District of Columbia
Office of the State Superintendent of Education

# 2023 DC ENVIRONMENTAL LITERACY PLAN

Integrating Environmental Education into the K-12 Curriculum

# 2023 DC Environmental Literacy Plan

Prepared by the Office of the State Superintendent of Education
on behalf of the DC Environmental Literacy Plan Workgroup

## Project Lead

Office of the State Superintendent of Education

## Partners

Department of Energy and Environment

District of Columbia Public Schools

District of Columbia Public Charter School Board

District of Columbia State Board of Education

University of the District of Columbia

Department of Parks and Recreation

Department of General Services

Department of Employment Services

See Appendix A for a complete list of collaborators

## Photo Credit

Department of Energy and Environment

# EXECUTIVE SUMMARY

Environmental literacy is defined as the development of knowledge, attitudes and skills necessary to make informed decisions concerning the relationships among natural and urban systems. In the District of Columbia, an environmentally literate person 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.

With the unanimous passage of the Healthy Schools Act of 2010, the Council of the District of Columbia (DC Council) instituted legislation that prioritized the health and wellness of students throughout the District. This legislation was enacted to create a healthy school environment where students can achieve academically and learn healthy personal, nutritional, and physical activity habits, as well as emphasizing that the environment plays a central role in supporting learning outcomes and maintaining life-long healthy behaviors.

The Healthy Schools Act calls for an environmental literacy plan in the District – a roadmap for Districtwide implementation and integration of environmental education into K-12 teaching and learning. This initiative, also supported by the District's Sustainable DC Plan, facilitates the collaboration between key community stakeholders, including District education agencies, public schools in the District, environmental education providers, health advocates and the broader community. The DC Environmental Literacy Plan provides a framework to further guide these efforts and ensure that District students will be prepared to make informed decisions concerning the opportunities and challenges of the 21st century. The Office of the State Superintendent of Education (OSSE) leads this effort and has collaborated with District agencies and community members to update the 2020 DC Environmental Literacy Plan. The plan serves to guide local implementation of regional and national environmental literacy efforts, such as the Chesapeake Bay Watershed Agreement and the US Department of Education's Green Ribbon Schools program. Combined, these initiatives seek to empower future generations to make effective environmental decisions and become caretakers of our shared community.

The DC Environmental Literacy Plan outlines the following objectives and strategies for reaching them:

- All students engage in place-based experiences at every grade level, both in the classroom and outdoors, designed to increase understanding of environmental and sustainability concepts and career pathways.
    1. Identify and promote existing programs of study in schools that integrate environmental literacy components that lead to proficiency in environmental literacy.
    2. Provide students with exposure to green jobs and environmental careers and encourage student participation in these opportunities.
    3. Determine correlations between implementation of school-based programming and standardized assessment performance.
    4. Create opportunities that encourage student voice to demonstrate mastery of environmental literacy concepts that are not test-driven.

- All educators are prepared and equipped with sustained professional development, tools and resources to provide meaningful instruction that continually increases students' grade-appropriate understanding of the environment.
  1. Provide educators with environmental literacy instructional resources aligned with current standards.
  2. Prepare pre-service teachers to be able to teach environmental education and foster environmental literacy.
  3. Provide in-service teachers and community-based educators with workshops about how to teach environmental education and foster environmental literacy.
  4. Provide ongoing support for communities of practice to collaborate, increase capacity, and implement environmental literacy programs at schools.

- All schools provide students with opportunities to learn how campus buildings and grounds impact the environment and human health and how implementing sustainability practices benefits the school community.
  1. Increase the number of schools implementing sustainability best practices.
  2. Integrate school maintenance and facilities managers and/or operations staff into environmental and sustainability strategies to encourage collaboration across school building operations.
  3. Develop communication tools to create and strengthen partnerships between schools and environmental providers.

- All District agency collaborators provide opportunities to teachers, students and schools that support the environmental literacy goal.
  1. Cultivate and foster the knowledge and awareness necessary for the development and implementation of the DC Environmental Literacy Plan at local education agencies (LEAs).
  2. Maintain state infrastructure for the implementation of the DC Environmental Literacy Plan.
  3. Utilize multiple communication platforms to highlight environmental efforts and local environmental education opportunities.
  4. Collaborate on consistent programming with invested partners that support tiered learning opportunities.

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# INTRODUCTION

In response to the growing health, educational and environmental concerns across Washington, DC, the Council of the District of Columbia (DC Council) passed the Healthy Schools Act of 2010 (DC Law 18-209; DC Official Code 38-821.01 *et seq*.), as amended by the Healthy Students Amendment Act of 2018 (DC Law 22-240; DC Official Code 38-821.01 *et seq*.). This legislation seeks to improve the health and wellness of all students attending public schools in the District of Columbia. Specifically, the Healthy Schools Act addresses nutrition, health education, physical education and physical activity, Farm-to-School programs and school gardens. The Healthy Schools Act also acknowledges that creating and sustaining an environmentally friendly school environment and integrating environmental education into the schools' curriculum are essential to the health and wellness of students, as well as the health of the local environment and community.

The Healthy Schools Act includes provisions that incorporate environmental stewardship behaviors (such as recycling and energy reduction) into building practices, meet Leadership in Energy and Environmental Design (LEED) Gold Level certification when renovating or constructing schools, assist schools in receiving Green Ribbon Schools recognition from the US Department of Education and develop an environmental literacy plan for public schools, public charter schools and participating private schools. The Healthy Schools Amendments Act of 2011 (DC Law 19-37; DC Official Code 38-821.01 *et seq*.) clarified the components to be included in the DC Environmental Literacy Plan and added the provision that a draft be submitted to DC Council in June 2012. The Sustainable DC Omnibus Amendment Act of 2014 (DC Law 20-142 DC Official Code 38-821.01 *et seq*.) further amended the Healthy Schools Act by formally adopting the plan and establishing the requirement that the plan be updated every three years. The 2023 DC Environmental Literacy Plan is the third update to the original plan developed in 2012.

## Definition of Environmental Literacy

In August 2011, the DC Environmental Literacy Workgroup[1] developed and adopted the following definition of environmental literacy:

**Environmental literacy is the development of knowledge, attitudes and skills necessary to make informed decisions concerning the relationships among natural and urban systems.**

An environmentally literate person:

- 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.

[1] See Appendix A in the 2012 DC Environmental Literacy Plan for a list of workgroup members

# Elements of a State Environmental Literacy Plan

An environmental literacy plan creates the framework for standards, achievement, professional development, assessment and leadership for individuals and organizations to thrive and achieve innovation in education.

The DC Environmental Literacy Plan describes the following:

- Relevant teaching and learning standards adopted by the District of Columbia State Board of Education;
- Professional development opportunities for teachers;
- Suitable metrics to measure environmental literacy;
- Suitable methods to increase environmental literacy;
- Governmental and nongovernmental entities that can assist schools in the achievement of those goals; and
- A proposed implementation method for the plan.

