



2015-2016 Maryland 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. The Department of Defense Education Activity (DoDEA) is not subject to the jurisdiction of OCR. The nominated DoDEA schools, however, are subject to and in compliance with statutory and regulatory requirements to comply with Federal civil rights laws.
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 2015-2016

Public Charter Title I Magnet Private Independent Rural

Name of Principal: **Dr. David G. Smith**

Official School Name: **Broadneck High School**

Official School Name Mailing Address: **1265 Green Holly Drive Annapolis, MD 21409**

County: **Anne Arundel**

State: **Maryland**

School Code Number: *: **210011**

Telephone: **410-757-1300**

Fax: **410-757-5621**

Web site/URL: www.broadneck.org E-mail: dgsmith@aacps.org

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



(Principal's Signature)

Date: January 4, 2016

Name of Superintendent: **George Arlotto, Ed.D.**

District Name: **Anne Arundel County Public Schools**

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



(Superintendent's Signature)

Date: January 14, 2016

Nominating Authority's Certifications

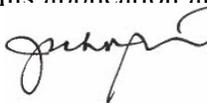
The signature by the Nominating Authority on this page certifies that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct to the best of the Authority's knowledge.

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: **Maryland State Department of Education**

Name of Nominating Authority: **Jack R. Smith, Ph.D.**

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: January 22, 2016

SUMMARY AND DOCUMENTATION OF NOMINEE'S ACHIEVEMENTS

Provide a coherent summary that describes how your school is representative of your jurisdiction's highest achieving green school efforts. Summarize your strengths and accomplishments in all three Pillars. Then, include concrete examples for work in every Pillar and Element. Only schools that document progress in every Pillar and Element can be considered for this award.

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 ed.green.ribbon.schools@ed.gov according to the instructions in the Nominee Submission Procedure.

OMB Control Number: 1860-0509

Expiration Date: March 31, 2018

Public Burden Statement

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

Lead Applicant Name (if different)
Lead Applicant Email
Phone Number

Mrs. Michelle Weisgerber
mweisgerber@aacps.org
410-757-1300 ext. 325

Summary Narrative

In AACPS—43rd largest with 80,372 students, 11% disadvantaged—each of the 12 high schools have a unique Signature Program which serves as a theme around which 21st century skills are built in to curricula, job shadowing, mentoring, co-curricular clubs, and internships. Broadneck's Signature Program of Environmental Literacy was chosen in 2010, and is structured to represent the school and its surrounding community. The Signature program is designed to reach **all** students through co-curricular activities such as clubs, guest speakers, and field trips. Though opportunities exist for students to enroll in a Signature specific Environmental Literacy course, all students are afforded the opportunity to engage in environmental literacy curricular topics through **Signature Overlays**, a means of refocusing existing content so that it can be taught through the lens of environmental literacy. For example, 3D art students research endangered species within the state of Maryland and construct sculptures out of repurposed materials. This integrates both design principles and an environmental focus. Because of our Signature Program, Broadneck is looked at as a leader in environmental literacy initiatives. Since 1982, Broadneck High School has been an environmentally focused institution with students and staff participating in civic-minded, bay focused restoration projects. These early efforts set the tone for our school and sustainability has been our focus from the start. Over the past 30 years, students have led efforts to plant bay grasses, design and implement rain gardens, and develop and plant storm water restoration projects.

Examples that demonstrate that the environmental literacy theme is pervasive throughout our school and community include:

- Broadneck students recognized the challenge of recycling and collaborated with AACPS operations staff, custodial staff, and faculty to implement a successful school wide program. A Recycling Club was formed in 2014 to assess the needs of the school. As a result, students are responsible for managing the recycling of the entire school. Announcements remind teachers to place recycling bins in the hall, and recycling practices have increased. In 2015, AACPS Operations tasked BHS students with a cafeteria recycling challenge and purchased new bins to facilitate this behavioral change. Students modified the design of the bin to better suit the needs of the school. Guest speakers provide education on recycling.
- The Environmental Literacy Explorations course partnered with Baltimore Gas & Electric (BGE) to develop a student friendly energy audit that allowed students to evaluate energy use. This initiative evolved into a system wide energy challenge among high schools during times when schools are on extended break. Broadneck HS was one of the top three energy savers during Spring Break 2015 and won first place during the 2015 Thanksgiving challenge. EL Explorations students also participated in the 2014 Power Savers Energy Challenge.

- The Environmental Club petitioned AACPS Board of Education to request the remote shut off of computers overnight and on weekends. This initiative could save \$500 per evening. The Chief Operating Officer agreed to impose automatic shutoff when students are not in a standardized testing window.
- Healthy food choices are encouraged through cafeteria initiatives, Family and Consumer Science curriculum and organic food labs in Environmental Literacy Explorations. In 2015, our Green Team created an organic vegetable garden in the school's courtyard.
- Our physical education department is committed to engaging our students in outside physical education with courses such as "Walking for Wellness" and "Lifetime Sports". The Lifetime Sports course offers a unit in fly fishing where students are able to visit a local waterway to practice this craft.
- Our school partners with the local Watershed Stewards and the Alliance for the Chesapeake Bay to support Project Clean Stream at Cat Branch Creek which is adjacent to our school grounds. Students are encouraged to participate as part of their service learning.
- BHS Environmental Club hosts a Community Environmental Services Day where community members bring e-waste, batteries, and paint for proper disposal.
- Students at Broadneck HS have participated in a stewardship program teaching bay issues to Title 1 Elementary students within the city of Annapolis.
- A Stream Restoration Grant partnered BHS with AACPS and Southern HS to plant nearly 1000 trees in both the Broadneck and Southern school districts. Eight students were chosen from Broadneck to act as leaders on this project and learned the essentials of successful tree planting, GIS mapping, and teaching stewardship principles to younger students.
- From 2007 to 2010, our Art Department participated in the "Rethink Recycling" Sculpture Contest winning 1st place in 2009. Since 2011, our Art students have been successful in Anne Arundel County's Recycled Runway Fashion Show winning the following awards:
 - 2011 2nd place and Honorable mention in 2011
 - 2012 2nd place and two Honorable mentions
 - 2013 3rd place
 - 2014 Honorable mention
 - 2015 1st and 3rd place

Broadneck HS has a long-standing commitment to educating our students on how to become environmentally responsible through a variety of programs, opportunities, and curricular content. We are proud to serve and support our community in this tradition.

