

U.S. DEPARTMENT OF EDUCATION
Green Ribbon Schools

U.S. Department of Education Green Ribbon Schools 2013

For Public Schools only: Charter Title I Magnet Choice

Name of Principal Mr. Daniel T. Roach, Jr.
(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

Official School Name St. Andrew's School
(As it should appear in the official records)

School Mailing Address 350 Noxontown Road
(If address is P.O. Box, also include street address.)

City Middletown State DE Zip 19709-1605

County New Castle State School Code Number* N/A

Telephone (302) 378-9511 Fax (302) 285-4275

Web site/URL _____ E-mail troach@standrews-de.org

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

[Signature] Date Feb 14 2013
(Principal's Signature)

Name of Superintendent* N/A
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

District Name* N/A Tel.() N/A

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate. This is one of the highest performing green schools in my jurisdiction.

N/A Date _____
(Superintendent's Signature)

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

GreenRibbonSchools



PART II – SUMMARY OF ACHIEVEMENTS

St. Andrew's is a co-educational 9-12 grade independent boarding school situated on the banks of Noxontown Pond and surrounded by 2,200 acres of woods and farmland in Middletown, DE. Sustainability is one of the core values of the school and as such is included in the school's mission statement:

"St. Andrew's is committed to the sustainability and stewardship of its land, water, and other natural resources. We honor this commitment by what we teach and by how we live in community and in harmony with the natural world."

Because of the school's commitment to sustainability, we have made significant progress in each of the three Pillars of the Green Ribbon Schools program.

PILLAR I: REDUCE ENVIRONMENTAL IMPACT AND COSTS

We most recently built a LEED Gold certified Field House for athletic events. This building is the first LEED certified school building in the state of Delaware. The school has used the field house as a teaching tool as students were involved in envisioning its construction, faculty have incorporated aspects of the field house in their curriculum, and new students and visitors can interact with a prominent educational display showcasing the sustainable features of the building.

The school has made significant progress in protecting our own local watershed through extensive tree plantings. In fact, St. Andrew's won the 2012 Governor's Agricultural and Urban Conservation Award in part because of our efforts to reforest approximately 100 acres of farmland on school property through the Delaware Fish and Wildlife Landowner Incentive Program. This reforestation has helped protect the watershed of Noxontown Pond by creating a large buffer between the pond and school owned farmland. Students again were involved by participating in the tree planting when it occurred.

Beginning in 2004, the school began a large scale effort to reduce the schools carbon footprint and increase our efficiency by replacing inefficient oil boilers on campus with efficient natural gas boilers. If you compare our annual carbon footprint from the 2003 to 2004 school year to the most recent 2011 to 2012 school year, we have decreased our footprint by 19%. We have also decreased our energy consumption in kBTU/square foot by 18%.

The schools dining services actively reduces school waste by composting kitchen scraps to be used in the schools organic garden. The schools dining services also purchases compostable dining ware and sources

GreenRibbonSchools



approximately 13 percent of our food from local services.

PILLAR II: IMPROVE THE HEALTH AND WELLNESS OF STUDENTS AND STAFF

The school is actively engaged in improving the health and wellness of students through a variety of initiatives. All students take a fall, winter and spring sport which meet for an hour and forty-five minutes five days a week. In the fall and spring, students have the option to work in the schools organic garden as a sport activity. The schools organic garden is a wonderful addition to our campus as it not only offers an opportunity for students to learn about gardening but it also provides produce for the schools cafeteria and to our local community. In the winter, students have the option to participate in forestry where they actively maintain trails around the pond while foster wildlife habitat by planting trees and installing and maintaining bluebird and wood duck boxes.

The school tries to improve the environmental quality of student's surroundings by engaging in green cleaning and being extremely careful about student's chemical exposure. For example, our school only uses Green Seal certified cleaners and performs heavy duty cleaning only during breaks.

PILLAR III: PROVIDE EFFECTIVE ENVIRONMENTAL AND SUSTAINABILITY EDUCATION, INCORPORATING STEM, CIVIC SKILLS AND GREEN CAREER PATHWAYS

Environmental and sustainability concepts are integrated throughout the curriculum at St. Andrew's. Sustainability is incorporated in liberal arts courses. For example, in a senior Film Study class, students are currently in the process of making a video to educate and create incentives for the school community to recycle better. Sustainability is also incorporated into STEM learning. In Chemistry, students learn about the effects of climate change and pollution to our environment.

Sustainability is also incorporated into the civic skills at the school. Students at St. Andrew's have worked with students at Townsend Elementary to plant plugs and trees at the headwaters of Noxontown Pond (Townsend Village II) to protect our watershed. On February 17 of this year the school will charter buses and cancel classes the following day so that students can attend the largest climate rally in history in Washington DC. In addition, the school received a grant from the Greenwatch Institute which has allowed students at the school to work with the University of Delaware to determine water quality trends and best practices for monitoring water quality in the school's Noxontown Pond.

PART III – DOCUMENTATION OF STATE EVALUATION OF NOMINEE

Instructions to Nominating Authority

The Nominating Authority must document schools' high achievement in each of the three ED-GRS Pillars and nine Elements. For each school nominated, 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.

GreenRibbonSchools



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.

