



Environmental Education Update

School Year 2015-2016

Published June 2016

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The Office of the State Superintendent of Education (OSSE) is pleased to provide an update on the state of environmental education in the District for school year 2015-16. Over the past year, OSSE has made significant progress in implementing the Environmental Literacy Program authorized by the Healthy Schools Act and other programming supporting student health and sustainability. OSSE plans to expand this work in the upcoming school year to increase the scope and depth of environmental education programs.

I. BACKGROUND

Across the nation,¹ jurisdictions are incorporating environmental education throughout the school day in order to ensure that students graduate with an understanding of how their lives impact the environment and the skills to reduce their impact on the environment through personal choices. In the District, this effort is being driven by a mandate from the Council of the District of Columbia (DC Council) through the Healthy Schools Act.

In 2010, the DC Council passed the DC Healthy Schools Act, which prioritizes the health and wellness of students throughout the District. The Healthy Schools Act acknowledged that creating and sustaining an environmentally friendly school environment and integrating environmental education into schools' curricula are essential to the health and wellness of students, as well as the health of the local environment and community. The Healthy Schools Act called for the District Department of the Environment, now called the Department of Energy and Environment (DOEE), to lead, in conjunction with other agencies, the development of an environmental literacy plan, which would serve as a road map for the implementation and integration of environmental education in the K-12 curriculum. Beginning in 2010, DOEE oversaw the process of developing this plan in coordination with DC Public Schools (DCPS), the Office of the State Superintendent of Education, the Public Charter School Board (PCSB), the State Board of Education (SBOE), the Department of Parks and Recreation (DPR), and the University of the District of Columbia (UDC). Substantial input was also received from the DC Environmental Education Consortium (DCEEC) and environmental non-profit organizations. The resulting Environmental Literacy Plan (ELP) provides a framework to ensure that students will be prepared to

¹ National environmental efforts include, among others, the "Every Kid in a Park" initiative – a federal program that provides fourth grade students and their families with a pass for free admission to all of America's federal lands and waters, the U.S. Department of Education's "Green Ribbon Schools" recognition program – the first comprehensive green schools program at the federal level, and the Every Student Succeeds Act – reauthorization of the Elementary and Secondary Education Act (formerly No Child Left Behind) which includes language that allows environmental education to be eligible for federal education funding for the first time. Regional environmental literacy efforts are driven by the Chesapeake Bay Executive Order 13508: Strategy for Protecting and Restoring the Chesapeake Bay Watershed (issued on May 12, 2009), which includes the objective of fostering citizen stewards of every age to support and carry out local conservation and restoration efforts, and resulted in the drafting of the Mid-Atlantic Elementary and Secondary Environmental Literacy Strategy in 2012, which details how the federal government can support state efforts in environmental literacy planning and implementation. Lastly, the governors of all six states in the Chesapeake Bay region plus the mayor of the District signed the Chesapeake Bay Watershed Agreement (2014), which builds upon previous commitments to restore the health of the Chesapeake Bay and includes an environmental literacy goal for all students in the region to graduate with the knowledge and skills to act responsibly to protect and restore their local watershed through three outcomes: student meaningful watershed educational experiences, sustainable schools, and environmental literacy planning.

make informed decisions concerning the environmental opportunities and challenges of the 21st century. On July 2, 2012, Mayor Vincent C. Gray submitted the final draft of the ELP to DC Council. The ELP creates the groundwork for the development of academic standards and the measurement of student achievement with regards to environmental literacy.²

The 2012 Environmental Literacy Plan defines environmental literacy as the development of the knowledge, attitudes, and skills necessary to make informed decisions concerning the relationships among natural and urban systems, and identifies an environmentally literate person as one who: discusses and describes ecological and environmental systems and human impacts on these systems; engages in hands-on, outdoor learning experiences that involve discovery, inquiry, and problem solving; formulates questions and analyzes information pertaining to his or her surrounding environment; and understands how to take actions that respect, restore, protect, and sustain the health and well-being of human communities and environmental systems.

In 2013, the District released its first Sustainable DC Plan, a strategy that lays out a path forward to make the District the healthiest, greenest, and most livable city in the nation over the next 20 years. During the development of the Sustainable DC Plan, many stakeholders called for the development and implementation of an associated education curriculum for District schools that would include sustainability concepts. The Sustainable DC Plan recognizes that the ELP is the appropriate platform on which to build environmental and sustainability education into District schools. In the Sustainable DC Plan, implementation of the ELP is a component of the Equity and Diversity Goal 1 (to ensure that all school-age children in the District are educated in sustainability and prepared for a changing green economy) and includes the following:

- **Target:** By 2032, teach at least 50 percent of children in the District about sustainability concepts; and
- **Action 1.3:** Launch the implementation of the Environmental Literacy Plan in school curriculum.

In response to the Sustainable DC Plan, the DC Council passed the Sustainable DC Omnibus Amendment Act of 2014, effective December 17, 2014 (D.C. Official Code § 8-1531 *et seq.*), which identified various areas where legislative changes were needed to achieve Sustainable DC goals, including an amendment to the Healthy Schools Act. The Sustainable DC Omnibus Amendment Act of 2014 amended the Healthy Schools Act to formalize support for the ELP by creating an Environmental Literacy Program in OSSE. The purpose of the Environmental Literacy Program is to provide “necessary oversight, subject matter expertise and training resources to ensure that the ELP is integrated into District school curricula.”³ Finally, the Budget Support Act of 2015 for fiscal year 2016 required OSSE to establish a one year pilot program to provide funds to employ environmental literacy specialists at DCPS and public charter elementary schools to implement the 2012 ELP.

These local initiatives have the potential to empower future generations to make effective environmental decisions and become caretakers of our natural resources. The following section discusses the development and implementation of the Environmental Literacy Program over the 2015-16 school year.

² The 2012 ELP is available here: <http://osse.dc.gov/node/1113326>.

³ Committee of Transportation and the Environment, *Committee Report: Bill 20-573, the “Sustainable DC Omnibus Act of 2014”*, June 16, 2014. Available at: <http://lims.dccouncil.us/Download/30722/B20-0573-CommitteeReport2.pdf>

II. STATE OF ENVIRONMENTAL EDUCATION: ENVIRONMENTAL LITERACY PROGRAM

Specifically, the Sustainable DC Omnibus Amendment Act of 2014 called for an Environmental Literacy Program to:

- Coordinate the efforts of DOEE, DCPS, PCSB, OSSE, SBOE, UDC, DPR, the Department of General Services (DGS), and the Department of Employment Services (DOES) to triennially develop an environmental literacy plan for public schools, public charter schools, and participating private schools;
- Establish and convene an Environmental Literacy Advisory Committee, composed of community organizations, District government agencies, and other interested persons;
- Collect data on the location and types of environmental education programs in public schools, public charter schools, and participating private schools;
- Provide environmental education guidance and technical assistance to public schools, public charter schools, and participating private schools; and
- Provide training, support, and assistance for environmental literacy programs in public schools, public charter schools, and participating private schools.

Since the enactment of the Sustainable DC Omnibus Amendment Act of 2014, OSSE has worked to meet the subtitle's requirements accordingly:

Coordinate the efforts of District agencies to triennially develop an environmental literacy plan for public schools, public charter schools, and participating private schools.

Since May 2015, OSSE has assumed the leadership role in implementing the ELP with OSSE's environmental literacy coordinator tracking progress towards that goal (see Attachment A-A). OSSE plans to collaborate with District agencies and stakeholders to begin drafting an updated ELP in July 2016 and share updated progress with the DC Council by July 2017.

Establish and Convene an Environmental Literacy Advisory Committee

OSSE identified and recruited qualified representatives from schools, community organizations, stakeholders, and District agencies to serve on the Environmental Literacy Advisory Committee, which will meet three times per year (see Attachment A-B).

Collect data on the location and types of environmental education programs in District schools

Data on environmental education programs in District schools for the 2015-16 school year were collected using multiple methods including: 1) Healthy Schools Act School Health Profiles,⁴ 2) data from OSSE's School Gardens and Farm-to-School Programs, 3) DCPS Office of Planning and Post-Secondary Readiness, and 4) self-reported data from select environmental education providers.

⁴ Each public school, public charter school, and participating private school within the District of Columbia is required to complete the School Health Profile Questionnaire (SHP) and submit to OSSE pursuant to the *Healthy Schools Act of 2010*. The information collected in the SHP serves as a comprehensive means of monitoring and evaluating schools on how well they are meeting the requirements under the HSA. All data in the SHP are self-reported by each school.

High School Environmental Science Course Enrollment: Based upon data from the DCPS Office of Planning and Post-Secondary Readiness, since the 2012-13 school year, the availability of District high school environmental science courses, both Advanced Placement and standard, has grown in DCPS, however enrollment in standard environmental science courses has declined (Table A-1).

According to school health profile data, out of 20 charter high schools, only nine offered an environmental science course (Advance Placement or standard) in the 2013-14 school year, but 12 schools have offered the course since the 2014-15 school year.

Table A-1. Number of High Schools Offering AP Environmental Science and Environmental Science and Enrollment in those Courses.

	SY 2012-13	SY 2013-14	SY 2014-15	SY 2015-16
# of DCPS High Schools Offering AP Environmental Science Course	3/25 (12%)		5/21 (24%)	7/21 (33%)
Enrollment in DCPS AP Environmental Science	150		173	266
# of DCPS High Schools Offering Standard Environmental Science Course	19/25 (76%)		18/21 (86%)	17/21 (81%)
Enrollment in DCPS Environmental Science Courses	2150		1430	1138
# of Charter LEAs Offering Environmental Science Course (AP or Standard)		9/20 (45%)	12/20 (60%)	12/20 (60%)
Enrollment in Charter LEA Environmental Science Course		626	849	791*

* Not all schools that indicated a course was taught provided enrollment numbers.

Environmental Literacy Indicator Tool (E-LIT): To support the Environmental Literacy Goal and Outcomes of the Chesapeake Bay Watershed Agreement,⁵ the Chesapeake Bay Program collected information from local and state schools systems to help advance the implementation of environmental education efforts in schools in the mid-Atlantic region in August 2015. In this self-assessment, LEAs were asked to determine whether processes were in place for the LEA to facilitate environmental literacy planning, sustainable schools, and student participation in meaningful watershed educational experiences (MWEEs).⁶

⁵ The Chesapeake Bay Watershed Agreement is available here:

<http://www.chesapeakebay.net/chesapeakebaywatershedagreement/page>.

⁶ Definition of a meaningful watershed educational experience can be found here:

http://www.chesapeakebay.net/publications/title/meaningful_watershed_educational_experience

OSSE received responses from DCPS and 23 public charter LEAs, which are described in Table A-2 below.