Describe your school's participation in a local, state, or nationally recognized green school program which asks you to benchmark progress in some fashion, e.g., MAEOE Green School Program, National Wildlife Federation Eco-Schools USA, Green Schools Alliance, Collaborative for High Performance Schools, or Project Learning Tree's Green Schools.

- **2015-2016** Currently working on 2nd recertification for Maryland Green School (also intend to concurrently apply as National Wildlife Federation Eco-Schools USA)
- **2012** Re-certified as Maryland Green School
- **2008** Broadneck originally certified as a Maryland Green School
- **2000** Broadneck High School chosen to be part of the Chesapeake Bay Foundation's Bay Schools Project
- **1985** Broadneck named as part of the Conservation Learning Activities for Science and Social Studies through the Maryland Department of Natural Resources-a project of the National Wildlife Federation

List awards and/or grants, and the years in which they were received, your school, staff, or student body received for environmental or sustainability stewardship/action.

- 2015 Two students won first place in World of 7 Billion Video Contest through Popular Education. Watch it here: <https://www.worldof7billion.org/student-video-contest/2015-winners/>
- 2015 AA County Recycled Runway 1st and 3rd place
- 2015 Winner-AACPS Thanksgiving Energy Savings Competition

- 2015 Third place-AACPS Spring Break Energy Savings Competition
- 2015 Girl Scout Gold Award for implementation of raised bed gardens at BHS
- 2015 Nancy Bourgeois, APES teacher, NOAA Climate Steward (\$2300 grant)
- 2013 Stream Restoration Grant \$328, 376 (with Southern HS) through MD DNR for the planting of 2265 trees
- 2013 Explore & Restore your Schoolshed Initiative Grant (\$1500)
- 2011-2012 Winner NGC High School Essay Contest \$1000 scholarship
- 2011 Girl Scout Gold Award for implementation of a rain garden at BHS

Pillar I: Reduce Environmental Impacts and Costs

Can your school demonstrate a reduction in Greenhouse Gas emissions?

Yes or No	YES
Percentage reduction	4.12%
Over (m/yr – m/yr)	2013-2015
Initial GHG emissions rate (MT eCO2/person)	.97
Final GHG emissions rate (MT eCO2/person)	.93
Offsets	NONE
How did you calculate the reduction?	Utility Bills, EPA Greenhouse Gas Equivalencies Calculator

Broadneck High School participates with Baltimore Gas & Electric (BGE) in an interruptible gas use service. When heating demands are high, we are able to switch our boilers from natural gas to oil to allow for gas demand to be met in residential areas when the need is critical. The building is also zoned and controlled based on occupancy. Furthermore, as a county-wide initiative, AACPS implemented virtual servers-eliminating 100 physical servers and reducing Electrical and A/C demands.

Do you track resource use in EPA ENERGY STAR Portfolio Manager?

Yes or No **YES**
 If yes, what is your score? **40**
 If your score is greater than 75, have you applied for and received ENERGY STAR certification?
 If yes, what year?

Our baseline score for EPA Energy Star Portfolio Manager was 54; however, to effectively monitor our precise source energy usage, we recently added our computers, refrigerators, and kitchen equipment in an effort to gather a more accurate reading. While our portfolio score has decreased, our energy costs have actually decreased by \$50,000 since February 2014.

Has your school reduced its total non-transportation energy use from an initial baseline?

Yes or No	Yes
Current energy use (kBtu/student/year)	5488.11
Current energy usage (kBtu/sq. ft./year)	38.71
Percentage reduction	3.82%
Over time period (m/yr – m/yr)	Jan 2013-July 2015
How did you document this reduction?	EPA Energy Star Data and Utility Records

Provide the percentage of your school's energy obtained from:

On-site renewable energy generation	0%
Type generated	N/A
Purchased renewable energy	12.8%

Type purchased **.3% solar, Tier 1 (includes solar, wind, biomass, anaerobic decomposition, geothermal, ocean) 10%, Tier 2 (includes hydroelectric power other than pump-storage generation) 2.5%**

Participation in USDA Fuel for Schools, DOE Wind for Schools or other federal/state school energy program- **AACPS participates in the Better Buildings Challenge through DOE**

In 2012, AACPS switched to #2 heating oil to increase efficiency.

In what year was your school originally constructed?

Year **1982**

What is the total building area of your school? **297,740 sq. ft.**

Has your school constructed or renovated buildings in the past ten years?

Yes or No	YES
For new buildings: Percentage of building area that meets green building standards Certification and year received	n/a
For renovated building(s): Percentage of the building area that meets green building standards Certification and year received	All Maryland school construction, including renovation, must be LEED Silver equivalent.
Total renovated area	9740 square feet

In 2012-2013, BHS completed 19,100 sq. ft. of science renovation and 24,117 sq. ft. in open space conversion.

Can you demonstrate a reduction in your school's total water consumption from an initial baseline?

Yes or No	Yes
Average baseline water use (gallons/occupant)	1578 gallons/occupant
Current water use (gallons/occupant)	346 gallons/occupant
Percentage reduction in domestic water use	28% (combined domestic and irrigation)
Percentage reduction in irrigation water use	
Time period measured (m/yr – m/yr)	8/2013-8/2015
How did you document this reduction (e.g., ENERGY STAR Portfolio Manager, utility bills, school district reports)?	ENERGY STAR Portfolio Manager & Utility Bills

Describe the practices your school employs to increase water efficiency and reduce the amount of potable water used for irrigation.

Broadneck High School employs several practices to minimize the need for irrigation:

- Apex 10 is used to improve plant vigor and reduce the need for water
- In warm weather, our fields are watered at dusk and dawn
- Heat and drought tolerant natural grass is planted on athletic fields
- The main athletic field was changed to artificial turf nine years ago and reduces the need for irrigation and mowing/fertilizer usage
- Our school has a policy for reporting faucet leakage

- Our rain gardens conserve water and require no additional watering
- Through our participation in Barrels by the Bay, we were provided with a rain barrel for our athletic field house that further reduces stormwater runoff

Describe how your school uses water-efficient native plants in landscaping.

Broadneck High School has been committed to using environmentally friendly landscaping practices for many years. The school has two rain gardens on site. The rain gardens are planted with water efficient plants such as *Rudbeckia fulgida* (black-eyed Susan), *Panicum virgatum* (switchgrass), *Morella pensylvanica* (bayberry), *Ilex verticillata* (winterberry), *Aster oblongifolius* (Aster), *Vaccinium corymbosum* (blueberry), *Eutrochium fistulosum* (Joe-Pye weed), and *Echinacea*.

