowflakes among other things. We are currently saving up old shampoo and conditioner bottles to make cell phone charger holders like the one seen below.



**Figure 9: An example of an upcycled craft.
We plan to make these crafts and sell them as a fundraiser.**

In our AP Environmental Science class, there is a lab where students pick out a few pieces of garbage and then place them in soil to test the speed at which different things decompose. The students learned that many things such as plastic bottles and bags take hundreds of years of decompose. People generate waste at a faster rate than it decomposes, which is numerous lifetimes, requiring large chunks of land to become massive dumps filled with trash. This lab helped promote waste reduction by exposing students to the physical footprint that trash leaves on the planet.

In our Economics class, students discussed the process of products in the economy, from the materials used in the beginning of the products life, to the disposal of it in the end. A major part of this series of lessons was showing students how many materials end up in landfills, adding to the already abysmal level of waste on the planet. This not only informed students of the effects of our throwaway culture, but also promoted waste reduction, and got students thinking of ways

Reduce and Reuse Central Park East High School

to improve the systems we have in place today in order to reuse materials and to help reduce wastes.

This year, our school's travel club decided to travel to Costa Rica and a major component of their trip was learning about the environment and how we can better reduce waste to protect the planet. Students had the opportunity to visit an ecological farm where animal urine was used to grow methane producing bacteria. The methane was then recycled as a fuel for cooking. On this same farm, students learned about the advantages of avoiding monoculture in agriculture. Later on during their travels, these students visited an eco-resort where they learned how to make soap from used cooking oil that would otherwise be discarded. The students got to take some of the soap they made home with them.



Figure 10: Students in the travel mixing soap ingredients.



**Figure 11: The soap is made from recycled cooking oil.
Students molded the soap using giant plastic trays.**

Project Analysis

- ***What worked?*** *What were the most successful aspects of this project?*

In Central Park East High School, we've had many successful aspects to our projects. Probably the most successful project was our installation of new drinking fountains. In the last couple of years, students have been complaining about the infamous water fountains in our school hallways. Students often said the water tasted funny or referred to it as 'toilet water'. Although some students did continue to drink the water because there wasn't an immediate solution, thanks to Ms. Fleming the Coordinator of Students Activities, the school received the money to get us EKLAY water fountains with water fillers.

The response to these fountains has been tremendous. Fortunately, these fountains keep track of how many water bottles they have saved. Motion-sensing bottle fillers provide a rapid fill of water to quench thirst and minimize plastic bottle waste in the environment. The students at Central Park East High school so far have been extremely grateful for our new fountains.

Another project that we successfully finished was inserting automatic sensor in our classrooms. Sometimes teacher might leave the room to attend another class or may go out to lunch and leave their lights on for about 20 to 30 minutes. This was wasting energy. So our school now put sensors in which detect movement and turn off when no one is in the room. The sustainability team also made posters that advocate the importance of following these practices, such as reusing the same folders, paper and other materials as well.

Finally, the distributions of fruit by our school has been very successful. To date, close to 100 boxes of fruit have been saved from being needlessly discarded in a landfill. In addition, students have had a steady supply of healthy snacks readily available in their classrooms. This has had a cascading effect in waste reduction, as fewer students have gone to vending machines to get unhealthy snacks wrapped in non-recyclable plastic.

- ***What didn't work?*** *What were the least successful aspects of this project?*

The paper reduction effort was only a partial success. Because the Sustainability class was a semester long course, the students who worked on the paper reduction project in the Fall were not able to continue with that project into the Spring. The project was very successful in the Fall and many teachers commented on the advertisements.

However, once the Spring semester started our paper tracking started to trail off. In addition, there were further challenges because the ordering of paper did not exactly track with the usage of paper. For example, at the end of this year, our purchasing department ordered a large amount of paper to use up funds that were available in the budget. However, almost all of the paper ordered will either be used in Summer School or next year.

- ***Applicability to other schools.*** *What advice would you give to other schools with similar populations who want to replicate your project?*

The advice we would give to others schools is simple, and that is to be proactive in wanting better for your school. We strongly believe that all of these projects could be replicated by other schools. In particular, it would be relatively easy for schools to put in at least one filtered, motion sensing drinking fountain. Even just one fountain can have a huge impact. In our school we put in just two fountains so far but these fountains receive the bulk of use by students in the school. Motion sensors on lights are also an energy reduction measure that doubles as a cost-saver and would be beneficial to any school. While we are still working on improving our

Reduce and Reuse Central Park East High School

tracking of paper usage, we believe that our suggestions for teachers to reuse paper are the way of the future and could also be applied in any school.

- ***Measuring success.*** Describe how you measured the success of your project. Include charts or graphs, if possible. Explain any impact on the students or community.

Our water bottle reduction efforts have been a huge success. On the 2 newly installed water fountains, it shows a small screen that displays how many water bottles have been saved from waste. As of now we have saved more than 26000 water bottles from going into the garbage. According to the Elkay website, this has saved over five hundred pounds of plastic from entering into the waste stream. In addition, according to their site, our students have spent over \$2,500 less on water bottles. The numbers on the display fit with what we have observed. Students will preferentially go to the two new water fountains on the first floor to fill their bottles instead of going to the third floor or basement water fountains. This happens even if their class is not on the first floor and we have also seen teachers from other schools using these fountains.

The reduction of fruit waste from the elementary schools in our building has also been a huge success. Since this project began, not a single box of fruit has gone to waste. Our efforts in this area have also expanded our connection to the charter schools. We hope to use these connections in our future endeavors to improve the waste reduction and recycling efforts of the entire Jackie Robinson campus.

Many teachers have complimented the Green Team and our sustainability classes on our paper reduction efforts. As a school, teachers are switching over en masse to online assignments. Many of the strategies that we have advertised have been readily adopted by teachers and students are also getting behind our efforts, as most students prefer online assignments (which they can work on their phones).

- ***Future plans***

Next year, we want to do a more consistent job of tracking paper usage at CPE-HS and to get even more teachers to switch over to online assignments. In the long term, we would like our school to use zero paper.

Contest prize funds could be used to increase the amount of enhanced water fountains with better filters, encouraging the students to bring in their own water bottles. Currently we only have two and they are only located on the first floor.

Prize funds can also be used to increase the amount of textbooks and books for classes. This helps decrease the amount of paper used to print out assignments of textbooks. There would allow for enough textbooks which can be used by the students. In addition, we can use some portion of the money for after school training sessions to encourage teachers to further reduce their paper usage and to move into energy reduction as well.

Finally, we want to continue endeavors to reduce our school's energy usage. This could include after school training sessions for teachers for how to properly use air conditioners and window blinds. This could also include training sessions for students on how to minimize the energy use of their phones and other personal electronics. Through efforts such as these, we hope to push our energy reduction efforts beyond our school community. We want our culture of sustainability to become so contagious that it spreads beyond our school walls and out into our city.

