



2016-2017 School Nominee Presentation Form

ELIGIBILITY CERTIFICATIONS

School and District's Certifications

The signatures of the school principal and district superintendent (or equivalents) on the next page certify that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct to the best of their knowledge. In no case is a private school required to make any certification with regard to the public school district in which it is located.

1. The school has some configuration that includes grades Pre-K-12.
2. The school has been evaluated and selected from among schools 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.
3. Neither the nominated public school nor its public school district is refusing 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.
4. OCR has not issued a violation letter of findings to the public school district concluding that the nominated public school or the public 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.
5. The U.S. Department of Justice does not have a pending suit alleging that the public school or the public school district as a whole has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
6. 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 public school or public school district in question; or if there are such findings, the state or public school district has corrected, or agreed to correct, the findings.
7. The school 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 2016-2017

☐ Charter ☐ Title I ☐ Magnet ☐ Private ☐ Independent ☒ Public

Name of Principal: Mrs. Holly Van Such

(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

Official School Name: Forwood Elementary School

(As it should appear on an award)

Official School Name Mailing Address: 1900 Westminister Drive
Wilmington, DE 19810

County: New Castle County State School Code Number 124

Telephone: 302-475-3956 Fax: 302-529-3092

Web site/URL: <http://www.brandywineschools.org/Domain/343> E-mail: Enid.VanSuch@bsd.k12.de.us

*Private Schools: If the information requested is not applicable, write N/A in the space

I, a Enid Van Such reviewed the information that to the best of my knowledge all information is accurate.
in this application and Date: 1/4/17

(Principal's signature)

Name of Superintendent: Dr. Mark Holodick

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(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in official records)

F.n-GR.q (9014-9015)

District Name: Brandywine School District

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

I have reviewed the information in this application and certify to the best of my knowledge

Mark Goldschmidt

11/5/14

Date: .

(Superintendent's Signature)

Nominating Authority's Certifications

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

1. The school has some configuration that includes grades Pre-K-12.
2. The school 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 and sustainability education.
3. The school 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: Delaware Department of Education

Name of Nominating Authority: Mrs. Tonyea Mead

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

provision above.

I have reviewed the information in this application and certify to the best of my knowledge that the school meets the

(Nominating authority's Signature)

Date:

I

SUMMARY AND DOCUMENTATION OF NOMINEE'S

ACHIEVEMENTS

Provide a coherent "snapshot" that describes how your school is representative of your jurisdiction's highest achieving. Summarize your strengths and accomplishments in all three Pillars and nine Elements. Then, include documentation and concrete examples for work in every Pillar and Element.

SUBMISSION

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, 2017

Public Burden Statement

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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 PL. 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.

F.D-GRS ('014-901

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2016-17 Delaware Green Ribbon Schools Application

1. School Profile

School Name: Forwood Elementary School

Street Address: 1900 Westminster Drive

City: Wilmington

State: DE

Zip: 19810

School Website: <http://www.brandywineschools.org/Domain/343>

Principal Name: Enid VanSuch

Principal Email Address: Enid.VanSuch@bsd.k12.de.us

Principal Phone Number: 302475-3956

Total school enrollment (Fall 2016): 365

District Name: Brandywine School District

School type and demographics: Public

Demographics: 22 % African American 6 % Hispanic/Latino
55 % Caucasian 11 % Asian 5 % Multi-Racial <1% Hawaiian
< 1 % American Indian/Alaskan

2. Application Team Information

Lead Applicant Name (who prepared the application): Leona Williams

Lead Applicant Title (e.g., teacher, principal): Grade 4 Teacher, Green Team Leader

Lead Applicant Email: Leona.Williams@bsd.k12.de.us

Lead Applicant Phone Number: 302475-3956

Application Team Members (Others who helped prepare this application)

	Name (First and Last)	Title/Department
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1	Enid VanSuch	Fotwood Elementary School, Principal
2	Michael McDermott	Forwood Elementary School, Assistant Principal



3	John Read	BSD Facilities Manager
4	Colleen Carter	BSD School Nutrition Services
5	Julie Goodnow	Forwood Grade 4 Teacher
6	Elaine Mendelson	Forwood Grade 4 Teacher
7	Greta Savage	Forwood Grade 4 Teacher

