

## **Siemens We Can Change the World Challenge- State Finalists**

### **Team Bruce/Kennedy**

**Greenwich, Connecticut**

**Convent of the Sacred Heart**

**Students: Polly, Morgan**

**Teacher/Mentor: Carol Vergilis, 8<sup>th</sup> grade Science**

Members of the environmental team Bruce/Kennedy focused on ways to reduce the amount of paper used at their school, Convent of the Sacred Heart. Team Bruce/Kennedy educated their fellow classmates and teachers on simple alternatives that help to minimize their use of paper. Ideas that were implemented include, utilizing electronic homework resources, encouraging paper-less classes, double sided printing and emailing electronic documents.

### **Team Educate Them and They Will**

**Norwood, Massachusetts**

**South Area Solomon Schechter Day School**

**Students: Brittany, Aaron, Robbie**

**Teacher/Mentor: Nitzan Resnick, Science Department Chair**

After learning about global warming and recycling in science class, Team Educate Them and They Will from Norwood, Massachusetts decided to establish a recycling program at their school. Students leading the program created and distributed informational brochures and visited classrooms to present on the importance of recycling. In order to get students and teachers more involved in this initiative, a school wide competition was started and the class that recycled the largest quantity of materials won a prize.

### **Team Millburn Mustangs**

**Short Hills, New Jersey**

**Millburn Middle School**

**Students: Brannon, Nils, Erik**

**Teacher/Mentor: Michelle Cho**

The Millburn Mustangs team analyzed the harmful effects of the prevalent Norway Maple tree on their growing community. The team members determined that this non-native, invasive tree was a threat to the ecosystem due to its dominance over other species of trees. The Mustangs teamed up with the town's forester and through surveys, presentations and direct mailings they persuaded 87% of survey participants to replace their Norway Maple trees with other native trees provided by the city.

### **Team E-Waste Girls**

**Levittown, New York**

**Island Trees Middle School**

**Students: Marisa, Kristen, Jenna**

**Teacher/Mentor: Eileen Anderson, 8<sup>th</sup> grade Science teacher**

The E-Waste Team's goal was to educate their fellow classmates and students about the proper disposal of Electronic Waste (E-Waste). Through flyers, brochures, and public announcements within the school, word got out. The National Honor Society joined the campaign as well as several local politicians. At the school's first E-Waste drive 2,060 pounds were collected. Additionally, the school has committed to holding E-Waste drives in the future.

**Team AMD****Hanover, MD****Chesapeake Science Point PCS****Students: Luke, Jack****Teacher/Mentor: Steven Andraka**

Team AMD couldn't help but notice that their local streams and rivers appeared highly contaminated. The team members were determined to find an inexpensive and efficient way to clean up the Acid Mine Drainage (AMD) from their favorite local streams and rivers. After much research, Team AMD learned that limestone sand helps to neutralize the pollutants that come from AMD. Team AMD hopes that their experiment can help spread the word about this type of pollutant and how it can be safely and effectively mitigated.

**Team Styrofoam Blasters****Corbin, Kentucky****Corbin Middle School****Students: Ethan, Tyler, Allison****Teacher/Mentor: Melissa Evans, 7<sup>th</sup> grade Science teacher**

Team Styrofoam Blasters knew there had to be a more earth-friendly and economical alternative to the Styrofoam trays their school cafeteria provided. This team of determined students persuaded their school's cafeteria staff to purchase a working dishwasher and start using reusable trays. Local newspapers and news channels highlighted their achievements and other schools in the district are now considering this alternative dining option.

**Team Stewards of the Pamlico Sound****Buxton, North Carolina****Cape Hatteras Secondary School of Coastal Studies****Students: Evan, Ashley, Kailee****Teacher/Mentor: Tracy Shisler, 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> grade Science teacher**

This team's goal was to restore the oyster population in the Pamlico Sound in Hatteras Island, North Carolina. This was no simple endeavor, in order to successfully help repair the sound's estuary system they teamed up with the Division of Marine Fisheries and the Coastal Studies Institute and created an artificial oyster reef. After many months of observation it became apparent that the oyster population had grown significantly. Because of the great success of their first reef, many clubs and organizations got involved and they now have created two additional reefs that they are tracking closely.

**Team Mission Green****Little Rock, Arkansas****Dunbar Magnet Middle School****Students: Matthew, Jace****Teacher/Mentor: Gwendolynn Millen, 6<sup>th</sup> grade teacher**

Members from Team Mission Green were frequently reminded of the lack of recycling in their communities as they drove past the vast landfills each morning on their way to school. These students were determined to spread the word about recycling options in their neighborhoods. They developed and distributed a flyer surveying the local community members on their recycling habits. Ten out of 10 people surveyed stated that they would recycle more if the city provided a pick-up recycling service. Team Mission Green felt that their fliers generated buzz around the city and felt confident that their efforts have helped to encourage people to live a "greener" lifestyle.