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

# Broader Perspectives on Environmental Literacy

Across the country, many states are making significant progress in advancing national educational goals by creating and implementing environmental literacy plans to enrich the curriculum with environmental education (Bodor et al., 2020). At the national level, the Every Students Succeeds Act (ESSA) includes language that makes environmental education and environmental literacy programs explicitly eligible for federal funds, specifically in two formula grant programs described in Title IV of the Bill: Student Support and Academic Enrichment and 21st Century Community Learning Centers (NAAEE, 2016). The US Department of Education continues to host the Green Ribbon Schools program – the first comprehensive green schools recognition program at the federal level. Other federal agencies continue to promote programs that encourage access to the outdoors (e.g., US Department of Interior's Every Kid in a Park Initiative for fourth grade students and their families) or provide funding for environmental literacy programs (e.g., National Ocean and Atmospheric Administration's Bay Watershed Education and Training grants, US Environmental Protection Agency's environmental education grants). Several national coalitions have also emerged to support initiatives complementary to environmental literacy, such as the Youth Outdoor Policy Playbook and the National Outdoor Learning Library.

Regional environmental literacy efforts are driven by the Chesapeake Bay Watershed Agreement, which asserts that the long-term success of the Chesapeake Bay restoration efforts depends on the work of individuals and communities living throughout the watershed. The agreement was first signed in 1987 by the mayor of the District of Columbia, the governors of the six states in the Chesapeake Bay watershed, the administrator of the US Environmental Protection Agency and the chair of the Chesapeake Bay Commission. In 2014, the agreement was updated to include the following environmental literacy goal: by 2025, enable students in the region to graduate with the knowledge and skills to act responsibly to protect and restore their local watershed (Chesapeake Bay Program, 2014). This goal is measured via three outcomes: student engagement in meaningful watershed educational experiences, sustainable schools and state-level environmental literacy planning (Ibid.).

# The District's State Environmental Literacy Plan

In the District of Columbia, environmental literacy can be found at the intersections of education, health and environment. In the 2018 Health Equity Report, DC Health identified the outdoor environment and education as two drivers of health outcomes (DC Health, 2019). Released in 2021, the District's updated Comprehensive Plan includes the outdoor environment and education in the following citywide elements: environmental protection; parks, recreation and open space; educational facilities; and infrastructure (Office of Planning, 2021). The District's sustainability plan, Sustainable DC 3.0, which is being drafted at the time of this report's publication, will include updated education targets to be reached by 2032.[2]

The DC Environmental Literacy Plan is the local component for these local, regional and national environmental literacy efforts. The plan serves as a roadmap for Districtwide implementation of the integration of environmental education into K-12 teaching and learning. This initiative facilitates the collaboration between District agencies, environmental education providers, health advocates, LEAs and public schools in the District, to implement a comprehensive and aligned vision for environmental literacy. The DC Environmental Literacy Plan provides a framework to further guide these efforts and ensure that students attending school in the District have meaningful environmental education experiences and are well prepared to make informed, responsible decisions about the environment.

# 2023 Environmental Literacy Plan Goal and Objectives

The DC Environmental Literacy Plan consists of required elements listed in the Healthy Schools Act and the NAAEE guidelines. In February 2023, all action items from the 2020 plan were reviewed by community members in attendance at a DC Environmental Education Consortium meeting and through one-on-one meetings with District agency representatives. In April 2023, the DC Environmental Literacy Plan Workgroup began reviewing community input and further revised and updated plan elements to reflect changes in the District's educational and environmental landscape. Table 1 describes the connections between the required elements of the environmental literacy plan and where they can be found within the 2023 plan.

**Goal: All District students graduate with the knowledge, attitudes and skills to make informed decisions and take actions that impact the community and environmental systems.**

- Student Objective: All students engage in place-based experiences at every grade level, both in the classroom and outdoors, designed to increase understanding of environmental and sustainability concepts and career pathways.
- Educator Objective: All educators are prepared and equipped with sustained professional development, tools and resources to provide meaningful instruction that continually increases students' grade-appropriate understanding of the environment.

[2] The current sustainability plan can be found at sustainable.dc.gov, where Sustainable DC 3.0 will be published.

- School Objective: All schools provide students with opportunities to learn how campus buildings and grounds impact the environment and human health and how implementing sustainability practices benefits the school community.
- District Agency Collaborator Objective: All District agency collaborators provide opportunities to teachers, students and schools that support the environmental literacy goal.

## Table 1. Crosswalk of Environmental Literacy Plan (ELP) Elements

| Healthy Schools Act Required Element | NAAEE State ELP Component | 2023 ELP Section |
|---|---|---|
| Relevant teaching and learning standards adopted by the State Board of Education | Specific content standards, content areas, and courses or subjects where instruction will take place | • Students<br>• Educators<br>• Appendix D |
| Professional development opportunities for teachers | A description of programs for the professional development of teachers | • Educators<br>• Appendix C |
| Suitable metrics to measure environmental literacy | A description of how the state education agency will measure the environmental literacy of students | • Students<br>• District Agency Collaborators |
| Suitable methods to increase environmental literacy | A description of how state high school graduation requirements will ensure that graduates are environmentally literate | • Students<br>• Schools<br>• District Agency Collaborators |
| Governmental and non-governmental entities that can assist schools | *No relevant NAAEE Component* | • District Agency Collaborators<br>• Appendix C |
| Implementation of the Plan | A description of how the state education agency will implement the plan | • District Agency Collaborators |

Each objective is detailed in a section and below, which include the following components:

- Background and Rationale: Research that justifies the need for these environmental literacy initiatives.
- Local Context: A snapshot of "where we are" in the District regarding the environmental literacy objective.
- Status: Progress that has been made toward the objective since the first DC Environmental Literacy Plan.
- Strategies and Action Items: A table describing what the District will aim to accomplish in the next three years.

The following District agencies and organizations will lead or partner to implement the action items found in the plan.

- Department of Energy and Environment (DOEE)
  - Aquatic Resources Education Center (AREC)
  - Operations Services Administration (OSA)
  - Urban Sustainability Administration (USA)
  - Watershed Protection Division (WPD)

- District of Columbia Public Schools (DCPS)
  - Office of Teaching and Learning
  - Office of the Chief Operation Officer (DCPS Ops)

- Charter School Local Education Agencies (LEAs) and Participating Private Schools

- Office of the State Superintendent of Education (OSSE)
  - Office of Career Technical Education (CTE)
  - Division of Data, Accountability and Research (DAR)
  - Division of Health and Wellness (H&W)
  - Division of Teaching and Learning (TAL)

- DC State Board of Education (SBOE)

- University of the District of Columbia (UDC)
  - College of Agriculture, Urban Sustainability and Environmental Sciences

- Department of Parks and Recreation (DPR)
  - Division of Environment and the Great Outdoors

- Department of General Services (DGS)
  - Sustainability and Energy Division

# STUDENTS

## Objective and Strategies

- All students engage in place-based experiences at every grade level, both in the classroom and outdoors, designed to increase understanding of environmental and sustainability concepts and career pathways.
  1. Identify and promote existing programs of study in schools that integrate environmental literacy components that lead to proficiency in environmental literacy.
  2. Provide students with exposure to green jobs and environmental careers and encourage student participation in these opportunities.
  3. Determine correlations between implementation of school-based programming and standardized assessment performance.
  4. Create opportunities that encourage student voice to demonstrate mastery of environmental literacy concepts that are not test-driven.