3. Summary Narrative

Forwood Elementary School in collaboration with the Delaware Valley Green Building Council (DVGBC) and their partner Eco Schools USA, a National Wildlife Federation program, is going green. Guided by their Green Team formed in 2015, the school's objective has been to develop habits among students and staff that improve their well-being and protect the environment. Forwood's Green Team, led by fourth grade teacher Leona Williams, consists of Principal Holly Van Such, Assistant Principal Michael McDermott, teachers Julie Goodnow, Elaine Mendelson, and Greta Savage, Guidance Counselor Catherine Ward, Chief Custodian Oliver Patterson, PTA Presidents Jennifer Uro and Laura Yaghoobian, and two school years of our Fifth Grade Leader Corps. Forwood is located in Wilmington, DE and is part of Brandywine School District.

Their journey that began with the raised bed garden project of Eagle Scout Zachary Galbraith and the support of Dr. Thianda Manzara of Healthy Foods for Healthy Kids (HFHK) contributed to Forwood's completion of Eco School's Sustainable Food pathway. Every student from kindergarten to grade five has had a role in our garden education program from planting seeds to watering and harvesting. Each role linked to lessons developed by Dr. Manzara is relevant to the grade level science curriculum. Cafeteria staff serve salads made from freshly picked produce on the lunch line. Garden programs are funded by the Whole Kids Grant sponsored by Whole Foods and a donation made by the Wawa Corporation to HFHK. Students also had the opportunity to learn about maintaining healthy lifestyles in 4-H after school programs facilitated by the University of Delaware College of Agriculture and Natural Resources Cooperative Extension. Representatives from the Cooperative Extension also evaluated soil samples for Forwood's gardens. Master Gardeners shared their expertise at the school's Fall Festivals, part of their Green Apple Days of Service.

Educated by the Delaware Solid Waste Authority and supported by BSD Facilities Management and Nutrition Services departments, Forwood's Fifth Grade Leader Corps led the entire school to recycle. While paper has been recycled at Forwood for a number of years, a fifth grade field trip to the DSWA helped students better understand the need to recycle more. Our

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Leader Corps completed an audit of our trash and the Green Team identified that plastic water bottles and milk jugs could be recycled fairly easily. They seek to replace Styrofoam trays with



recyclable ones, complicated by the need to clean food from the trays to prevent contamination. Students began recycling plastics in spring 2016. Consumption and Waste, another pathway, has been accomplished!

Native plants bedded by student gardeners eager to observe the pollinators they will attract supported the completion of the Schoolyard Habitat pathway, Lori Athey, Elaine Schmerling, and Serah Pesce from Delaware Nature Society have provided integral support to Forwood staff as students and staff planted orange milkweed, baptisia, dwarf honeysuckle, and other flowering plants to attract and feed pollinators near their building entrance. Forwood has been recognized as a Certified Wildlife Habitat by the National Wildlife Federation. Garden plans are expanding to a sensory garden that will utilize textured native plants and art. These low maintenance gardens will provide natural models to enhance student learning.

Finally, and possibly most far reaching, have been Forwood's efforts in the Energy pathway. They have reduced energy consumption and educated students and staff about renewable forms of energy. The University of Delaware supported BSD district facilities staff with an energy audit of our school in August of 2015. Later, Dianne Herrin of Practical Energy Solutions educated our fifth grade leader corps on tools to identify energy efficiency in the building. She met with our fourth grade students to share information on energy conservation and renewable forms of energy supporting grade level science content. The Leader Corps is creating a video to educate our students and their families about saving energy.

Monthly Science Club experiments and activities shared our environment focused goals and increased awareness on protecting the environment. Students have sorted their trash into recyclables, compostables, and landfill trash at home as was modeled at school. They have created bird feeders from recyclable materials, made solar cookers, and designed cars that move with wind power. They have also evaluated energy use at home and taken steps to conserve it, STEM projects developed problem solving skills and Next Generation Science Standards alignment of science programs created student centered learning opportunities driven by Science & Engineering Practices.

Forwood's journey has not ended. Going Green is about shaping habits in a lasting way. Vegetable garden education will continue to be used as a vehicle to educate students about earth and life sciences as well as healthy eating. Human impact on the environment has long had a negative connotation. Forwood's Green Ribbon Schools efforts have begun to shift that impact in a positive direction, and they are committed to keep it going.

Crosscutting Questions: Awards and Programs

4. Does your school participate in a local, state, or national green schools program (e.g., Eco Schools USA, Project Learning Tree Green Schools)?