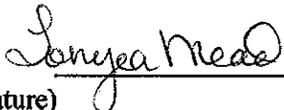
1. The school has some configuration that includes one or more of grades K-12. (Schools on the same campus with one principal, even a K-12 school, must apply as an entire school.)
2. The school is one of those overseen by the Nominating Authority which is highest achieving in the three ED-GRS Pillars: 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 Dept. of Education

Name of Nominating Authority Mrs. Tonyea Mead

(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 school meets the provisions above.

(Nominating Authority's Signature)  Date 2/15/2013

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

GreenRibbonSchools



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.

U.S. DEPARTMENT OF EDUCATION
GreenRibbonSchools



School Contact Information School

Name: St. Andrew's School Street

Address: 350 Noxontown Road City:

Middletown State: DE Zip: 19709

Website: www.standrews-de.org

Facebook page: <https://www.facebook.com/SASDelaware?fref=ts>

Principal Name: Daniel T. Roach

Principal Email Address: troach@standrews-de.org Phone Number: 302-285-4213

Lead Applicant Name (if different): Diana Burk

Lead Applicant Email: dburk@standrews-de.org Phone Number: 302-285 4264

<p>Level</p> <p><input type="checkbox"/> Elementary (PK - 5 or 6) [<input type="checkbox"/> K - 8 <input type="checkbox"/> Middle (6 - 8 or 9) [X <input type="checkbox"/> High (9 or 10 - 12)</p>	<p>School Type</p> <p><input type="checkbox"/> Public <input checked="" type="checkbox"/> Private/Independent <input type="checkbox"/> Charter</p>	<p>How would you describe your school?</p> <p><input type="checkbox"/> Urban <input type="checkbox"/> Suburban <input checked="" type="checkbox"/> Rural</p>	<p>District Name</p> <p>Appoquinimink School District <input type="checkbox"/> Largest 50 Districts</p> <hr/> <p>Total Enrolled: 303</p>
<p>Does your school serve 40% or more students from disadvantaged households?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>% receiving FRPL: 0 % limited English proficient: 0 Other measures_</p>		<p>Graduation rate: 100% Attendance rate: 100%</p>

Instructions for completing this form: Please answer all of the questions below to the best of your ability. A more complete application will increase your chances of success. You may supplement the information in these questions by describing alternative benchmarks or indicators of progress (see final question in each section).

1. Has your school, staff or student body received any awards for facilities, health or environment? (X) Yes () No

Award(s) and year(s)

Award: First LEED Certified School Building in State of Delaware, Year: 2012

Award: Governor's Agricultural and Urban Conservation Award, Year: 2012

Award: Recycling Champion by the Green Schools Alliance, Year: 2012

Award: Martin Luther King Drum Major for Service Award, Year 2012

GreenRibbonSchools



Award: Green Cup Energy Challenge Participant by the Green Schools Alliance, Year: 2009, 2010

2. Has your school identified or created a place for teachers to go to share lessons on Sustainability?

(X) Yes () No

If yes, where? The school is creating an innovation collaborative which was announced in January of 2013 to give teachers the opportunity to share lessons on sustainability, global studies and interdisciplinary learning. The school regularly gives grants for teachers to improve their curriculum over the summer. The school also funds other professional development opportunities during the school year like going to conferences or doing degree related work.

3. Has your School Board adopted a Green Strategic Plan? () Yes (X) No

4. Has your school created a Green Team? (X) Yes () No If yes, list team members and their roles: Diana Burk, chair,

Director of Sustainability
 Peter McLean, co-chair, Environmental Science
 Andy Jeon, student, co-captain of Environmental Stewards
 Alexandra Porrazzo, student, captain of Environmental Stewards
 Dave McKelvey, Facilities Operations
 Phil Pensinger, Grounds
 Carol-Ann Pala, Research
 Will Robinson, Communications Ana
 Ramirez, Residential Life Chesa Profaci,
 Alumni and Parents Michael Schuller,
 Land Use
 Kelly Massett, Dining Services
 Diane Winiarczyk, Chief Financial Officer
 Tad Roach, Head of School

5. Has your school seen a cost savings from green initiatives? (X) Yes () No If yes, describe the savings.

The school has seen a cost savings from green initiatives. For example, our school reduced its total building energy utility bill by 36% from the academic year 2004 to 2005 to our current academic year by completing an energy audit in 2004 and implementing recommended measures.

PILLAR I: REDUCED ENVIRONMENTAL IMPACT AND COSTS

Element 1A: Reduced or eliminated greenhouse gas (GHG) emissions – Energy/Building

1. Can your school demonstrate a reduction in Greenhouse Gas emissions? (X) Yes () No

Percentage reduction: 19%

Over (m/yy - m/yy): Annual emissions from June 2003 to July 2004 compared to annual emissions from June 2011 to July 2012

Initial GHG emissions rate (MT eCO2/person): 10.45

Final GHG emissions rate (MT eCO2/person): 8.45

GreenRibbonSchools



Offsets: No offsets. How did you calculate the reduction? Based it off of emission factors for oil and propane from EPA's website, eGrid's subregion (for Delaware) annual output emission rates for electricity, and EPA's references natural gas.

How have you benchmarked your energy use? ENERGY STAR Portfolio Manager

2. Has your school conducted an energy audit of its facilities? (X) Yes () No

Percent reduction: 18%

Measurement unit used (kBTU/Square foot or kBTU/student): kBTU/Square foot

Time period measured: From 2004/2005 School Year to 2011/2012 School Year

The school is intending to receive another energy audit in the Spring of 2013 through a DNREC grant.

