GreenRibbon

District Sustainability Award Nominee Presentation Form

CERTIFICATIONS

District's Certifications

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

1. The district has been evaluated and selected from among districts within the Nominating Authority's jurisdiction, based on high achievement in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.

2. The district is providing the U.S. Department of Education Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district wide compliance review.

3. OCR has not issued a violation letter of findings to the school district concluding that the nominated school district has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan to remedy the violation.

4. The U.S. Department of Justice does not have a pending suit alleging that the school district has violated one or more of the civil rights statutes or the Constitution's equal protection clause.

5. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the school district in question; or if there are such findings, the state or school district has corrected, or agreed to correct, the findings.

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

U.S. Department of Education Green Ribbon Schools District Sustainability Award 2019-2021

Name of Superintendent:
Dr. Daniel D. Curry, Ed.D.

District Name: Calvert County Public Schools
Address: 1305 Dares Beach Rd. Prince Frederick, MD 20678
Telephone: 443-550-8009 Fax: 410-286-1280 Web site/URL:
http://www.calvertnet.k12.md.us/home E-mail: curryd@calvertnet.k12.md.us

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

Daniel D Curry Date: 1/15/19

(Superintendent's Signature)

U.S. DEPARTMENT OF EDUCATION

GreenRibbonSchools

Nominating Authority's Certifications

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

1. The district is one of those overseen by the Nominating Authority which is highest achieving in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental education.
2. The district meets all applicable federal civil rights and federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

Name of Nominating Agency: Maryland State Department of Education

Name of Nominating Authority: Dr. Carol Williamson
(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.

Carol A. Williamson 1-28-19
(Nominating Authority's Signature) Date:

SUBMISSION

The nomination package, including the signed certifications, narrative summary, documentation of evaluation in the three Pillars, and photos should be submitted online according to the instructions in the Nominee Submission Procedure.

OMB Control Number: 1860-0509
Expiration Date: March 31, 2021

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.

Calvert County Public Schools Summary Narrative

Environmental education began over 25 years ago as a single grade level program collaboration between the Calvert County Department of Natural Resources and Calvert County Public Schools (CCPS). This collaboration has grown into the CHESPAX program where students in Grades K, 1, 2, 3, 5, 7 and 8 engage in an environmental education field experience connected with their class-based science curriculum. Students in grades 5 and 7 engage in a Meaningful Watershed Educational Experience MWEE). CHESPAX programming works with approximately 10,000 students each year. Our 9th grade students engage in a MWEE on their school site as a part of their biology classwork. The first Calvert County School certified as a Maryland (MD) Green School occurred in the spring of 2009. Currently all Calvert County Public Schools are certified MD Green Schools. Calvert County has 24 K-12 schools, 1 technical academy and is currently the only county with 100% K-12 Green School Status.

The CCPS department of facilities began work implementing energy conservation programs over a decade ago in order reduce utility costs and carbon emissions. We have over 2.5 million square feet of facility space and a 3.25-million-dollar electricity budget. It has and continuous to be our fiscal responsibility to conserve energy and be efficient with our energy use while demonstrating sustainability to our next generation of students.

Other departments are systemically working to address health and wellness issues. Each school has a wellness policy and all negotiated agreements offer a stipend for employees through a partnership with the local hospital and fitness center. Food and nutrition increase student access to flavorful and nutritious choices. We honor our county heritage and help students connect where their food comes from through farm to school opportunities.

Calvert County is a mixture of rural and suburban areas. The county was historically a farming community and as population growth has taken place (our community is within commuting distance of Washington, D.C., Andrews Air Force Base, NASA-Goddard, Patuxent Naval Air Station and other large employers), the county has tried to limit growth to key strategic areas to limit sprawl. CCPS currently enrolls 16,077 students in Grades PK to 12th and is the largest employer in Calvert County.