In the spring of 2014, as part of our Stream Restoration Project, we planted 110 trees on the school property. Thirty two River Birch were planted in areas where water does not immediately recede.

Our Botany classes grow native plants and food in our green house and raised bed gardens. All plants are planted on school property.

Describe any efforts to reduce stormwater runoff and/or reduce impermeable surfaces.

As renovations take place, every effort is made to appropriately manage the impact new structures have on storm water management. Broadneck HS has worked to mitigate runoff through the following measures:

- AACPS maintenance staff constructed a mitigation of eroding hillside with rock.
- Check dams were incorporated into the bio-swale at the bottom of the hill.
- In May 2014, 110 native trees were planted on Broadneck HS property. Trees planted included Tulip Poplar, White Pine, Red Maple, Willow Oak, River Birch, Hackberry, and Sycamore.
- As part of an ongoing environmental literacy service project, Government students survey school property and collaborate to devise a plan to reduce storm water runoff as part of the Maryland Environmental Literacy Partnership.
- In 2012, the Environmental Club investigated the feasibility of a green roof on a portion of the school. The structural load of the roof in question could not support the additional weight.
- Two rain gardens have been constructed on site.
- An 1825 square foot improvement to our auditorium entrance was designed to increase permeability and includes an outdoor classroom and native plant beds. This design is intended for completion in the fall of 2016.
- Our athletic boosters are working to finalize a bond with matching funds for a renovation to the school's field house in the spring 2016. The plans include methods for storm water and drainage remediation.
- A rain barrel donated by the Art department from the "Barrels by the Bay" program will also be placed at the field house to reduce storm water runoff.
- Beginning with the 2010 addition, and with every construction project since then, the increase in impervious surface area was limited to only the area needed for the building addition/project.

Describe the source of your school's drinking water and what measures are in place to protect it from potential contaminants and lead.

Broadneck HS's water supply comes from the county municipal system. Our regional water source is groundwater that originates from confined aquifers. These aquifers are Artesian wells which are recharged at higher elevation preventing contaminants from reaching the source. All Anne Arundel County water facilities are locked and secured, and each treatment facility is locked, gated, and monitored with surveillance cameras. There are backflow preventers at the school level to prevent contamination.

The water plant adds corrosion control (lime and caustic soda) scale to protect the pipes from metals such as lead and copper. The pipes are tested every 3 years for evidence of corrosion. The Maximum Contaminant Level (MCL) allowed for lead is 15 parts per billion-our regional water tested no higher than 2 ppb last year. In addition, the county ceased the use of lead pipes in the mid 1970's. Broadneck HS was built in 1982 ensuring that it does not contain lead pipe.

Our regional water plant, the Arnold water treatment plant, has been in operation since 1976, and has undergone several upgrades-the most recent in 2010.

Additionally, our local water is tested weekly for Coliform bacteria to ensure the proper level of disinfectant is used. Our water did not show measurable level of detection for Coliform bacteria or other contaminants.

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)	192
B - Monthly recycling volume in cubic yards (recycling dumpster sizes(s) x number of collections per month x percentage full when emptied or collected)	192
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)	
Recycling Rate = $((B + C) \div (A + B + C)) \times 100$.5
Monthly waste generated per person = (A/number of students and staff)	.087

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?

Color paper is 30% post-consumable material and Sustainable Forestry Certified. White copy paper is 30% recycled material and chlorine free.

Broadneck HS is committed to reducing its dependency on paper through the following initiatives:

- Approximately three years ago, all curriculum documents were converted to an interactive digital format.
- Over 50% of our teachers use Edmodo as an online source for sharing classroom information
- Teachers also use tools such as Remind.com, Blackboard, and OneNote Class Notebook to eliminate the reliance on paper when working with students.
- Every teacher and student in Anne Arundel County has free access to Office 365 and 1 TB of storage on the cloud.
- All emails are sent with the phrase "Please consider the environment before printing this email".

Provide information on the amounts, monitoring, and disposal method for each of the materials below.

Flammable liquids	60 ounces Formaldehyde
Corrosive liquids	NONE

Toxics
Mercury and/or mercury compounds
Other

4 Gallons Photo fixer
NONE
Latex water no VOC paint 3 gallons

All chemicals are properly stored in fire-proof cabinets. Annual requests for removal of hazardous materials from the school are reported to the office of Environmental Issues, and are stored safely in a location off site until disposed of by Clean Harbors, the leading provider in environmental, energy and industrial services throughout North America. Information regarding the annual disposal of chemicals and hazardous material is kept for five years through the AACPS Office of Environmental Issues.

Describe other measures taken to reduce solid waste and eliminate hazardous waste.

Broadneck HS continues to work on reducing solid waste and eliminating hazardous waste through the following strategies.

- Paper waste through online education programs such as Edmodo, Office 365, and electronic submission of assignments. Our school newsletter is published electronically, and our website is undergoing an update in an effort to allow parents, students, and community members to locate scheduling and other school related information electronically.
- Recycling bins are present in all classrooms, halls, and the cafeteria. Each bin also contains a label of what is acceptable for disposal. Furthermore, in the hallways as well as in the cafeteria, recycling bins are placed beside trash receptacles for ease of disposal.
- In an effort to eliminate hazardous waste, responsible purchasing has eliminated many hazards. The AACPS Science office provides a list of approved chemicals, and digital photography decreases the need for developing chemicals in art classes.
- Broadneck's Eco-Action club collects old batteries, cell phones, and ink cartridges for recycling.

Describe the green cleaning supplies used in your school.

Which green cleaning custodial standard is used?	AACPS adopted a Green Cleaning Program to conform with Maryland Law
What percentage of all products is certified?	100%
What specific third party certified green cleaning product standard does your school use?	Products must be recognized by the US EPA Design for Environmental Formulator program, Environmental Choice and Green Seal.

Qualifying cleaning products must have positive environmental attributes including but not limited to: biodegradability, low toxicity, low VOC content, reduced packaging and low life cycle energy use. Products chosen for cleaning must meet the following standards: In addition, the following cleaning products are all cut with water: Q128 disinfectant, heavy duty degreaser, and cleaner conditioner.

Describe alternative transportation at your school

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)

Walk: 263	12%
Bus: 1519	74%
Bike: 10-15	Less than 1%

Carpool: **Not measured, but observed.** There are less than 300 student parking spaces on campus. Many students ride with siblings or classmates.