3. Has your school received EPA ENERGY STAR certification or does it meet the requirements for ENERGY STAR certification?

(x) Yes () No Year(s) and score(s) received: The Facilities Building at the school received the certification. Year: 2007 Score: 90. Because most buildings on campus are on one meter, they can not receive certification.

4. What percentage of your school's energy is obtained from:

On-site renewable energy generation: None. The school has received board approval to install a 500kW array on school property. Before construction can begin, however, the school must obtain SRECS for the project in the state auction. Type: N/A.

Purchased renewable energy: 2.3% Type: 1.4% is Biodiesel for school vehicles and 0.9% is purchased Wind Energy Credits from Washington Gas Energy Services, Clean Steps Energy WindPower for 9 faculty homes on campus.

Participation in USDA Fuel for Schools, DOE Wind for Schools or other federal or state school energy program: No

5. Has your school reduced its total non-transportation energy use from an initial baseline? (X) Yes () No

Current energy usage (kBTU/student/year): 156,951

Current energy usage (kBTU/sq. ft./year): 90.5

Percentage reduction: 18% over annual energy use from July 2004 to June 2005 and July 2011 to June 2012

How did you document this reduction? UtilityDirect which is a software program that manages the schools utility bills

6. In what year was your school originally constructed?

The first building was constructed in 1929. The most recent building was constructed in 2011. What is the total building area of your school?

530,137 s.f. (Because we are a boarding school, this includes dormitories, academic buildings, gym, pool, field house, dining hall, library and faculty residences)

GreenRibbonSchools



7. Has your school constructed or renovated building(s) in the past ten years? (X) Yes () No

For new building(s): Which green building standard was used? USGBC's LEED rating system

Percentage building area that meets green building standards: The entire field house (56,000 s.f.) met the green building standard. The field house represents 11% of the schools total building area.

Certification and level: LEED Gold Total constructed area: 56,000

For renovated building(s): Percentage of the building area that meets green building standards: 0

Certification and level: N/A Total renovated area: N/A

Which green building standard was used? N/A

(LEED Existing Buildings: Operation & Maintenance, CHPS Operations Report Card, Green Globes, or other)

Element 1B: Improved water quality, efficiency, and conservation – Water/Grounds

8. Can you demonstrate a reduction in your school's total water consumption (measured in gal/square foot) from an initial baseline? (X) Yes () No Please provide:

Percentage reduction in domestic use: The school pays a sewer bill which approximates domestic use. The percentage reduction in domestic use is 25%.

Percentage reduction in irrigation: The school does not measure irrigation water used (it is from an on-site well). Therefore, we cannot demonstrate a percentage reduction in irrigation.

Time period measured (mm/yyyy - mm/yyyy): January to March of 2010 to January to March of 2012

How did you document this reduction (i.e. ENERGY STAR Portfolio Manager, utility bills, school district reports)? Utility bills

9. Describe any strategies you use to discourage single-use beverage containers on school property. Describe how you assure the recycling of those containers at athletic locations.

The school's dining services only provides students reusable cups during meals. Compostable cups for water and hot drinks are also provided but are only used when necessary by students. The school only dispenses single-use beverage containers for special events and in vending

machines. Recycling is present and available at all athletic locations. Recycling bins are labeled with Recycle Across America's standardized recycling labels which have pictures and text in both English and Spanish. Students also participated in the Green Cup Recycle Challenge in 2012 to raise awareness that items like single-use beverage containers are recyclable.

10. What percentage of your landscaping is considered water-efficient and/or regionally appropriate? 90%

11. What plants are native to your geographic location and how have you incorporated them?

The grounds team at St. Andrew's currently only purchases plants that are native to our geographic location (eastern region). There is currently a garden bed around the science building at the school which is dedicated to only native species. Several native plants we have recently planted include the following: dogwood shrub (cornus sericea), crabapple tree (malus), sourwood tree (oxydendrum arboreum), bayberry shrub (myrica pensylvanica), sweet pepper



bush (*Clethra alnifolia*), and eastern ninebark shrub (*Physocarpus opulifolius*).

12. Describe alternate water sources used for irrigation (e.g. roof run-off, parking lot runoff). (50 words max)

No potable water is used for irrigation on campus. Irrigation water for the athletic fields comes from an irrigation well located on campus. Irrigation water for landscaping around the main academic building comes directly from nearby Noxontown pond.

13. Describe any efforts to reduce stormwater runoff and/or reduce impermeable surfaces (e.g. rain gardens, swales, ponds). (50 words max)

The school manages a rain garden by the school boathouse, swales by the school tennis court and several naturalized areas directly next to Noxontown pond. The stormwater runoff from the footprint of the newly constructed field house was reduced 94% due to a unique infiltration bed design.

14. What efforts are you doing to protect Delaware's watershed (e.g. school's site grading and irrigation system and schedule is appropriate for your climate, soil conditions, plant materials, and climate, with an emphasis on water conservation)? (50 words max)

The school has increased the buffer between farms on school property and our watershed by reforesting 129 acres of farmland through the USDA Conservation Reserve Program and through the Delaware Landowner Incentive Program. The school conserves irrigation water by using rain sensors and moisture probes and landscapes only with plants native to the eastern region.

15. Describe the program you have in place to control lead in drinking water. (50 words max)

The school contracts with Atlantic Coast Laboratories which tests both lead and copper in its drinking water every 3 years. It was tested most recently in 2011 and will be tested again in 2014. The test results were less than 0.002 mg/L of lead.