Table A-2. Responses from the Environmental Literacy Indicator Tracking Tool

	Not in Place	Partially in Place	Fully in Place
Established Program Leader for Environmental Education	13 Charter LEAs		DCPS 10 Charter LEAs
Support System in Place for Professional Development	9 Charter LEAs	DCPS 13 Charter LEAs	1 Charter LEA
Integrated Program Infusing Environmental Concepts and Student MWEEs in curriculum	2 Charter LEAs	DCPS 14 Charter LEAs	6 Charter LEAs
Plan for All Students to Engage in MWEEs at the Elementary, Middle, and High School Level	9 Charter LEAs	DCPS 9 Charter LEAs	4 Charter LEAs
Plan or Initiative for Sustainable Schools	6 Charter LEAs	DCPS 12 Charter LEAs	4 Charter LEAs
Established Community Partnerships for Delivery of Environmental Education	7 Charter LEAs	DCPS 7 Charter LEAs	8 Charter LEAs

Environmental Literacy Taught in Schools: According to the 2015-16 School Health Profile data, 43 schools report teaching at least one of the following environmental topics during the school year:

- Air (quality, climate change)
- Water (stormwater, rivers, aquatic wildlife)
- Land (plants, soil, urban planning, terrestrial wildlife)
- Resource Conservation (energy, waste, recycling)
- Health (nutrition, gardens, food)

However, grant program data from the OSSE School Garden and Farm Field Trip grants as well as DOEE's Overnight Meaningful Watershed Educational Experience indicate potential underreporting on the number of schools teaching these topics in the classroom. These data have been compiled into a list of schools and types of environmental education programming (Attachment A-C). OSSE's environmental literacy coordinator plans to coordinate and streamline

channels for collecting more accurate and robust data in the future. In addition to the data sources mentioned above, other methods may include:

- DC Environmental Education Consortium Member Survey
- Interviews with school administrators and community-based organizations

Provide environmental education guidance and technical assistance to public schools, public charter schools, and participating private schools

OSSE created a webpage for the Environmental Literacy Program on its website (<http://osse.dc.gov/service/environmental-literacy-program-elp>). This page has links to numerous resources for environmental literacy. Additionally, in December 2015, the curricular units developed during the 2014 Environmental Literacy Summer Institute were posted on the DC STEM Network and OSSE's LearnDC website as resources for both school-based environmental literacy implementation plans and Next Generation Science Standards.⁷

OSSE awarded over \$430,000 in grants to eight nonprofit organizations to support the efforts of the Environmental Literacy Leadership Cadre (the cadre). More information about the cadre can be found in the later section "Suitable Methods to Increase Environmental Literacy."

- The Environmental Literacy Advancement grant program was created to provide environmental education programs in the areas of air quality/climate change, water, land, resource conservation, or health for elementary schools represented in the cadre. Grantees are required to provide quality environmental education programs to a minimum of one entire grade level at cadre schools in support of the school-based environmental literacy program. Environmental Literacy Advancement grants were awarded to the following organizations:
 - American Forest Foundation/Project Learning Tree will train pre-K 3 and pre-K 4 teachers in their early childhood curriculum and Green Schools early childhood curriculum, and work with teachers to develop school-based action projects. In addition to the time creating the PD, some of which will be online, all teachers will receive the curriculum materials and schools will receive funding (\$1000) for the action projects.
 - FoodPrints, a program of FreshFarm Markets, will partner with Washington Youth Garden to work with grades Kindergarten, 1, 2, and 3, to provide educational experiences related to food, gardening, and more.
 - Anacostia Watershed Society will partner with Chesapeake Bay Foundation and Living Classrooms to provide an on-the-water experience (boat) for grade 4 in the cadre schools. Additionally, Anacostia Watershed Society will provide the shad (fish hatching) program for five schools.
- Through the Environmental Literacy Fellowship, a fellow is designated to work with three of the schools represented in the cadre. Fellows will focus on developing mechanisms to sustain school garden, recycling, and composting programs over time; helping coordinate field experiences; and providing support to the cadre teacher. The following organizations received grant funding to host a fellow:
 - Anacostia Watershed Society
 - Audubon Naturalist Society
 - FoodPrints (FreshFarm Markets)
 - REAL School Gardens

⁷ <http://learndc.org/page/meeting-next-generation-science-standards-through-environmental-literacy>

III. STATE OF ENVIRONMENTAL EDUCATION: ENVIRONMENTAL LITERACY PLAN

Pursuant to the Healthy Schools Act, as amended, OSSE's Environmental Literacy Program shall coordinate the efforts of DOEE, DCPS, PCSB, SBOE, UDC, DPR, DGS and DOES to triennially develop an environmental literacy plan for public schools, public charter schools, and participating private schools that includes, at minimum:

- (1) Relevant teaching and learning standards adopted by the State Board of Education;
- (2) Professional development opportunities for teachers;
- (3) Suitable metrics to measure environmental literacy;
- (4) Suitable methods to increase environmental literacy;
- (5) Governmental and nongovernmental entities that can assist schools in the achievement of these goals; and
- (6) A proposed implementation method for the plan.

These components are consistent with the requirements described in the North American Association for Environmental Education (NAAEE)'s guidance document, *Developing a State Environmental Literacy Plan* (NAAEE, 2008).

However, as discussed above, the call for an ELP in the Sustainable DC Omnibus Amendment Act of 2014 was not the District's first ELP. The District's first ELP was submitted to the Council on July 2, 2012. The 2012 ELP, described further below, lays foundation for district-wide integration of environmental education into the K to 12 curriculum which includes the development of academic standards and the measurement of student achievement with regards to environmental literacy.

The District's 2012 State Environmental Literacy Plan

The DC ELP outlines the following objectives and goals for reaching them:

- 1) Integrate environmental literacy concepts into the K to 12 curriculum.
 - Align environmental literacy concepts with current standards.
 - Engage every student in at least one Meaningful Outdoor Educational Experience at each grade level.
 - Provide downloadable materials and on-line access to environmental literacy resources.
 - Create a strategy for integrating environmental literacy into Next Generation Science Standards roll-out to schools.
- 2) Increase and improve environmental education and training for all stakeholders.
 - Prepare pre-service and in-service teachers to be able to teach environmental education and foster environmental literacy.
 - Provide workshops and training for environmental education professionals.
 - Develop communities of practice to foster dialogue and capacity for environmental literacy.
- 3) Integrate environmental literacy into the secondary school experience.
 - Increase the number of high school students enrolled in an environmental science course.
 - Ensure that environmental literacy and meaningful outdoor educational experiences are discussed and addressed during revisions of the science graduation requirements.
 - Increase participation in environmental service-learning as part of the community service graduation requirement.

- 4) Create meaningful measures of student environmental literacy.
 - Collect baseline information of student performance in environmental literacy concepts within current science standards.
 - Create environmental literacy assessment opportunities that are not test-driven.
 - Incorporate environmental literacy into future student assessment tools.
- 5) Maximize school facilities and grounds to create learning opportunities for all students.
 - School facilities support environmental concepts and practices.
 - Create and maintain outdoor schoolyard spaces to encourage and support outdoor learning experiences.
 - Encourage schools to apply to the U.S. Green Ribbon Schools program.
- 6) Encourage collaboration and engagement across all sectors involved in implementation.
 - Cultivate and foster the knowledge and awareness necessary for the development and implementation of the DC ELP at LEAs.
 - Individual LEAs develop an Environmental Literacy Scope of Work and Implementation Plan.
 - Each District agency demonstrates commitment and ownership of an Environmental Literacy Scope of Work and Implementation Plan.
 - Create state infrastructure for implementation of the DC ELP.

Results: Implementation of the 2012 DC Environmental Literacy Plan

From 2012 to 2014, DOEE tracked progress on action items within the 2012 ELP. Since May 2015, OSSE has assumed the leadership role in implementation of the ELP and began to track progress. Below are updates on the plan action items from 2015-16. An implementation table for the ELP can be found in Attachment A-A.

Relevant teaching and learning standards adopted by the State Board of Education

The ELP includes an appendix of relevant science and social studies standards, based upon the DC Content Standards for science. However, SBOE adopted the Next Generation Science Standards (NGSS) in December 2013. As such, the standards identified in the initial ELP are out of date.

The intent of the NGSS is to integrate the following three dimensions into the curriculum to reflect the following work of scientists and engineers: science and engineering practices, crosscutting concepts, and disciplinary core ideas. NGSS Performance Expectations integrate applications of science, technology, and engineering into life, Earth, space, and physical science and clarify what students should know and be able to do at the end of a grade level or grade band.

In order to align environmental literacy concepts to the NGSS, DOEE collaborated with the Anacostia Watershed Society, DC Environmental Education Consortium, and DC Greens, as well as teachers from the Sustainable DC Model Schools project to create the Environmental Literacy Framework (the framework).⁸ The framework is a guide for schools that identifies the knowledge and skills District students need to become environmentally literate. The framework is outlined by grade level (pre-K through grade 8) or science subject area (high school) and aligned with the NGSS Performance Expectations. Included are environmental contexts for learning and guiding questions to serve as a starting point, with content appropriate to each grade level. Based on themes taken from the Sustainable DC Plan, sustainability initiatives provide starting points for in-depth investigations and

⁸ The Environmental Literacy Framework can be found on OSSE's web site: <http://osse.dc.gov/node/1113327>.

suggestions for extending learning beyond the classroom. Schools can use the framework as guidance to develop school-based environmental literacy implementation plans.

One concern with the NGSS related to environmental literacy is that as national standards, they do not contain local and relevant content that resonates with students. As a result, DOEE, OSSE, DCPS, and the DC Environmental Education Consortium have collaborated closely to address this issue. One approach has been to work directly with District teachers to develop curriculum units with local context. Results of these collaborative initiatives are further discussed in the sections below.

Professional development opportunities for teachers

- **Science Professional Development Days:** For the first time in many years, professional development for science was mandated for DCPS teachers of K through 12 students and emphasized science cornerstones (see Attachment A-D). At the elementary level, the science cornerstones were based on Engineering is Elementary curricula developed by the Museum of Science in Boston. The Engineering is Education curricula were supplemented by lessons created by DCPS teachers involved with the Center for Inspired Teaching's Science Curriculum Advancement through Literacy Enhancement (SCALE) program. The SCALE teachers and environmental education partners (DC Environmental Education Consortium, DOEE, Live It Learn It, and OSSE) facilitated each professional development day and helped make local environmental connections to the curricula. Workshops topics included pollination, stream erosion, wind energy, and water pollution. At the middle and high school level, workshops focused on water filtration, carbon footprint, and solar energy. In the 2014-15 school year, attendance averaged 30 teachers per professional development day; however, in 2015-16, over 120 teachers attended each of the four DCPS professional development days. An average of 12 teachers attended from the middle school level and focused on science cornerstones and an average of 16 teachers attended the high school sessions.
- **School Gardens Program:** Since its inception, OSSE's School Gardens Program has provided environmental education training related to school gardens. Beginning in the 2012-13 school year, OSSE has partnered with DC Greens to provide a year-long professional development series, Growing Garden Teachers, for a cohort of 50 School Garden Coordinators. OSSE's School Gardens Program also offers introductory training and seasonal training opportunities throughout the school year that are open to teachers or other stakeholders interested in school gardens. In the newest school garden grant cycle, the 29 schools that received the grant in 2016 are required to designate one grade level at the school to receive a garden-based (MWEE). This provides a collaborative approach to reaching the objectives of the Chesapeake Bay Agreement through OSSE's school garden and environmental literacy programs (for more information on this program, see section 2 of the 2016 Farm-to-School and School Garden Report⁹).
- **Climate Change Filmmaking Project:** DC Environmental Education Consortium organized and hosted the second Climate Change Filmmaking Project in conjunction with the Climate Urban System Partnership. Nine teachers from five public schools in the District worked with their students to explore climate change through the lens of film and media arts. Students created one-minute films that simultaneously explored the local impact of climate change and careers in environmental communications. In April 2016, the films were screened at the National Geographic Society.

⁹ Yearly reports can be found here: <http://osse.dc.gov/service/healthy-schools-act-yearly-reports>

- **Opportunities for Non-Formal Educators:** OSSE has also provided professional development for non-formal educators who work with District youth.
 - During the 2015-16 school year, OSSE collaborated with six 21st Century Learning Center grant sites to create teams for the FIRST LEGO League TRASH TREK Challenge. These teams built and programmed an autonomous robot to solve a set of missions representing concepts in trash removal, sorting, processing, recycling, or reduction. To bring a local context to the challenge, OSSE provided training for the 21st Century Learning Center team coaches about specific trash-related issues in the District and the Chesapeake Bay, as well as recycling information for schools. On June 4, 2016, OSSE and the DC FIRST LEGO League are sponsoring a city-wide competition, with approximately 20 teams representing all public schools in the District.
 - In early 2016, OSSE provided two workshops on the Project Learning Tree environmental education curriculum for DPR staff leaders of the Young Ladies on the Rise program.
 - As part of the International Technology and Engineering Educators Association annual conference, OSSE organized and led a tour of sustainability sites in the District. Twelve participants visited the K Street Farm, Dunbar High School, the O Street NW Low Impact Development project, and Canal Park to learn how the District's sustainable design projects connect with the Environmental Literacy Framework.
 - In June 2016, OSSE is partnering with the Chesapeake Bay Foundation to host an Environmental Literacy Leadership Course for principals. This course will introduce middle and high school principals to the basics of environmental education so they will be able to provide their teachers and staff the support they need to address NGSS and provide students with meaningful watershed educational experiences.