Data is tracked through the school system's Power School data system; however, hand calculations by our business manager based off student demographics indicate that we have nearly 20% of our students categorized as walkers living less than 1.5 miles from school and located on a safe walking route. With the 2014 addition of a nearby Anne Arundel Recreation and Parks Bike trail adjacent to our school, an additional community has been deemed a walking community.

Which policies and practices has your school implemented?

- Designated carpool parking areas
- A well-publicized no-idle policy that applies to all vehicles including school buses
- Vehicle loading/unloading areas at least 25 feet from school building air intakes, doors, and windows
- Safe Pedestrian Routes to School or Safe Routes to School

Describe activities in your "safe routes" program.

Our school has several safe walking paths equipped with sidewalks and a crossing guard. The entrance for our walking students is at the back entrance of the school where there are fewer cars.

Each year, the AACPS transportation office evaluates the routes to ensure that students have the safest route to school. Bus routes are re-evaluated for safety of our students and to ensure efficiency.

Describe how your school transportation program is efficient and has reduced its environmental impact.

Broadneck HS has worked to reduce its environmental impact through our field trip experiences. In 2015, several opportunities allowed us to engage in Walking Field Trips with our students eliminating the need for approximately 12 buses.

- 397 Government students completed a service project off site in the neighboring community
- 21 Photo & Digital Students walked to nearby Goshen Farm for a field experience
- 52 AVID (Advancement via Individual Determination) students walked to Goshen Farm for team building
- 28 Botany students walked to Goshen Farm to examine gardens, high tunnel, and conduct a soil study
- 25 Environmental Literacy Explorations students completed soil studies, composting, and other activities at Goshen Farm

When appropriate, we share buses with other AACPS schools to further reduce environmental impact. Furthermore, our bus fleet flat nosed buses circulate through every 15 years and a conventional bus circulates through every 12 years. Each bus is also equipped with exhaust additive that essentially eliminates carbon dioxide emissions.

Describe any other efforts toward reducing environmental impact, focusing on innovative or unique practices and partnerships.

Broadneck High School remains committed to environmental stewardship, and works within the school community, the school district, and with community partners on a variety of activities. Examples of our efforts to reduce environmental impact are as follows:

- Funds have been allocated for replacing 2-4 water fountains with new fountains that will accommodate re-fillable water bottles. This will reduce our waste and promote hydration.
- For the past four years, our school has hosted an Environmental Summit geared toward students in AP Environmental Science course countywide. Speakers from organizations such as CCAN, AA County Recycling, AA County Watershed Stewards Academy, Anne Arundel Medical Center, AACC, BGE, EverPower, and USDA NRCS speak on environmental issues to students from BHS and 5 other county high schools. Students are bused to BHS, they spend the morning listening to speakers focused on a specific environmental issue, and spend the afternoon developing action projects to be completed at their individual schools. This year we had a total of 215 students in attendance.
- Our new paper towel dispensers efficiently dispense paper towels singularly to reduce paper waste.
- Three student organizations (Eco-Action Club, Recycling Club, and Stream Team), comprised of approximately 100 students, manage student led projects such as single stream recycling,

management of school gardens, maintenance of the school's Nature Trail, organization of community clean-ups, and tree planting initiatives in our feeder system.

- Our Eco-Action club has initiated three spring Environmental Fairs for our community as well as a very successful Environmental Services Day where community members dropped off Batteries, old paint, print cartridges, cell phones, sneakers, eWaste, eye glasses, and compact fluorescent light bulbs.
- For the past two years, Broadneck High School has also supported the Project Clean Stream through the Alliance for the Chesapeake Bay by encouraging students to participate in the cleaning of Cat Branch Creek adjacent to Broadneck High School.
- During extended school breaks, students and teachers unplug small appliances and computer monitors in an effort to reduce energy usage. Our efforts have awarded us a 1st and 3rd place award in the previous two challenges.
- Students have labeled computer monitors and light switches reminding users to turn off electricity when not in use.
- BHS students have participated in five Stream Restoration projects with Arlington Echo Outdoor Education Center planting trees to reduce environmental impact.
- Since 2005, BHS Environmental Science students have performed a longitudinal pond study examining water quality, nitrates, phosphates, pH, and performing biological monitoring on a local retaining pond.
- BHS participated in the "Streams for Schools" and the MD DNR TreeMendous program planting trees near the BHS athletic fields
- BHS Eco-Action students petitioned the AACPS Board of Education for remote shut off of computers countywide
- BHS Eco-Action club and the BHS Botany classes plant organic gardens and plan to donate and use the vegetables in Family & Consumer Science Classes in the future.
- Our school newsletter is no longer printed and is published on our school's website.
- The school newspaper, The TriBruin, publishes an electronic version.
- Our annual Homecoming Decoration Contest challenges classes to re-purpose materials in their designs.
- Environmental Literacy Explorations students create Public Service Announcements on environmental issues such as cafeteria recycling.
- Twice a week an announcement is made after school to remind teachers to place their recycling bins in the hallway for students to pick up and take to the recycling dumpster.
- All teachers and students have access to Office 365 for electronic distribution and submission of assignments.

Pillar II: Improve the health and wellness of schools, students and staff

Describe your school's Integrated Pest Management efforts, including IPM/green certifications earned, routine inspections, pest identification, monitoring, record-keeping, etc.

The AACPS Integrated Pest Management (IPM) Plan was recognized as the fourth school system in the nation to be IPM STAR Certified beginning in 2004 by the IPM Institute of North America.

- Infestations are prevented through regular school inspection program conducted by Maryland State Certified Pest Applicators on the AACPS Operations Staff.
- Use of pesticides is avoided unless absolutely necessary. Non-chemical approaches avoid the risk of environmental exposure. Only USEPA registered pesticides are used to mitigate problems of immediate concern to students, staff, and visitors.
- 24 hour written notice given to school students, staff, parents, and visitors when pesticide application does occur. This is in compliance with Maryland Department of Agriculture regulations.
- Safety Data Sheets are maintained for each pesticide/insecticide product used in the county and are available upon request.

What is the volume of your annual pesticide use (gal/student/yr)? Describe efforts to reduce the use of pesticides inside the school and on school grounds.

No pesticides were used at Broadneck High School in 2015. The use of pesticides is avoided and non-chemical approaches are used when possible to avoid environmental exposure.

Which of the following practices does your school employ to minimize exposure to hazardous contaminants?

