



2013-2014 District Nominee Presentation Form

PART I - ELIGIBILITY CERTIFICATION

District's Certifications

The signatures of the district superintendent on the next page certify that each of the statements below concerning the district's eligibility and compliance with the following requirements is true and correct to the best of the superintendent's knowledge.

1. The district has been evaluated and selected from among districts within the Nominating Authority's jurisdiction, based on high achievement in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental education.
2. The district is providing the U.S. Department of Education Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district wide compliance review.
3. OCR has not issued a violation letter of findings to the school district concluding that the nominated school district has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan to remedy the violation.
4. The U.S. Department of Justice does not have a pending suit alleging that the school district has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
5. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the school district in question; or if there are such findings, the state or school district has corrected, or agreed to correct, the findings.
6. The district meets all applicable federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.



U.S. Department of Education Green Ribbon Schools 2013 – District Sustainability Award

Name of Superintendent* Dr. Mervin B. Daugherty _____
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

District Name* Red Clay Consolidated School District _____ Tel. (302) 552-3700
(As it should appear on an award)

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate.

 Date February 5, 2014 _____
(Superintendent's Signature)

PART II – SUMMARY OF ACHIEVEMENTS

Instructions to District Superintendent

Provide a concise and coherent "snapshot" that describes how your district is representative of your jurisdiction's highest achieving green school efforts in approximately 800 words. Summarize your strengths and accomplishments. Focus on what makes your district worthy of the U.S. Department of Education Green Ribbon School District Sustainability Award.

PART III – DOCUMENTATION OF STATE EVALUATION OF DISTRICT NOMINEE

Instructions to Nominating Authority

The Nominating Authority must document the district's high achievement in each of the three ED-GRS Pillars and nine Elements. Please attach documentation in each Pillar and Element. This may be the Authority's application based on the Framework and sample application or a committee's written evaluation of a school in each Pillar and Element.

Nominating Authority's Certifications

The signature by the Nominating Authority on this page certifies that each of the statements below concerning the district's eligibility and compliance with the following requirements is true and correct to the best of the Authority's knowledge.

1. The district is one of those overseen by the Nominating Authority which is highest achieving in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental education.



2. The district meets all applicable federal civil rights and federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

Name of Nominating Agency

Name of Nominating Authority Mr. George K. McDowell

(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

I have reviewed the information in this application and certify to the best of my knowledge that the district meets the provisions above.

_____ Date February 5, 2014 _____
(Nominating Authority's Signature)

The nomination package, including the signed certifications and documentation of evaluation in the three Pillars should be converted to a PDF file and emailed to green.ribbon.schools@ed.gov according to the instructions in the Nominee Submission Procedure.

OMB Control Number: 1860-0509
Expiration Date: February 28, 2015

Public Burden Statement

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1860-0509. Public reporting burden for this collection of information is estimated to average 37 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The obligation to respond to this collection is required to obtain or retain benefit P.L. 107-110, Sec. 501, Innovative Programs and Parental Choice Provisions. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, 400 Maryland Ave., SW, Washington, DC 20202-4536 or email ICDocketMgr@ed.gov and reference the OMB Control Number 1860-0509. Note: Please do not return the completed ED-Green Ribbon Schools application to this address.



ED-GRS Delaware District Application 2013-2014

Thank you for your interest in completing the Delaware application for nomination to U.S. Department of Education Green Ribbon Schools (ED-GRS). In order to complete this application, you will need to collect data about your district's facility, health, physical education and safety policies; food service; and environmental and sustainability curriculum.

Through its District Sustainability Award, ED-GRS recognizes districts taking a comprehensive approach to greening. A comprehensive approach incorporates environmental learning with improving environmental and health impacts. Becoming a U.S. Department of Education District Sustainability Awardee is a two-step process. **The first step is to complete and submit this form to be selected as a nominee by an eligible nominating authority.** Once selected as a nominee by your state or eligible nominating authority, the second step of the process requires signatures for the Nomination Presentation Form that will be sent to the U.S. Department of Education (ED) along with your application.