## Background and Rationale

Numerous studies have shown positive links between environmental literacy, classroom performance, and academic achievement. A research brief by Collins et al. (2020) describes the following impacts of environmental education on students:

- Participation in informal environmental and outdoor science education programs results in positive cognitive/academic, dispositional, social-emotional and health outcomes.
- Numerous physical and mental health benefits accrue from spending time in the outdoors, such as reduced stress and loneliness, and increased physical activity and resilience.
- Learners understand the impact of human activities on individual species and ecological systems firsthand through experiential activities, improving their knowledge, awareness, motivation and critical thinking about climate change. These changed dispositions may translate into behavioral changes related to environmental stewardship and responsibility.

In March 2023, Gallup's annual environment poll indicated that more Americans chose the environment (52 percent) than economic growth (43 percent) when asked which of the two should be given priority (Gallup, 2023). Young people also demonstrate similar environmental concerns. In November 2022, the EdWeek Research Center shared findings from a nationwide survey of adolescents that 65 percent said they want to learn more about how climate change will affect the future of the Earth and society and about half said they want to learn what they can do personally to lessen the effects of climate change and to better understand the science behind it (Will and Prothero, 2022).

At the national level, since the introduction of the College Board's Advanced Placement (AP) Environmental Science Exam in 1996, the number of students taking this exam nationwide has grown significantly from 5,186 in 1996 to 209,739 in 2023 (College Board, 2023). However, students' scores in Environmental Science remain one of the lowest when compared to the other 12 AP Science, Technology, Engineering and Math (STEM) subject exams (College Board,

2023). In 2023, just over half of students (54 percent) received a score of 3 or higher, which would allow them to receive college credit. Within DCPS, the number of students who have taken the exam has more than doubled, from 248 students in 2019 to 708 students in 2023. Forty-six percent of DCPS students received a score of 3 or higher, up three percent since 2019 (DCPS, 2023a).

According to the Education Commission of the States (ECS, 2023), several states have environmental literacy embedded into high school graduation requirements:

- Maryland requires the completion of a locally designed, state-approved high school program of environmental literacy;
- North Carolina requires one high school course in earth/environmental science; and
- Pennsylvania requires demonstrated proficiency in the state's ecology and environment standards.

In 2020, New Jersey became the first state to adopt learning standards that require climate change to be taught across grade levels and subject areas; Connecticut also passed climate standards that took effect in July 2023 (Leonard, 2023). These standards show climate change as a cross-cutting concept between academic disciplines and the importance of preparing students to make informed decisions that have local and global environmental implications.

The following section describes how the District embeds environmental literacy in student learning experiences.

# Local Context

According to the 2014 Chesapeake Bay Watershed Agreement, "the public will be called upon to understand complex environmental issues and be aware of the environmental effects that individual decisions can have on local and global scales." As a signatory of the Chesapeake Bay Watershed Agreement, the District committed to work toward the regional Environmental Literacy Goal, which includes three outcome areas addressing students, sustainable schools, and environmental literacy planning. The student outcome calls upon jurisdictions to "continually increase students' age-appropriate understanding of the watershed through participation in teacher-supported, meaningful watershed educational experiences and rigorous, inquiry-based instruction, with a target of at least one meaningful watershed educational experience in elementary, middle and high school depending on available resources" (Chesapeake Bay Program, 2014).

Initially published in 2013, Sustainable DC is the 20-year plan to make the District of Columbia the healthiest, greenest, and most livable city in the nation. As of this plan's release, the District is drafting Sustainable DC 3.0, which will include the goal to ensure that every student in the District graduates with the knowledge to protect and restore their local environment and actions to achieve the target of 100 percent of schools offering environmental education programming by 2032 (DOEE, 2023a).

In the District, educational standards and graduation requirements are approved by the DC State Board of Education. In December 2013, the District adopted the Next Generation Science Standards (NGSS). Based on the National Research Council's *Framework for K-12 Science Education,* the NGSS reflects the integration of science and engineering content and application as it is practiced in the real world (NGSS, 2013). These standards emphasize understanding human impact on the Earth and explaining the complex interactions among all living things and the environment. Science

instruction based on NGSS encourages students to explore natural phenomena, conduct investigations and utilize technology through real-world contexts for learning.

The science standards are strong in emphasizing local, relevant applications to science content, and it is important that students have access to high quality science instruction. To support implementation of the NGSS, the Environmental Literacy Framework provides guidance and suggestions for incorporating environmental concepts into every grade level. Most environmental literacy instruction takes place in science, but environmental literacy can also be integrated in other subject areas, such as social studies and art, and through school-wide recycling and food waste reduction initiatives, school garden programs, campaigns to decrease energy and water usage, and special events (e.g., Earth Day celebrations, Arbor Day celebrations, poster competitions).

In high school, District students may study environmental issues via two of the graduation requirements needed to obtain a high school diploma in the District of Columbia Public Education System – four units of science (including biology, two lab sciences and one other science) and 100 community service hours (OSSE, 2023a).[3] All course offerings and curriculum decisions are made at the LEA level. Currently, 15 DCPS high schools and 12 public charter high schools offer AP or the standard environmental science course. During the 2022-23 school year, these courses reached approximately 2,277 students (OSSE, 2023b).

For DCPS students in kindergarten through grade 2, social studies and science are scheduled for 40 minutes a day for the equivalent of at least one semester. To ensure continuity of learning and alignment with English language arts (ELA) unit themes, principals are strongly encouraged to schedule these subjects every other day. In grades 3-5, social studies and science is scheduled for 30 minutes each day. The DCPS Office of Teaching & Learning has published guidance for teachers on how to best align content from the ELA, social studies and science curricula. Public charter schools have autonomy to develop their own schedules and minutes for science instruction varies across public charter schools. Since frequency and duration of science instruction is not yet tracked DCPS-wide at elementary schools, data are not available to determine the amount of science instruction taking place at elementary schools. At some elementary schools, a principal chooses to hire a dedicated science resource teacher to teach science once a week for 45-60 minutes, while in other elementary schools, science is taught by the grade-level teacher, and the subject may not have dedicated time in the teaching schedule. DCPS middle school students must receive 120 hours of science instruction annually. DCPS principals work with instructional superintendents to ensure these requirements are met (DCPS, 2023b).

In 2019, the District introduced a rigorous, high quality science assessment, the “DC Science Assessment.” The DC Science Assessment, which helps identify trends or gaps and inform instructional development related to environmental literacy, uses interrelated questions to assess students’ mastery of the NGSS. As seen in Table 2, the DC Science Assessment includes environment-based scenarios around which the item clusters are based.

[3] Section 2203.3 of the District of Columbia Municipal Regulations (DCMR) Title 5-E, Chapter 22 (5-E 22 DCMR § 2203).