Measuring progress in environmental literacy

In the District, science is tested in grades 5, 8, and high school biology. The District led the nation in field testing a new science assessment aligned to the (NGSS) in the 2014-15 school year, including questions that align with the Environmental Literacy Framework. In September 2015, OSSE released a booklet of sample items to provide administrators, educators, parents, and students an initial look at the types of test questions that will appear in the Next Generation Science Assessment. The fifth grade sample items are set in the context of a school garden, and the biology sample items are set in the context of students going on a run in Rock Creek Park. In the 2015-16 school year, District students will take the Next Generation Science Assessment. For every grade level tested, the NGSS Performance Expectations for life science and earth science have environment-focused items.

Although assessments can be used to formally measure student progress with respect to environmental literacy education, many opportunities also exist for students to demonstrate their environmental knowledge through participation in school-based activities. Integrating environmental investigations into school curriculum or participating in school-wide environmental events allow students to demonstrate understanding of environmental concepts and environmentally responsible behaviors. Many efforts have been made to create meaningful measures of student environmental literacy that are not test-driven. These include:

- High school Environment Award presented by DC Environmental Education Consortium at the DC STEM Fair;
- Anacostia Environmental Youth Summit, organized by DOEE, DC Environmental Education Consortium, Earth Force, and other environmental non-profits, which includes events that showcase student investigations and action projects;

- School recognition in DGS' DCPS Recycles! Honor Roll; and
- School participation in Growing Healthy Schools Month.

Suitable methods to increase environmental literacy

A number of District agencies and environmental non-profit organizations have been involved in providing environmental literacy programming, developing methods to integrate environmental literacy into the curriculum, and providing professional development for teachers and others providing environmental education in schools. Some of these efforts are described below.

- Environmental Literacy Leadership Cadre: In 2016, OSSE established its first Environmental Literacy Leadership Cadre. OSSE is working with 17 teachers and educators representing 16 schools to develop and implement a school-based environmental literacy program (see Table A-3 for a list of participating schools). Cadre members each have a mentor from the Sustainable DC Model Schools project. Since February 2016, cadre members have been meeting monthly and are currently implementing programs (see Attachment A-E for draft plans).

Table A-3. Schools Represented in the 2016 Environmental Literacy Leadership Cadre

School	Ward
Bridges Public Charter School	4
Capital City Public Charter School	4
HD Cooke Elementary	1
Kimball Elementary	7
KIPP DC – Heights Academy	8
Langdon Elementary	5
Ludlow-Taylor Elementary	6
Malcolm X Elementary	8
Maury Elementary	6
Mundo Verde Public Charter School	5
Peabody Elementary	6
School within a School @ Goding	6
Seaton Elementary	6
Tyler Elementary	6
Van Ness Elementary	6
Watkins Elementary	6
Janney Elementary (mentor school)	3
Washington Yu Ying Public Charter School (mentor school)	5

- Overnight Meaningful Watershed Educational Experience (MWEE) for Fifth Grade Students: DOEE partners with three local non-profit organizations (Alice Ferguson Foundation, Living Classrooms of the National Capital Region, and NatureBridge) on the Overnight MWEE Program. The MWEE is a three-day, two-night, overnight field study that engages students in environmental education programming and team-building activities. The concepts addressed in

the MWEEs are tied to the NGSS, including characteristics that make up the Earth's systems; food chains and webs in ecosystems; and the interaction between humans and the earth, specifically focusing on ways to protect the environment.

In the 2013-14 school year, DOEE piloted this program with all fifth grade students from Wards 7 and 8. The three organizations collaborated to develop a pre- and post-test that tested key concepts, including: watersheds, organism adaptations, consumers, producers, and decomposers. Other questions developed independently by each organization allowed for evaluation of specific program focus. A higher number of students responded correctly to questions related to the definition of and components of a watershed after the MWEE. They also gained knowledge about the scientific method, the role of decomposers in the food chain, and actions that farmers can take that have a positive effect on the environment. In the 2014-15 school year, DOEE was able to expand the program to serve students in all wards. The program has grown from reaching 19 schools in the 2013-14 school year to a projected 65 schools in the 2015-16 school year. Systemic implementation of a MWEE is a component of the Chesapeake Bay Agreement, which calls for students to engage in at least one meaningful watershed educational experience each in elementary, middle and high school.

- Curriculum Integration:
 - DCPS develops Scope and Sequence documents for each grade and subject area. These documents establish consistency of instruction throughout the District - in different grade levels and subject areas - by providing clear guidance on what teachers should teach and when they should teach it. DCPS included environmental literacy resources in the 2015-16 school year Scope and Sequence documents for science, and will continue to integrate them in future revisions. Beginning in the 2016-17 school year, all DCPS science teachers will have access to Discovery Education's Science Techbook, which has NGSS-aligned resources and includes environmental content where applicable.
 - The Science Curriculum Advancement through Literacy Enhancement Project (SCALE) is facilitated by the Center for Inspired Teaching. In the 2015-16 school year, a cohort of DCPS teachers created K through 12 science curriculum modules, including many of the DCPS science cornerstones, which are infused with literacy benchmarks and aligned with NGSS. SCALE lessons covering weather and climate and ecosystems provide opportunities to teach NGSS within an environmental context. These resources are currently available on the DCPS Canvas online platform. In the 2016-17 school year, SCALE will be comprised of a cohort of charter school teachers.
- Sustainable Schools:
 - To support the sustainable schools outcome of the Chesapeake Bay Agreement, OSSE and DC Environmental Education Consortium are convening a series of meetings with "green school" stakeholders to explore the development of a green/health/sustainable school certification for public schools in the District. After hearing presentations from other recognition programs (e.g., Maryland Green Schools, Eco-Schools USA), the group is conducting background research on current practices in areas such as transportation, energy, school food, and schoolyard habitats. Preliminary work should be completed by August 2016, with a white paper drafted by the group for OSSE leadership to consider.
 - On April 22, 2016, Capital City Public Charter School became the seventh school in the District to receive the national U.S. Green Ribbon Schools award. Given by the U.S. Department of Education, this award honors public and private elementary, middle, and high schools, districts, and postsecondary institutions that are exemplary in three pillars:

- 1) reducing environmental impact and costs, including waste, water, energy use and alternative transportation; 2) improving the health and wellness of students and staff, including environmental health, nutrition and fitness; and 3) providing effective sustainability education, including robust environmental education that engages STEM, civic skills, and green career pathways.¹⁰
- DCPS has begun to include sustainability metrics on its school profiles.¹¹ Currently, each school webpage includes its Energy Star Rating, Sprint to Savings Energy Challenge Score, LEED level, and whether it is on the DCPS Recycles! Honor Roll.

Governmental and nongovernmental entities that can assist schools in the achievement of these goals

The 2012 ELP included an appendix that lists organizations with environmental literacy resources for schools. Creating access to this information has been important to spread the word about environmental education opportunities in the District. Other tools to connect schools to resources are described below:

- DCPS Canvas: OSSE and other DC Environmental Education Consortium members provided DCPS with web links to environmental curricula, student programs, and web sites, which is posted in the science section of Canvas under the tab “Other Curricular Resources on the Web.”
- Resource Directory: DC Environmental Education Consortium’s Environmental Literacy Resource Directory also references relevant sustainability initiatives. It was disseminated with the draft environmental literacy framework and is posted on OSSE’s web site.¹²
- DC Teachers Night: Launched by the DC Environmental Education Consortium in 2008, this annual event hosted at the U.S. Botanic Garden features approximately 40 environmental organization exhibitors who present environmental hands-on activities, lesson plans, and resources for teachers to bring back to their classrooms. Information is also exchanged regarding classroom visits, student and teacher field experiences, and professional development opportunities. This event has grown from 100 teachers pre-registering to attend in 2008 to over 275 teachers pre-registering to attend in 2015.

A proposed implementation method for the plan

The ELP serves as a vehicle to navigate through local priorities, regional commitments, and national efforts. By viewing these initiatives through the lens of environmental literacy, many stakeholders have collaborated to foster environmental literacy integration in District schools. Below are descriptions of District agency commitments.

- Implementation of the ELP was integrated into DOEE’s Performance Plans in FY14 and FY15. Actions are being executed through DOEE’s Watershed Protection Division education programs and the summer youth Green Zone Environmental Program.
- Released in March 2014, DPR’s master plan, PlayDC, includes “be green” principles and includes the goal of being a leading provider for youth and support for adults and seniors. Most residents throughout the District’s wards expressed desire for DPR to be a leading provider of nature programming.
- One of the ultimate goals of UDC’s College of Agriculture, Urban Sustainability, and Environmental Sciences is to increase agriculture literacy for teachers and students in grades pre-K through 12. Implementation of the ELP has been incorporated into this goal and supporting activities.

¹⁰ <http://www2.ed.gov/programs/green-ribbon-schools/factsheet.pdf>

¹¹ <http://profiles.dcps.dc.gov/>

¹² <http://osse.dc.gov/node/1113332>

- In 2014, the SBOE established a Green Practices Committee to reduce waste, protect the environment, and better align its “green” efforts with best practices followed by government agencies and schools nationwide. Among its areas of interest is the promotion of and support for environmental education.

IV. PLANS FOR EXPANSION

During the 2016-17 school year, OSSE’s Environmental Literacy Program plans to:

- (1) Conduct a survey to determine the extent environmental education initiatives are taking place in the District. This survey will include interviews with school administrators and environmental education program providers and provide the baseline data on the location and types of environmental education programs taking place in public schools, public charter schools, and participating private schools;
- (2) Conduct an assessment to determine types of environmental education guidance and technical assistance needed by public schools, public charter schools, and participating private schools. The data collected will be used to communicate best practices, determine the greatest areas of need, and to ensure that relevant training and meaningful technical assistance is provided;
- (3) Develop a comprehensive tracking system for collecting data on environmental education programs in schools;
- (4) Explore and develop new innovative partnerships that will support existing environmental education programs and the establishment of new school programs;
- (5) Work within OSSE’s Health and Wellness Division teams and community-based organizations to engage teachers and administrators in professional development around connecting the environment with classroom lessons and integrating environmental literacy into the holistic well-being of students;
- (6) Collaborate with DC Environmental Education Consortium and its member organizations to develop and increase environmental education activities, as well as to support DCPS and charter schools in taking advantage of these types of educational activities;
- (7) Determine the best methods to evaluate changes in student and teacher environmental literacy and establish metrics to track improvement; and
- (8) Further collaborate with OSSE’s STEM and Early Learning initiatives to increase scope and depth of environmental education programs.

VI. CONCLUSION

As the District moves forward with environmental literacy in conjunction with District-wide initiatives targeting student health and sustainability, OSSE will continue to develop, implement, and support the new Environmental Literacy Program authorized by the Healthy Schools Act. With other District agencies, non-profit partners, and stakeholders, OSSE will support the shared commitment to environmental literacy, education for sustainability, and children’s health.

Environmental Education Update
ATTACHMENTS

ATTACHMENT A

Environmental Literacy Plan Implementation Table

Objective 1: Integrate environmental literacy (EL) concepts into the K through 12 curriculum.