ED selects honorees from those presented by eligible nominating authorities nationwide. Selection will be based on documentation of the applicant's high achievement in the three ED-GRS Pillars:

Pillar I: Reduce environmental impact and costs.

Pillar II: Improve the health and wellness of students and staff.

Pillar III: Provide effective environmental and sustainability education, incorporating STEM, civic skills and green career pathways.

Districts demonstrating exemplary achievement in all three Pillars will receive highest rankings. It is important to document concrete achievement. It will help you to assemble a team to complete the application. This team might include: a facilities manager, physical education director, food services director, curriculum director, finance department representatives, teachers and students. You should consult the Green Strides Resources page and Webinar Series at <http://www.ed.gov/green-strides> for standards, programs and grants related to each Pillar, Element and question. This is an excellent clearinghouse of information for all districts, not just those who apply.

The questions in this application will help you demonstrate your high achievement in these Pillars as well as provide space for you to include pertinent documentation. **Applications are due by January 24, 2014** to Tonyea Mead, Science Education Associate, Delaware Department of Education (Tonyeamead@doe.k12.de.us)

Note that if selected for nomination to ED-GRS, the district superintendent must be prepared to certify that each of the statements below concerning the school's eligibility and compliance with the following requirements is true.

1. The district has been evaluated and selected from among districts within the Nominating Authority's jurisdiction, based on high achievement in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.
2. The district is providing the U.S. Department of Education Office of Civil Rights (OCR) access to



information necessary to investigate a civil rights complaint or to conduct a district wide compliance review.

3. OCR has not issued a violation letter of findings to the school district concluding that the nominated school district as a whole has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan to remedy the violation.
4. The U.S. Department of Justice does not have a pending suit alleging that the school district has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
5. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the school district in question; or if there are such findings, the state or school district has corrected, or agreed to correct, the findings.
6. The district meets all applicable federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

District Contact Information

District Name: Red Clay Consolidated School District

Street Address: 1502 Spruce Street

City: Wilmington State: DE Zip: 19805

Website: www.redclayschools.com Facebook page: www.facebook.com/Red Clay Consolidated School District

Superintendent Name: Mervin Daugherty

Superintendent Email Address: mervin.daugherty@redclay.k12.de.us Phone Number: 302-552-3702

Lead Applicant Name (if different): George K. McDowell

Lead Applicant Email: george.mcdowell@redclay.k12.de.us Phone Number: 302-892-3284

Number of schools at each Level <input checked="" type="checkbox"/> Elementary (PK - 5 or 6) <input type="checkbox"/> K - 8	Other data you wish to collect:	How would you describe your district? <input checked="" type="checkbox"/> Urban	Is your district among the largest 50 districts in the country? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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<input checked="" type="checkbox"/> Middle (6 - 8 or 9) 4 <input checked="" type="checkbox"/> High (9 or 10 - 12) 6		<input checked="" type="checkbox"/> Suburban <input type="checkbox"/> Rural	Total Enrolled: <u>18,055</u>
Does your district serve 40% or more students from disadvantaged households? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	% receiving FRPL <u>49.33</u> % limited English proficient <u>10.08</u> Other measures _____		Graduation rate: <u>83.7</u> Attendance rate: <u>94</u>

Application Outline:

<u>ED-GRS Pillars and Elements</u>	<u>Points</u>
Cross-Cutting Question: Participation in green school programs	5 points
Pillar I: Reduce environmental impact and costs: 30%	
Element 1A: Reduced or eliminated greenhouse gas (GHG) emissions Energy Buildings	15 points
Element 1B: Improved water quality, efficiency, and conservation Water Grounds	5 points
Element 1C: Reduced waste production Waste Hazardous waste	5 points
Element 1D: Use of alternative transportation	5 points
Pillar II: Improve the health and wellness of students and staff: 30%	
Element 2A: Integrated school environmental health program Integrated Pest Management Contaminant controls and Ventilation Asthma control Indoor air quality Moisture control Chemical management	15 points
Element 2B: Nutrition and fitness Fitness and outdoor time Food and Nutrition	15 points
Pillar III: Provide effective environmental and sustainability education, incorporating STEM, civic skills and green career pathways: 35%	



Element 3A: Interdisciplinary learning about the key relationships between dynamic environmental, energy and human systems	20 points
Element 3B: Use of the environment and sustainability to develop STEM content, knowledge, and thinking skills	5 points
Element 3C: Development and application of civic knowledge and skills	10 points
Total	100 points

1. Is your district participating in a local, state or national program, such as EPA ENERGY STAR Portfolio Manager, EcoSchools, Project Learning Tree, or others, which asks you to benchmark progress in some fashion in any or all of the Pillars?