# Table 2. DC Science Assessment Practice Item Scenarios and Environmental Content Correlations

| Grade and Practice Item Scenario | Standards Covered in Practice Items |
|---|---|
| **Grade 5**<br>A class goes on a school trip to learn about the types of organisms that live in a local river. They work in groups and use nets to collect organisms out of the river.<br><br>A student is walking and sees acorns all over the sidewalk. The student learns that factors in both the living and non-living environment can affect the acorn mast year to year.<br><br>A student reads about growing plants in water with no soil. The student's teacher tells the student that fish can be raised using the same water in which aquatic plants grow. | • 3-LS1-1<br>• 3-LS3-1<br>• 5-LS1-1<br><br>• 5-PS3-1<br><br>• 5-ESS2-1<br>• 5-ESS2-2 |
| **Grade 8**<br>Students hear about a spearfishing tournament where the top prize is awarded to the team who brings back the most lionfish. They learn that lionfish are native to the Pacific and Indian Oceans and had not been seen in the Atlantic Ocean or the Gulf of Mexico at all until 1980. The lionfish population in the Atlantic Ocean has greatly increased since 2010.<br><br>A student finds a rock and shows it to his teacher, who says it contains phosphate. The teacher explains that rocks containing phosphate are mined and broken down for use in fertilizers.<br><br>Some students are visiting a coral reef off the coast of Florida. After conducting research, the students describe interactions in the reef ecosystem. They also learn that water temperature influences the ecosystem. | • MS-LS2-2<br>• MS-LS2-5<br><br>• MS-ESS2-4<br>• MS-ESS3-1<br><br>• MS-LS2-1<br>• MS-LS2-3 |
| **High School Biology**<br>A researcher investigating cattle in the Blue Mountains of Oregon observes the cattle drinking water from a local stream. The activity of the cattle muddies the water in the stream. After the cattle depart, the researcher finds that they have trampled and destroyed several fish eggs, which turn out to be from trout and salmon species listed as "threatened" under the Endangered Species Act.<br><br>Scientists have observed a decrease in dissolved oxygen levels and a decrease in the level of light in the water in the pond. This seems to be happening because the water is cloudy. They conducted two experiments to test the responses of a local species of pondweed (an aquatic plant) to these changing conditions. | • HS-ETS1-4<br>• HS-LS4-6<br><br>• HS-LS2-3<br>• HS-LS2-5 |

Source: DC Science Assessment Practice Tests (OSSE, 2023c)

Due to the COVID-19 pandemic, the DC Science Assessment was administered for the second time in 2022. Figure 1 shows the percentages of students in different categories of proficiency. As seen in Figure 2, overall science proficiency decreased when comparing 2019 results with 2022, similar to lower scores experienced across the nation in the wake of the pandemic. All student groups saw declines, with the largest decrease in high school biology (OSSE, 2022a).

Figure 1. 2022 State Results for DC Science

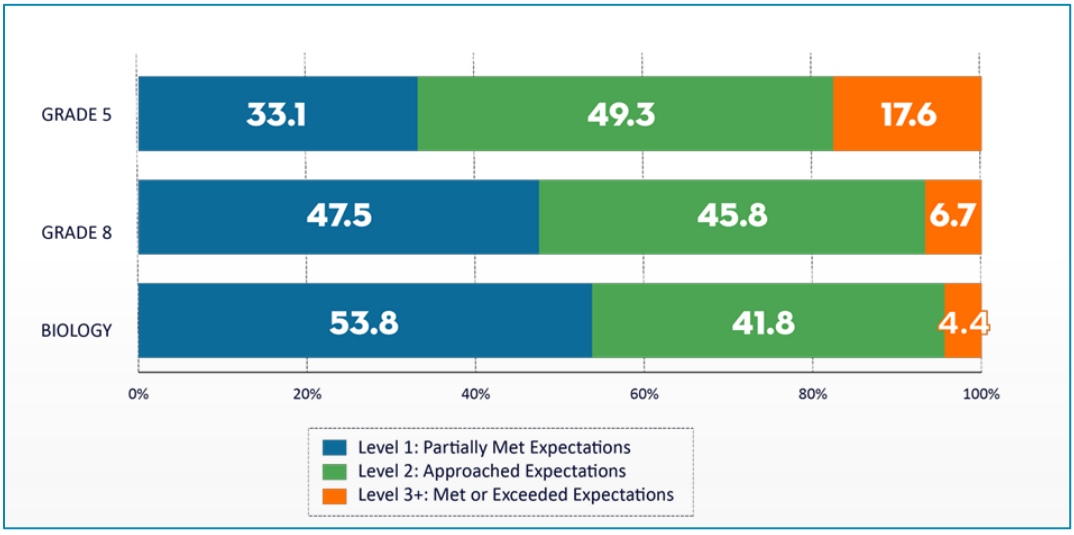
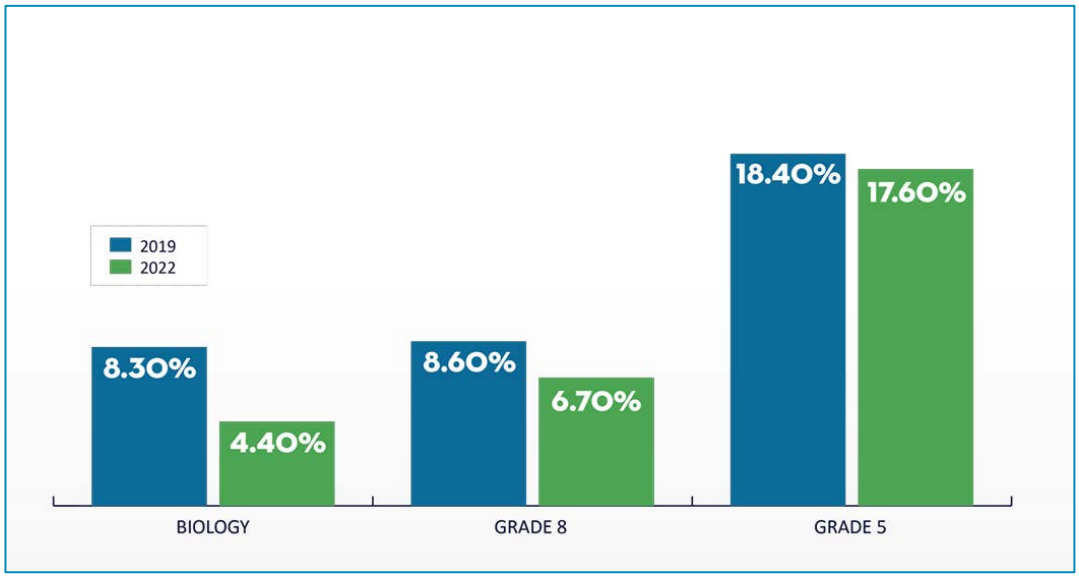



Figure 2. Comparison of science proficiency between 2019 and 2022 DC Science administrations



# Status

OSSE began tracking school engagement in environmental literacy in 2015 through data collected via the School Health Profile (SHP) and other agency programs. Table 3 shows the number of schools reporting participation in environmental literacy (OSSE, 2023d).[4]

## Table 3. Numbers of Schools Reporting Participation in Environmental Literacy (2015-2022)

| Number of Schools | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|
| # Reported in School Health Profile only (percent of total schools) | 46 (22%) | 43 (19%) | 68 (30%) | 59 (28%) | 105 (47%) | 99 (45%) | n/a[5] | 56 (25%) |
| # Reported via SHP and other agency programs (percent of total schools) | 154 (73%) | 172 (78%) | 212 (93%) | 203 (97%) | 204 (92%) | 201 (91%) | n/a | 195 (86%) |

Established in 2013, the Overnight Meaningful Watershed Educational Experience is a District-wide program for fifth grade students funded by the Department of Energy and Environment (DOEE). During the 2020-21 and 2021-22 school years, the program was replaced with Nature Near Schools, an upper elementary program that emphasized the schoolyard and local environment as the context for learning about watersheds. In November 2023, DOEE awarded a new grant to select community organizations that will provide both overnight experiences for fifth grade students and Nature Near Schools programming for fourth grade students, beginning in late 2023 (Peters, 2023).