Goal	Action Items	Lead Organizations	Timeframe	Progress Description	Progress Status
A. Align environmental literacy (EL) concepts with current standards.	i. Analyze current standards and identify those that include EL concepts.	DOEE DCEEC	Short	Appendix E of the ELP for existing science and social studies standards that support environmental literacy. The framework identifies NGSS Performance Expectations that can be taught with an environmental context.	●●●●
	ii. Create a cross-walk of the District's existing content standards with NAAEE Guidelines and Next Generation Science Standards to identify overlap and content gaps.	OSSE	Medium	NAAEE developed a resource that highlights some of the connections between the NGSS vision of science education and environmental literacy. This document can be accessed online: http://eelinked.naaee.net/n/guidelines/posts/Aligning-EE-NGSS-the-Common-Core-Standards-and-the-C3-Framework-for-Social-Studies-State-Standards .	●●●●
	iii. Integrate EL concepts into existing DCPS scope and sequence documents.	DCPS DOEE	Short	Resources are in the revised Scope and Sequence science documents and curriculum developed through the SCALE project. DC Environmental Education Consortium is working with DCPS and teachers to develop MWEE-aligned documents.	●●●○
	iv. Determine best practices currently in place in District schools.	DOEE OSSE	Short	Snapshots have been created of schools recognized by the US Green Ribbon Schools program, and the Sustainable DC Model Schools project and Environmental Literacy Leadership Cadre are also helping to determine best practices.	●●○○

Progress key:

○○○○ Not started

●○○○ Initiated

●●○○ Moderate progress

●●●○ Significant progress

●●●● Complete

B. Engage every student in at least one Meaningful Outdoor Educational Experience at each grade level.	i. Provide schools with a comprehensive list of outdoor opportunities on school grounds and throughout the District to be updated every 3 years.	DCEEC	Short	Initial actions taken by a DCPS intern to develop a map of schools and nearby green spaces were not completed. DC Environmental Education Consortium is identifying a source of funding to begin this project.	●○○○
	ii. Provide standards-based EL framework for schools to scaffold into their curriculum.	DOEE DCEEC	Medium	DOEE and partners have worked with eight teachers to identify relevant NGSS for the framework. The framework was piloted at the Sustainable DC Model Schools during SY14-15, and is being used at schools represented in the Environmental Literacy Leadership Cadre.	●●●●
C. Provide downloadable materials and on-line access to environmental literacy resources.	i. Create searchable database for all environmental literacy resources.	DCEEC	Medium	The Environmental Literacy Resource Directory is the first step in creating a database. The resources section on the DC STEM Network website includes a subject filter for environmental science.	●●○○
	ii. Update DCPS Science Educator Portal to include EL information.	DCPS DOEE	Short	The portal is now DCPS Canvas, and environmental information is available via the scope and sequence documents and science cornerstones.	●●●●
	iii. Submit EL information to be included in the PCSB Tuesday Bulletin.	DOEE	Short		○○○○
D. Create a strategy for integrating EL into Next Generation Science Standards roll-out to schools.	i. Ensure the District's potential adoption of the NGSS maintains local and relevant content that resonates with students.	SBOE OSSE DCEEC	Long	Curriculum units developed during the Environmental Literacy Summer Institute all included connections to local environmental and sustainability initiatives	●●●○

Progress key:

○○○○ Not started

●○○○ Initiated

●●○○ Moderate
progress

●●●○ Significant
progress

●●●● Complete

Objective 2: Increase and improve environmental education and training for all stakeholders.

Goal	Action Item	Lead Organizations	Timeline	Progress Description	Progress Status
A. Prepare pre-service teachers to be able to teach environmental education and foster environmental literacy.	i. Work with local universities and teacher prep programs to offer at least six contact hours of training in environmental education.	DOEE UDC	Long	Sustainable DC can assist with making contact with sustainability directors from most of the eight universities in the District.	○○○○
B. Provide in-service teachers with workshops about how to teach environmental education and foster environmental literacy.	i. Create a crosswalk of the DCPS Teaching and Learning Framework and the NAAEE <i>Guidelines for the Preparation and Professional Development of Environmental Educators to determine existing overlap and any gaps.</i>	DCPS	Medium	DCPS is changing its teacher evaluation process, and it is unclear whether the Teaching and Learning Framework will be changing as well.	○○○○
	ii. Provide broad-based EL workshops for all District teachers.	DOEE OSSE UDC DCEEC	On-going Short Long On-going	In SY 2015-16, workshops were conducted by DC Environmental Education Consortium, DOEE, UDC, and non-profit partners through DCPS professional development days, OSSE School Garden Coordinator training, Environmental Literacy Leadership Cadre meetings, and more.	●●●○

Progress key:

○○○○ Not started

●○○○ Initiated

●●○○ Moderate
progress

●●●○ Significant
progress

●●●● Complete

	iii. Create a Summer Academy for teachers that provides intensive training in relevant grade bands.	UDC	Long	UDC will work with OSSE and DCPS and other partners to provide/develop educational programs.	●○○○
		OSSE	Medium	DOEE, OSSE, DC Environmental Education Consortium, and Carnegie Academy for Science Education completed the Environmental Literacy Summer Institute in July 2014.	●●●●
C. Provide workshops and training for Environmental Education professionals.	i. Hold at least three workshops per year for Environmental Education providers – intro courses and supplemental workshops.	DOEE DCEEC	Medium	This year, DOEE has conducted workshops on the Frog Watch citizen science project.	●●○○
	ii. Integrate Environmental Education workshops into existing DPR staff training.	DPR	Short	Since 2012, various DPR staff have received Project Learning Tree training. In January 2016, OSSE worked with recreation center staff involved with the “Young Ladies on the Rise” program.	●●●○
D. Develop communities of practice to foster dialogue and capacity for environmental literacy.	i. Create Professional Learning Communities or other networks focused on environmental literacy.	OSSE	Medium	The newest PLC for environmental literacy is the 2016 Environmental Literacy Leadership Cadre, which meets monthly to develop and implement school-based environmental literacy programs. This group is mentored by participants from the Sustainable DC Model Schools project.	●●●○

Progress key:

○○○○ Not started

●○○○ Initiated

●●○○ Moderate
progress

●●●○ Significant
progress

●●●● Complete

Objective 3: Integrate environmental literacy into the secondary school experience.

Goal	Action Items	Lead Organizations	Timeline	Progress Description	Progress Status
A. Increase the number of high school students enrolled in an environmental science course.	i. Determine which schools currently offer this course and the existing barriers to schools offering this course.	OSSE DCPS PCSB	Medium	OSSE has determined the schools that offer the environmental literacy course but not the barriers that exist to offering the course in general.	●●○○
	ii. Offer an environmental science course in every District high school as an elective or science class.	DCPS Charter LEAs	Long	The number of schools in both DCPS and charter schools offering environmental science has been increasing each year.	●●●○
	iii. Monitor enrollment trends with the Statewide Longitudinal Education Data System (SLED).	OSSE	Long	This data are collected by DCPS and by OSSE in the School Health Profile, and enrollment is increasing. However, a method must be developed to verify enrollment, particularly for the charter schools.	●●●○
B. Ensure that environmental literacy and meaningful outdoor educational experiences are discussed and addressed during revisions of the science graduation requirements.	i. Define components that would qualify for a meaningful outdoor educational experience.	SBOE	Medium		○○○○
	ii. Analyze the implementation and results of environmental literacy graduation requirements in other states to determine applications for the District.	SBOE	Long	Maryland is the only state to have an environmental literacy graduation requirement, and it is too soon to determine results of implementation.	○○○○

Progress key:

○○○○ Not started

●○○○ Initiated

●●○○ Moderate
progress

●●●○ Significant
progress

●●●● Complete

C. Increase participation in environmental service-learning as part of the community service graduation requirement.	i. Provide comprehensive information to the DCPS Office of Secondary School Transformation for inclusion in the DCPS Community Service Handbook.	DOEE DCEEC	Short	DC Environmental Education Consortium has compiled the list of organizations, updates the list every August, and sends it to DCPS by the end of December. This information is also made available at DC Teachers Night at the U.S. Botanic Garden.	● ● ● ●
	ii. Meet with the DCPS Community Service Coordinators and Charter LEA representatives so they know about opportunities available.	DCPS Charter LEAs	Short		○ ○ ○ ○
	iii. Work with environmental education providers to provide meaningful volunteer opportunities.	DPR UDC DCEEC	On-going	DC Environmental Education Consortium has compiled a dynamic list of organizations with opportunities and submitted the list to DCPS Community Service Coordinators. UDC has also partnered with non-profits to provide volunteer opportunities, especially at the East Capitol urban farm and green roof on the UDC student center.	● ● ● ●
	iv. Determine current number of students participating in environmental service-learning; determine whether the number increases over time.	DCPS Charter LEAs	Long		○ ○ ○ ○

Progress key:

○ ○ ○ ○ Not started

● ○ ○ ○ Initiated

● ● ○ ○ Moderate
progress

● ● ● ○ Significant
progress

● ● ● ● Complete

Objective 4: Create meaningful measures of student environmental literacy (assessment).

Goal	Action Items	Lead Organizations	Timeline	Progress Description	Progress Status
A. Collect baseline information of student performance in environmental literacy (EL) concepts within current science standards.	i. Convene a panel to designate science standards that contain EL concepts and write corresponding justifications.	DOEE	Short	The Sustainable DC Model School project has created the framework, which identifies the NGSS that can be taught with an environmental context.	● ● ● ●
	ii. Analyze student performance data from 2007-2011 on these standards to create a baseline of what students know.	OSSE	Long	OSSE will be looking at baseline data from its new science assessment to complete this action.	● ● ○ ○
	iii. Determine best practices based on student performance (curriculum reviews, teacher interviews).	DOEE	Medium	Lessons learned from the Sustainable DC Model Schools project informed the creation of OSSE's Environmental Literacy Leadership Cadre. OSSE continues to determine best practices.	● ● ● ○
	iv. Participate in the item development and selection process for upcoming DC CAS tests.	DOEE	Medium	The new science assessment includes items that test standards identified in the Environmental Literacy Framework. OSSE's environmental literacy coordinator participated in item development for the SY 2015-16 assessments, and DC Environmental Education Consortium participated in science item range-finding sessions.	● ● ● ○

Progress key:

○ ○ ○ ○ Not started

● ○ ○ ○ Initiated

● ● ○ ○ Moderate progress

● ● ● ○ Significant progress

● ● ● ● Complete

B. Create environmental literacy assessment opportunities that are not test-driven.	i. Encourage and support student interest in completing an EL Capstone Project, Science Fair project, Portfolio, etc., and provide a showcase for EL student presentations.	DCEEC	Medium	DOEE, DC Environmental Education Consortium, and non-profit partners continue to organize the annual Anacostia Environmental Youth Summit, which has begun to showcase more student presentations each year. OSSE's Growing Healthy Schools Month and DGS's school-wide recycling competitions are increasing the opportunities for students to be engaged in environmental activities. DC Environmental Education Consortium continues to present an environmental award at the DC STEM Fair to at least one high school student.	●●○○
	ii. Establish a tracking mechanism to monitor and evaluate student engagement/performance.	DCPS Charter LEAs	Long		○○○○
C. Incorporate environmental literacy into future student assessment tools.	i. Determine if and how EL can be integrated in to Common Core State Standards assessments developed by PARCC.	OSSE	Short	It is unlikely that EL can be integrated into PARCC. We will look to other states with ELPs to see whether they develop tools that we can consider adapting for use in the District.	○○○○
	ii. Monitor the development of the assessment items for the Next Generation Science Standards and EL correlations.	OSSE	Medium	The NGSS assessment is aligned with the framework.	●●●●

Progress key:

○○○○ Not started

●○○○ Initiated

●●○○ Moderate progress

●●●○ Significant progress

●●●● Complete

Objective 5: Maximize school facilities and grounds to create learning opportunities for all students.