**Team The Allstars**  
**Royal Palm Beach, Florida**  
**Crestwood Middle School**  
**Students: Holly, Autumn**

**Teacher/Mentor: Yevette Mcdaniel**

Holly and Autumn, members of The Allstars live in Southern Florida, a region that is commonly affected by droughts. Due to the city's water usage restrictions households are only able to water their lawns and gardens twice weekly. Holly and Autumn had heard of a new product on the market that claimed to conserve water while aiding in plant's growth and were intrigued. They decided to test this product to see if its main ingredient, hydro-polymers was truly effective. Results proved that hydro-polymers are helpful in growing plants while conserving water. Thrilled with their results, Holly and Autumn presented their research to the School's Advisory Committee and continue to spread the word in their community.

**Team SFMS Eagles**  
**Cumming, Georgia**  
**South Forsyth Middle School**  
**Students: Tommy, James**

**Teacher/Mentor: Patti Grammens**

After learning that the state of Georgia had been in a drought since year 2006, Team SFMS Eagles decided that they wanted to base their project on conservation and reuse of water. The team developed a solar powered model that collected rain water for reuse in the school's plumbing system. After testing their model on several different occasions, Team SFMS Eagles concluded that if the mechanism was scaled to the correct size (theirs was smaller replica) this device could help save thousands of gallons of water per year.

**Team Dead Weight**  
**West Branch, Iowa**  
**West Branch Middle School**  
**Students: Jathan, Justin, Brennan**  
**Teacher/Mentor: Hector Ibarra**

Team Dead Weight's goal was to get the word out about the dangers of lead wheel weights in vehicles, and to help to phase out this hazardous material in the tire industry. This group of students presented to the City Council, Community School District and other civic organizations. The city and school districts were convinced; they agreed to phase out lead wheel weights in vehicles owned by the city and school districts. In addition, the students teamed up with several legislators to develop three bills proposing to phase out the harmful metal.

**Team Oddly Charged Particles**  
**Ballwin, Missouri**  
**Morgan Selvidge Middle School**  
**Students: Ian, Chris, Ryan**  
**Teacher/Mentor: Sally Blackburn**

Oddly Charge Particles teamed up with several energy experts and engineers to do a full energy audit for their school. A list outlining various ways to conserve energy was submitted to the principal and the school district facilities director. The list included installing a soy based reflective roof coating, using a timer to shut off the hot water heater when the building is not occupied and installing energy controlled devices in vending machines. The team decided to pursue the addition of energy controlled devices in vending machines. The team's hard work and dedication paid off-not only was their school on board, but the entire state of Missouri decided to include a requirement for vending machine energy saving technology in all future contracts.

**Team SOSMRT2****Walled Lake, Michigan****SOSMRT****Students: Ekaterina, Demerise****Teacher/Mentor: Donna Czarnik**

Team SOSMRT2 noticed that their local city and schools throw away bottles and cans even though they have recycling pick-up. Their goal was to educate kids and adults about how recycling can help the earth. They visited a recycling facility, then placed recycling bins in both schools and offices, and created posters educating about recycling. After three weeks, their findings showed that the adults recycled more than the kids. They shared these results with different groups in their community, and presented their project to their county Board of Commissioners Planning and Building Committee.

**Team Cows with Guns****Bozeman, Montana****Sacajawea Middle School****Students: Sophie, Maria, Seth****Teacher/Mentor: Loretta Reichert**

The students from Team Cows with Guns live in Montana, a state in which the economy is based largely on beef and dairy farming. This team did extensive research on the effects of methane gas emitted from beef farming. In order to tackle this large scale problem on factory farms Team Cows with Guns advised farms to build methane digesters, which some farms in their areas are starting to consider and build. Additionally, the team suggests reducing or eliminating meat from one's diet to help reduce the amount of methane released into the atmosphere.

**Team Picture This****Bellaire, Texas****Pin Oak Middle School****Students: Nina, Cassi, Donia****Teacher/Mentor: Jamie Scott**

Team Picture This created, organized, managed, and ran the Picture This Environmental Film Festival, where they asked Houston area students to submit a 2-5 minute film about an environmental issue. They received donated prizes from area businesses and had a total of 17 films submitted. Over 120 people came to the film festival, and team Picture This collected data by giving all attendees a survey at the end. Their results showed that 100% of the attendees learned something at the festival.