(X) Yes

If yes, which program(s) are you participating in, what level(s) are in progress, and what level(s) have you achieved?

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	Program	Level in Progress	Level Achieved (include date achieved)
1	Eco Schools USA		Bronze Award Spring 2016
2	Eco Schools USA		Silver Award Spring 2016
3	Eco Schools USA	Green Flag	(Submitting Spring 2017)

5. In the past five years, has your school, staff, students or student groups received any awards.

	Award	Awarded to	Awarded by	Year Received
1	Certified Wildlife Habitat	Forwood Elementary	National Wildlife Federation	November 2016
2	Presidential Award for Excellence in Mathematics and Science Teaching	Leona Williams	Delaware Science Coalition	May 2016

Pillar 1: Reduce environmental impact and costs

Element IA: Energy conservation strategies

6. Which of the following programs or practices has your school implemented to conserve energy and to protect our environment from the negative effects of buildings and transportation?

Our school has an energy management plan in place that describes the steps we are taking, the key participants, our goals, and a schedule for conserving energy and reducing energy costs. We participated in an energy efficiency program that resulted in



a comprehensive energy audit and cost effective energy efficiency improvements and have met our energy conservation target every year since we started our program. Five percent

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or more of the energy used at our school is obtained from off-site renewable energy sources.

7. Use the list above as a guide to describe how your school programs, policies, and actions have reduced the amount of energy used in your building(s).

According to BSD's facilities manager, occupant comfort is a priority when buildings are open, but after hours and in the summer, systems are shut down to conserve energy and reduce costs.

Computers in our computer lab and staff computers automatically shut down each evening.

Equipment is maintained according to manufacturer recommendations. Improvements are made on a continuous basis. In August 2015, our school was audited by the University of Delaware in order to identify strengths and needs of our energy reduction efforts. Recommended window caulking is planned. Facilities are also rebalancing mechanical equipment to impact utility usage and building comfort. Staff and student awareness have been raised through education. Teachers created an "energy saver" role in their classrooms. These students are responsible for ensuring that projectors and lights are off when the classroom is not in use. Teachers are also conserving energy by using lower settings on classroom light switches. In November 2016, representatives from Practical Energy Solutions met with fourth and fifth graders to present ways to reduce energy consumption in our classrooms and develop an understanding of renewable energy forms. Our Fifth-Grade Leader Corps is creating a video to educate our school community on these topics. Our students are also educated about renewable forms of energy through the use of monthly Science Club experiments and activities. Students created solar cookers and puff mobiles to develop background on solar and wind power and learned about ways to reduce energy at home through an energy quest at <https://www.saveonenergy.com/kids-learningcenter/saving-energy/>.

Element 1B: Water quality, efficiency, and conservation

8. Which of the following practices contribute to the protection and conservation of the school domestic (drinking) water?

We are served by a community/city/county owned water provider that is required to report annually on the quality of our water. Our building maintenance department cleans all water taps and drinking fountains on a regular basis to prevent bacterial contamination. We have a water reduction plan in place that includes low-flow water fixtures, native drought-tolerant plants and minimal landscape irrigation. Our school water use is tracked and benchmarked using EPA ENERGY STAR Portfolio Manager or an equivalent program.

9. Use the list above as a guide to describe how your school implemented and is maintaining your water conservation program including your baseline, your goal, and



your reduction rate to date. Explain how you will continue to reduce water use to meet your goal. Include who in the school participates in the water conservation program. Describe the work done to protect water taps and drinking fountains from bacterial contamination.

The health and well-being of all building occupants and water conservation were priorities when Forwood Elementary School was renovated in 2006. All building piping was replaced at that time ensuring that there were no lead joints. Low flow water fixtures were installed throughout the building and motion activated sensors were incorporated in bathroom wash areas reducing water

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waste. All water taps and drinking fountains are cleaned and sanitized daily. Minimal irrigation is required on our property. Water is required to support our raised bed vegetable garden installed in August 2015, but we intend to install water barrels on nearby downspouts to support this garden. Native plants were used to develop our schoolyard habitat which was certified by the National Wildlife Federation via the Delaware Nature Society in November 2016. Initial and minimal maintenance watering is required. A solar bird bath was installed to provide water for wildlife. Continuous water flow, created by a solar powered motor, will ensure that this water source remains healthy.