- Prohibit smoking
- Removed elemental mercury and prohibit purchase
- Reduced exposure to carbon monoxide from fuel-burning appliances
- Conducted radon testing
- Removed playground structures containing chromate copper arsenate

Describe how your school manages and controls student and staff exposure to chemicals (including pesticides) routinely used in the school.

Students are alerted to chemical and pesticide exposure through AACPS's Integrated Pest Management protocol. AACPS goes beyond its legal mandate to provide written universal notification to all parents, students, and employees when chemical pesticides are applied in school buildings. A minimum of 24 hour notice is provided and the information posted on a pesticide information board outside the school's main office. When application is necessary, the goal is to treat a building on Friday so that students and staff are not present until Monday. Cleaning is performed after school hours and all cleaning chemicals are green certified.

Describe actions your school takes to prevent exposure to asthma triggers in and around the school.

Industrial cleaners of hospital quality are used in classrooms and reduce the spread of disease and no Volatile Organic Compounds are allowed in cleaning products. Carpets are replaced with tile when worn or damaged, and all standards are met for IPM and Indoor Air Quality to ensure the conditions of the building are maintained to the highest possible standard. Carpet cleaning and floor waxing are done during night hours or during extended breaks when students are not in the building. Carpet cleaning is also done through extraction. Teachers, staff and students are cautioned by the school nurse to not wear perfume or cologne that may trigger an asthmatic response. Asthma protocol is sent to teachers with affected students, and education is done on a case by case basis. Medicines are stored for affected students, and students with known asthma history have a complete health appraisal and inventory on file with the school nurse. Furthermore, smoking on school grounds is prohibited.

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.

Communication with energy management is done to manage temperature and humidity through our HVAC system. All EPA guidelines are followed for mold remediation. Additional precautions taken include:

- Onsite custodial staff continually monitors moisture for prevention of mold growth
- Roofing inspections occur twice a year at all locations
- Work orders to repair leaking roofs and windows take priority
- Roof recoat projects extend the life of existing roofs
- Monitoring of crawl spaces and basements for water infiltration

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.

The Chief Engineer conducts daily inspections of the ventilation system to make sure that all units are fully operational and there is adequate air exchange. Filters are changed monthly. Additionally, exhaust fans are regularly inspected for ventilation. Relative humidity is maintained below 60%. Each summer, routine cleanings of units and air ducts occurs. Repairs are made by certified HVAC specialists when necessary.

Describe actions your school takes to ensure that all classrooms and other spaces are adequately ventilated with outside air, consistent with state or local codes, or national ventilation standards.

- Broadneck HS and AACPS operate at a 10% minimum on all dampers.
- Outdoor air is always being pumped into the school.
- AACPS Environmental Issues Office measures the Oxygen and CO2 levels to ensure adequate ventilation.
- In 2015, Broadneck High School received a total building replacement of all VAV's (variable air volume) to even air flow and satisfy the space requirement.
- All air dampers are controlled with CPU systems which allow us to see the amount of fresh air entering the building
- The air inside Broadneck High School is exchanged 5-6 an hour per ASHRAE standards

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.

BHS is included in AACPS's indoor air quality management program that is consistent with EPA's Indoor Air Quality Tools for Schools. Additionally, we meet the ASHRAE standards for acceptable air quality. Other preventative measures taken include:

- Thorough yearly evaluations are completed on all equipment.
- The Environmental Management Office at AACPS has 2 certified industrial hygienists and conducts proactive inspections
- The use of 100% Green certified cleaner

Describe how your school promotes healthy nutrition among students and staff. Include participation in programs such as the USDA HealthierUS School Challenge, Farm To School, Edible School Yard, or similar programs.

Broadneck High School participates in the National School Breakfast and Lunch Program. All foods offered contain 100% whole grain rich wheat products, 1% or Fat Free milk, 0% trans-fat and less than 10% of overall calories come from saturated fat. Students have the opportunity to take unlimited amounts of fresh fruit and vegetables with their lunch. All foods used in the National School Breakfast Program are posted on the AACPS website with a nutrition facts label, ingredient listing, picture of the finished product and allergen statement. The school district has four Registered Dietitians that work directly with the school meals program and support student, staff and community nutrition education.

We also participate in Farm to School and promote locally grown fruit and vegetables. During the 2014-15 school year Broadneck High School offered 21 different local fresh fruit and vegetables to their students. We promote our local produce and farms by creating videos that are played for the students during morning announcements as well placed on YouTube, Facebook and Twitter. Broadneck participates in a program entitled, "Tasting of the Rainbow" which is an event that occurs on the first Friday of each month. During this event all students participating in the National School Lunch Program have the opportunity to taste a fruit or vegetable not typically offered. Past tastings have included purple cauliflower, edamame, papaya, jicama and watermelon radishes. Students are informed of this event through morning announcements, cafeteria signage, and the BHS Twitter account.

Every student is required to enroll in Health class and a major proponent of this course is focused on healthy living including nutrition. Furthermore, BHS offers 12 sections of "The Art & Science of Nutrition" a course which encourages students to pursue healthy eating habits through cooking and nutrition education. Vending machines at the school are not operational during school hours.

Describe the types of outdoor exercise opportunities and nature-based recreation for students. Include how frequently students participate in programs such as Presidential Youth Fitness (FitnessGram), The First Lady's Let's Move, EPA's Sunwise Program, Maryland

Children's Outdoor Bill of Rights, etc.

Every student must enroll in Fitness for Life and ½ elective in an active Physical Education course. There are 2 mandatory courses (Health and Fitness for Life) and 22 additional Physical Education electives at Broadneck High School. All active PE classes are required to complete the FitnessGram which equates to approximately 1000 students per semester. In addition, the Physical Education department encourages classes to be held outside when temperatures are above 40 degrees or in inclement weather, and all Physical Education classes have access to the stadium turf field, and all additional athletic fields.