Yes No

Program(s) and level(s) achieved:

1. [Energy Star Partner – 2007](#)
2. [Energy Star Leaders Recognition – 2008](#)
3. [Energy Star for 20% - 2008 30% - 2009](#)
4. [Energy Star Top Performers – 2008](#)
5. [Energy Star Low Carbon IT Campaign - 2012](#)

2. Has your district received any awards for facilities, health or environment?

Yes No

Award(s) and year(s) [Bronze Level HUSSC Award - 2012, 2013](#)
[Delaware Conservation Award – 2012](#)

Summary Narrative

[Delaware Green Ribbon Award Recipient – various schools - 2013](#)

Provide an 800 word maximum narrative describing your district’s efforts to reduce environmental impact and costs; improve student and staff health; and provide effective environmental and sustainability education. Focus on unique and innovative, yet replicable, practices and partnerships.

Pillar I: Reduced Environmental Impact and Costs

Describe how your district is reducing environmental impact and costs by reducing or eliminating greenhouse gas emissions; improving water quality, efficiency, and conservation; reducing waste production; and using alternative transportation. Identify your district’s energy-efficient facilities and practices, ecologically beneficial uses of grounds, and methods of disposal for solid and hazardous wastes.

Pillar 2: Improve the health and wellness of students and staff

Describe how your district improves the health and wellness of students and staff by integrating a school environmental health program and promoting sound nutritional and fitness practices. You should discuss integrated pest management, contaminant controls and ventilation, asthma controls, indoor air quality, moisture control, and chemical management. Address the amount and type of outdoor time that your students and staff have, as well as the types of fresh, local, and organic food that they eat. Other components you may want to include are: health education, health services, counseling, psychological and social services, staff health promotion and family and community involvement.

Pillar 3: Effective Environmental and Sustainability Education



Describe how your district provides effective environmental and sustainability education by incorporating STEM, civic skills, and green career pathways. Provide examples of interdisciplinary learning about the key relationships between dynamic environmental, energy, and human systems. Demonstrate how your district uses the environment and sustainability to develop STEM content, knowledge, and thinking skills. You should also discuss how your district develops and applies civic knowledge and skills to environmental and sustainability education.

Narrative Summary:

Red Clay Consolidated School District (RCCSD) educates approximately 15,000 students encompassing 14 elementary schools, 6 middle schools, 5 high schools, 4 special education schools, and 3 charter schools. With a focus on those 15,000 students, RCCSD is passionate about achieving its mission “to provide the environment, resources, and commitment necessary to ensure every student succeeds.”

The passion to achieve its mission requires RCCSD to adopt a holistic approach to balancing energy savings and reducing its environmental impact, while improving the health and wellness of its staff, and always providing a first class education to its students that includes environmental and sustainability knowledge and skills.

One of the guiding principles of the District includes the District leadership’s commitment to the comprehensive examination and realignment of appropriate structures, supports, and resources necessary to enable every school to have the capacity to provide all students with high-quality instruction.

Based on that guiding principle, Red Clay Consolidated School District has dedicated resources that align well with Green Ribbons Schools. For example, the District staffs a dedicated Energy Manager who works in collaboration with the Central Facilities Office to manage the energy consumption of each school in the district. To ensure that students receive the appropriate amounts of time on health education, physical education, and physical activity, each individual school in the Red Clay Consolidated School District has a Wellness Committee tasked with execution of RCCSD’s District-wide Wellness Plan. Additionally, RCCSD staffs a skilled Curriculum and Instruction Department charged with guiding the students’ education in the right direction. Curriculum directors determine the curriculum and learning needs of the school district including environmental and sustainability education for its students.