Goal	Action Items	Lead Organizations	Timeline	Progress Description	Progress Status
A. School facilities support environmental concepts and practices.	i. In keeping with LEED requirements, establish model schools that show the development of green building curricular integration best practices.	DGS	Medium	DGS' DCPS Recycles! Honor Roll recognizes excellent DCPS school recycling programs.	●●○○
		UDC	Long	UDC recently opened its LEED-certified student center and provides weekly tours.	●●○○
	ii. Coordinated integration of Healthy Schools Act requirements as described in the Healthy Schools Act, at all District schools.	DGS	Medium	Established and expanded upon organics recycling and composting at schools. Facilitated discussion with the Healthy Schools and Youth Commission about indoor air quality and water testing. With OSSE, completed the Center for Disease Control and Prevention's 2016 School Healthy Policies and Practices Study.	●●○○
	iii. Next update of Local Wellness Policy to include greater emphasis on environmental sustainability and alignment with the DC Environmental Literacy Plan.	OSSE	Medium	Local wellness policies include guidance in the following environmental sustainability areas/indicators: school gardens, farm-to-School, local food sourcing, recycling, composting, and environmentally-friendly cleaning products. Looking into incorporating more environmental literacy indicators into these guidelines as LEAs update their local wellness policies.	●○○○
	iv. Incorporate environmental literacy indicators into School Health Profiles.	OSSE	Medium	Since 2014, the School Health Profiles included an environmental literacy section. In 2016, it included questions from the Chesapeake Bay Program's E-LIT tool.	●●●●

Progress key:

○○○○ Not started

●○○○ Initiated

●●○○ Moderate progress

●●●○ Significant progress

●●●● Complete

B. Create and maintain outdoor schoolyard spaces to encourage and support outdoor learning experiences.	i. Increase the number of school gardens by 35%.	DCEEC, OSSE, DOEE, UDC	Medium	There are currently 107 active school (both DCPS and public charter) gardens, 49% of DC schools have active school gardens. Sustainable DC innovation funding has been provided to DCPS, OSSE, and DGS to create 3 new outdoor classroom and garden spaces by the 2016 school year. UDC provides support to Coolidge High School and other schools to increase the number of school gardens in the District.	●●●○
	ii. Revise current DCPS Design Guidelines to include more information regarding parameters and best practices for schoolyard design to include outdoor learning environments (e.g., school gardens and outdoor classrooms) and community involvement.	DGS, OSSE	Complete	Led by OSSE, produced design guidelines for outdoor classrooms now available at http://osse.dc.gov/sites/default/files/dc/sites/osse/publication/attachments/Design%20Guidelines%20for%20Outdoor%20Classrooms%20and%20School%20Gardens.pdf .	●●●●
C. Encourage schools to apply to the U.S. Green Ribbon Schools program.	i. Create and implement a DC Green Schools recognition program.	DOEE DCEEC	Long	OSSE and DC Environmental Education Consortium have convened monthly meetings to develop a sustainable schools certification as part of the Chesapeake Bay Agreement.	●●○○
	ii. Submit four qualified applicants to the U.S. Green Ribbon Schools recognition program.	OSSE	Long	Six schools in the District and one university have won the award.	●●○○

Progress key:

○○○○ Not started

●○○○ Initiated

●●○○ Moderate progress

●●●○ Significant progress

●●●● Complete

Objective 6: Encourage collaboration and engagement across all sectors involved in implementing the DC Environmental Literacy Plan (ELP).

Goal	Action Items	Lead Organizations	Timeline	Progress Description	Progress Status
A. Cultivate and foster the knowledge and awareness necessary for the development and implementation of ELP at Local Education Agencies (LEAs).	i. Require administrators and guidance counselors to attend environmental literacy meetings and share information about resources.	DOEE	Medium	Sustainable DC Model Schools coordinators and members of the Environmental Literacy Leadership Cadre have meetings with administrators and other school staff.	●●○○
	ii. Create mechanisms for informational exchange to encourage local, District-specific Environmental Education opportunities, such as web-based database and teacher's night.	DCEEC	On-going	Teachers Night at the US Botanic Garden remains an annual event. DC Environmental Education Consortium is updating its web site, which will help disseminate information. OSSE also plans to create an environmental literacy section on its web site.	●●●○
B. Individual LEAs develop an Environmental Literacy Scope of Work and Implementation Plan based on framework template.	i. Explore integration of science/EL into DCPS School-Level Scorecards.	DCPS	Long	School profiles on the DCPS website now include a sustainability section.	●○○○
	ii. Identify how the implementation plans can support U.S. Green Ribbon Schools applications.	OSSE	Short	Since EL is one of the pillars on the Green Ribbon Schools application, school-based implementation plans can be integrated into the District's application process.	●●○○
	iii. Develop LEA Guidelines and Training.	DOEE	Medium		○○○○
	iv. Create approval process for LEA plans.	OSSE	Long	LEAs and DCPS schools in the Environmental Literacy Leadership Cadre are schools creating plans.	●●○○

Progress key:

○○○○ Not started

●○○○ Initiated

●●○○ Moderate progress

●●●○ Significant progress

●●●● Complete

C. Each District agency demonstrates commitment and ownership of an Environmental Literacy Scope of Work and Implementation Plan that supports schools.	i. Create implementation plans that are agency specific, city-wide, and collaborative in nature.	DOEE DPR UDC	Medium	The ELP was integrated into the following: <ul style="list-style-type: none"> • Sustainable DC Plan (District –wide initiative) • DOEE’s Agency Performance Plans in FY14 and FY15 • DPR’s master plan, PlayDC • UDC CAUSES Strategic Plan • SBOE’s Green Practices Committee 	●●●○
	iii. Develop Agency Guidelines/Training.	DOEE	Medium		○○○○
D. Create state infrastructure for implementation of the ELP.	i. Establish a permanent Environmental Literacy Council or Advisory Board.	OSSE	Medium	The SDC Omnibus Amendment Act of 2014 calls for OSSE to establish and convene an Environmental Literacy Advisory Committee. The first meeting will be in June 2016.	●●●●
	ii. Create a new EL coordinator (Full-Time) position within OSSE.	OSSE	Medium	The Sustainable DC Omnibus Amendment Act of 2014 created the position within OSSE, and the Environmental Literacy Coordinator was hired in May 2015.	●●●●
	iii. Designate staff within DOEE to support ELP efforts.	DOEE	Short	From July 2012-May 2015, DOEE had a point person on staff that convened meetings and facilitated implementation.	●●●○

Progress key:

○○○○ Not started

●○○○ Initiated

●●○○ Moderate
progress

●●●○ Significant
progress

●●●● Complete

ATTACHMENT B
Environmental Literacy Advisory Committee Members

Committee Member	Affiliation
Sarah Bodor	North American Association for Environmental Education Director of Policy and Affiliate Relations
Rebecca Davis	DC Environmental Education Consortium Consultant
Robert Ettinger	KIPP DC Managing Director of STEM
Maya Garcia	Office of the State Superintendent of Education Director of STEM
Kate Judson	Department of Energy and Environment Sustainability Program Analyst
Kiho Kim	American University Department Chair, Environmental Science
James Rountree	DC Public Schools Director of Science
Dominique Skinner	Living Classrooms of the National Capital Region Director of Workforce Development
Ariel Trahan	Anacostia Watershed Society Director of Education

ATTACHMENT C

Schools that Received Environmental Education Programming, 2015-16 school year

SCHOOL	Select Environmental Education Student Programs								
Program Name	Env Ed Program (School Year 15-16)	HS Environmental Science Course (DCPS and School Health Profile)	Anacostia Environmental Youth Summit (DOEE-WPD/DCEEC)	Environmental Literacy Leadership Cadre (OSSE)	5th Grade Overnight Meaningful Watershed Educational Experience (DOEE-WPD)	Farm Field Trip Grants (OSSE)	Active School Gardens (Compiled by OSSE)	DCPS Recycling Honor Roll (DGS)	Reported in School Health Profile (Compiled by OSSE)
District of Columbia Public Schools (DCPS)									
DCPS Alternative Schools									
C.H.O.I.C.E. Academy at Emery									
Incarcerated Youth Program, Correctional Detention Facility	1	1							
Luke C. Moore HS	1	1							
Washington Metropolitan HS (formerly YEA)	1	1							1
Youth Services Center	1							1	
DCPS Alternative Schools Total	4	3	0	0	0	0	0	1	1
DCPS Special Education Schools									
River Terrace EC	1						1	1	
DCPS Special Education Schools Total	1	0	0	0	0	0	1	1	0
DCPS Schools									
Aiton ES									
Amidon-Bowen ES	1						1		
Anacostia HS	1	1							
Ballou HS	1	1							1
Ballou STAY	1	1							
Bancroft ES	1						1	1	
Barnard ES	1				1		1		
Beers ES	1		1		1		1		1
Benjamin Banneker HS	1	1						1	
Brent ES									
Brightwood EC	1						1		

Brookland MS	1								1
Browne EC	1				1		1		
Bruce Monroe ES at Park View	1				1		1	1	
Bunker Hill ES	1				1				
Burroughs EC	1		1				1	1	
Burrville ES	1				1		1		
C.W. Harris ES	1				1		1	1	
Capitol Hill Montessori at Logan	1						1	1	
Cardozo EC	1	1					1	1	1
Cleveland ES	1				1			1	
Columbia Heights EC (CHEC)	1	1				1	1	1	
Coolidge HS	1	1							
Deal MS	1						1	1	
Dorothy Height ES	1				1		1	1	
Drew ES	1				1				
Duke Ellington School of the Arts	1	1							1
Dunbar HS	1	1							
Eastern HS	1	1					1		
Eaton ES	1				1		1		1
Eliot-Hine MS									
Garfield ES	1		1		1			1	
Garrison ES	1				1		1		
H.D. Cooke ES	1			1	1	1	1	1	
H.D. Woodson HS	1	1							1
Hardy MS	1						1		
Hart MS	1		1						
Hearst ES	1							1	
Hendley ES	1				1		1	1	
Houston ES	1				1	1	1	1	
Hyde-Addison ES									
J.O. Wilson ES	1						1	1	
Janney ES	1			1			1		
Jefferson Middle School Academy	1						1		1
Johnson MS	1								1
Kelly Miller MS	1		1						
Ketcham ES	1				1		1	1	
Key ES	1				1		1	1	1
Kimball ES	1			1	1		1		
King ES	1				1			1	
Kramer MS									

Lafayette ES	1						1	1	
Langdon EC	1			1	1		1	1	
Langley ES	1				1		1		
LaSalle Backus EC	1		1						
Leckie ES	1				1		1		
Ludlow-Taylor ES	1			1			1		
Malcolm X ES at Green	1			1	1	1	1		
Mann ES	1				1		1	1	
Marie Reed ES	1				1		1	1	1
Maury ES	1			1	1		1	1	1
McKinley Middle School	1							1	
McKinley Technology HS	1	1					1	1	1
Miner ES	1				1		1		
Moten ES	1							1	
Murch ES	1						1		
Nalle ES	1				1		1	1	
Noyes EC									
Orr ES	1				1		1	1	
Oyster-Adams Bilingual School	1				1		1	1	1
Patterson ES									
Payne ES	1				1				
Peabody ES	1			1		1	1	1	1
Phelps Architecture Construction and Engineering HS	1	1							
Plummer ES									
Powell ES	1							1	
Randle Highlands ES	1				1		1	1	
Raymond EC	1				1				
Roosevelt HS at MacFarland	1	1							1
Roosevelt STAY at MacFarland	1	1							
Ross ES	1				1			1	
Savoy ES	1				1				
School Within School at Goding	1			1			1	1	1
School Without Walls at Francis Stevens	1		1		1		1	1	
School Without Walls HS	1	1							1
Seaton ES	1			1	1		1	1	
Shepherd ES									
Simon ES	1				1		1		
Smothers ES	1				1		1		
Sousa MS	1		1				1		