Element IC: Waste Management and Product Procurement

10. Which of the following programs has the school initiated and maintained to reduce solid waste, eliminate hazardous waste, and procure environmentally preferable products?

Our school composts organic materials on site. We purchase office/classroom paper made of fibers from forests certified as responsibly managed in accordance with Forest Stewardship Council, Sustainable Forestry Initiative, or a comparable certification standard. Hazardous and dangerous products at our school have been reduced or eliminated. Hazardous, dangerous, and universal wastes at our school are handled and disposed of in accordance with federal and state regulations.

11. Use the list above as a guide to describe your solid waste management plan, including goals, materials you collect to be recycled or composted, your current recycling rate, and how you calculated the recycling rate. Include who participates in the waste management program, any student learning objectives, and the educational and environmental benefits to date. Provide an overview of your environmentally preferred purchasing.

Our school initiated a recycling program as part of our Eco Schools USA efforts related to Consumption & Waste. Paper has been recycled at Forwood for a number of years, and we immediately began to compost our school garden waste. In 2015, our fifth grade visited the Delaware Solid Waste Authority (DSWA) to better understand the need to recycle. Our Leader Corps completed an audit of our trash and identified that approximately 250 Styrofoam trays,



plastic milk jugs, and water bottles were being disposed in landfills daily from our lunches alone. They wrote our Nutrition Services director and received support to use recyclable trays while Green Team staff members obtained separate trash cans, approved bags, and an outdoor dumpster from facilities management. Students began recycling plastics in spring 2016. Cafeteria staff recycles all eligible products. Our dishwashing system was removed during renovation and our school converted to Styrofoam trays. Attempting to convert from Styrofoam to approved recyclable trays has been complicated as they need to be wiped clean to prevent contamination in the recycling process—not an easy task and using wipes creates a secondary waste. We are working with Waste Management and the DSWA to identify best practices and move forward with our waste reduction plan. A Forwood Science Club activity was utilized to support changing home habits. Students completed an at-home trash audit and were challenged to reduce landfill waste through composting and recycling. Parents report that our education program is resulting in student recycling watchdogs at home!

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Grade 5 Leader Corps Trash Audit



Recycling Plastics

Element ID: Alternative transportation

12. Our school provides the following alternative transportation options to driving in single occupancy vehicles to and from school.

Our school offers yellow school bus service. We have a well-publicized no idling policy that applies to all vehicles including school buses. Our school has a vehicle loading/unloading area(s) at least 25 feet from building air intakes, doors, and windows.

13. Use the list above as a guide to describe alternative transportation options to driving in a single occupancy vehicle to and from school, Included how the alternatives are promoted, any data you have about participation in school bus service, public transportation, carpools, ride-sharing, and commuting to school by walking or biking.



Our school provides yellow school bus service with 67% of our students choosing this transportation. Approximately 27% of our students are solely car riders with an additional 10% of students using both the bus and family cars. Signs are posted prohibiting idling to protect the health of students and our environment. Walkers and bike riders typically comprise 6% of our students with many families taking the opportunity to enjoy the school playground after school then walk or bike home as weather permits.

In the fall and spring, our bicycle racks are full as students are encouraged to pedal to school easing our car line and providing additional exercise opportunities. The Green Team includes our PTA President who plans to use media outreach to encourage families to walk or bike to school in the spring. Our school administrators encourage families to carpool to ease the car line. Many families make such plans especially to transport their children home from after school activities.

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

Element 2k. An integrated school environmental health program

14. Which of the following programs or practices does your school implement to ensure the environmental health of the school community?

Our school implements an up-to-date Integrated Pest Management program. It has identified and properly removed sources of elemental mercury and prohibits its purchase and use in the school. We do not have any wood playground equipment or other structures that contain chromate copper arsenate or we have identified these structures and have taken steps to reduce exposure. We have a comprehensive green cleaning program. Our school has tested all frequently occupied rooms at or below ground level for radon gas and has fixed and retested all rooms with levels that tested at or above 4 pCi/L or our school was built with radon resistant construction features and tested to confirm levels below 4 pCi/L. Our school has a chemical management program in place, with elements of purchasing, inventory, storage, training, spills, and hazards communication.

15. Use the list above as a guide to describe how your school implements and measures the success of your integrated environmental health programs and practices to ensure the health and safety of the school community. Include information on how your school addresses exposure to health hazards including radon, chromate copper arsenate, carbon monoxide, chemicals, asthma triggers, and mold.