To provide the best, well-rounded education to students and career growth opportunities for its staff, Red Clay Consolidated School District continually improves its programs and leverages tools available from the Environmental Protection Agency, Energy Star, the Alliance for a Healthier Generation, the State of Delaware, Delaware Nature Society, and Healthy Food for Healthy Kids to name just a few. As it has always done, Red Clay Consolidated School District will continue to grow and improve to ensure that it remains an educational leader that is both financially responsible and an environmental steward, both today and in the future.



Pillar 1:

As the second largest district in Delaware, RCCSD must expend substantial energy to achieve its mission. However, it has become accomplished at saving natural resources while never sacrificing its mission.

Since the January 2005 start of the District's Energy Excellence Program, RCCSD has established itself as a leader in energy efficiency. This program provides the district with savings over \$1MM/year while reducing greenhouse gas emissions. Additionally, RCCSD was the first state agency to purchase electricity and natural gas from third-party vendors, first to enter a Solar Power Purchase Agreement, and first to have two schools named as Delaware Green Ribbon Schools.

RCCSD uses Portfolio Manager to track energy usage/costs, record progress in improving efficiencies, compare energy-related alternatives, and recognize individual facilities for improved energy usage and greenhouse gas reduction. Starting with base year 2004, only 5 of the then 24 facilities earned Energy Star ratings above 75 while the District average was 56. During 2013 all but two of the current 25 facilities earned above that level as required for labeling with the district average improving to 84. Currently the districts Source EUI is 132.73 kBtu/ft², down from 171.8 in 2004 kBtu/ft², which is 28.35% better than the National Median Source EUI of 193.47 kBtu/ft². Greenhouse gas emissions which were 19481 MtCO₂e in 2004 have been reduced to 15846.5 MtCO₂e in 2013.

RCCSD is currently implementing an energy-saving performance contract with Trane including green, energy-saving improvements that further increase the energy efficiencies of RCCSD, lessen its environmental impact, and improve indoor air quality.

The district also instituted heating and cooling temperature set points, building schedules and equipment operating procedures, and guidelines for lighting, personal appliances, and other equipment. Annually, this energy-saving performance contract project will save approximately 28% of the current electric utility spend, 22% of the current gas spend, and 11.85 million gallons of water.

As a result of the energy-saving improvements, Red Clay Consolidated School District will save **7,537,061 kWh** of electricity, **198,192 Therms** of heating fuel, and **11.85 million gallons of water** per year, in reference to the established baselines. This energy savings equates to a reduction of **6,309 metric tons of CO₂** or CO₂ equivalent emissions annually.

Other comparable metrics used for analyzing these energy savings are:

- Eliminating greenhouse gas emissions from **1,314 passenger vehicles** or,
- Eliminating CO₂ emissions from:
 - **707,257 gallons** of gasoline consumed or,
 - **14,672 barrels** of oil consumed or,

- **83.2 tanker trucks** worth of gasoline or,
- The electricity use of **944 homes** for one year or,
- The total energy use of **325 homes** for one year or,
- Eliminating the carbon sequestered by
 - **161,762 tree seedlings** grown for 10 years or,
 - **5,171 acres** of pine fir forests in one year or,
 - **48.8 acres** of forest preserved from deforestation in one year or,
- Avoiding greenhouse gas emissions by recycling **2,363 tons** of waste instead of sending it to the landfill

During a renovation project at A.I. DuPont High School, a storm-water retention basin was created. The basin collects storm-water and slowly releases it at a controlled rate so that surrounding areas, including athletic fields, are not flooded or eroded.



Storm-water retention basin at A.I. DuPont High School

The elementary schools instituted a recycling program where students separate the trash generated by their meals into three different bins; a recycle bin, a compost bin and a trash bin. The students are educated early in the year regarding the importance of recycling/composting, so it becomes habitual to them to recycle. While the trash separating started as a recycling program, it has saved RCCSD money on trash hauling fees even with the additional pick-ups required for the compost.



Mote Elementary Recycling Bins

The following is a 2013 District Green Ribbon Schools Report, generated through Energy Star’s Portfolio Manager on January 2, 2014. The report records the Energy Star rating for 25 Red Clay schools.