Furthermore, our Lifetime Sports class includes a unit on Fly Fishing which requires students to spend time outdoors and in a field experience offsite. Previously, this class has visited Brighton Dam and the Chesapeake Bay Foundation's Phillip Merrill Center. Other examples of nature-based recreation include:

- Our Biology classes participate in a spring Bio Blitz which includes multiple field experiences assessing Biodiversity.
- All government students engaged in an outdoor service learning project during the Spring of 2015 to participate in stream restoration project with the Friends of Lake Claire Association
- Environmental Literacy Explorations, Botany, AVID and Photography/Digital Arts students walk to local historic farm Goshen Farm to participate in outdoor experiences such as photography, soil studies, composting, and team building.
- The Broadneck High School nature trail is available for all classes to use and a handbook is available.
- BHS participates in the Trout in the Classroom project where students are included in a trout release event each May at Brighton Dam.
- In recent years, school organizations such as the Interact Club and the Green Team have fundraised by organizing 5k runs.
- The main courtyard at BHS contains a greenhouse, four raised-bed gardens, a pond, and the foreign language garden. The courtyard is available for use by all classes.
- The art department utilizes their outdoor classroom area for various student projects.
- We have a very active Habitat for Humanity Club which participates in builds in both the local community and areas ravaged by natural disaster. The club spends all of spring break in areas such as Joplin, MO, New Orleans, LA, and Little Rock, Arkansas.

What percentage (by cost) of food purchased by your school is certified as "environmentally preferable" (e.g., Organic, FairTrade, Food Alliance, Rainforest Alliance, etc.)?

Currently this information is not measured by school; however, the following information is standard for purchasing in AACPS:

- 100% of our fresh bread is made locally
- 100% of our milk is from local farms and is delivered by a local distributor
- All milk is also rbST and antibiotic free
- Fruit and vegetable bids state that it is our desire to purchase local product when possible. Local is defined as a 150 mile radius.

Does your school use a Coordinated School Health approach or other health-related initiative to address overall school health issues?

Our school ensures that all staff is trained in Blood-borne pathogens, evacuation protocol and Epi-pen protocol. Individual health teaching plans are provided to teachers of students with health related concerns. The health room has a variety of print materials available for parents and students.

The Anne Arundel County Health Department staffs our health room with certified personnel—1 full-time Registered Nurse and 2 Certified Health Assistants—and provides the school with resources for substance abuse, STD's, pregnancy, WIC, and student insurance resources. One of our Environmental Literacy Integrated Community Stakeholders is the Sustainability Coordinator for Anne Arundel Medical Center. She regularly consults on the Environmental Literacy program, assists with curriculum writing pertaining to health topics, and is a frequent guest speaker. Through a partnership with the Anne Arundel County Police Department, every high school has a police officer assigned to that school. Our resource officer is an integral part of our school assisting with investigation as well as providing community outreach and

support. Our Future Doctor's Organization has developed a partnership with the Department of Aging and has participated in Dementia and Dementia Caregivers Awareness. Our Health classes cover a variety of material from Drug/Alcohol prevention to dating/relationships and mental/emotional health, and our school counseling office regularly delivers classroom, small group, and individual services to support our students' well-being. Moreover, concussion prevention is administered to all athletes in 9th and 11th grades, and we have a certified athletic trainer for our athletic teams.

The School Improvement Team and the Equity Team work to ensure that all students meet with success at Broadneck High School. Our guidance staff supports the student body through an academic, personal/social, and career centered curriculum. Our school has a Bully Busters club, a Best Buddies club which supports students with special needs, and Student Ambassadors trained in mediation. Every student is required to take a Health course prior to graduation. This course focuses on the following areas: personal and consumer, mental and emotional health, nutrition and fitness, alcohol, tobacco, & drugs, and disease prevention.

Pillar III: Provide Environmental Education

Describe how environmental and sustainability literacy concepts are integrated within multiple disciplines and grade levels.

All students in the state of Maryland are required to fulfill an environmental literacy requirement prior to graduation. In Anne Arundel County, students are exposed to environmental literacy from K-12. Currently, the courses that have integrated environmental literacy standards in the high school are Biology and US Government. Curriculum is being written to address environmental literacy standards in Chemistry, AP Environmental Science, and US History. There are two courses entirely devoted to environmental and sustainability literacy at Broadneck High School, AP Environmental Science and Environmental Literacy Explorations.

Because of our unique signature program, we have over 20 curricular overlays across a variety of content areas that focus the delivery of the county curriculum through an environmental/sustainability lens.

Examples of overlays include:

- Lifetime sports students engage in fly fishing and learn how essential healthy streams and diversity of macroinvertebrates are to maintain fish populations.
- US History students examine how local government addresses the impact of urban sprawl on the Chesapeake Bay. Students also reflect on Carter's speech on Energy and write written reflections on its impact on policy today.
- In English 10, students examine the environmental impact of the Dust Bowl on American history through literature and research a current environmental issue today and how this issue might have future implications.
- Foundations of Technology students construct wind turbines and examine alternative energy sources.
- Our AP Government students study media literacy and compare the two sides to the hydraulic fracturing argument through a comparison of news reports and media articles.
- AVID 9 classes learn about the principles of AVID and the importance of community in an outdoor setting where students also learn facets of environmental literacy through water quality studies and teambuilding experiences such as canoeing or through agricultural scavenger hunts at a local farm.
- For the last four years, Broadneck HS has developed and hosted an AP Environmental Summit. All AP Environmental students in Anne Arundel County are invited to attend this full day event where guest speakers provide insight on environmental topics and students create action plans to take back to their respective schools.
- All 11th grade AP English Language students are required to complete a service project and an environmental focus is encouraged.

- Honors English 11 students create an environmental children's book on endangered species. Botany classes work with plants in our school's greenhouse, and students have exposure to hydroponics through a hydroponic garden.
- Our technology education students explore alternative energy and create their own wind turbines in class.
- We have many environmental submissions from students in grade 9-12 for our annual Science Fair each December. Our winners compete at the county level.

Describe how environmental and sustainability concepts are integrated into classroom-based and/or school-wide assessments.

Student knowledge and understanding of environmental literacy concepts is assessed regularly throughout multiple disciplines. Examples include:

- In Studio 3D, art students prepare a sculpture from recycled materials. Through this process, students reflect upon behaviors focused on reducing and reusing materials as opposed to simply recycling materials from their everyday life. They will be assessed at the summative level on their actual product and on the formative level throughout the process based on their understanding of human impact on the environment.
- In AP Human Geography, students reflect upon how agriculture has changed over the last fifty years and debate contrasting viewpoints associated with genetically modified food.
- In AP Government, students explore media literacy by examining various media representations describing viewpoints on hydraulic fracturing. Students are asked to assess media bias after completing their own research on hydraulic fracturing.
- In Child Development 3, students explore risks to children's health that can stem from human activities, products, and technology found in some childcare facilities. They prepare written recommendations for improving the facility that become part of their portfolio for the class.
- During the summer of 2014, one of our rising seniors collaborated with a student from another high school to create elementary and middle school guides that encourage AACPS students and their families to become stewards of the environment. The environmentally friendly ideas and activities presented in the 40 paged guide were introduced to student volunteers at school-based tree planting events throughout the county.
- Students in the multi-disciplinary Environmental Literacy Explorations course complete a capstone project based off the environmental literacy standards for the class. One such example was a school-wide energy challenge where the students challenged teachers to pledge to reduce their electricity use in the classroom. Students documented the pledges and recorded data to support the improvement as well as compiled a video of the experience.