Our district and school policies protect the well-being of students, staff, and members of our community through program participation that focus on environmental health. Our facilities



management have confirmed that our school implements an up-to-date integrated Pest Management program. No sources of elemental mercury are present, and its purchase and use are prohibited. Forwood's wood playground was replaced in 2006 during the renovation and replaced by a metal one. When our raised bed garden was built in 2015, we intentionally selected cedar rather than pressure treated wood to avoid the presence and contamination of chromate copper arsenate in the vegetables that we grow. Radon testing occurs in our school as recommended to protect its occupants. Our chief custodian confirmed that green cleaning products are used, chemicals are properly stored, and our custodial staff has been trained to handle spills and potential hazards.

While our district does not follow the National Asthma and Prevention Program, Forwood Elementary School follows the Nemours Asthma Plan and the National Association of School Nurses position paper on Asthma management according to our school nurse,

2B. High standards of nutrition, fitness, and quality outdoor time for both students and staff

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16. Which of the following programs or practices does your school implement to promote nutrition, physical activity, and overall school community health?

Our school participates in the "Coordinated School Health" program (www.cdc.gov/HealthyYouth/cshp/) and in the USDA's Healthier School Challenge. Our school participates in a Farm to School or comparable program to use local, fresh produce, and we have a food garden on-site which is utilized by the cafeteria and teachers.

At least 50% of our students' annual physical education and physical activity (including recess) takes place outdoors.

17. Use the list above as a guide to describe how your school implements high standards of nutrition, fitness, and quality outdoor time for both students and staff. (Maximum 250 words)

In 2010, Brandywine School District was presented the Edith P. Vincent Healthy Schools Award for implementing programs that address policy and practice change and champion children's health in the area of nutrition. Colleen Carter, School Nutrition Specialist, shared that our district currently participates in the Coordinated School Health program under the Center for Disease Control and the Farm to School program to serve local, fresh food in the cafeteria. Contracts were recently signed with nearby food suppliers reducing emissions related to food transportation to schools.

Thanks to the Eagle Scout project of Zachary Galbraith, Forwood has a raised bed vegetable garden. Vegetables grown are served in the form of salads to students and staff on the lunch line. Forwood partnered with the 4H to educate students on healthy eating and exercise (Are You Up



for the Challenge?) and healthy living without drugs and alcohol (Health Rocks!) in after school programs. Reviewing the USDA Healthier School Challenge and our garden/health related programs with Carter, we learned that schoolwide nutrition education is the final segment needed for Forwood to meet award requirements. BSD's School Board is currently working with Nutrition Services on this priority.

Students have numerous opportunities outside of gym and recess to engage in physical activity. Flag football, basketball, and kickball are among after school programs. Karate, dance, physical education, and gardening are among additional school day options. A year round, outdoor walking club is organized twice each week for all grade level participation.



First Grade—Planting Seeds (Vegetable Garden)



Gr 4 Harvest

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Garden Instruction from UD Cooperative Ext



Garden Measurement Gr 5



Harvest served!



Healthy Eating/Enjoying the Harvest

Pillar 3: Provide effective environmental and sustainability which incorporates STEM, civic skills, and green career pathways

Element 3A: Interdisciplinary learning about the key relationships between dynamic environmental, energy, and human systems

18. Describe how your school integrates and assesses/measures students' environmental or sustainability literacy at each grade level including curriculum, courses, outdoor learning, and assessments.

We utilize State of Delaware science curriculum using FOSS Science kits. Curriculum units including Soil, Insects, Land & Water, Ecosystems, and Structures of Life engage students and teachers in experiences that deepen their understanding of nature. Formative and summative assessments evaluate student mastery.

Our district also implemented NGSS across all grade levels to incorporate science literacy, reading and writing, and making thinking visible to support environmental science understanding. Our Journeys reading curriculum also includes multi-grade level access to gardening and science-related topics. To support science literacy, fifth grade students write an informative essay on the

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importance of conserving water using a published Achieve the Core prompt. In addition, fourth grade students develop an understanding of hydroponics through reading, writing, and observations. Each grade level enjoyed informational activity booklets from the National Association of Conservation Districts (NACD) on habitats and other aspects of life science.

Through the support of Dr. Thianda Manzara founder of Healthy Foods for Healthy Kids, science and math instruction are integrated into the care of our vegetable garden which aligns with content standards and promotes student health.