Maryland Green School Program Participation

Since the beginning of the Maryland Green School program in 1999, our goal has been full participation. Our largely successful program has become a cultural phenomenon that is universally accepted at each school. Certification in the program is a badge of honor that has been contagious and wide spread. To date 11 out of our 24 green schools have certified through to sustainable status. The remaining schools are all on their last recertification and by 2025 we will have 100% sustainability status. Our Energy and Environmental Specialist is active in each school to assist on all things green. She is actively involved in Maryland Association for Environmental and Outdoor Education (MAEOE) to ensure that the staff and students of CCPS best interest is met. MD Green Schools certification is often the vehicle used to achieve our sustainability goals.

Environmental Grants

CCPS has benefited from a variety of grants in support our environmental education programming and uses grant funding to shift programming to align with updated requirements (MDCCRS, NGSS, Environmental Literacy Standards, MWEEs, etc.). Once the shift has begun, costs to continue the

programming become part of the CCPS budget. CCPS has received multiple grants from the Chesapeake Bay Trust, Calvert Environmental Trust for Youth, Cove Point National Heritage Trust, National Nursing Consortium (EPA sub grant), Dominion Energy, and individual grants from the Maryland Environmental Trust, the National Environmental Education Foundation, and Patuxent River Appreciation Days in the last six years.

National Wildlife Federation Eco Schools

National Wildlife Federation's (NWF) Eco-Schools USA is an internationally recognized school sustainability program. Schools striving to become an Eco-School can pursue sustainability pathways as they progress through the seven-step process. Currently, there are 22 schools registered as an NWF Eco-school.

Pillar I: Reduce Environmental Impact and Costs

Element 1A: Reduced or eliminated greenhouse gas emissions

CCPS Energy Conservation Goals:

1. To increase environmentally sustainable actions and behaviors among students, staff and school community to conserve energy and natural resources, including waste reduction and recycling.
2. To manage natural resources and to conserve energy at Calvert County Public Schools (CCPS) facilities by using education and the implementation of energy saving devices, renewable energy sources, and the exploration of new practices and technologies.
3. To involve all CCPS' students, employees, and facility users to conserve natural resources and achieve maximum energy conservation.

CCPS has been working to reduce our greenhouse gas emissions since 2008. Early action occurred more than a decade ago when the EmPower Maryland Act was passed to reduce energy consumption in the state of Maryland. CCPS has mirrored those target reduction goals each year by implementing an Energy Savings and Incentive Plan (ESIP). The ESIP has been instrumental in maintaining an interest in reducing our carbon footprint. In 2008 the Supervisor of Energy Management and Chespax, began a Natural Resource Conservation Pledge campaign. The campaign involved a visit to each school where staff and students were informed. The ESIP was introduced and the pledge was signed.

In the 2017-2018 school year our target goal was to reduce our energy consumption by 17% from our baseline that was established in 2007-2008. Each school that meets the target goal receives a check corresponding to the overall reduction at the end of April. CCPS collectively reduced our energy consumption by 17.17%; equivalent to 283 tons of coal that would otherwise have been combusted to produce electricity.

CCPS has three schools that use geothermal energy as the source of heating and cooling and one geothermal school under construction. Utilizing a geothermal system reduces our impact on the environment; primarily by eliminating fossil fuels as a heating and cooling source.

We currently have 1 LEED Silver school that is under construction and expected to be completed by the end of 2018.

Energy benchmarking is a tool used to help measure and track energy use in our schools. The free program through the EPA's Portfolio Manager is an online interactive energy management platform. Benchmarking can help CCPS implement necessary action to achieve our energy management objectives. Since a baseline has been created, we are able to identify which schools need improvement. Benchmarking is also an important tool used while working on our Capital Improvement Plan (CIP).

We have a dedicated Energy and Environmental Specialist whose priority is to reduce our energy consumption. Projects include LED upgrades, HVAC upgrades to promote energy efficiency, promoting behavioral changes, among other projects. For example, CCPS is currently replacing all the metal halide lamps in the parking lot of one of our high schools. The new LED parking lights will decrease the Kilowatt hours by 15,835 each year. This is equivalent to preventing 12,894 pounds of coal burned.