At the school wide level, environmental literacy standards are integrated into both the Biology and Government curriculum. Both courses contain a project associated with the environmental literacy units for the course which is assessed. The Art and Science of Nutrition B course explores global food issues and the environmental issues facing food supply throughout the world.

Furthermore, 88.3% of all BHS students passed the Biology High School Assessment (Maryland graduation requirement) demonstrating a very high school-wide understanding of the environmental literacy standards incorporated into the course.

Describe professional development opportunities available in environmental and sustainability standards. Include the number of teachers and administrators who participated in these opportunities over the past 2 years. Also provide the total number of teachers and administrators in the school.

There are 6 Administrators and 135 teachers at Broadneck High School. Over the past two years, BHS staff has participated in the following professional development opportunities:

- 8 staff members have participated in MELP (MD Environmental Literacy Partnership) working to develop environmental literacy curriculum through collaboration with the Chesapeake Bay Foundation and the Maryland State Department of Education.
- 135 teachers participated in a professional development at Goshen Farm. Faculty were provided with training in areas such as soil studies with a soil scientist from USDA, investigation with the NRCS Survey team, historic preservation & archaeology, soil painting, and informal investigation of gardens, house, and grounds.
- 20 staff members trained to write environmental literacy elements into curriculum (Signature overlays)
- 5 teachers trained at Arlington Echo Outdoor Education Center to complete the BioBlitz
- 1 teacher invited to participate in a two-day workshop through the Howard Hughes Medical Institute as part of the MELP
- 2 staff members trained in Environmental Education & the Fine Arts through Arts Education in Maryland Schools Alliance
- 1 teacher trained at Jug Bay Wetlands Sanctuary as part of a teacher trainer program through NOAA on Plankton & Nutrient Surveys. This includes student field experiences as well.
- 3 staff members trained to monitor trout as part of the Trout in the Classroom project
- 1 teacher participated in an externship in environmental archaeology through the Smithsonian Environmental Research Center
- 2 teachers participated in the Anne Arundel County Environmental Summit focused on watershed protection and restoration sponsored by the Anne Arundel County Department of Public Works
- 1 teacher trained through the National Aquarium in Baltimore on field experiences
- 2 staff members and 1 student are members of the AACPS Sustainability Committee
- 1 staff member scheduled to present at MAEOE in February 2016 on infusing environmental literacy in all classrooms

If your school serves grades 9-12, please provide the following information:

Percentage of last year's eligible graduates who completed the AP Environmental Science course during their high school career **14% of the Class of 2015 took the AP Environmental Science course.**

Percentage of these students who scored a 3 or higher on the AP Environmental Science exam **60% of these students earned a 3 or higher on the AP exam**

In addition, 119 or 18% of our current seniors have enrolled in AP Environmental Science. Fifty-three percent of these seniors have earned a 3 or better while 30 students are currently enrolled in the course.

Describe how your school uses the environment as a context for exploring and addressing STEM topics that require students to ask questions, develop and use models, plan and carry out investigations, analyze and interpret data, use mathematics and computational thinking, construct explanations, and engage in argument from evidence.

BHS strives to incorporate STEM topics across content areas. Below are examples of how this is done:

- Environmental Literacy students conduct a school-wide energy audit to measure and interpret the school's energy usage and compare the results from year to year. Students also use this data to develop a plan for improvement. For example, Broadneck students challenged other county high schools to reduce energy usage over both Thanksgiving and Winter Break through an energy challenge.
- AP Environmental Science students conduct annual stream studies of a retention pond on school property over a 10 year time period. Data is tracked and observations are made of change over time.

- A partnership with Trout Unlimited allows students to raise rainbow trout in their classroom from January-May. Students conduct daily water quality testing and viability studies, engage in stream habitat study, appreciate water resources, foster a conservation ethic, and grow to understand ecosystems. The goal is to connect urbanized students to local rivers and streams that sustain them.
- Stream Team students were trained in GIS software so they would have the ability to map and measure site growth on their planting projects.
- Chemistry students participated in a class trip where they measured water chemistry and air quality.
- The Eco-Action Club performed energy audits over several years and determined that many empty classrooms contained running computers. The club presented their findings to the Anne Arundel County Board of Education to petition for automatic computer shut-off at night. The club calculated that this would save the county \$550 per night to turn off 5600 computers. The board of education supported the BHS students and computers are shutoff when schools are not in a testing window.
- Geometry and Computer Science students participate in the event "Hour of Code" exploring coding.
- Three BHS students are engaged in a mentorship program entitled the HIP program through Northrop Grumman. This two year program allows the students to explore career opportunities in STEM fields and each year, the students complete a year-long project with the help of NG Engineers.
- BHS participates in SEAPerch and has an active Robotics class and club.
- BHS Physics Club students participate in activities through NASA Goddard Space Center.

Describe how your school curriculum makes connections to college and career readiness, and/or provides students with opportunities to learn about careers in fields related to the environment and sustainability.

- The Environmental Literacy Explorations course is written to include career and college readiness in every module. Such activities including public speaking, writing profession letters, creating presentations, interviewing, and career exploration of environmentally based careers and college majors.
- Students participate in internship opportunities such as internships with the MD Department of Natural Resources, AACPS Stream Restoration Grant, and Arlington Echo Outdoor Education Center, and AAMC's Sail Center. Our intent is to have all Environmental Literacy Explorations students have the opportunity to participate in a professional career internship. All BHS students are afforded the opportunity to take part in a career internship.
- Each December, students participate in a Career Symposium at the Chesapeake Bay Foundation where students learn about the different career opportunities that help to run a successful non-profit. This allows students to hear from career professionals in a variety of career fields both environmental and non-environmental.
- Guidance Counselors also help support students through classroom guidance activities on career interest inventories and goal setting. This year, our guidance staff is obtaining career interest data on our 9th and 10th graders. The goal is to deliver a speakers series to students based on career interests.
- Students attend a field trip to the UMD Sustainability Department to learn about new degree programs in the sustainability field.
- Anne Arundel Community College has linked several degree and certificate programs to our Environmental Literacy Signature Program. This opportunity is communicated through signage and on both the AACC and BHS websites.
- Guest speakers provide insight into careers in Environmental Literacy Explorations, a multidisciplinary course offering at BHS.