**Team Plan B****Appleton, Wisconsin****Fox River Academy****Students: Jordan, Kyle, Deryk****Teacher/Mentor: Joann Engel**

Team Plan B found that there was a need to educate the City of Appleton about how rain barrels can save money, save water, and help save the environment. They received a grant of \$1,250 from the City of Appleton to conduct a workshop on how to build rain barrels. They had 28 families within the community signed up for the workshop at the time this challenge ended, and they had made fliers and brochures to continue to promote their March 21<sup>st</sup> event.

**Team Recycle Because You Care  
Addison, IL**

**St. Philip the Apostle School  
Students: Angel, Maggie, Dana  
Teacher/Mentor: Dawn O'Brien**

Team Recycle Because You Care saw a need to educate their neighborhood on the benefits of recycling, because less than a quarter of the households in their community recycled, and they wanted to figure out why people weren't recycling. They picked a test area of 6 blocks in their neighborhood, contacted each block in a different way to determine what method worked the best, and in one block had a conversion rate of 86% where out of 19 homes, 5 homes recycled before, and then after the team contacted them 17 of the 19 homes recycled. They helped their school start a new recycling program; they shared the results of their study on their local television station, and presented their research to the Mayor of Addison.

**Team Truffala Seeds  
West Lafayette, Indiana**

**Happy Hollow School  
Students: Arthi, Rani  
Teacher/Mentor: Paul Schwab**

Team Truffala Seeds' goal was to find a low cost and efficient way to clean up brown fields in the state of Indiana. Brown fields are vacant sites that are thought to be contaminated, such as abandoned gas stations, manufacturing plants and agricultural land that has high levels of pesticides. The team did extensive research and decided to do a phytoremediation experiment using several types of native grasses. Phytoremediation is the use of plants to remove toxins from the soil. The results indicated that phytoremediation done with annual rye plants removed toxins more effectively. Team Truffala Seeds recommends phytoremediation to communities with prevalent brown fields.

**Team Little Reds  
Las, Cruces, New Mexico**

**Zia Middle School  
Students: Patrick, Rose, Alexis  
Teacher/Mentor: Gloria Basden-Holzhauser, 7<sup>th</sup> grade Science teacher**

Team Little Reds goal was to provide educational outreach and increase awareness about the reintroduction programs for the Mexican gray wolf. They created a wolf cartoon, two survey's, created a teacher lesson unit, and got students and people in the community to write letters to government officials. They collected over 260 letters to mail to congressmen, had 28 middle school students, and 42 high school students participate in their survey. They are continuing to educate and place their outreach efforts in their school.

**Team The Fireflies  
Holladay, Utah**

**Olympus Junior High School  
Students: Melissa, Lauren, Sonja  
Teacher/Mentor: Eileen White, 8<sup>th</sup> grade Science teacher**

The Fireflies goal was to educate people in their community about the energy wasted through incandescent light bulbs versus how much energy is saved by using compact florescent light bulbs. They created and delivered over 269 fliers, hung 10 fliers around their school, and surveyed 122 people. From their surveys and fliers they convinced 27 people to switch and purchase compact florescent light bulbs.

**Team Environmental Nutrition Mission****Minden, Nevada****Pinon Hills Elementary School****Students: Leanna, Alexis, Aria****Teacher/Mentor: Deborah Probert, 6<sup>th</sup> grade teacher**

Team Environmental Nutrition Mission focused on unhealthy school lunches, nutrition/obesity, and recycling of lunch packaging materials. They asked the third graders to separate and put lunch recyclables into a different trash bin instead of throwing them away, and after just one week, about 315 pounds of recyclables were collected. The team wrote fliers that were sent home to parents informing them about healthier lunch options, and encouraging more recycling. An initial survey was conducted to find out how much fat and calories are in student's lunch, and how many ate the school lunch or a lunch from home. Another survey conducted three months after the first showed that 55% of the third grade students are now packing a healthier lunch, and 60% are recycling more. The goal is to make lunchtime recycling at Pinon Hills Elementary School a permanent part of their school lunch program.

**Team Water Wizards****Vista, California****Guajome Park Academy****Students: Matt, Manny, Veronica****Teacher/Mentor: Lisa Davis, 6<sup>th</sup> grade Math teacher**

Team Water Wizards goal was to raise awareness in their community about water conservation. The team started a campaign to challenge other 6<sup>th</sup> graders to conserve water by taking shorter showers each day for an entire week, and collect pledges to fundraise for a charity in Africa called Play Pumps International, which is a non profit that gives Africans a source for clean water. To further promote the water conservation issue, the Water Wizards made an informational YouTube video and bumper stickers. Over 50 students participated, they raised over \$900, and they continue to spread the word about water conservation and how people can help.