Nearly all our schools and administrative offices operate on a building automated system (BAS). Building automation is the automatic centralized control of a building's heating, ventilation and air conditioning, lighting and other systems through a building management system or BAS. Our BAS specialist can set our schedules for occupancy so systems operate appropriately when unoccupied. Additionally, he can triage and diagnose equipment failures that may compromise comfort levels in our learning environments. Our goal is to have 100% of all our systems operating on an Energy Management System (EMS).

Element 1B: Improved water quality, efficiency, and conservation

CCPS has two full-time water specialists on staff for all testing of non-public water systems in the district. All testing follows EPA guidelines and standards for various contaminants. For the 2017-2018 school year, House Bill (HB) 270 required testing of drinking water outlets in schools constructed before 1988 and all elementary schools receiving water from a public utility. As a precaution, CCPS went beyond those requirements and tested elementary schools with their own individual well(s) also. When notified of an elevated sample, written notices were distributed to all students and staff. The elevated notice contained the following information: elevated sample's concentration and location, summary of federal and state drinking water standards, health effects of lead, sources of human exposure to lead, immediate actions taken and remediation, steps consumers can take to reduce exposure and the school's contact information. HB 270 requires only elevated samples to be posted online, but CCPS has made all testing results available.

As part of the green school initiative, water conservation is a requirement at each school. Some examples include; storm drain stenciling, rain gardens, public awareness posters, announcements, and erosion and sediment control. One 8th grade class at Northern Middle initiated a solution to a storm water runoff issue at their school in May of 2018. They devised a plan and through coordination with School Facilities, were able to implement the plan to re-route the runoff from the parking lot so that there will be no more flooding at the main entrance to their school. This was an example of using the school grounds as a teaching tool.

The new LEED replacement project at Northern High School will have multiple water saving techniques as part of the LEED Silver requirements. There will be a rainwater cistern on site that will support the athletic field irrigation system. The use of low impact development techniques will be used to minimize the amount of storm water that runs off the site. Examples such as planting of native plants, installation

of permanent storm water controls, on-site rain gardens are just to name a few. The existing wetlands will be used an outdoor classroom for instructional purposes.

Four years ago, we began to collect unclaimed or expired pharmaceuticals from our school health rooms. Each year our Environmental Specialist coordinates with each school and the Calvert County Sheriff's department. This coordination is an effort to collect the pharmaceuticals safely and ensures proper disposal through the Prescription Take Back program. This program prevents pharmaceuticals from contaminating our local waterways.

Element 1C: Reduced waste production

Waste Reduction Practices

As a large contributor of waste in Calvert County, we are responsible for diverting at least 20% of all our waste from entering the landfill. The RMECP set forth the process and guidelines for CCPS staff, students, and facility users for recycling in accordance with Calvert County Government regulation. The Department of School Facilities is responsible for ensuring that all facilities are properly informed on all information necessary for a successful program. Each facility is subject to periodic on-site recycling evaluation to monitor effectiveness of RMECP and to provide support when necessary.

Each year we report to the county government our diversion rate. In 2017 we increased our diversion rate from 16% in 2016 to 21%. Here are some figures to mention:

Single Stream Recycling	433.2 TONS
Shredded Paper	49 TONS
Electronics/Computer equipment	47.50 TONS
Scrap metal	43.25 TONS
Fluorescent Lights	1.35 TONS

Table 1-2017 Recycling Data

CCPS has instituted paperless initiatives to reduce costs and waste. Pay stubs and W2s are now only accessible electronically through an employee access center. The Home Access Center is available now for teachers, parents, and students to view assignments and grades online.

Our Department of Information and Technology has been working hard the past several years acquiring lap tops for all third and sixth grade classes for a 1:1 device experience. Several other classes in other grades have laptops as well that students take home and use in the classroom. CCPS has a goal to implement a 1:1 device ratio to all third through twelfth grade students in three years.