Describe how students conduct age-appropriate civic/community engagement projects integrating environmental and sustainability topics.

- The Environmental Literacy signature provides students with numerous opportunities to take on civic action and our business partners support student initiatives by providing opportunities and guidance.
- Many of our clubs are student driven and career focused.
 - Students create civic action projects such as designing a plan to increase cafeteria recycling, petitioning the school board for remote computer shutoff, and supporting the Chesapeake

- Bay in a legislative initiative in Annapolis demonstrating that they are true stewards of the environment and are working to protect the Chesapeake Bay and its tributaries.
- Students teach Bay issues to Annapolis city elementary schools through the Bay Ambassador program.

Describe students' meaningful outdoor learning experiences that engage students in critical thinking, problem solving, and decision making at every grade level.

- Ninth and Tenth grade Biology students participate in the BioBlitz. This outdoor experience documents biodiversity and teaches students to use a multi-year data set to propose management strategies to protect and increase biodiversity in their local school yard.
- Environmental Literacy Explorations is open to all grade levels. Students in this course take monthly trips and regularly meet outside as part of their studies. Monthly trips taken by the class include: tree plantings (stream restoration), learning about composting at a local park and nearby Goshen Farm, and an outdoor canoe experience at Jug Bay Wildlife Sanctuary. Each experience is designed to meet a standard of the course curriculum (Sustainability, Reducing Waste, Plants & Animals, Conserving Energy, Economics, and Improving Health).
- At a minimum of once per marking period, our AP Environmental Science students (10-12) conduct soil studies and stream studies.
- AVID 9 students participate in a teambuilding and water quality study trip to Arlington Echo from 2012-2014. This fall, they investigated the history and significance of Goshen Farm as part of their environmental literacy experience.
- AP 2D (11th and 12th grade) and Photography (9-12) students find inspiration outside while meeting curriculum standards on a variety of field experiences including New York City and the Smithsonian Environmental Research Center.
- Tenth grade Government classes create a storm water survey and develop civic action projects.
- Tenth through twelfth grade Botany students use the courtyard greenhouse as an outside laboratory.
- Eleventh grade Physics classes engage in outdoor nature lessons, water balloon toss, rocket building/launch which teach the properties of Physics
- Eleventh and twelfth grade AP Photography students walked to Goshen Farm to photograph the farm house and the gardens and learned about proper lighting and the "golden ratio" as they adapt their photography skills in natural lighting.

Describe your partnerships with the local community (e.g., academic, business, government, nonprofit and informal science institutions) to help advance your school and the greater community toward excellence in the 3 Pillars. Include both the scope and impact of these partnerships.

- Our Environmental Literacy Signature Program partners with individuals from the following organizations to ensure that all Broadneck students are receiving the most current and relative environmental literacy program. Our team of stakeholders is known as the Integrated Community Stakeholders Team and consists of individuals from the following organizations: Anne Arundel Community College, Smithsonian Environmental Research Center, Chesapeake Bay Foundation, Natural Resources Conservation Service (USDA), University of Maryland College Park, NASA Goddard Space Flight Center, MD Department of Natural Resources, Watershed Steward's Academy, Arlington Echo, Anne Arundel Medical Center (AAMC), Goshen Farm Preservation Society, Cape St. Claire Community Association, and BGE. This group meets monthly to plan the vision and mission for the Environmental Literacy program at Broadneck High School and assist in the providing of resources, ideas, and the creation of curriculum for all students. Our partnership with AAMC supports the health and healthy nutrition of our students as well as civic action through health related legislation. BGE assisted in creating the audit we use for our energy studies and provided a guest speaker for our recent Environmental Summit, and local watershed stewards have spoken to our students regarding how to enact community action.
- BHS participates with Northrop Grumman in the High School Involvement Partnership where three of our students participate in a two-year mentorship with Northrop Grumman Engineers.

- Our partners also support our feeder schools and recently judged the environmental entries at the Magothy River Middle Science Fair.
- A partnership with the Goshen Farm Preservation Society has provided our school with the ability to walk to this farm within a class period. This affords teachers the opportunity to engage in frequent outdoor experiences with their students. Opportunities at the farm include:
 - Share Garden, Slave Garden, Colonial Garden and High Tunnel
 - Soil pit for soil studies
 - Walking paths for PE
 - Local historical and agricultural significance
 - Beehives
 - Performance space for music
 - Opportunities in Tech Ed for architectural studies

Describe any other ways that your school integrates core environment, sustainability, STEM, green technology, and civics into curricula to provide effective environmental and sustainability education, highlighting on innovative or unique practices and partnerships.

- Our school participates in the SEAPerch underwater robotics STEM initiative. This is incorporated into our Marine Technology course as an example of robotics and innovation.
- Students participated in a Climate Change lecture from a University of Maryland professor as a means of education and as a connection to higher education.
- Every April, our Studio 3D students create recyclable art and sculpture for our annual Arts Festival. Students are to repurpose or only use items accepted for recycling by Anne Arundel County Waste Management.
- Students recently visited a Soil pit at the Goshen Farm and learned about the importance of soil in local agriculture.
- Our Zoology and Environmental Literacy classes participate in an in school field trip with the MD Zoomobile and learn about endangered species.
- Students have had the opportunity to experience the innovation of the Johns Hopkins Aquaponics experiment where tilapia and hydroponic farming create a symbiotic relationship.
- Our Environmental Literacy students and our APES unique opportunity to have guest speakers on alternative energy (solar and wind), and we were able to tour the Twin Ridges Wind Farm in Pennsylvania during its construction.
- Our Trout Release at Brighton Dam has grown into an experience combining several different experiences into one. Not only do our AP Environmental students release trout and conduct water quality studies, but we've teamed up with our Lifetime sports class to learn how to fly fish, including a station on fly tying and studying macro invertebrates.
- Our Stream Team Leadership Team was comprised of 8 students who led plantings through a Stream Restoration grant through MD DNR organized and implemented the planting of native trees near the Magothy, Severn, West River, and North Herring Bay watersheds over the past two years.
- Our school newspaper is committed to covering environmental issues and writes a minimum of one article per edition on environmental topics related to Broadneck HS students.