Since 2015, DCPS has offered Cornerstones, a program providing all grades at least one signature experience in each content area, several of which center around an environmental problem or context for learning. For example, in the Cornerstone *Get with the Flow: What is your Water Footprint?,* fifth grade students will learn how their day-to-day decisions and water consumption habits impact the world and its climate. DCPS continues to promote Cornerstones, though implementation varies across the schools. Charter school LEAs that practice the expeditionary learning model often include expeditions that focus on local environmental themes. Elementary schools that have participated in OSSE's

[4] Source: osse.dc.gov/service/healthy-schools-act-yearly-reports. Note that in 2017, OSSE's environmental literacy program began including data collected regarding whether schools participated in walk/bike to school or Safe Routes to Schools

[5] The School Health Profiles data collection was cancelled during school year 2020-21 due to the operational challenges presented by the coronavirus (COVID-19) public health emergency.

Environmental Literacy Leadership Cadre have used the Environmental Literacy Framework to develop a continuum of learning that includes an environmental experience at every grade level within their school.

Student exposure to environmental science and environmental careers can be fostered by increasing the number of programs of study, courses and work-based learning experiences offered at every high school, such as AP Environmental Science courses; adding more environmental/engineering programs of study through Career and Technical Education (CTE); and work-based and service-learning opportunities, including integrating environmental placements in the CTE Advanced Internship Program. Currently, some District schools offer CTE high school programs of study in energy and natural resources, horticulture science and engineering with an environmental sustainability pathway. Students may also participate in the Career Ready Internship program in the summer. In addition, some District middle schools offer CTE programs in green architecture; urban agriculture; and agriculture, food and natural resources (OSSE, 2023e). As OSSE is drafting this report, OSSE is simultaneously drafting the DC Career and Technical Education State Plan for 2024-2028, which will provide an opportunity to integrate environmental sustainability in CTE offerings. At the University of the District of Columbia, urban sustainability is one of the eligible degree programs for which the District has offered scholarships (UDC, 2023).

Outside of instructional time, District youth can still learn about the environment through summer employment opportunities and volunteer activities. DOEE hosts the Green Zone Employment Program, which is a subset of the Marion Barry Summer Youth Employment Program (MBSYEP) that places young adults and high school students in private, nonprofit and governmental jobs. In 2023, DOEE worked with 175 youth, with participants receiving approximately 48 hours of exposure to environmental careers through the program. Other environmental nonprofits and businesses have hosted MBSYEP participants. The Department of Parks and Recreation, the University of the District of Columbia, as well as many environmental organizations in the District currently provide meaningful volunteer opportunities to District youth to help fulfill the District's community service graduation requirement.

These creative approaches to exposing students to environmental science are important, since environmental science jobs are expected to grow by 6 percent from 2022-32, faster than the average for all occupations (Bureau of Labor Statistics, 2023). Many jobs in the coming decades will have a climate component, whether in the field of finance, medicine, agriculture, accounting, or policy (Weise, 2023). By offering a multitude of engagement opportunities of varying degrees and depth, students will be better prepared for the demands of the growing green economy.

The following section outlines the strategies the District will use over the next three years to achieve the DC Environmental Literacy Plan's Student Objective. In Table 4, the strategies are further broken down into action items, which include concrete contributions from District agencies to the pursuit of this common goal.

# Strategies to Achieve the Student Objective

**All students engage in place-based experiences at every grade level, both in the classroom and outdoors, designed to increase understanding of environmental and sustainability concepts and career pathways.**

## Table 4. Student Objective Strategies and Action Items

| Strategy | Action Item | **Lead** Partner |
|---|---|---|
| ST1. Identify and promote existing programs of study in schools that integrate environmental literacy components that lead to proficiency in environmental literacy | a. Encourage all District high schools to offer an environmental science course (or similar course, such as urban ecology) and track student enrollment through OSSE's course code collection system | **DCPS**<br>**Charter LEAs**<br>OSSE |
| | b. Develop and promote course pathways to include environmental science as a recommended high school course to increase student enrollment in environmental science | **DCPS**<br>**Charter LEAs** |
| | c. Develop and pilot an environmental-themed instructional sequence for high school biology | **DCPS**<br>**Charter LEAs**<br>OSSE H&W<br>OSSE TAL |
| | d. Increase the number of students engaged in high quality, hands-on, real world learning experiences, such as school garden programs, DCPS environmental science-based Cornerstones, or outdoor learning experiences | **DCPS**<br>**Charter LEAs**<br>OSSE H&W<br>UDC Food Hubs |
| | e. Increase enrollment in local environmental degree programs and green workforce training by continuing and promoting opportunities that decrease financial barriers | **UDC**<br>DOEE<br>OSSE |

| Strategy | Action Item | Lead Partner |
|---|---|---|
| ST2. Provide students with exposure to green jobs and environmental careers and encourage student participation in these opportunities | a. Provide at least 300 students per year in District summer employment programs (such as DOEE's Green Zone Environmental Program or other Summer Youth Employment Programs) with exposure (minimum of one day) to environmental careers | **DOEE OSA**<br>DOES<br>DPR<br>UDC |
| | b. Support the development of aligned CTE programs to increase students' participation in work-based learning, internships, certifications, postsecondary attainment and careers in environmental studies | **OSSE CTE**<br>DCPS<br>Charter LEAs |
| | c. Host opportunities for students to increase awareness of environmental careers (e.g., DPR Youth Summit, CTE Career Ready Internship Program, or CTE Advanced Internship Program) | **DPR**<br>**DOEE**<br>**OSSE CTE** |
| | d. Support the DC Career and Technical Student Organizations State Leadership Conference to recruit students and employers for school and summer programs and engage with environmental professionals | **OSSE CTE** |
| ST3. Determine correlations between implementation of school-based programming and standardized assessment performance | a. Map data between environmental literacy program participation and statewide assessment results to determine how environmental literacy affects assessment outcomes to identify trends or gaps and inform future work | **OSSE DAR**<br>OSSE H&W |
| | b. Continue to align environmental literacy efforts with science assessment item development through OSSE internal team review and assessment items and specifications | **OSSE DAR**<br>OSSE H&W |
| ST4. Create opportunities that encourage student voice to demonstrate mastery of environmental literacy concepts that are not test-driven | a. Develop recognition for student participation and engagement in environmental projects, such as a capstone or science fair project, portfolio, action project or school environmental competition, and provide a District-wide showcase for student presentations | **DOEE WPD**<br>**OSSE TAL**<br>DOEE USA<br>OSSE H&W |
| | b. Catalog efforts and utilize communication outlets to promote and recognize student achievements, such as newsletters and social media | **DCPS**<br>**Charter LEAs**<br>**DOEE USA** |
| | c. Analyze the implementation and results of meaningful watershed educational experiences in other state/jurisdictions to determine best practices and applications for the District | **OSSE H&W**<br>DOEE WPD |

# EDUCATORS

## Objective and Strategies

- All educators are prepared and equipped with sustained professional development, tools and resources to provide meaningful instruction that continually increases students' grade-appropriate understanding of the environment.
    1. Provide educators with environmental literacy instructional resources aligned with current standards.
    2. Prepare pre-service teachers to be able to teach environmental education and foster environmental literacy.
    3. Provide in-service teachers and community-based educators with workshops about how to teach environmental education and foster environmental literacy.
    4. Provide ongoing support for communities of practice to collaborate and increase capacity and implement environmental literacy programs at schools.