CCPS has implemented an online learning management system to support teachers and students called Schoology. This online platform is used by the teacher to post classwork and homework electronically. This has reduced paper usage that ultimately cuts costs and reduces use of paper.

At the end of the 2017-2018 school year, Ms. Farrell's third grade class had a writing assignment. After watching a video on how straws can harm marine turtles, they decided to act! They each wrote a letter to the CCPS Child Nutrition office. After several months of research, a kickoff assembly is scheduled for January of 2019 to introduce the new Straw Free initiative at Huntingtown Elementary.

During a meeting between the Calvert Association of Student Council and our Superintendent, Dr. Curry, a request was made for water bottle filling stations in our schools. Dr. Curry presented this idea to our Director of School Facilities. Over the summer of 2018 plumbers from School Facilities installed 4 water bottle filling water fountains at the Brooks Administration Building, Calvert High School, Huntingtown High School, and Patuxent High School. To date our water bottle filling water fountains have prevented more than 20,000 plastic bottles from being used. Since the installation of the water bottle filling stations, we have ordered 3 more and will be installing them.

Element 1D: Use of alternative transportation

Since we are in a rural setting we don't have as many opportunities to support alternative transportation initiatives. Our county is not pedestrian friendly and is limited on safe crosswalks or pedestrian paths. We have one high school that is within town limits and has some students who walk to and from school. During dismissal county law enforcement is on campus to direct traffic and provide a safe means of foot traffic.

Over the past 2 years CCPS has aggressively replaced our aging maintenance fleet with more fuel-efficient vehicles. To date most of our vehicles are no older than 6 years. We purchased our first electric vehicle in the summer of 2018.

As a rural community we rely on our buses to help reduce the number of vehicles on the road. We have several schools who have no idle signs up that remind bus drivers and parents that idling for more than 5 minutes is not permitted.

Pillar II: Improve Health and Wellness of Students and Staff

Element 2A: Integrated school environmental health program

Integrated Pest Management:

CCPS follows a pest management policy where safety is the top priority. Pest control in the school environment must protect the health and safety of the students, staff, and environment. It is therefore the policy of CCPS to follow a Pest Management Policy for the control of pests in school buildings and on school grounds.

Pesticides may be used after it has been determined that the non-toxic options are unreasonable or have been exhausted. The least hazardous pesticide will be selected and the potential for exposure to students and staff will be minimized. All pesticide applications will be made by an individual certified as a pest control applicator or by an employee working under the direct supervision of the certified applicator. Applicators must be trained in the principles and practices of IPM and the use of pesticides. They must follow state and federal pesticide regulations and label precautions and comply with this School System's IPM Policy and Plan.

Chemical Management:

CCPS follows EPA guidelines on proper disposal and usage of chemicals within the school system. Nearly two decades ago, CCPS began phasing out the use of any toxic cleaning agents. All school custodial cleaning agents are non-toxic.

In 1999 CCPS transitioned our 26 schools and offices to the Ultra Chem Labs School Floor Program (Ultrachemlabs, n.d.). Calvert County was the first school system in the United States to join this program, eliminating the stripping process reduced our chemical costs 60% and man hours by 50%. By eliminating the stripping process, we reduce our Volatile Organic Compounds, reduce chemical source reduction, and the harmful sludge that is a byproduct of the stripping process that would typically go back into the environment. What was once an annual process of stripping is now only every several years or when necessary. Some schools haven't had to strip their floors for over 2 decades.

Element 2B: Health and Wellness

CCPS provides school health services to all county public schools with all schools having a school nurse. School nurses are dedicated to meeting the medical needs of the students throughout CCPS. As a member of the school's multi-disciplinary team, the school nurse provides case management for students with chronic health conditions. Any student with acute asthma must have their Health Care Provider complete an asthma action plan and emergency care plan on their behalf. These plans are for the school nurse to better manage their care. CCPS takes a systemic approach to identify asthma triggers.