16. What percentage of the school grounds are devoted to ecologically beneficial uses? (50 words max)

The school owns 2,200 acres of land. Forty-four percent of that land is devoted to purely ecologically beneficial uses (forest, pond, reforested farm land, organic garden, naturalized areas, native planting, landscaping with shrubs and trees, etc.) The majority of the remaining land is farmed in ecologically responsible ways. For example, the school farms hay which maintains topsoil, irrigates to reduce fertilizer and pesticides, and practices no-till farming to protect our watershed.

Element 1C: Reduce waste production – Waste/Hazardous Waste

17. What percentage of solid waste is diverted from landfilling or incinerating due to reduction, recycling and/or composting? Complete all the calculations below to receive points.

A - Monthly garbage service in cubic yards (garbage dumpster size(s) x number of collections per month x percentage full when emptied or collected): 163 cubic yards per month

B - Monthly recycling volume in cubic yards (recycling dumpster sizes(s) x number of collections per month x percentage full when emptied or collected): 69 cubic yards per month

C - Monthly compostable materials volume(s) in cubic yards (food scrap/food soiled paper dumpster size(s) x number of collections per month x percentage full when emptied or collected): 1.8 cubic yards per month

Recycling Rate = $((B + C) \div (A + B + C) \times 100)$: 30%

Monthly waste generated per person = $(A/\text{number of students and staff})$: $1/3^{\text{rd}}$ of a cubic yard per person (student

GreenRibbonSchools



and staff)

18. What percentage of your school's total office/classroom paper content is post-consumer material, fiber from forests certified as responsibly managed and/or chlorine-free?

100 percent of our school's total office/classroom paper content is 100 percent post-consumer content. All paper is also chlorine free.

19. Describe how you have reduced your paper consumption, and how you measured that reduction (e.g. working and reviewing online, white boards). (50 words max)

The school uses a software called PaperCut which has allowed the school to track paper use, default every single computer to double-sided and require that all students print double-sided. Faculty work to decrease paper use at the school by reviewing work online and using e-Books.

20. List the types and amounts of hazardous waste generated at your school (check with chemical safety officer):

Flammable liquids	Corrosive liquids	Toxics	Mercury	Other:
None	None	None	None	Motor Oil: 225 gallons/year Paint: 25 gallons/year

How is this calculated?

The school responsibly disposes of motor oil and paint. These two waste items are picked up on a will-call basis. The amounts were estimated by how often these items are disposed of in a year and the average amount per disposal.

How is hazardous waste disposal tracked?

The school tracks the number of 55-gallon drums of motor oil are picked up once a year and the amount of paint cans disposed of by maintaining records of the cost of having a company pick them up.

What percentage of all products is certified?

100 percent of cleaning products used on a regular basis are certified green.

What specific third party certified green cleaning product standard does your school use?

Green Seal.

Describe the measures your school has taken to use only green cleaning product.

The school uses primarily Green Seal certified cleaning products. Green Seal products include glass cleaners, bathroom cleaners, floor cleaners, and degreasers. The school also uses a green carpet cleaning called HOST dry clean which deep cleans carpets (without raising dust and thus affecting air quality) by using 100% plant based resources and a little bit of water.

Describe other measures taken to reduce solid waste and eliminate hazardous waste (on-site composting). (100 words max)

GreenRibbonSchools



The school composts or reuses all landscaping waste. All grass clippings are left on the field as compost. All wood is chipped for reuse. Leaves and debris are also mulched, composted and reused. The school's dining services also composts kitchen scraps. Compost is used in the school's organic garden. The school also participates in trayless dining which reduces the amount of food waste at the school. Finally, students this year participated in the Green Cup Recycle Challenge so that waste is properly recycled.

21. If your school has a nurse's office, how does the nurse track regulated medical waste? Describe the tools or mechanisms used to track this waste.

The school contracts with Culver Enterprises to pick up all regulated biohazard waste. Before pickup, the nurse's office puts all biohazard waste in red regulated bags marked biohazard or in a biohazard syringe container. The nurses office also keeps track of all medications used by students in the office during the school year. After the school year is over, the nurse's office sends all leftover medications home with the students.

22. Is a Hazardous Waste Policy for storage, management and disposal of chemicals in laboratories and other areas with hazardous waste, in place and actively enforced? (X) Yes () No

23. Are there any Underground Storage Tanks located at your school? (X) Yes () No If yes, do you have the proper permits for using an underground tank? (X) Yes () No

The school has a 10,000 and 3,000 underground oil storage tank which is appropriately permitted.

Element 1D: Use of alternative transportation

24. What percentage of your students walk, bike, bus, or carpool (2 + student in the car) to/from school? (Note if your school does not use school buses)

Because we are 100% boarding, 100 percent of students at the school walk or bike to school. Students are not allowed to bring cars to campus. When students wish to go to town, they often carpool with faculty, walk or use bikes. Buses are only used to transport students off campus events (e.g., for athletic events). The school also has a bike share program where students fix abandoned bikes on campus for community use.

How is this data calculated? (50 word max)

This data is based on knowledge of our school's operations.

25. Has your school implemented?

[N/A] designated carpool parking stalls.

[] a well publicized no idling policy that applies to all vehicles (including school buses).