Monthly science club activities introduce the entire Forwood student body to environmental concepts to investigate with teachers or an adult at home. Students created solar cookers and Puff



Mobiles to investigate solar and wind energy. These age-appropriate activities provide students with hands-on learning opportunities related to these renewable energy forms. Activities included a brief explanation suitable for older students to read. Student projects and worksheets are displayed throughout the year.



Science Club experiments have included making recycled paper, bird feeders and solar oven.

19. Describe professional development opportunities available to your teachers in environmental and sustainability concepts and the number and percentage of teachers who participated in these opportunities during the past 12 months.

Green Team Leader, Leona Williams, is a member of Cohort I of Delaware's Next Generation Science Teacher Leaders. She has received professional development on three-dimensional learning, the basis of this instruction. Student centered investigations of phenomena including urban heat and erosion have been modeled. While the program is limited to one teacher per school (5%), she has shared her knowledge and experiences at Forwood staff curriculum meetings extending professional development to 100% of staff.

DVGBC offers workshops to support Eco Schools USA participants. Green Team members, 19% of our teaching staff, have attended four workshops which have focused on recycling, energy conservation, schoolyard habitats, and the resources available to our schools to educate students on protecting the environment.

All teachers received professional development on sustainability through our partnership with Healthy Foods for Healthy Kids. The cultivation education program engages staff and students in lessons about keeping the environment healthy and producing food that is served in our cafeteria. 100% of our teachers participate in our garden based education program.

Teachers may also participate in workshops coordinated by the Delaware Teacher Center which share the natural resources available for on-site instruction. While our kindergarteners do not travel, all other grade level teachers, or 83%, organize field trips to local farms, Bellevue State Park,

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Brandywine State Park, the DuPont Environmental Education Center, White Clay Creek, and Cape Henlopen State Park to provide students with engaging learning opportunities.

Element 3B: Use of the environment and sustainability to develop STEM content knowledge and thinking skills to prepare graduates for the 21st century technology-driven economy



20. Describe how environmental and sustainability education at your school supports teaching science and engineering practices (e.g., asking questions, developing and using models, planning and carrying out investigations, analyzing and interpreting data, using mathematics and computational thinking, constructing explanations, and engaging in argument from evidence) and supports robust general science education that includes a deep understanding of life, physical, and earth sciences.

All Forwood teachers received an introduction to the NGSS and Science & Engineering Practices. District policy at the elementary level has been to increase science literacy and engage in open-ended discussions during instruction. Every grade level developed science writing prompts to assess student learning. Teachers are looking at instructional goals for science units and scaffolding responses using Claims Evidence and Reasoning cues to guide students to seek better support for their answers explaining them more thoroughly.

Fourth and fifth grade students at Forwood have had greater opportunities to use NGSS strategies. NextGen Teacher Leader, Leona Williams, developed NGSS-aligned fourth grade Structures of Life curriculum and piloted lessons. She also developed a fifth grade ecosystems unit focused on Science & Engineering Practices. Student teams researched ecosystems online and identified food chains and their connected food webs. They Asked Questions about human impact on these ecosystems. Students accessed leveled Newsela articles on oil spills, climate change, acid rain, and sonic booms and learned how they impacted wildlife. Students Developed healthy ecosystem Models; Planned and Carried Out Experiments in which they contaminated environments; collected, Analyzed, and Interpreted Data to better understand the results of their experiments. They also utilized virtual ecosystems which created graphs as a grassland became overpopulated with rabbits or a drought destroyed grass. Students wondered about alternative energies as they better understood the impact of fossil fuels leading to investigations about renewable energy as they Argued Using Evidence. They learned in a student-centered classroom through experimentation and use of technology.



NGSS Cross Cutting Concepts



NGSS Science & Engineering Practices



Plan and Carry Out Experiments on Climate Change and other Human Impact

21 . Describe how your curriculum connects classroom content to career and college readiness, particularly post-secondary options that focus on environmental and sustainability field studies and/or careers.

Every Forwood student has the opportunity to engage in STEM activities. After school second and third graders applied their knowledge of insects to create Litterbugs from recyclables. Fifth graders made eco cars from K'nex and recyclables to compliment the Motion & Design Unit. In fact, every grade level utilized recyclables in some way. Each lesson included instruction on the need to recycle, reduce, and reuse materials to protect the environment.