Each school has a school improvement plan that incorporates wellness. The plan is reported to our Board of Education and MSDE. CCPS partners with the county health department to offer preventative vaccinations free of charge to our students.

CCPS participates in the School Health Council. They meet quarterly to discuss current and relevant issues in Calvert County that may impact our students and staff. Discussions have included building moisture control, proper ventilation, and indoor environmental quality.

Nutrition

Calvert County Public Schools recognizes the important role good nutrition plays in helping students maximize their potential and nourish their overall well-being. Our Child Nutrition Program welcomes the opportunity to provide nutrition education and promote healthy eating habits through daily real-life application. By offering a variety of healthy options as part of its school meal programs and by incorporating positive nutrition messages utilizing several different mediums and settings (cafeterias, classrooms, serving lines, Twitter, online menus and even our delivery vehicle signage), we strive to share this information with as many students as possible. We also believe in educating students as consumers, providing easy access to ingredient and nutrition information for the items we serve via the internet and through our mobile menu app. Providing easy access to this information allows students and parents to discuss and make decisions about daily food selections. CCPS currently serves over 800,000 reimbursable student meals annually.

Farm-to-School

In addition to participating in the annual Farm-to-School celebration, CCPS has been working to increase its number of local food offerings every year. Local meats, corn-on-the-cob and an assortment of dark leafy greens have been purchased from Calvert County farmers as well as other farmers in the state of Maryland and incorporated into school meals with overwhelming acceptance. Promotions are done, linking local items to their place of origin to help students develop a better understanding and appreciation for the farms and hardworking farmers in their area.

Fruit and Veggie Bars

CCPS encourages students to eat their fruits and vegetables by providing them with a variety of healthy options and allowing them to make their own selections using the Fruit and Veggie Bar. Student lunch meals include up to two cups of fruits and vegetables from the bar in addition to the hot vegetable of the day. Options vary by season but include fresh vegetables along with an assortment of fresh, frozen, canned and dried fruits to suit a wide variety of student taste preferences. The alluring color pallet of the Fruit and Veggie Bar is designed to catch the attention of our busy students…and adults!

Student Food Shows

Students have a lot to say and we want them to know that their opinions count! For this reason, we started student food shows several years ago as a way to encourage input on new/potentially new items via student taste tests and surveys, but also as a way to introduce students to our program and provide information on the nutritional benefits of the meals we serve.

This program is rotated throughout the county and is offered either during the school day or after hours depending on the needs of the site.

Heartfelt Backpack Program

The Heartfelt Backpack Program is currently offered to several elementary schools and is organized through End Hunger in Calvert with support from high school clubs, including National Honor Societies. All schools participate in food drives to help fill our local food pantry and several school groups support Farming for Hunger by harvesting potatoes and other crops for the food pantry.

Physical Activity

Physical activity is important for healthy students. At the elementary level, all students have recess for at least 30 minutes per day. Students also attend Physical Education classes focused on movement and learning healthy habits twice weekly for 45 minutes. Many elementary educators include brain breaks into instruction utilizing physical motion to break up instruction. Many elementary schools have Color Runs as fundraisers and Mini Relays for Life supporting the county level Relay for Life. In middle school students have PE classes every other day. Five of our six middle schools have a one-hour lunch and students can select an activity for half of their lunch time. During that time students can select open gym time or outside time as the weather permits. At the HS level, students take a half credit of PE, but PE courses were recently adjusted to be more thematic (stretching and toning, team sports, etc.) and there has been an increase in students taking a second physical education semester or year with that adjustment in focus. All four high schools run a one-hour lunch and students may select to be in one of the gyms during half of their lunch time.