[] Vehicle loading/unloading areas are at least 25 feet from building air intakes, doors, and windows. [x] Safe Pedestrian

Routes and/or Bicycle Routes to School

[x] Walk and Bike to School Days?

[N/A] a Walking School Bus program?

GreenRibbonSchools



[N/A] walking and bicycling safety curriculum?

Describe activities in your safe routes program: (50 word max)

Because the school is 100 percent boarding and all students walk or bike to school. The speed limit on campus is 18mph to protect student safety.

26. Describe how your school transportation use is efficient and has reduced its environmental impact (e.g. more efficient bus routes, diesel retrofits for buses, use of biodiesel fuel, electric vehicles). (50 word max)

The school uses biodiesel for all diesel vehicles (including buses and tractors) in an effort to reduce our environmental impact. Last year, the school purchased 2,420 gallons of biodiesel that was used during the school year. When students wish to go to town, they often carpool with faculty, walk or use bikes.

Summary Question for Pillar 1

27. Describe any other efforts toward reducing environmental impact, focusing on innovative or unique practices and partnerships. (100 word max)

Students at the school have participated in both the Green Cup Energy Challenge and the Green Cup Recycle Challenge organized by the Green Schools Alliance to reduce our schools environmental footprint. St. Andrew's has also established several unique partnerships to reduce our environmental footprint. For example, in 2010, St. Andrew's partnered with the University of Delaware to research the sustainable integration of value-added manure products into 21st century farming. In 2005, St. Andrew's worked with the Delaware Forest Services to establish a forest stewardship plan at the school.

PILLAR 2: IMPROVE THE HEALTH AND WELLNESS OF STUDENTS AND STAFF

Element 2A: Integrated school environmental health program – Integrated Pest Management/Contaminant controls and Ventilation/Asthma control/Indoor air quality/Moisture control/Chemical management

1. List all actions taken by your school to control and/or manage student's exposure to pesticides. For each action listed, rate the action's effectiveness.

The school actively tries to reduce student's exposure to pesticides.

- Action: The school uses the least toxic pesticides possible when they are necessary. Effectiveness: Very effective.
- Action: Pesticides often give a range of recommended application. The school uses the minimum amount in that range. Effectiveness: Very effective.
- Action: The school uses pesticides only when students are not on the fields and if possible, when they are on break. Effectiveness: Very effective.
- Action: The school houses its own weather station which accurately predicts the direction and intensity of wind during the day. This allows the school to postpone application of pesticides when the wind is not favorable. Effectiveness: Very effective.
- Action: Two school employees holds a certified pesticide license and are certified in Delaware nutrient management. These two employees go to classes yearly to keep current on proper application of pesticides and nutrients. Effectiveness: Very effective.
- Action: The school uses many of the principles of integrated pest management inside and outside buildings. For example, waste baskets in classrooms are emptied daily to reduce pests from entering the building. Effectiveness.



Very effective.

2. Which of the following practices does your school employ to minimize exposure to hazardous contaminants?
Provide specific examples of actions taken for each checked practice.

Our school prohibits smoking on campus and in public school buses.

Smoking is prohibited on school buses and on campus where students are active but there is a smoking area by facilities far from student activity for outside contractors.

Our school has identified and properly removed sources of elemental mercury and prohibits its purchase and use in the school.

Our school uses fuel burning appliances and has taken steps to protect occupants from carbon monoxide (CO)

The school does routine preventative maintenance of boilers on campus to protect occupants from carbon monoxide. For residences owned by the school with boilers, the school has installed carbon monoxide sensors.

Our school does not have any fuel burning combustion appliances (e.g. boilers, emergency generators, hot water heaters, etc.)

If Applicable - Our school has tested all frequently occupied rooms in contact with the ground, and first floor rooms above basement spaces that are not frequently occupied 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.

The school has tested 3% of school owned property (5 residences) for radon. All buildings tested below 4 pCi/L

Our school has identified any wood playground or other structures that contain chromate copper arsenate (pressure treated wood) and has taken steps to eliminate exposure.

The school has no wood playground equipment or other similar structures.

3. Describe how your school controls and manages chemicals routinely used in the school, as well as construction or cleaning activity that produces odors or dust, to minimize student and staff exposure. (100 word max)

The school only conducts heavy cleaning (like stripping or waxing of the floors), major renovations or construction activity while the students and staff are away on break. The school minimizes the odors and dust produced by vacuuming by using the HOST dry carpet cleaning. The school's new LEED certified field house was built using low-VOC materials and wood products without urea formaldehyde. All HVAC systems in the field house were protected during construction and the buildings was flushed out with 100% outside air for 2 weeks to clear out construction dust.

4. Describe actions your school takes to prevent exposure to asthma/other allergic triggers in and around the school. (100 word max)

The school uses proper levels of mechanical ventilation in all buildings to ensure good indoor air quality. Filters in HVAC systems are a minimum of MERV 7 to prevent exposure to allergic triggers. In addition, the school minimizes allergic triggers produced from cleaning by engaging in green cleaning techniques (Green Seal certified products, dry carpet cleaning, and the use of flat mops). The new field house was also constructed to enhance indoor environmental quality as described above. Finally, the school minimizes carpeting and upholstered furniture in classrooms to reduce dust exposure.