## Background and Rationale

Research continues to indicate that environmental education improves learning in other subjects. For the past 20 years, studies conducted by the State Environmental Education Roundtable (SEER) have shown that environment-based programs have positive effects on student achievement, classroom discipline and student attendance (SEER, 2014). According to a literature review of 119 peer-reviewed studies published from 1994-2013, environmental education has resulted in empirically measured positive outcomes for K-12 students, including: improving academic performance, enhancing critical thinking skills, increasing civic engagement, fostering positive environmental behaviors and developing personal growth and life-building skills including confidence, autonomy and leadership (Ardoin et al., 2018).

According to the report *Environmental Literacy in the United States* (2015), teachers who may have little or no exposure to, or interest in, environmental topics are often called upon to teach about the environment and sustainability in their classroom. The report further suggests that from 2005-15, there have not been large advances in preparing classroom teachers as environmental educators (National Environmental Education Foundation, 2015). A study by Ruskey, Wilke and Beasley (2001) found that although more than half of the teachers surveyed report teaching environmental subjects, only 10 percent of teachers have had specific training on environmental education teaching methods and only one in four has taken any environmental science or related courses.

## Local Context

A survey of teachers conducted by the DC Environmental Education Consortium in 2011 revealed barriers to participating in environmental education included lack of principal support, scheduling conflicts, and the lower priority placed on environmental education compared to reading and mathematics. A survey conducted across 12 states by Chapman (2014) supports the DC Environmental Education Consortium's finding, noting similar challenges, including teacher workload, lack of funding, and time constraints. Many teachers anecdotally report that these barriers still exist today.

To address some of these barriers, teacher resources that show how environmental literacy is connected to the District's learning standards must be readily available and easily accessible. Created in 2014, the Environmental Literacy Framework is a key guidance document that depicts how the local environment in Washington, DC, can be the context through which the NGSS can be taught (see Appendix D). Using the framework as a starting point, the District continues to collaborate across OSSE's NGSS and environmental literacy implementation initiatives to coordinate efforts and leverage resources, while increasing access to resources for both teachers and external environmental education providers. The framework has been used to guide the creation of NGSS-aligned curricular units and instructional sequences, environmental literacy grant requirements and school-based environmental literacy programs. In 2019, OSSE released updated Early Learning Standards, which include more robust, age-appropriate science components that are NGSS-aligned (OSSE, 2019). One of the guiding principles in the development of the District's new social studies standards was framing knowledge around environmental literacy, calling for students to develop skills to investigate the causes and the consequences of society's impact on the environment and resolve challenges related to equitable access to natural resources (SBOE, 2020). Adopted in 2023, the updated social studies standards include Human-Environment Interaction as one of the Statements of Practice for Social Studies, the core knowledge and skills embedded throughout K-12. Students will analyze different environments and the ways that societies have interacted with them. Students will also analyze the effects of those interactions and attempts people have made to minimize or mitigate environmental damage. In addition, students will analyze multiple perspectives on historical and contemporary environmental issues and propose solutions to current environmental problems, including climate change (OSSE, 2023f). The new social studies standards will be implemented beginning in the 2024-25 school year.

On-going professional development is a key component to facilitate effective teaching of environmental content. Of the 14 institutions or organizations with state-approved educator preparation programs (EPPs), two offer middle school general science and six offer secondary (high) school science or general science to pre-service teachers. None of the District's EPPs offer an environmental science program (OSSE, 2022b). For current teachers who hold an OSSE credential, one component for renewal is the completion of a minimum of 120 professional learning units (PLUs, equivalent to clock hours of professional development activities), with a minimum of 60 PLUs directly related to the area of the credential being renewed (OSSE, 2023g).

In the District, OSSE does not require a single, centralized approach to professional development. OSSE offers professional opportunities that are system-wide (available to early childhood educators, DCPS and public charter school teachers) with varying degrees of length and duration. Examples include OSSE's environmental workshops for early educators, school garden trainings and more. For educators interested in acquiring PLUs or other training, workshops and sessions are publicized in OSSE's Teaching and Learning Professional Development bulletin, Learning Management System, and other communication channels.

LEAs have autonomy to provide system-wide professional development opportunities to prepare teachers and build confidence in teaching about the environment. For teacher professional development, DCPS hosts half-day sessions, which may include opportunities for partner organizations to offer elementary science sessions with environmental themes. Professional development is not coordinated across all charter schools, and each charter LEA is responsible for its educators' own professional development.

A wide range of training and resources is offered by District agencies and community organizations. Many of the environmental professional development opportunities provided by District agencies and nonprofit organizations qualify for PLUs. DOEE serves as state coordinator for educator training in Project WILD and offers free professional

development in the national environmental education curricula Project WILD, Aquatic WILD and Growing Up WILD. DPR, DGS and UDC also provide environmental training for teachers and other school staff.

# Status

Various environmental education initiatives have provided teachers a platform for creating peer-developed resources that showcase ways to integrate curriculum content with real-world challenges. OSSE has capitalized on local teacher expertise via summer institutes and the Environmental Literacy Leadership Cadre to create the Environmental Literacy Framework, environmental literacy guides for elementary teachers and high school instructional sequences (OSSE, 2023h). Prior to the COVID-19 pandemic, the District's Department of General Services (DGS) hosted the Recycle Right and Reduce First competitions, which focused on waste reduction. District teachers also developed curricular materials to complement the competitions (DGS, 2023a). Many organizations offer standards-based resources to assist District schools with integrating environmental literacy into a school's individual curriculum. OSSE has compiled a directory of environmental organizations that provide these resources (see Appendix C).

DCPS and public charter schools leverage curricular supports and programs to support environmental literacy. DCPS develops scope and sequence documents for each grade and subject area. These documents establish consistency of instruction throughout DCPS—in different grade levels and subject areas—by providing clear guidance on what teachers should teach and when they should teach it. DCPS revised its high school environmental science course scope and sequence in 2022 to include local content and resources where available. Beginning in the 2023-24 school year, all DCPS middle school science teachers began the transition to using the science curriculum Amplify, starting with sixth grade and adding a grade level each year. Amplify's units of study include the Earth's changing climate (grade 6 earth science), interdependent relationships in ecosystems (grade 7 life science) and energy (grade 8 physical science). Elementary teachers, and all grades not using Amplify, continue to have access to STEMscopes, which has NGSS-aligned resources and includes environmental content where applicable (DCPS, 2023c). DCPS also continues to encourage teaching Cornerstone units, some of which include environmental content and concepts. Launched in the 2015-16 school year, this program facilitates system-wide learning experiences for all students at every school, embedded in all curricular subject areas (DCPS, 2023d). Public charter schools have exclusive control over their curricula and educational programs. Some public charter schools, particularly those that employ the expeditionary learning model or the international baccalaureate program, choose to weave environmental education into their individual curricular offerings.