Pillar III: Provide Effective Environmental and Sustainability Education, Incorporating STEM, Civic Skills, and Green Career Pathways

CHESPAX is the environmental education department for CCPS. CHESPAX has been in existence for 25+ years and provides programming at grade levels K to 8 through the creation of partnerships with the Calvert County Department of Natural Resources, Jefferson Patterson Park and Museum, Calvert Marine Museum, Calvert County Department of Natural Resources – Appeal Landfill, Annmarie Gardens, and Chesapeake Beach Oyster Conservation Society. All programs align or MD Environmental Literacy

Standards and a MWEE is built into each grade band. Sustainability concepts are pulled into most units. The units described below support students earning Student Service Learning Hours, a Maryland Graduation Requirement. When possible, Sustainability Education, STEM and Civics skills are included in all units.

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

Fourth Grade

Students learn about energy and the amount of energy needed to run various electrical devices through science instruction. Students then apply that understanding in English/Language Arts in a unit related to their energy footprint. Students read the book Energy Island by Allan Drummond and then consider their school as an "energy island". Since they cannot control the source of the energy students are asked to analyze what choices can be made in the building to decrease the need for energy. Students utilize the energy reports created in the facilities department to see how their school's energy use compares to prior year's energy usage.

Fifth Grade

Students take action during a visit to the bay at Flag Ponds or Fishing Creek to assist in the maintenance of the oyster gardening project being conducted at that site. These tasks are necessary to the successful continuation of this restoration effort. Students perform a variety of tests to measure conditions in the bay that might impact the oyster gardening project. Students collect measurements of oyster growth and mortality, water chemistry, sedimentation and monitor the variety of organisms that use the oyster gardens as habitat. Students report their findings to the Calvert Natural Resources Division and to the Maryland Sea Grant, two organizations dedicated to the improvement of aquatic resources both locally and across the state of Maryland.

Because oyster gardening can be a part of a solution towards oyster restoration and toward the maintenance of a healthy Chesapeake Bay, CHESPAX, CBOCS and the Maryland Sea Grant program have teamed up to form a community oyster gardener corps for Calvert County. Citizens with access to a pier in a part of the river or the bay with the appropriate conditions for oyster survival are recruited to attach oyster gardens to their pier. Participants in the program are trained in the tasks required for the maintenance of oyster gardens and receive the equipment and the young oyster spat. These gardens are maintained for one year and the oysters are placed on a restoration site in the Chesapeake Bay. The students will help maintain Flag Ponds and Fishing Creek's oyster garden to assist with this restoration project.

Seventh Grade

The middle school science service-learning curriculum provides for a meaningful service to the community. For the past 20+ years, seventh grade students in Calvert County have been assisting the U.S. Fish and Wildlife Service (U.S.F.W.S.) in a bay-wide study of submerged aquatic vegetation (SAV). These underwater grasses play a critical role in the health of the bay as a filter for nutrients and sediment which can be detrimental to the health of the environment. Additionally, these plants serve as important habitat for crabs and for spawning fish in the bay and its tributaries. SAV have been drastically reduced within the Chesapeake Bay and efforts to restore these grasses through propagation

and transplanting and monitoring the existing natural beds, are critical to the recovery of these important species.

As a part of the seventh-grade science curriculum, students work in the classroom to learn about the important role of SAV, the trends in SAV growth and the actions that can be taken to improve the environmental conditions that would permit the return of SAV in the Chesapeake Bay. Students read an article by a U.S. Fish and Wildlife scientist, interpret graphs and aerial photography of SAV population trends supplied by partner agencies, and conduct research on individual SAV species to prepare them for their action project that will take place during a field experience on a Chesapeake Bay tributary.

Students visit King's Landing Park in Huntingtown for their CHESPAX field experience. Here they learn about actions that can be taken to improve conditions for SAV and then take part in the SAV survey project. Students travel by canoe to a research site and collect small samples of the grasses to be used for identification purposes. Students make notes about the environmental conditions at the site relevant to SAV growth and survival. Students also record any wildlife observations made during their research period. Upon their return to shore, students use field guides to identify the SAV species collected and record their findings on their field data form. All data are used as a part of the report that the students will make to the U.S.F.W.S. as their final project activity.