5. Describe actions your school takes to control moisture from leaks, condensation, and excess humidity and promptly cleanup mold or removes moldy materials when it is found. (100 word max)

The school contracts with Harvard Environmental, Incorporated to test for mold. When present, Harvard Environmental promptly cleans up and removes moldy materials. When leaks are present, the school actively locates them and fixes them to prevent bulk water penetration into the building. The school controls for excess humidity with our sophisticated HVAC systems.

6. Our school has installed local exhaust systems for major airborne contaminant sources. (X)Yes ()No

The school has local exhaust systems where all major airborne contaminant sources are located (kitchen, bathrooms, locker rooms, chemical storage cabinets and hoods in science building).

7. Describe your school's practices for inspecting and maintaining the building's ventilation system and all unit ventilators to ensure they are clean and operating properly. (100 word max)

The school building's ventilation systems are checked every day through the school's building automation system. The school also follows a strict preventative maintenance schedule so that air filters in the ventilation system are changed between every 30 days and every 6 months (depending on the system). The ventilation system is also checked for loose belts and lubrication as necessary.

ventilated with outside air, consistent with state or local codes, or national ventilation standards. (100 word max)

All school buildings were constructed in accordance with state or local codes to ensure adequate ventilation. The most recent building was LEED certified and as such conformed with guidelines in ASHARE 62.1-2007. Other buildings conform with local energy code and mechanical code requirements.

9. Describe other steps your school takes to protect indoor environmental quality such as:

- € implementing EPA IAQ Tools for Schools and/or
- € conducting other periodic, comprehensive inspections of the school facility to identify environmental health and safety issues and take corrective action.(200 word max)

Whenever faculty or students notice poor indoor environmental quality conditions, the school immediately reaches out to Harvard Environmental, Incorporated who tests the conditions and offers to remediate if necessary.

Element 2B: Nutrition and Fitness- Fitness and Outdoor Time/Food and Nutrition

10. Which practices does your school employ to promote nutrition, physical education/physical activity and overall school health? Provide specific examples of actions taken for each checked practice, focusing on innovative or unique practices and partnerships. (100 word max each)

[] Our school participates in the USDA's HeathierUS School Challenge. Level and year: [X] Our school participates in a Farm to School program to use local, fresh food.

On staff member working on behalf of the school helped establish the Farm to School Collaborative in Delaware and served as treasurer of the collaborative until it evolved into the non-profit, Let's Talk Lunch.

GreenRibbonSchools



Our school has an on-site food garden.

Our school maintains an on-site organic food garden. Students participate in the garden as an athletic option in the fall and spring. Students can also take a break from their regular sport in the winter to volunteer in the greenhouse where plants are started for spring use.

Our school garden supplies food for our students in the cafeteria, a cooking or garden class or to the community.

Produce from the on-site organic food garden supplies the school cafeteria and/or the community. Our students

spent at least 150 minutes per week over the past year in school supervised physical education/physical activity.

minutes 6 days a week. Therefore students spend 630 minutes per week in school supervised physical education/physical activity.

At least 50% of our students' annual physical education takes place outdoors. Approximately

2/3 of physical education takes place outdoors.

Health measures are integrated into assessments.

All students are required to take a health and wellness class which includes assessments.

At least 50% of our students have participated in the EPA's Sunwise (or equivalent program). Our school's

food services program is working to bring more local produce and sustainably produced foods into the schools.

Percentage: 13% Type: Local produce includes apples, asparagus, mushrooms, tomatoes, strawberries, and herbs. Sustainably produced foods include grass-fed burgers and food from the school's organic garden.

11. Describe the type of outdoor education, exercise and recreation available. (100 word max)

In the fall, students participate in Field Hockey, Soccer, Cross-Country, Football and Organic Gardening outdoors. In the winter, students participate in Forestry outdoors and in the spring, students participate in Tennis, Lacrosse, Crew, Baseball, and Organic Gardening outdoors. Every weekend, the student activities committee organizes weekend events for students many of which are held outdoors (e.g., egg throwing in the woods, all campus capture the flag, etc.)

Summary Question for Pillar 2

12. Describe any other efforts to improve nutrition and fitness, highlighting innovative or unique practices and partnerships. (100 word max)

St. Andrew's employs a full-time director of health services and at least one other Registered Nurse is available 24 hours a day in the Health Center. St. Andrew's also provides a staff of counselors who students may see by appointment as needed or on a regular basis. These staff are dedicated to improving the nutrition and fitness of our students. For example, the director of health services teaches every sophomore student a health and wellness class. In this class, the director actively encourages students to get outdoors in order to relieve stress and improve mental health.

PILLAR 3: PROVIDE EFFECTIVE ENVIRONMENTAL AND SUSTAINABILITY EDUCATION, INCORPORATING STEM, CIVIC SKILLS AND GREEN CAREER PATHWAYS



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

1. Which practices does your school employ to help ensure effective environmental and sustainability education? Provide specific examples of actions taken for each checked practice, highlighting innovative or unique practices and partnerships.

Our school has an environmental or sustainability literacy requirement. (200 words max)

All students are required to take an introduction to biology class. In this class, students learn to appreciate their environment through scientific observation. For example, students this year studied how oak trees proliferate by collecting acorns outside and finding out how many were infested and thus unable to become an oak tree. Students also study the biodiversity in nearby Noxontown Pond and adopt a square meter plot on campus as a way to learn more about their environment.