In 2023, 31 organizations provided professional development for District teachers in areas that support environmental literacy, such as air quality, water and resource conservation. These opportunities may be offered by one organization or in collaboration with other nonprofits. A listing of organizations offering resources or training can be found in Appendix C. OSSE also hosts communities of practice, such as the Environmental Literacy Leadership Cadre and outdoor learning gatherings, for those educators interested in diving deeper into implementation at their individual schools. Similarly, teachers participating in DOEE's RiverSmart Schools training form a team to connect outdoor classroom spaces constructed to manage stormwater into lessons about related topics such as the water cycle, ecosystems and human impacts on the environment.

The following section outlines the strategies the District will use over the next three years to achieve the DC Environmental Literacy Plan's Educator Objective. In Table 5, the strategies are further broken down into action items, which include concrete contributions from District agencies to the pursuit of this common goal.

# Strategies to Achieve the Educator Objective

**All educators are prepared and equipped with sustained professional development, tools and resources to provide meaningful instruction that continually increases students' grade-appropriate understanding of the environment.**

## Table 5. Educator Strategies and Action Items

| Strategy | Action Item | **Lead**<br>Partner |
|---|---|---|
| ED1. Provide educators with environmental literacy instructional resources aligned with current standards | a. Create a crosswalk document that identifies Early Learning Standards and Social Studies Standards that include environmental literacy concepts and outdoor learning opportunities | **OSSE H&W**<br>OSSE TAL SBOE |
| | b. Propose a resolution to incorporate environmental literacy (as appropriate) in all future revisions to statewide standards | **SBOE** |
| | c. Update District-wide scope and sequence document for a high school environmental science course to incorporate community resources and available instructional supports, with an emphasis on local contexts | **DCPS**<br>**Charter LEAs** |
| | d. Provide educators with a resource guide of environmental education providers | **OSSE H&W** |
| ED2. Prepare pre-service teachers to be able to teach environmental education and foster environmental literacy | a. Engage pre-service programs to determine how they can provide environmental education as part of their coursework (such as teaching methods) | **OSSE TAL**<br>OSSE H&W<br>UDC<br>DPR |

| Strategy | Action Item | Lead<br>Partner |
|---|---|---|
| ED3. Provide in-service teachers and community-based educators with workshops about how to teach environmental education and foster environmental literacy | a. Deliver at least three high-quality workshops for teachers by qualified environmental education professionals that increase teachers' content knowledge, foster a better understanding of the District's environmental initiatives, and increase comfort with teaching outside of the classroom | **DPR**<br>**OSSE H&W**<br>OSSE TAL<br>DOEE WPD DOEE AREC |
| | b. Conduct one summer learning institute per year that provides intensive training in relevant grade bands and/or content areas, such as science, early learning and nutrition | **OSSE H&W**<br>OSSE TAL<br>DOEE WPD<br>DOEE AREC |
| | c. Hold at least three workshops per year for community-based organizations, to include introductory courses and supplemental workshops | **OSSE H&W**<br>DOEE WPD<br>DOEE AREC |
| ED4. Provide ongoing support for communities of practice to collaborate, increase capacity and implement environmental literacy programs at schools | a. Identify and promote opportunities for educators to network, build community, mentor and share ideas on a regular basis | **OSSE H&W**<br>DOEE WPD |
| | b. Create a cohort of educators to develop environmental literacy resources for their peers | **OSSE H&W** |

# SCHOOLS

## Objective and Strategies

- All schools provide students with opportunities to learn how campus buildings and grounds impact the environment and human health and how implementing sustainability practices benefits the school community.
  1. Increase the number of schools implementing sustainability best practices.
  2. Integrate school maintenance and facilities managers and/or operations staff into environmental and sustainability strategies to encourage collaboration across school building operations.
  3. Develop communication tools to create and leverage partnerships between schools and environmental education providers.

## Background and Rationale

School facilities are essential to providing healthy and safe spaces for learning. As described in the Centers for Disease Control and Prevention's (CDC) Whole School, Whole Community, Whole Child (WSCC) model, the physical school environment encompasses the school building and its contents, the land on which the school is located and the area surrounding it (see Figure 3). A healthy school environment addresses a school's physical condition (e.g., ventilation, moisture, temperature, noise, natural and artificial lighting), protects occupants from physical threats (e.g., crime, violence, traffic, injuries), and insulates students and educators against biological and chemical agents in the air, water, or soil, as well as those purposefully brought into the school (e.g., hazardous materials, pesticides, cleaning agents) (CDC, 2021).

Figure 3. Whole School, Whole Community, Whole Child Model


When considering the environmental conditions of the school building and protection against biological and chemical agents, research points to the benefits of "green" buildings and schools. The 2016 report *Schools for Health: Foundations of Student Success* reviews findings from more than 200 scientific studies and describes the beneficial characteristics inherent in green schools. For example, improved indoor air quality decreases asthma triggers, which decreases absenteeism, and building improvements, such as daylighting (using windows and skylights to increase natural light), increases student productivity (Eitland et al., 2016). Other benefits include greater teacher satisfaction with green school environments, which increases retention (American Federation of Teachers, 2017). According to studies by Duran-Narucki (2008) and Kumar, O'Malley, & Johnston (2008), substandard physical environments are strongly associated with truancy and other behavior problems, such as substance abuse, that are associated with lower achievement on standardized tests in English/language arts and math.

Similarly, improvements to the land on which the school is located, such as through outdoor classrooms or school garden projects, also have positive effects on student learning and behaviors. Williams and Dixon (2013) led a review of studies conducted between 1990 and 2010 that examined the impact of school gardens on academic performance. The research overwhelmingly showed that garden-based learning has a positive impact on students' grades, knowledge, attitudes and behaviors (Williams & Dixon, 2013). Dhanapal and Lim (2013) found that quiz scores were higher after an outdoor science lesson compared to an indoor science lesson. Additionally, students enjoyed and preferred learning science outdoors rather than indoors.

The US Department of Education's Green Ribbon Schools program recognizes schools that follow the CDC's healthy school environment recommendations, while also aligning with additional educational and environmental parameters. Green Ribbon Schools demonstrate progress in the following 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; and 3) providing effective sustainability education (USED, 2023). Viewed through a broader lens, green schools initiatives can include LEED certification; active school gardens that can produce food, manage stormwater and/or provide wildlife habitat; exemplary recycling or food waste reduction practices; and an integrated environmental education curriculum.

# Local Context

Given that student academic achievement is closely tied to student health, it is important that school facilities provide an educational setting conducive to learning and serve as healthy environments. As a signatory of the 2014 Chesapeake Bay Watershed Agreement, the District committed to work towards the regional Environmental Literacy Goal, which is measured by three outcomes (Chesapeake Bay Program, 2014). One outcome directly addresses sustainable schools: "Continually increase the number of schools in the region that reduce the impact of their buildings and grounds on their local watershed, environment and human health through best practices, including student-led protection and restoration projects."