Calvert County forms a peninsula between the Chesapeake Bay and the Patuxent River. County residents have strong ties to these waterways as these places are used both recreationally and commercially by the people who live here. Historically, the river and bay had served as a source of livelihood by the strong waterman community that existed locally. Environmental changes, including the loss of SAV, have impacted the natural resources important to this community. Those who use the bay today recreationally for fishing, crabbing and swimming also benefit from a healthy SAV population as these grasses provide food and shelter for living resources and serve as a natural filter to improve water quality in the bay. Since the SAV play such a vital role in the health of these important waterways, there is a recognized need within the local community to increase SAV populations.

Eighth Grade

During the second quarter, all 8th grade students learn about biodiversity and the importance of biodiversity to a healthy ecosystem. The overall ecosystem studies is the Chesapeake Bay. To increase relevance and connections, students investigate the macroinvertebrates from a stream near their middle school. Chespax staff, with the help from students in regional functional skills classrooms, create leaf packs and put them in three streams across the county. Chespax staff bring leaf packs to 8th grade classrooms and students analyze the macroinvertebrates found in the stream to determine the health of the local stream. These streams either run in to the Patuxent River to the Chesapeake Bay. The students are then asked to connect stream health to the health of the larger river and the Bay. Students are also asked to look at ways to increase the health of the stream.

During the fourth quarter, all 8th grade students participate in a 10-day, inquiry-based science unit centered on an environmental concern. Students can self-select an environmental interest that drives them, but there are structured materials related to biodiversity, natural resources in the waste stream, water quality, energy consumption. Students modified school and home habitats to support biodiversity. The asked questions of the school administration and Food Services Supervisor and replaced single use plastic in their lunch room with silverware. They created brochures and PowerPoints

related to the impact of plastic in the environment and what students can do to decrease their use of plastics. They helped classmates make reusable grocery bags out of pillow cases or old T-shirts and a variety of other projects.

Central to the program is the development of student responsibility for the care of the natural environment. The concept of "citizen science" is a recurring theme throughout the project. Much of the field data generated for many environmental monitoring projects comes from citizens trained to perform these field data collection tasks. This model provides the scientists with more time to conduct detailed analyses of the data and makes a strong connection for community members as a part of the scientific process. Students are also exposed to many green careers as part of this unit by learning what scientists around the world are doing to support sustainability and decrease or counteract human impacts to their environment.

Ninth Grade

This past year, the district student service learning coordinator worked with high school teachers to create a menu of opportunities to give biology students an environmental educational experience and a service learning experience. In all the menu choices, students gain knowledge related to environmental issues occurring in their school or on their school site. With the teachers, student then determine how they would like to act to make people aware of the issue and/or create a change to the school site or a practice in the school building. Topics range from invasive species to storm water runoff to electricity usage. High schoolers have planted native gardens and removed invasive species. They have compared their school electricity usage to other schools and created signage to remind teachers and students to turn off lights and Smartboards. Element 3B: Use of the environment and sustainability to develop STEM content, knowledge, and thinking skills

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

Second Grade

Students learn about the importance of recycling to conserve natural resources and to prevent the need for additional landfill space. They will participate in activities that illustrate how products that are used each day originate from natural resources and that these resources need to be conserved. Students also will examine trends in the amount of trash being generated by Calvert County residents and examine some solutions to the problem of disposing of this trash.

Students will visit the landfill to conduct a survey of recycling patterns among Calvert County residents and to learn about the opportunities to recycle various products at the landfill. The students will use the information learned during this unit to reach out and inform the community about the importance of recycling. Using the information learned during the unit and the recycling data collected during their visit to the landfill, the students will create posters and write messages describing their findings and to persuade Calvert county residents to recycle.

Citizens in Calvert County need to be informed about the important role that recycling plays. Students will meet this need by decorating bags with conservation messages and distribute these bags to area grocery stores to be used on Earth Day. The students will also encourage their peers to recycle by hosting a recycling effort at their individual school.