The school received a grant from the Greenwatch Institute which has allowed the school to partner with the University of Delaware to determine water quality trends and best practices for monitoring water quality in the school's Noxontown Pond. Students have worked with University of Delaware researchers to test the water quality in Noxontown Pond. The result of the partnership has resulted in specific water quality tests that students at St. Andrew's can implement. The grant also has helped St. Andrew's begin to establish a watershed management plan for Noxontown Pond.

Environmental and sustainability concepts are integrated throughout the curriculum. (200 words max)

Environmental and sustainability concepts are integrated throughout the curriculum at St. Andrew's. A few examples are below:

- Every new student (typically freshman) take an orientation class in which they are acquainted with the importance of recycling and energy conservation.
- In a senior Film Study class, students are currently in the process of making a video to educate and create incentives for the school community to recycle better. The film may include footage from both recycling facilities and landfills in Delaware.
- In a senior Ethics class, students spend a unit on environmental ethics with readings from Aldo Leopold, Paul W. Taylor, William F. Baxter, and Peter Singer and culminating with the paper topic on our core ethical obligation to the environment.
- In Social Reform, a history class, students learn about the origins of the American environmental movement.
- In Art and Biology, a minor course, students use the environment as a subject for art.
- In Mathematical Economics, students learn how environmental pollution is often treated as an externality. They also learn about the benefits of using carbon emission trading to stem global warming.

Environmental and sustainability concepts are integrated into assessments. (200 words max) Because environmental and sustainability concepts are taught throughout the curriculum, students are also assessed on these concepts through papers, quizzes, tests and exams. For example, as described above, students in a senior Ethics class write a paper on their core ethical obligation to the environment.



[X] Students evidence high levels of proficiency in these assessments. (100 words max)

Because St. Andrew's is a private school, students do not take many standardized assessments. In general though students do well on all assessments including those that incorporate environmental and sustainability concepts. In part because of their achievement on assessments, 100% of St. Andrew's students attend 4-year colleges or universities after graduation.

[X] Professional development in environmental and sustainability education are provided to all teachers. (200 word max)

This winter, faculty are beginning to start an innovation collaborative. The objective of the collaborative is to provide support for teachers interested in innovative teaching ideas like incorporating environmental and sustainability into their curriculum. Through this collaborative, teachers will work together, share ideas throughout the school year and during breaks, meet intensively to make progress on creating lasting curriculum change.

The school regularly gives grants for teachers to improve their curriculum over the summer. The school also funds other professional development opportunities during the school year like going to conferences or doing degree related work.

Element 3B: Use of the environment and sustainability to develop STEM content, knowledge, and thinking skills

2. For schools serving grades 9-12, provide:

Percentage of last year's eligible graduates who completed the AP Environmental Science course during their high school career: 30 Percentage scoring a 3 or higher: 100%

3. How does your school use sustainability and the environment as a context for learning science, technology, engineering and mathematics thinking skills and content knowledge? (200 words max)

The school uses sustainability and the environment as a context for learning science, technology, engineering and mathematics thinking skills and content knowledge as described below:

- The schools precalculus class is based on a curriculum focused on applying mathematics to the world. As such, the environment is regularly used as a context for learning math. Finally, students in a mathematical economics learn how environmental pollution is often treated as an externality. They also learn about the benefits of using carbon emission trading to stem global warming.
- The schools physics curriculum is project-based. Students discover physical laws by experimenting with their environment. In physics, students also learn about basic energy flows which is the basis for learning about clean energy.
- Chemistry teachers use the environment regularly (weather, temperature, climate change, toxicity and pollution) as a context for learning chemistry.
- The schools biology curriculum is largely based on the environment. For example, students this year studied how oak trees proliferate by collecting acorns outside and finding out how many were infested and thus unable to become an oak tree.
- Environmental Science students conduct a year-long independent study of water quality on Noxontown Pond and nearby water bodies as well as biodiversity studies of plants, insects and birds on campus.

4. How does your school use sustainability and the environment as a context for learning green technologies and



career pathways? (200 word max)

Some courses at St. Andrew's use sustainability as a context for learning green technologies and career pathways. For example, in chemistry, students learn how fuel cells, a green technology, function. Environmental science labs investigate compare the energy efficiency of light bulbs and other appliances.

School sports like organic gardening and forestry prepare students interested in green career pathways (organic farming, park management).

Students regularly hear from professionals in green career pathways. Facility staff and other organizations (like Delmarva Power and Flexera Solar) have met with students. Every year, the school invites an environmental speaker to discuss their career. Previous speakers have included Governor Russ Peterson, climate scientist John Byrne, and noted author and activist Mike Tidwell.

Finally, the school also has concrete plans to use our efforts to become more sustainable as a context for learning about green technologies and career pathways. For example, the school is in the process of finding a company to do an energy audit in the spring of 2013. The school plans on having faculty work with the company so that students can learn from them how energy audits are performed. The school has also received board approval to install a 500 kW solar array on campus which will offset 12% of the school's electricity bill. If the school is successful in receiving state incentives for the project, students will be able to use the solar array as a learning tool next year.