Partnering with DuPont Biologist, Dr. Lisa Hoffman, the school science night was modified to create the Forwood Family STEAM Night. Students developed problem solving skills supported by Dr. Hoffman, other DuPont scientists, Forwood staff, and PS DuPont Middle School NJHS students. Earth science related activities include creating a Chia-type plant pet to observe at home. With Girl Scout support, students created a water filtration system then tested it using muddy water. Girl Scouts provided an Eco Table that used a model rural area, candy sprinkles as animal waste, chocolate syrup as automotive oil, and a variety of ingredients to represent other pollutants. Spraying what they had sprinkled into the environment, they observed how pollutants can be carried into the water system. Our STEM Gardening Club gave students the opportunity to take a soil sample, improve soil based on testing, plant native plants, and research common birds and butterflies and plants to create homes and food for pollinators and a place for all students to learn. Wetlands Biologist met with his son's fifth grade class to discuss his career.



STEM Activities Adjacent to Raised Bed Vegetable Garden: Cotton Ball Catapults



Eco Table

Eco Table Foreground, Girl Scouts & Water Filtration Background



Student STEAM Projects Use Recyclables: Insect, Rapunzel's Escape Tower, and Eco Car

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Element 3C: Development of civic engagement knowledge and skills, and students' application of these to address sustainability and environmental issues in their community

22. Describe your students' civic and/or community engagement experiences integrating environmental and sustainability topics/concepts, field studies, community service, etc. Address if and how students conduct an age-appropriate community engagement projects around a self-selected environmental or sustainability topic at every grade level; and partnering with local academic, business, informal science institutions and/or other schools to help advance the school toward the 3 Pillars and/or assist the progress of (an) other school(s), particularly a school with lesser capacity in these areas) DVGBC provided workshops and mentors guiding us through the pathways to become a Green School. In 2015, we met with Dr. Manzara (HFHK) and applied for the Whole Kids Grant providing us with \$2,000 funding. HFHK curriculum successfully involved every student in our vegetable garden. We began a school-wide plastics recycling program. In 2016, "It's Not Mean to Be Green" was read by its author motivating Forwood students. Energy conservation and education and developing a schoolyard habitat have been this year's focus.

We participated in the Green Apple Day of Service in conjunction with our annual Fall Festival to support environmental education. In 2015 and 2016, UD Master Gardeners engaged students with vermiculture and provided gardening tips. Students played recycling games, took an HFHK Veggie Quiz, recycled batteries. We held a Halloween costume resale fundraiser.

In spring 2016, Forwood held its first community recycling event gathering eye glasses, pet supplies, books, and shoes.

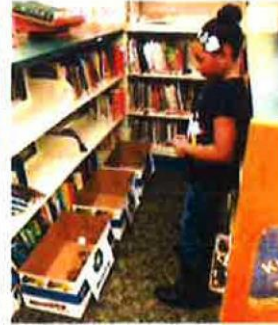
Delaware Nature Society helped with native plant selection as we planted gardens to support wildlife. Existing vegetation, a solar bird bath, and food provided by new plants earned Forwood Certified Wildlife Habitat status under NWF guidelines. Teachers use gardens to develop life sciences understanding.

PS DuPont NJHS students supported STEM activities and Green Apple Day of Service.

UD completed an energy audit of Forwood in August 2015. Practical Energy Solutions educated our Leader Corps on energy efficiency and fourth grade students on energy conservation and renewable energy. Leader Corps is creating an educational video about saving energy.



Forwood Recycling Event May 2016



Green Apple Day of Service Fall 2015
Costume Recycling & Trash Sort Game

GreenRibbon



Green Apple Fall 2016 Vermiculture ('15 & '16) HFHK Veggie Quiz
University of DE Master Gardeners



Recycled
Batteries



Forwood Green Team: Staff, 5th Grade Leader Corps, PTA

WANTED/



WANTED/

Student Work: Wanted posters created following research of native wildlife and the environment needed to support various species that we hope to attract to our Schoolyard Habitat.

GreenRibbon



Forwood Schoolyard Habitat including donated Solar Bird Bath



Grants submitted:
University of Minnesota
Schoolyard Exploration
Ecology Garden Grant,
First State RC&D
Grant, and Delaware
Valley Green Building
Council (DVGBC) Mini
Grant.

FORWOOD ELEMENTARY SCHOOL