District Green Ribbon Schools
Date Generated: 01/02/2014 10:40 AM EST
Number of properties in report: 25

Property ID	Property Name	Year Ending	ENERGY STAR Score
1381708	A.I. DUPONT MS	9/30/2013	82
1381710	STANTON MS	9/30/2013	82
1381712	DICKINSON HS	9/30/2013	57
1381714	MARBROOK ES	9/30/2013	77
1381716	H.B. DUPONT MS	9/30/2013	79
1381718	RICHEY ES	9/30/2013	84
1381720	LINDEN HILL ES	9/30/2013	83



1381722	CONRAD SCHOOL OF SCIENCE	9/30/2013	92
1381724	BRANDYWINE SPRINGS ES	8/31/2013	99
1381726	SKYLINE MS	9/30/2013	88
1381728	MEADOWOOD SCHOOL	9/30/2013	93
1381730	WARNER ES	9/30/2013	83
1381732	BALTZ ES	3/31/2013	80
1381734	NORTH STAR ES	9/30/2013	89

1381736	SHORTLIDGE ACADEMY	9/30/2013	86
1381738	LEWIS ES	9/30/2013	82
1381740	MOTE ES	9/30/2013	95
1381742	HERITAGE ES	9/30/2013	91
1381744	TELEGRAPH ROAD	9/30/2013	85
1381746	FOREST OAK ES	9/30/2013	86
1381748	A.I. DUPONT HS	9/30/2013	84
1381750	RICHARDSON PARK ES	9/30/2013	71
1381752	WILMINGTON CAMPUS COMPLEX	9/30/2013	82
1381754	MCKEAN HS	9/30/2013	92
1381756	HIGHLANDS ES	9/30/2013	89



Pillar 2:

Every Red Clay Consolidated School District school has a Wellness Committee tasked with execution of RCCSD's District-wide Wellness Plan. The Wellness Plan dictates time that health education, physical education, and physical activity will be completed at each grade level, including standards to integrate activities into other subject curriculum, and to utilize grant programs. In accordance with State of Delaware standards and The Alliance for a Healthier Generation standards, the plan dictates health and nutrition education of 30 hours/year for kindergarten through fourth grade, 35 hours/year for grades five and six, 60 hours/year for grades seven and eight and ½ credit for students in grades nine through twelve; physical education/activity of 30 minutes/week for kindergarten through fifth grade, 60 minutes/week for grades six through eight, and 1/2 credit for grades nine through twelve. Half of the time allotted for physical education is spent doing moderate to vigorous activity.

The Wellness Plan includes strict guidelines for school meals and foods sold to students by referencing USDA Regulations. RCCSD participates in the Fresh Fruit and Vegetable Program in several elementary schools and sources produce from local/regional farmers. Some schools participate in school gardens that integrate nutrition and science curriculum. All elementary schools have been awarded the HUSSC bronze award.

The District's Maintenance and Facilities Departments constantly pursues new ideas such as making use of the EPA's Tools for Schools to improve pest management, contaminant controls, moisture control,

Indoor air quality is being improved with the current energy-saving project through the use electronic air cleaners. Electronic Air Cleaners trap and filter up to 99%* of airborne particles passing through the system to make sure cleaner air is distributed to all rooms in the schools. The improved indoor air quality provides a healthier learning environment for students, and better teaching and working environment for staff.

Through the DelaWELL Health Management Program, staff has free access to a confidential online wellness assessment, onsite health screenings, wellness challenges, online and onsite health seminars, personal health coaching, condition care programs and much more. It allows staff to take steps to reach their health and wellness goals, whether they want to lose weight, get more active, quit smoking, manage stress, improve nutrition and/or maintain a healthy lifestyle.

Pillar 3:

Red Clay Consolidated School District is proud to offer numerous environmental educational opportunities to its students.