3C: Development and application of civic knowledge and skills

5. Describe students' civic/community engagement projects that integrate the environment, environmental justice (as defined by EPA) and sustainability topics. (200 words max)

The following are just a few examples of ways students' civic and community engagement projects relate to sustainability:

- St. Andrew's students and the Division of Fish and Wildlife planted 100 acres of farmland with trees to protect our local watershed. Students also worked with the Division of Fish and Wildlife to plant perennial plugs and bushes by a small pond on campus.
- Students participated in several workshops on sustainability topics. For example, students were engaged in the schools land use and planning initiatives through in a half-day planning charrette. Students also participated in "Focus the Nation" where they asked politicians Senator Karper, Representative Castle, and Governor Markell about Delaware's response to Climate Change and participated in small discussion groups on sustainability topics.
- On February 17 of this year the school will charter buses and cancel classes the following day so that students can attend the largest climate rally in history in Washington, DC.
- In an effort to engage with the religious community, students spoke with Sally Bingham, an Episcopal Priest and director of The Regeneration Project, about how environmental stewardship is connected to the Christian faith. The chapel program also has a special Earth Day Service and St. Francis service to foster an appreciation for wildlife.
- The co-captains of the Environmental Stewards participate in monthly meetings of the "Green Council" whose goal is to integrate sustainability into school culture in part through education.

GreenRibbonSchools



6. Describe students' meaningful outdoor learning experiences at every grade level and how it is used to teach an array of subjects in contexts, engage the broader community and develop civic skills. (200 word max)

Students are given many opportunities to engage in meaningful outdoor learning experiences.

- Every year the freshman and sophomore classes attend Echo Hill Outdoors School where they either walk through a swamp to learn about swamp ecology or brave a ropes course.
- Students are required to participate in a sport every afternoon year round (many of which are located outdoors.) Two outdoor sports which allow our students to learn about sustainability are organic gardening and forestry. In organic gardening, students learn how to prepare and maintain an organic garden. In forestry, students learn how to maintain trails and learn about birds (as they check bluebird boxes).
- This year class presidents are organizing meaningful outdoor projects related to sustainability and civics. Seniors will build swings around campus to encourage students to spend more time outside. Sophomores will work with grounds staff on planting native plants in flower beds on campus. Juniors and freshman will clean up litter as they walk home from a class function off campus.
- Every year seniors plant trees on campus in recognition of Arbor day. Last year seniors planted 600 native plants and trees on school property.
- Students also participate in the schools outing club which most recently canoed down the Brandywine River and camped at Hawk Mountain Sanctuary. The outing club is headed by the schools environmental science teacher who teaches students about our environment during outings.

7. Describe your partnerships to help your school and other schools achieve in the 3 Pillars. Include both the scope and impact of these partnerships. (200 words max)

The school has worked with multiple schools to achieve in the three pillars. The following are just a few examples of these partnerships:

- As described above, the school received a grant from the Greenwatch Institute which has allowed the school to partner with the University of Delaware to determine water quality trends and best practices for monitoring water quality in the school's Noxontown Pond. Students have worked with University of Delaware researchers to test the water quality in Noxontown Pond.
- Students at St. Andrew's have worked with students at Townsend Elementary to plant plugs and trees at the headwaters of Noxontown Pond (Townsend Village II) to protect our watershed.
- St. Andrew's has worked with St. Anne's Episcopal School to build bluebird boxes and establish a bluebird house trail at their school.
- The St. Andrew's Environmental Stewards Club has worked with students in the environmental club at Middletown High school. Students have also toured geothermal facilities at local high schools and supported efforts to get students outdoors.
- St. Andrew's students regularly tutor local elementary school students outside and at Brick Mill Elementary School, take children on the nature trail located on their campus. Because of their service, our school received the Martin Luther King Drum Major for Service Award in January of 2012.
- Faculty at St. Andrew's helped write the sustainable position statement of the National Association of Biology Teachers which affected hundreds of biology teachers nationwide.



Summary Question for Pillar 3

8. Describe any other ways that your school integrates core environment, sustainability, STEM, equity and environmental justice issues (as defined by EPA), green technology and civics into curricula to provide effective environmental and sustainability education, highlighting on innovative or unique practices and partnerships. (200 words max)
- Students have attended several trips abroad related to sustainability over their spring break. One group of students toured an organic coffee farm in Nicaragua and learned about the importance of green farming for a sustainable Nicaraguan future. The school also partnered with the "World Leadership School" in a week-long trip to Haiti. In Haiti, students learned about the effects of deforestation on a country by building a latrine in a deforested region.
 - The environmental stewards are a very active club on campus who regularly engage the entire community on sustainability issues. The environmental stewards who meet once a week conduct energy and waste audits on dorm every month to encourage students to reduce energy consumption and waste on campus. Environmental stewards have also started a "Terracycling" program on campus so that items like chip bags and candy wrappers can be recycled. Finally, the stewards initiated an award called the "Green Tea" award which is given by a student two to three times a month to students who did something to benefit the environment
 - Every year the school celebrates Earth Week organized by the environmental stewards. Last year students received a visit from activist Fr. Seamus Finn during Wednesday Night Chapel, a special screening of "Sustaining Life" from award-winning documentarian Robert Hess, and planted trees on Sunday. Faculty during that week focus on appreciating the outdoors in their classes.
9. Are your efforts above, supported or enhanced by your efforts in Pillar 1 to reduce environmental impact and costs for your school (e.g. using the building as a learning lab)? (100 words max)

All of our efforts are supported and enhanced by our efforts in Pillar I. The school tries to involve students whenever the school undertakes a large environmental initiative. For example, students were consulted prior to construction of the LEED Gold field house. The LEED Gold field house is also used as a teaching tool for students. Students were involved in planting trees

when the school conducted a large-scale tree planting, Students were also involved in a half-day land-use charette to help the school prioritize land-use decisions.