Stanton ES	1				1				1
Stoddert ES	1				1		1	1	
Stuart-Hobson MS	1						1		
Takoma EC	1						1		
Thomas ES	1				1				
Thomson ES	1						1	1	
Truesdell EC	1				1			1	
Tubman ES	1						1	1	1
Turner ES	1				1		1	1	
Tyler ES	1			1	1	1	1		
Van Ness ES	1			1				1	
Walker-Jones EC	1				1		1		1
Watkins ES	1			1		1	1		
West EC	1					1	1		
Wheatley EC									
Whittier EC									
Wilson HS	1	1					1	1	1
DCPS Schools Subtotal	96	17	8	13	47	8	62	45	22
DCPS Overall TOTAL	101	20	8	13	47	8	63	47	23

Public Charter Schools									
Public Charter Alternative Schools									
Latin American Youth Center Career Academy PCS									
Maya Angelou Evans Campus PCS									
The Next Step PCS									
Youthbuild PCS									
Public Charter Alternative Schools Total	0	0	0	0	0	0	0	0	0
Public Charter Special Education Schools									
St. Coletta Special Education PCS	1						1		1
Public Charter Special Education Schools Total	1	0	0	0	0	0	1	0	1
Public Charter Schools									
Achievement Preparatory PCS - Elementary	1				1	1			
Achievement Preparatory PCS - Middle School									

AppleTree Early Learning Center PCS - Columbia Heights									
AppleTree Early Learning Center PCS - Lincoln Park									
AppleTree Early Learning Center PCS - Oklahoma									
AppleTree Early Learning PCS - Southeast									
AppleTree Early Learning Center PCS - Southwest									
Basis DC PCS	1	1			1				1
Bridges PCS	1			1		1	1		
Briya PCS	1						1		
Capital City PCS - High School	1	1				1	1		1
Capital City PCS - Lower School	1			1			1		
Capital City PCS - Middle School	1					1	1		
Cedar Tree Academy PCS	1						1		
Center City PCS - Brightwood	1				1		1		1
Center City PCS - Capitol Hill	1				1				
Center City PCS - Congress Heights									
Center City PCS - Petworth	1				1				
Center City PCS - Shaw	1					1			
Center City PCS - Trinidad	1						1		
Cesar Chavez PCS for Public Policy - Capitol Hill	1	1							1
Cesar Chavez PCS for Public Policy - Chavez Prep									
Cesar Chavez PCS for Public Policy - Parkside MS	1					1			
Cesar Chavez PCS for Public Policy - Parkside HS	1	1							
Community College Preparatory Academy PCS									
Creative Minds International PCS	1						1		
DC Bilingual PCS	1				1	1	1		1
DC Preparatory PCS - Benning Elementary	1						1		
DC Preparatory PCS - Benning Middle	1						1		
DC Preparatory PCS - Edgewood Elementary									
DC Preparatory PCS - Edgewood Middle									
DC Preparatory PCS Anacostia									

DC Scholars PCS									
Democracy Prep PCS-Congress Heights	1				1		1		
District of Columbia International School	1		1						
E.L. Haynes PCS - Georgia Avenue	1						1		
E.L. Haynes PCS - Kansas Avenue (Elementary School)	1					1	1		
E.L. Haynes PCS - Kansas Avenue (High School)									
Eagle Academy PCS - New Jersey Avenue									
Eagle Academy PCS - Congress Heights	1						1		1
Early Childhood Academy PCS	1					1			
Elsie Whitlow Stokes Community Freedom PCS	1						1		
Excel Academy PCS-DREAM	1				1		1		
Excel Academy PCS-LEAD									
Friendship PCS-Armstrong	1						1		
Friendship PCS-Blow-Pierce Elementary	1				1		1		
Friendship PCS - Blow-Pierce Middle	1						1		
Friendship PCS-Chamberlain Elementary	1				1		1		
Friendship PCS - Chamberlain Middle									
Friendship PCS - SouthEast Elementary Academy									
Friendship PCS - Technology Preparatory Academy	1	1				1	1		
Friendship PCS - Woodridge Elementary	1						1		
Friendship PCS - Woodridge Middle	1						1		
Friendship PCS - Woodson Collegiate Academy	1	1							
Harmony DC PCS-School of Excellence									
Hope Community PCS-Lamond	1						1		
Hope Community PCS-Tolson	1								1
Howard University Middle School of Math and Science PCS	1						1		
IDEA (Integrated Design Electronics Academy) PCS									

Ideal Academy PCS - North Capitol Street Campus ES	1								1
Ingenuity Prep PCS									
Inspired Teaching Demonstration PCS	1		1		1				
Kingsman Academy	1						1		
KIPP DC - AIM Academy PCS	1						1		
KIPP DC - Arts and Technology Academy PCS									
KIPP DC - College Preparatory PCS									
KIPP DC - Connect Academy	1						1		
KIPP DC - Discover Academy PCS									
KIPP DC - Grow Academy PCS	1						1		
KIPP DC - Heights Academy PCS	1		1	1			1		
KIPP DC - KEY Academy PCS									
KIPP DC - Lead Academy									
KIPP DC - LEAP Academy PCS	1						1		
KIPP DC Middle School #5									
KIPP DC - Northeast Academy PCS	1						1		
KIPP DC - Promise Academy PCS									
KIPP DC - Quest PCS									
KIPP DC - Spring Academy	1						1		
KIPP DC - WILL Academy PCS	1				1				
Latin American Montessori Bilingual (LAMB) PCS	1					1	1		
Latin American Youth Center Career Academy PCS									
Lee Montessori PCS	1						1		
Mary McLeod Bethune Day Academy PCS Slowe Campus	1						1		1
Maya Angelou PCS - Evans High School	1	1							1
Maya Angelou PCS - Young Adult Learning									
Meridian PCS	1						1		
Monument Academy									
Mundo Verde Bilingual PCS	1			1			1		
National Collegiate Prep PCS HS									
Paul PCS - International High School									
Paul PCS - Middle School	1								1
Perry Street Prep PCS	1								1
Potomac Preparatory PCS	1				1				

Richard Wright PCS for Journalism and Media Arts	1	1							1
Roots PCS	1		1		1		1		
SEED (School for Educational Evolution and Development) PCS	1	1					1		1
Sela PCS	1						1		
Shining Stars Montessori Academy PCS									
Somerset Prep Academy PCS									
The Children's Guild									
The Next Step/El Proximo Paso PCS									
Thurgood Marshall Academy PCS	1	1					1		1
Two Rivers PCS	1				1		1		
Two Rivers PCS Young	1						1		
Washington Global	1								1
Washington Latin PCS - Middle School	1		1				1		1
Washington Latin PCS - Upper School	1	1					1		1
Washington Math Science Tech PCS HS									
Washington Yu Ying PCS	1			1	1		1		1
William E. Doar, Jr PCS for the Performing Arts									
Public Charter Schools Subtotal	70	11	5	5	16	11	49	0	19
PUBLIC CHARTER OVERALL TOTAL	71	11	5	5	16	11	50	0	20

DCPS	101	20	8	13	47	8	63	47	23
PUBLIC CHARTER	71	11	5	5	16	11	50	0	20
STATE TOTAL	172	31	13	18	63	19	113	47	43

ATTACHMENT D

DCPS SCIENCE CORNERSTONES WITH ENVIRONMENTAL CONTENT



Grade/Course	Cornerstone (Quarter)
K	<p>Cornerstone 4: Engineering is Elementary Unit: Thinking Inside the Box: Designing Plant Packages</p> <p>This unit introduces students to the field of package engineering. Students will use their knowledge of plants, their problem-solving skills, and their creativity to design a package that can keep a plant alive and healthy for several days. 10-15 days of instruction.</p>
1	<p>Cornerstone 2: Engineering is Elementary Unit: Just Passing Through: Designing Model Membranes</p> <p>In this unit, students learn to think like bioengineers as they design a model membrane to mimic the properties of real membranes in live organisms. Students learn how membranes function and apply their knowledge of the basic needs of living organisms to the engineering design challenge: designing a frog habitat with a model membrane that delivers just the right amount of water. 10-15 days of instruction.</p>
2	<p>Cornerstone 1: Engineering is Elementary Unit: The Best of Bugs: Designing Hand Pollinators</p> <p>In this unit, students become agricultural engineers. They'll apply their knowledge of insects, insect life cycles, pollination, and natural systems as they test a variety of materials, then engineer their own technologies for pollinating plants by hand. 10-15 days of instruction</p>
3	<p>Cornerstone 2: Engineering is Elementary Unit: A Stick in the Mud: Evaluating a Landscape</p> <p>The storybook that anchors this unit, <i>Suman Crosses the Karnali River</i>, takes student to Nepal, where people rely on innovative cable bridges called TarPuls to cross flooded rivers during monsoon season. Digging into the role of geotechnical engineers, students must select a safe, flood-proof, and erosion-proof location for a new TarPul. Working with a model riverbank, they study soil properties, examine maps to assess the potential for erosion at different sites along the river, and factor in the villagers' preferences for a TarPul location.</p>
4	<p>Cornerstone 4: Engineering is Elementary Unit: Catching the Wind: Designing Windmills</p> <p>Mechanical engineering involves the design of anything with moving parts. In this unit, students will think like mechanical engineers—and also use their understanding of air as wind—to design and create wind-powered machines. The storybook <i>Leif Catches the Wind</i> introduces students to wind turbines that generate renewable energy. Students will study how common machines such as mechanical pencils and egg beaters work, then use their mechanical engineering skills to design sailboats and windmills that catch the wind. 10-15 days of instruction.</p>

Grade/Course	Cornerstone (Quarter)
5	<p>Cornerstone 3: Engineering is Elementary Unit: A Slick Solution: Cleaning an Oil Spill An oil spill can be deadly for fish, plants, and other organisms in the river ecosystem. Students learn about a spill on the Elwha River in the Pacific Northwest. Applying their knowledge of ecosystems and food webs, students will test water quality and also the oil-absorbing properties of different materials as they engineer a process for cleaning up an oil spill. This unit introduces students to the field of environmental engineering. 10-15 days of instruction.</p>
6/Earth Science	<p>Cornerstone 2: Ice Cores Students will evaluate water ice balloons to reconstruct recent climate history by sorting different layers of evidence. This activity allows students to make comparisons of the ice balloon to an ice core taken from a glacier. 1 day of instruction.</p> <p>Cornerstone 3: Designing Water Filtration Systems In this activity, students explore the properties of water across various fields by polluting water, then creating filters to purify it. 3-6 days of instruction.</p> <p>Cornerstone 4: Fossil Fondue Students will describe how fossils are created and explain why an engineer might study fossils. They will utilize the design process to develop and systematically compare ideas for tools that perform one or more of the following objectives: extract fossils, investigate the physical and/or chemical properties of fossils, or prevent future extinctions. 1-2 days of instruction.</p>
7/Life Science	<p>Cornerstone 2: The Science of Superpowers In this task, students explore the heritable qualities of living things, focusing on the interplay between that inheritance and who a person becomes (nature vs. nurture). Students will extract DNA from strawberries. 1-2 days of instruction.</p> <p>Cornerstone 3: Evolution by Natural Selection This activity guides students in analyzing specific examples of natural selection and a simulation to develop student understanding of natural selection. The introductory analysis and discussion section uses an example of camouflage to introduce students to key concepts and the basic process of natural selection. The second section includes a simulation activity, data analysis, and interpretation questions to deepen students' understanding of natural selection. 1-2 days of instruction.</p> <p>Cornerstone 4: Microbes Know How to Work Students design systems that use microbes to break down a water pollutant (in this case, sugar). They explore how temperature affects the rate of pollutant decomposition. In this task, students are the engineers, and they have a challenge: A sugar factory just spilled thousands of pounds of sugar into a local river. Too much sugar dissolved in a natural environment can be very harmful to fish and other wildlife. The regulating governmental agency has called them to solve the problem! 1 day of instruction.</p>
9/Biology	<p>Cornerstone 1: How Big is Your Carbon Footprint? In this task, students will use the International Student Carbon Footprint Challenge website to track their carbon footprints, compare to those of other students throughout the world, and interact with international students through online discussion forums. 1-2 days of instruction.</p> <p>Cornerstone 2: The Chips are Down</p>