RCCSD is also leveraging the aforementioned energy-saving performance contract project as a learning tool for students utilizing Trane's BTU Crew™ as a part of the Science Curriculum. The BTU Crew™ is an

educational program addressing energy use/conservation in buildings, as well as STEM careers that are fun and have a positive contribution to the environment. 5th grade students at Richie Elementary conducted energy experiments in their classrooms and analyzed the results. The students also tracked sources of energy waste and suggest ways of reducing this waste.



BTU Crew™

Many elementary schools and some high schools have school-based vegetable gardens. In each of the school-based vegetable gardens, each grade takes ownership of a different aspect of the garden throughout the year. For example, with the help of teachers, students calculate a budget for the necessary materials. One grade then prepares the soil (usually 2nd grade). One grade plants the seeds (usually 1st grade). One grade maintains the plants (watering, weeding, etc.) and one grade harvests the vegetables. The students then prepare and eat the vegetables as appropriate. This effort is coordinated through the school cafeterias.

Elementary Schools:

Elementary Schools involved in the vegetable gardens include Forest Oak (through Healthy Foods for Healthy Kids), Richardson Park Elementary School, North Star Elementary School, Linden Hill Elementary School, Heritage Elementary School, *Highlands Elementary School, and *Shortlidge Elementary School (* denotes an urban school in the city of Wilmington.)

Ornamental gardens/butterfly habitats are maintained at Richardson Park Learning Center, Heritage Elementary School (also a colonial garden, tying to Social Studies content), and *Lewis Elementary School. Each of these schools has native plant habitat gardens. These gardening projects are done through partnerships with Healthy Foods for Healthy Kids, Delaware Master Gardeners, or Delaware Nature Society. The students become stewards who understand how the local soil, plants, and animals have co-evolved over time to create a specific environment. These gardens are visited and often maintained by neighbors and community members from each school. The neighbors of Lewis Elementary School have also created and improved their own gardens in response to the efforts made by the students. In 2011, Lewis Elementary teacher, Amy O'Neill, won the Delaware Nature Society's Outstanding Environmental Educator



of the Year award for her students' work on maintaining the certified wildlife habitat garden/monarch butterfly outdoor classroom.

Elementary schools with gardens in preparation include Baltz Elementary School, Brandywine Springs School, and *Warner Elementary School.

Other environmental educational initiatives in RCCSD elementary schools include the following:

Recycling (as aforementioned at Mote Elementary): The RCCSD recycling program has been active in all elementary schools, and students are educated to recycle cafeteria waste.

Delaware Nature Society outreach: As part of the 2nd grade Insects Unit, the Delaware Nature Society has provided a weekly outreach program to Shortlidge Elementary School. Second grade students work with staff from the Nature Society to learn about insects on the school grounds. This experience also included a field trip for the Shortlidge students to the DuPont Environmental Education Center.

Mote Elementary: As part of the life cycles unit, students at Mote Elementary spent one week in May 2013 caring for hatching blue hen chicks. Through the Animal Science department at the University of Delaware, all second grade classes received incubators and hatching chicken eggs. Students cared for the eggs and watched the chicks hatch over the week.

District-wide: All elementary teachers are provided comprehensive science training by Karon Massado, elementary science specialist. This training includes setting up animal and plant habitats, field trip planning, and providing resources for schools to install school-based gardens. Some of the schools (e.g. Forest Oak, Baltz) maintain the animal/plant habitats that are introduced in fall units throughout the year as students observe many types of living things in their classroom (terraria, crawfish habitats, silkworms to name a few).

Secondary Schools:

Central School: Students at the Central School participate in horticulture classes in which they design and care for the landscaping around the campus. Included in this experience, students calculate a budget for necessary materials, and with the help of teachers, maintain ornamental plants around the school. In 2012, Carmen Davis of the Central School won the Outstanding Environmental Educator award from Delaware Nature Society.

Cab Calloway Middle: All middle school science teachers offer an exploratory course for students in which they study and maintain plants and animals ("Fun with Flora and Fauna").

Cab Calloway High: There is an annual, overnight field trip for all biology students to Cape Henlopen



State Park for environmental studies.

All 7th grade students: Through a partnership with Delaware Nature Society, all 7th grade students participated in a field trip experience to Ashland Nature Center and DuPont Environmental Education Center for stream study as part of the 7th grade Delaware Watersheds unit.