Third Grade

The third-grade student service-learning project engages students in a study of the problems encountered by the terrapin, such as loss of habitat and environmental degradation. Students will read to become informed about the causes for the decline of other species such as the sea turtle and make inferences about the potential threat to the population of diamondback terrapins. The students will learn about the natural history of the terrapin to help them assess the terrapin habitat at Flag Ponds Nature Park. There are activities within the science unit that serve as preparatory experiences for service learning. Students will use the information collected during their field experience to help them to make a recommendation to the Department of Natural Resources as to whether Flag Ponds should be designated a "Terrapin Nesting Sanctuary". Students extend their experience in the classroom by raising diamondback terrapins as a part of a "head start" initiative. These terrapins will be released at the end of the school year to help restore local terrapin populations. As a component of the unit, students will learn about environmental engineering and filtering water. Students also learn about a green career when Skyping with a Sea Turtle Scientist and asking question of the Scientist.

Element 3C: Development and application of civic knowledge and skills

First Grade

This Student Service-Learning project allows first grade students the opportunity to learn about the importance of pollinators related to the foods we eat. Students use their schoolyard as a site to become familiar with the basic elements of insect needs and structures. They will travel to Battle Creek Cypress Swamp or Ward Farm for more advanced study. At this site students learn how different pollinators have their needs met, and while doing that pollinate the food we eat. As another component of the lesson, students will engage in an Engineering is Elementary unit to create a device to be a hand pollinator.

Students apply the information from the unit activities to improve their schoolyard as a habitat for pollinators and create information to share with families about the importance of pollinators and what they can do in their own yards.

Sixth Grade

Sixth grade students in each of Calvert County's six middle schools participate in a valuable historical preservation project in affiliation with the Chespax Program and Jefferson Patterson Park and Museum (JPPM). Students learn how archaeologists study the past. They find out how to identify possible sites of archaeological importance and what to do if they find such a site. Students will also visit a recreated Woodland Indian hamlet site on the shores of the Patuxent River to learn how archaeologists have used their research to reconstruct the lives of these early Americans. This site is a valuable resource not only for the students but is also open to the public. Made of degradable materials, the hamlet site is in constant need of repair and requires significant labor to harvest the Cedar saplings and Cattail reeds necessary to recreate the exhibit, as well as to fund these replenishment efforts.

Operating with a limited professional staff, JPPM depends on volunteers to maintain their public exhibits. The reproduction shelters interpreted at the site are made from Cedar saplings (the same materials used by the Indians who originally inhabited this land). Public wear and tear and the elements require that these shelters be repaired frequently. Unfortunately, Cedar Trees are no longer abundant

on the JPPM property, but Calvert County School students have helped with the planting of cedar trees on the site.

Another interpretive feature of the hamlet site are reed mats. These mats were used by Woodland Indians as doors and windows for their shelters and as a method for keeping food and other materials off the ground while they were being used and/or processed. Cattails only grow naturally along the water which is now a protected area and therefore off limits to harvesting. JPPM is growing the needed Cattails in large tubs, so that there will be a steady supply for weaving the need mats.

The JPPM staff works with Calvert County public school students when on their trips to A further challenge is mustering the necessary labor to plant, cultivate and harvest these resources. Finally, once the saplings and Cattails have been harvested, the staff must consistently repair the hamlet shelters and weave new reed mats to replace the brittle and degraded mats currently in place at the interpretation site.

Ninth Grade

In 2015, the town of North Beach received a grant through the National Fish and Wildlife Foundation Hurricane Sandy Restoration Fund. This project was critical in restoring an area of North Beach that was subject to severe erosion, threatening homes and residents during storms and flooding a major evacuation route, Walton Reserve. Environmental Concern, Inc. worked with biology teachers to bring students to the site to complete surveys of the area and propose plantings and then plant the area. Other physical modifications were made to the site and students were brought back the next year to monitor the success of plantings and the physical changes. The students were to witness firsthand the positive impacts the restoration project had on water quality, habitat, and biodiversity.