Grade/Course	Cornerstone (Quarter)
	<p>In this task, students will test the reliability of a model for the process of natural selection, using different colored paper chips to represent prey and a piece of fabric as a background to represent the environment. Students will hunt to see what colors are best adapted to the environment and able to pass their traits on to subsequent generations. Students will then design an artificial seed adaptation that would make them harder to capture by predators. 1 day of instruction.</p>
11/Physics	<p>Cornerstone 2: Solar Cooker</p> <p>In this task, the students use a simplified equation to create a computational model (in this case, a spreadsheet) to test the effects of changes in various elements on the temperature in the oven by keeping all variables constant in each simulation and changing only the variable being tested; the students plot and compare the data for each simulation. Using their designs, equations, and simulations, students also engage in the design and engineering process as they build and revise their own solar ovens using principles of energy transformation and transfer within the solar box system and the results of their simulations. 6-12 days of instruction.</p>

ATTACHMENT E

DRAFT ENVIRONMENTAL LITERACY LEADERSHIP CADRE SCHOOL IMPLEMENTATION PLANS

Bridges PCS

Grade Level	Project
Pre-K 3/Pre-K 4	The 5 Senses and Nature - Project Learning Tree
Kindergarten	Where Does Food Come From? - Washington Youth Garden
Grade 1	Light & Sound Patterns in Nature - Washington Youth Garden
Grade 2	Construction/Changing Landscapes - Washington Youth Garden
Grade 3	Problem Solving - Action Plan - Washington Youth Garden
Whole School Initiatives	Field Day - Tug of War, Parachute Run, Basketball, Kickball/Soccer

Capital City PCS

Grade Level	Project
Pre-K 3 / Pre-K 4	Spring expedition on gardens: <ul style="list-style-type: none"> - How plants grow, How seasons change, How people use plants - The purpose of markets/creation of own market in May-June - Composting in school garden
Kindergarten	Fall expedition on birds of Washington, DC: <ul style="list-style-type: none"> - Fieldwork in Rock Creek Park - Scientific drawings of birds - Public service announcements (in-school) on how to protect birds from windows
Grade 1	Spring expedition on honeybees: <ul style="list-style-type: none"> - Study of Colony Collapse Disorder - Needs, life cycles, and anatomy of living things - Understanding of community structures by studying bee colonies - Pollination and why bees are essential to plant life - Beehive on site
Grade 2	Spring expedition on water <ul style="list-style-type: none"> - Students learn about urban ecology through a long-term study of Rock Creek - Students observe the same place in Rock Creek Park several times over the course of the entire school year in order to record their observations

	- States of matter
Grade 3	<p>Spring expedition on marine biology</p> <ul style="list-style-type: none"> - Zones in the ocean based upon depth - Invertebrates and fish that live in each zone - Baleen whales/food web
Grade 4	<p>Fall expedition on local geology</p> <ul style="list-style-type: none"> - Fieldwork to Sugarloaf Mountain (October) - Visit to National Museum of Natural History (December) - Weathering/Erosion, Rock Cycle, Types of Rocks, Plate Tectonics <p>Intercession expedition on ancient Mali</p> <ul style="list-style-type: none"> - Economy driven by geology/climate: salt and gold trade, rice grown in south vs. millet in north <p>Spring expedition on Colonial America</p> <ul style="list-style-type: none"> - Fieldwork to Mt Vernon and Claude Moore Colonial Farm with an emphasis on agricultural practices. - Boat trip with Chesapeake Bay Foundation- tying in knowledge about the importance of waterways in Colonial America with the ecology of the waterways
Grade 5	<p>Spring expedition on Chesapeake Bay:</p> <ul style="list-style-type: none"> - Fieldwork to Assateague - Growing native plant species in the classroom and using these to repopulate areas around the Bay impacted by invasive species.
Whole School Initiatives	<p>Family Fieldwork: Families participate in this after- school event at Rock Creek Park to learn more about observation, hydrology, stream ecology, and forest ecology.</p> <p>Garden Program: All students participate in planting and maintaining the school garden. Families and community members are also welcome to join us once per week. Capital City has a School Garden Market during the fall and spring.</p>

Kimball ES
Grade Level

Project

Pre-K 3 /Pre-K 4	<p>Field Trip to Audubon Naturalist Society- Seasons and Cycles.</p> <p>Police Horse visit- People and Animals.</p> <p>Ant Farm- Habitats</p>
Kindergarten	<p>Ant Farm- Habitats</p> <p>Very Hungry Caterpillar and Life cycles lessons.</p> <p>(Explore local green backyard space)</p>

Grade 1	Trip to National Zoo- Animal Families Rain Collection experiment - Storm drain runoff lesson
Grade 2	Planting, Harvesting, Cooking, Eating- The life of our food. (Healthy Schools Act)
Grade 3	Pollination Activity- Animal systems Human impact on the environment lesson- intro to climate change. STEM Fair in May- Scientific research
Grade 4	Boat Trip on Anacostia River (Date TBD) STEM fair in May
Grade 5	Hard Bargain Farm- local watersheds STEM Fair in May
Whole School Initiatives	Recycling "Green Team" Garden work Joyful Market Garden Expansion

KIPP DC – Heights Academy

Grade Level	Project
Grade 1	Students will collect unused papers from their classrooms and determine which classroom wastes the least amount of paper weekly. The waste paper will be used for printed out science worksheets and other projects in the science classroom.
Grade 2	Students will work in teams of four to build bug motels. The purpose of bug motels is to determine how different insects are attracted to different types of foods and live in different ecosystems. This project will also teach students about recycling and how to repurpose household items (milk cartons/jugs, shoe boxes, toilet paper rolls, etc.).
Grade 3	Each homeroom class will plant sunflowers in the school garden. Students will make predictions and factual observations about their sunflower. Students will also learn about how sunflowers contribute to our ecosystem in a hands-on and meaningful way.

Grade 4 Each fourth grade class will develop a mini-pollinator garden with local plants. Students will research the role of local pollinators and set up observation stations in the outside classroom area. Each Fourth Grader attended the Potomac River Boat Trip with CBF. Students will also develop a model watershed and record changes to the land when variables such as pollution, rainwater, and wind are applied.

**Langdon ES
Grade Level**

Project

Pre-K 3 /Pre-K 4	Nature Walks in the Fall and Spring Classroom Participation in Recycling and Energy Reduction Initiatives
Kindergarten	Nature Walks in the Fall and Spring Exploring the effects of the Sun on Earth’s Surface DCPS Science Cornerstone
Grade 1	Nature Walks in the Fall and Spring RiverSmart Garden exploration/observation exercises Classroom Participation in Recycling and Energy Reduction Initiatives Life cycles of a Plant/Growing their own plants DCPS Science Cornerstone
Grade 2	Nature Walks in the Fall and Spring RiverSmart Garden exploration/observation exercises Classroom Participation in Recycling and Energy Reduction Initiatives Life cycles of a Plant/Growing their own plants DCPS Science Cornerstone on Pollination
Grade 3	Nature Walks in the Fall and Spring RiverSmart Garden exploration/observation exercises Classroom Participation in Recycling and Energy Reduction Initiatives Green Team, Recycling of Organics Life cycles of a Plant/Growing their own plants DCPS Science Cornerstone
Grade 4	Nature Walks in the Fall and Spring RiverSmart Garden exploration/observation exercises Classroom Participation in Recycling and Energy Reduction Initiatives Green Team, Recycling of Organics Life cycles of a Plant/Growing their own plants DCPS Science Cornerstone

Grade 5	<p>Nature Walks</p> <p>RiverSmart Garden exploration</p> <p>Recycling and Energy Reduction Initiatives</p> <p>MWEE-Camp Fraser</p> <p>DCPS Science Cornerstone</p> <p>Green Team</p>
Whole School Initiatives	<p>Kite Day</p> <p>Recycling Organics in the Cafeteria</p> <p>STEAM Fair</p> <p>STEAM Night</p> <p>Future Initiatives:</p> <ul style="list-style-type: none"> -Creation of an edible garden -Linking with a food organization to bring farm to table experiences to students -Planting trees along the fence to provide for privacy/partnership with Casey Trees <p>Increased field experiences (Anacostia Watershed River trip, Youth garden trips, etc.)</p> <ul style="list-style-type: none"> -Creation of Worm Bin

Ludlow-Taylor ES

Grade Level	Project
Pre-K 3	Recycling: Through a partnership with the Kennedy Center, students create models of the sun, moon, and planets from recycled materials.
Pre-K 4	Worm Factory: Students are learning about the importance of insects to the environment through worm composting bin within the classroom.
Kindergarten	<p>School Yard Garden Project</p> <p>Planting and caring for the schoolyard Garden with Food Prints</p>
Grade 1	<p>Spark: What makes light and sound? Students visited the Spark Museum to investigate what make light and sound.</p> <p>Design a project that creates natural.</p>
Grade 2	Reuse Reduce Recycle: Creating Art work using recycled materials
Grade 3	<p>Hunger Games:</p> <p>Students will learn about ecosystems and how living things get what they need.</p> <p>Students will also investigate how an adverse change affects the environment and the organisms that depend on them.</p> <p>Trip to a local farm and the zoo</p>

Grade 4	Anacostia River Shad restoration Project Trip to the Anacostia water Shed
Grade 5	School Yard Garden Project Planting and caring for the schoolyard Garden with Food Prints
Whole School Initiatives	River Smart Project Playground Project The site investigation

Malcolm X ES
Grade Level

Project

Pre-K 3 / Pre-K 4	Garden Lessons/ petting farm visit
Kindergarten	Trip to Washington Youth Garden/ garden Lessons
Grade 1	Washington Youth Garden / Worm Composting
Grade 2	Washington Youth Garden / Helping with Shad
Grade 3	Washington Youth Garden / Helping with Shad
Grade 4	Shad Project / Recycling Captains
Grade 5	Washington Youth Garden / Recycling Captains
Whole School Initiatives	Starting Recycling Program

Maury ES
Grade Level

Project

Pre-K 3 / Pre-K 4	Partnership with Project Learning Tree Milkweed Planting Flowers Study
Kindergarten	Wisconsin Fast Plants (Plant Needs) Trip to Washington Youth Garden- Garden Basics
Grade 1	Trip to Washington Youth Garden- Soil and Compost Junior Rice Rangers
Grade 2	Trip to Washington Youth Garden- Pollinators EiE Hand Pollinators Unit

Grade 3	Trip to Washington Youth Garden- Pollinators Rice Rangers Green Engineering Unit- EiE Solar ovens
Grade 4	Living Classrooms Trip Green Engineering Unit- EiE Solar ovens
Grade 5	Camp Fraser MWEE Green Engineering Unit- EiE Solar ovens
Whole School Initiatives	Tower Garden Initiative Recycling Challenge related to paper use “Seeds of Change” Grant Earth Day Whole School Morning Meeting Earth Day Community Clean-Up STEM Expo 2016 –Multiple Related Exhibitors Brownie Troup will work with garden. Eco-Schools program.