STEM Summer Scholars: In July 2013, RCCSD offered a seven day program for participating middle school students (80 participated) on water treatment. Through a partnership with Delaware Nature Society, students collected data on water quality at Banning Park. Afterwards, they designed and tested a water purification process to treat water to meet the parameters of the water in Banning Park. This experience will be featured in the 2014 STEM Summer Scholars program.

A.I. DuPont High and McKean: Both schools maintain working greenhouses which grow native plants for an annual plant sale. McKean uses the greenhouse for an agricultural science career pathway.

A.I. DuPont High: Established a Garden and Nature Club with the following objectives:

- Design, develop, and construct a natural habitat area for student, teacher, and community use in open area adjacent to the science wing in the southeast corner of the A.I. High School campus.
- All aspects of the designing, developing, and construction will be a coordinated effort between classroom students, student clubs, teachers, administrators, facilities personnel, and outside organizations involved in related activities such as the Hoe and Garden Club of Hockessin, our major partner in this venture, along with the Delaware Nature Society. This project will reach across many different curricular departments including, but not limited to: Science, CAD, Journalism, English, and Math and involve many student driven organizations including, but not limited to: Environmental Action Committee, Key Club, Astronomy Club, DECA, National Honor Society, School Newspaper, Technology Student Association, and Year Book. The overall emphasis will focus on an organized student driven effort.
- All newly introduced plant species, whenever possible, will be native to Delaware or local geographical region, as per our sponsors the Hoe and Garden Club of Hockessin. Many of these plants will be grown from seeds in our A.I. High greenhouse for later planting in the spring. To date this club has worked with parents, alumni, and the Nature Conservancy to renovate the greenhouse, create a pond on-site to be stocked with aquatic plants and fish, and to mitigate damage from erosion of the nearby woods ("Tiger Woods.") In 2013, Victor Leonard Sr., faculty sponsor of the Garden and Nature Club, won the Outstanding Environmental Educator award from Delaware Nature Society.

Brandywine Springs: Installed solar panels in 2009.



Future plans in the district: Include expanding opportunities for recycling, composting, and school based gardening. We have begun planning refurbishment of the greenhouse at A.I. DuPont Middle school to explore biofuel production. The plan is to create a combined environmental action committee between A.I. Middle School and A.I. High School so that high school students will mentor middle school students in environmental awareness. This mentoring model is already being used between the two schools for an astronomy cooperative.

Curricular ties to environmental education:

Living Things in their Environment:

Trees (Kindergarten) - Students observe and characterize trees in the schoolyard throughout the year and grow a tree temporarily in the classroom for later transplantation.

Organisms (1st grade) - Students learn about plants and invertebrates through maintenance of an aquarium and a terrarium. These concepts are revisited in fifth grade during the Ecosystems unit when they combine the two.

Insects (2nd grade) - Students prepare habitats to study the various stages of life cycles of insects.

Structures of Life (4th grade) - Students cultivate plants through hydroponics.

Ecosystems (5th grade) - See Organisms above.

Diversity of Life (7th grade) - Students create an environment (mini pond) to study microscopic life.

Delaware Ecosystems (8th grade) - Students observe global effects of plants and animals.

Recycling materials and Resource Management:

Wood and Paper - Continuing with concepts begun in Trees, students explore the characteristics of different types of wood and paper, leading up to a unit on paper recycling.

Soils (2nd grade) - Students explore composting as a way to enrich soil.

Delaware Watersheds (7th grade) - Students create a system for tracking water use in the home and recapturing drinking water from salt water.

As part of a career fair, students met with Energy Engineers to learn how rewarding and fun STEM careers in energy can be. The students were given guidance and tools to make a difference in energy conservation today and tomorrow to begin to position them as our future leaders.

RCCSD hosted a STEM Academy in July 2013 which gave approximately 200 students the opportunity to design many projects, including a model of a waste water treatment process, create balsawood structures made to withstand earthquakes, and construct a model amusement park. Delaware Jack Markell visited the STEM Academy to visit with the students and learn about their impressive projects.



Governor Markell visits RCCSD STEM Academy