Mundo Verde PCS

Grade Level	Project
Pre-K 3	Families Expedition: Tie in the concept of Generations, which will lead to students understanding the concept of planning for future generations. Building Expedition: Tie in learning about our Needs and Wants. How big of a building do we need? Does it matter where we build it? Connect with Project Learning Tree to conduct a teacher-training workshop in spring 2016.
Pre-K 4	Plants Expedition Connect with Project Learning Tree to conduct a teacher-training workshop in spring 2016.
Kindergarten	Corn Expedition Life Cycle Expedition In spring 2016 we will plan a Farm Field Trip for students to the Washington Youth Garden or another local farm. Students will also plant corn during Gardening class in the school garden for next year’s kindergarten to study corn in the fall 2016.
Grade 1	Compost/Trash Expedition Maps Expedition In spring 2016, visit the Arboretum and compare to their prior visits in the fall and winter in 2015.

	<p>In fall 2016, tour a recycling center or landfill to complement their compost/trash expedition.</p> <p>The Maps expedition could look at sunlight exposure, and connect their work to the school garden, for example.</p>
Grade 2	<p>Farm to Market Expedition</p> <p>Rocks Expedition</p> <p>In spring 2016, study pollinators in Gardening class to support NGSS standards. Plant a pollinator garden at the school. Emphasizing that there is a Rock Cycle is a very important environmental literacy concept. This should be brought out more in the expedition.</p>
Grade 3	<p>Right to Read Expedition</p> <p>Water Expedition</p> <p>Hatch shad eggs in the classroom and take a field trip with the Anacostia Watershed Society to release shad fry in spring 2016.</p> <p>The water expedition looks at the Anacostia, but does not connect back to our water usage at the school or at home. We should find a way to do this this spring.</p>
Grade 4	<p>Colonial America Expedition</p> <p>Energy Expedition</p> <p>In spring 2016, 4th graders will conduct an Energy Audit of the school as part of their Energy Expedition. They will use persuasive writing to apply for a grant with EcoRise to implement a renewable energy project at the school.</p>
Whole School Initiatives	<p>Sustainability-focused school. Spring 2016, will work with our partner Real School Gardens to train six teachers in teaching a class outdoors in the school garden.</p>
Peabody ES Grade Level	Project
Pre-K 3	<p>Trees Study – Creative Curriculum</p> <p>Field trip to the farm</p> <p>Outdoor classroom – center time</p> <p>Field trip to the Arboretum</p> <p>Nature walk</p>
Pre-K 4	<p>Trees Study – Creative Curriculum</p> <p>Reduce, Reuse, Recycle Study – Creative Curriculum</p> <p>Field trip to Arboretum</p> <p>Field trip to farm</p>

	Outdoor Classroom center time
Kindergarten	Life cycle study Field trip to the apple orchard Changes in plants/animals throughout the seasons Field trip to Arboretum
Whole School Initiatives	FoodPrints throughout the year Garden boxes: each class will maintain a garden box Earth day activities Growing paper whites Project Learning Tree investigations Worm composting Casey Trees curriculum

School within a School @ Goding

Grade Level	Project
Pre-K 3 / Pre-K 4	Project Learning Tree PD and experiences
Kindergarten	Chicken egg hatching Anacostia watershed including Kingman Island and Arboretum
Grade 1	School Energy usage profile and reduction recommendations
Grade 2	Chesapeake Bay Watershed project including shad restoration
Grade 3	Recycle club
Grade 4	Anacostia Boat Trip
Grade 5	Overnight Meaningful Watershed Educational Experience
Whole School Initiatives	FoodPrints

Seaton ES Grade Level	Project
Pre-K 3 / Pre-K 4	<p>5 senses, seasons, alive/not alive</p> <p>PLT in class</p> <p>garden grant in class sessions, care for PK garden, seasonal nature walks</p> <p>Washington Youth Garden, City Blossoms, Zoo, Sweet Green</p>
Kindergarten	<p>wildlife habitats, life cycles</p> <p>garden educator sessions</p> <p>visiting park ranger, farmer visit</p> <p>care for strawberries and salad greens</p> <p>Washington Youth Garden</p>
Grade 1	<p>adaptation, habitat, sun's energy, science fair project</p> <p>raise butterflies, farmer visit, care for pollinator garden</p> <p>use microscope to study pond organisms</p> <p>make solar oven, cook</p> <p>Washington Youth Garden</p>
Grade 2	<p>weather patterns, organism survival in habitats, biodiversity</p> <p>grow native plants for pond, wetland area</p> <p>biodiversity plant survey, track weather in garden/monarch tracking project</p> <p>plant fruit trees, Washington Youth Garden</p>
Grade 3	<p>plant and animal classification, nutrition, energy cycle</p> <p>organize and create vegetable planting plan using measurement and fractions</p> <p>track tadpole to frog growth in wetland</p> <p>create presentation on healthy foods growing in garden</p> <p>collect school recycling</p> <p>CanoeMobile, Anacostia Watershed boat trip</p> <p>national park trip, Wilderness Inquiry, National Park Trust</p>
Grade 4	<p>solar energy, geology, energy cycles</p> <p>care for herb garden, make products from herbs</p> <p>visiting geologist, solar energy science projects</p> <p>compost</p> <p>CanoeMobile, C&O Canal</p> <p>SweetGreen farm, SweetGreen store</p> <p>national park trip, Wilderness Inquiry, National Park Trust</p> <p>Anacostia Watershed Society, Living Classrooms</p> <p>SweetGreen, Lightbox Solar</p>

Grade 5	water cycle, cells, energy cycles care for rain garden, solar energy science projects view plant cells with microscope, dissect owl pellets camping trip/watershed experience Anacostia Environmental Youth Summit NatureBridge/Alice Waters Foundation, LightBox Solar
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Whole School Initiatives	Earth Day Celebration Wellness Fair Healthy Schools Week Riversmart Grant projects
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Tyler ES

Grade Level	Project
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Pre-K 3 / Pre-K 4	Recycling w/ DGS & PLT Local Fruit Tree Identification Tree study- (PLT and FoodPrints) Let's Eat Workshop by Kaiser Permanente Seasonality (FoodPrints) Plant Care (FoodPrints) Local Foods- making apple sauce with local apples (FoodPrints) Animal Study- Zoo Field Trip
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Kindergarten	Living Things-What do they need to survive and grow (FoodPrints-sun, soil, seasons affect plant growth) Life Cycle of the Butterfly-Milkweed Butterfly Garden (planting, selling plants FoodPrints)
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Grade 1	Worm Composting Bin (FoodPrints) Habitats and care of animals (Field Trip to the Nat'l Zoo) Preservation of Environment-National Mall/Park Rangers Visit and Field Trip Designing a Model Membrane- Frog Membrane and Environment Study (Cornerstone)
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Grade 2	Changing Landscapes/Plants and Animals supporting each other/Pollinator Garden (FoodPrints/Cornerstone)
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Grade 3	Environmental Changes and Adaptations- Climate Change/Environmental Change (FoodPrints) Seed Saving/Starting (FoodPrints) Observational School Garden Plant Drawings (FoodPrints)
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Grade 4	Watershed and Aquatic Wildlife Field Trip with Anacostia Watershed Society Recycled Art-Earth Day Art Project (Ms. Swift-art teacher) Companion Plant/3 Sisters Garden (FoodPrints)
Grade 5	Stewardship of the natural resources in the Potomac River (Hard Bargain Farm Environmental Center) Over Night Field Trip Outdoor Living Classrooms- Camp Frasier Apple Tree Grafting (FoodPrints) Animal/Plant relationships- Introducing Ladybugs to the Garden (FoodPrints)
Whole School Initiatives	Paper Recycling (Earth Day Kick Off) School Lunch Composting (Start with PK-K) Surplus Fruit Give Away (Afterschool)

**Van Ness ES
Grade Level**

Project

Pre-K 3	Classroom Recycling and Organic Composting Revolution Foods Nutrition Demos/Eating the Rainbow
Pre-K 4	Classroom Recycling and Organic Composting Revolution Foods Nutrition Demos/Eating the Rainbow DC Reduce First Challenge
Kindergarten	Classroom Recycling and Organic Composting Revolution Food Demos/Eating the Rainbow SweetGreens Partnership
Whole School Initiatives	<ul style="list-style-type: none"> • DCPS Recycles Right! Competition • DC Reduce First Challenge • Classroom Recycling/Organic Composting • Create/build a School Garden Program • Create a Garden Committee • Partnership with Project Learning Tree Grant (\$1000.00 to do action research or field trip). • Van Ness ES slated to be host school for Project Learning Tree Teacher Meetups. • Van Ness Wellness Council (Plan 2 events) • OSSE School Garden Grant Recipient

Watkins ES
Grade Level

Project

Grade 1

Botanical Gardens-Habitats (Fall)
Breyhead Farm-Habitats (Fall), Bee Life Cycle (stations in class)
Port Discovery-Spring
Objects in the Sky
FoodPrints• Fall Garden Exploration and Introduction to Cooking

- Leaves We Eat: Making Comparisons
- Winter Salads: Roots, Fruits and Hearty Leaves
- Native Americans and Native Foods: The Three Sisters Garden – Corn, Beans, and Squash/Companion planting
- We Eat Different Parts of Different Plants
- Early Spring Garden Observation and Radish Harvest
- Spring Garden Harvest and Summer Garden Preparation

Grade 2

Plant Life Cycles with Brassica Rapa
Designing a Hand Pollinator
Classroom observations of different plant and flower types
Botanical Gardens-Plant types
Zoo-animal types
Kenilworth Aquatic Gardens-explore a local waterway
Greenmeadows Farm Field Trip
Spring: Trash Clean Up and Neighborhood Survey

- Scientific Observation of Plants and Introduction to Cooking
- What is Soil?
- Decomposition and Microorganisms
- World Cuisine and Family Food Traditions/Foods Eaten Round the World: Rice, Bread, Soup, Noodles
- Growing and Eating Beans : Predicting, Graphing, Measuring, Sequencing
- Making Food Choices: Exploring the power of food choices on our health and the impact of media influences on those choices
- Seeds, Tubers and Bulbs

Grade 3

Scientific Method in Science Lab Fall Garden Exploration and Introduction to Cooking/Eating a Rainbow of Fruits and Veggies

- Investigating Ingredients In Our Food
- The Importance of Eating Dark Green and Orange Vegetables
- Why Eat Whole Grains? Comparing Whole Grains to Processed Grains
- Nutrient Dense vs. Energy Dense Foods
- Understanding the Impact of Diet on Diabetes and Heart Disease

	<ul style="list-style-type: none"> • Spring Garden Harvest and Summer Garden Preparation
Grade 4	<p>Garden Eco Systems, Decomposition Earth Science focused Science Fair Projects Pollination Raise and Release Ladybug Larvae</p> <p>Anacostia Boat trip with Chesapeake Bay Foundation</p> <ul style="list-style-type: none"> • Soil • Decomposition and Compost • Germination • Photosynthesis • Pollination • Putting It All Together: The Ecosystem of the Vegetable Garden
Grade 5	<p>Debris Day at Kingman Island (Living Classrooms) Design Challenges (PBS) Repurposing Items Mini-Science Fair</p> <p>Funded Meaningful Watershed Education Experience (Fall 2017)</p> <ul style="list-style-type: none"> • Following Directions/ Introduction to Independent Cooking • Math in the kitchen/Scaling recipes up and down • Eating 5 A Day By the Season and Independent Cooking Experience • Foods brought to this country with European Exploration/Colonization: Wheat, Cattle, Apples/Apple Tree Grafting • Foods/plants that came with the Slave Trade/ History of “Soul Food” • Victory gardens and WWII/Rationing, Conservation, and Self-Sufficiency • Math in the garden/Calculating perimeter and area for mulch
Whole School Initiatives	<p>Bike to school day</p>