In the District of Columbia, local legislation also impacts school buildings and operations. The Healthy Schools Act of 2010 includes requirements that support the relationship between a school's physical environment and the academic success of its students. For example, the Healthy Schools Act amended the Green Building Act of 2006 to encourage school construction to achieve LEED gold certification. The Healthy Schools Act also mandates recycling, energy reduction, integrated pest management and other environmentally friendly practices inside all District public school buildings. Additionally, the schools are legally required to test drinking water for lead and ensure compliance with US Environmental Protection Agency standards for indoor air quality and lead removal (OSSE, 2023i). Other District-wide strategic plans, such as Sustainable DC 2.0 and the DC Comprehensive Plan, include provisions to create and maintain school facilities with features that support students' environmental literacy development.

Several District agencies support green school buildings and grounds in varying capacities. For example, OSSE has a school gardens program that assists schools in building and maintaining school gardens and provides training and technical assistance to educators in utilizing school gardens as a teaching tool (OSSE, 2023j). DOEE's RiverSmart Schools program improves school grounds by incorporating landscape design principles that create habitat for wildlife, emphasize the use of native plants, highlight water conservation and retain and filter stormwater runoff. These sites have the added benefits of an outdoor classroom that supports effective teaching practices and promotes student

learning (DOEE, 2023b). DGS conducts building design and construction in accordance with the LEED rating system and provides facilities maintenance services (e.g., heating, ventilation and air conditioning [HVAC]); waste hauling; integrated pest management; water quality testing) for DCPS school buildings. Community partners also have schoolyard greening programs that assist schools in the creation of educational green spaces, provide professional development for teachers and conduct in-class presentations that include outdoor components. At least 16 organizations provide in-class presentations regarding indoor air quality, energy efficiency and/or waste reduction for schools (see Appendix C).

At the LEA level, DCPS' operations office includes a sustainability specialist as part of its facilities team. This energy and sustainability liaison meets regularly with sister agencies, nonprofit partners, central office staff and school staff to facilitate coordination and expansion of sustainability efforts. Each charter LEA bears sole responsibility for its school facilities and there is no centralized contact person to coordinate environmental efforts across all charter schools. Depending on the individual charter LEA, environmental efforts might be coordinated by a facilities administrator, business manager and/or custodial staff.

# Status

The portfolio of schools in the District that incorporate green, healthy and sustainable practices continues to grow. Since 2012, the number of LEED-certified schools has grown from eight DCPS schools and two charter schools to 46 DCPS schools and 26 charter schools (USGBC, 2023). The District also leads the nation in the number of public schools (eight) with the LEED platinum rating (USGBC, 2023). In 2021, two DCPS modernization projects were completed at John Lewis (formerly West) Elementary School and Banneker High School (DGS, 2022). Two additional schools (Bard Early College High School and Raymond Elementary School) reopened following renovations in 2023 (DGS, 2023b). Both schools are among the first of the District's Net Zero Energy buildings, and John Lewis Elementary is also designed to be a WELL Certified School, a program that focuses on the physical, emotional, and social wellbeing of a building's occupants (DGS, 2021).

Between 2012 and 2022, the number of active school gardens in the District has grown from 82 to 111. Some schools may have more than one type of garden on site, and the gardens have varying degrees of use. OSSE collects data annually via the SHP and School Garden Registration to determine the number of active school gardens, with details to include types of gardens, student and teacher engagement and subjects being taught in school gardens (OSSE, 2022c). In the SHP, schools also self-report data about outdoor learning spaces, the number of students engaged and the types of experiences taking place. The number of students engaged in outdoor learning increased from 27,777 students during the 2021-22 school year to 40,771 students in 2022-23. The number of schools with outdoor learning stayed level at 61 percent of school campuses (OSSE, 2023d).

Schools have made great strides in improving the environmental impacts of their buildings and grounds, and schools are encouraged to utilize the buildings and grounds as teaching tools. To support the sustainable schools outcome of the Chesapeake Bay Watershed Agreement and one of the education goals of the Sustainable DC 2.0 Plan, OSSE worked in partnership with DGS, DCPS, DOEE and member organizations of the DC Environmental Education Consortium to launch a recognition program, Capital LEAF (Leaders in Environmental Actions for our Future), during the 2020-21 school year. Capital LEAF recognizes schools that are achieving success in environmental and sustainability outcomes in the following

areas: administrative leadership, staff involvement, community engagement and school commitment. The program also considers the extent to which schools are engaging students in conducting audits and action projects in the following areas: energy, schoolyard habitat, health and nutrition, physical environment, transportation and waste (OSSE, 2023k). Capital LEAF is intended to serve as a steppingstone for schools seeking recognition by the US Department of Education's Green Ribbon Schools program; currently, five out of six schools that participated in the initial pilot have since been recognized by the US Department of Education as a Green Ribbon Schools (OSSE, 2023l).

As District agencies continue to provide support for outdoor learning spaces, District schools will be able to extend classroom space, through renovations or small capital projects, to accommodate new considerations. For example, school grounds can be utilized as strategic, cost-effective tools for improving academic outcomes, and mental and physical wellbeing for students and staff (Green Schoolyards America, 2023).

The following section outlines the strategies the District will use over the next three years to achieve the DC Environmental Literacy Plan's School Objective. In Table 6, the strategies are further broken down into action items, which include concrete contributions from District agencies to the pursuit of this common goal.

# Strategies to Achieve the School Objective

**All schools provide students with opportunities to learn how campus buildings and grounds impact the environment and human health and how implementing sustainability practices benefits the school community.**

## Table 6. School Strategies and Action Items

| Strategy | Action Item | Lead Partner |
|---|---|---|
| SC1. Increase the number of schools implementing sustainability best practices | a. Provide technical support needed to increase the number of Capital LEAF schools and US Green Ribbon Schools applications | **OSSE H&W**<br>DGS<br>DOEE USA<br>DCPS Ops |
| | b. Provide support and partnership connections to LEAS to facilitate the building, maintenance and use of outdoor learning spaces | **OSSE H&W**<br>DOEE WPD |
| | c. Provide support and partnership connections to LEAs to maximize waste reduction and recycling, increase food recovery, promote green cleaning and support energy efficiency in building operations | **DOEE USA**<br>DGS |
| | d. Provide students, teachers and staff with resources to understand their building's environmental modernization efforts, such as LEED certification, net-zero energy updates, or WELL credits | **DOEE**<br>DGS |

| Strategy | Action Item | Lead Partner |
|---|---|---|
| SC2. Integrate school maintenance and facilities managers and/or operations staff into environmental and sustainability strategies to encourage collaboration across school building operations | a. Develop a maintenance plan template to provide guidance so that school gardens, greenhouses and outdoor classrooms are cared for in conjunction with school campuses | **OSSE H&W**<br>DCPS Ops<br>Charter LEAs<br>DOEE WPD |
| | b. Enhance resources for onsite staff for waste management, integrated pest management, green cleaning and green purchasing | **DCPS Ops**<br>DGS |
| | c. Coordinate efforts across agencies to determine how sustainable procurement can be implemented across schools, while maximizing relevant educational opportunities | **DOEE USA** |
| SC3. Develop communication tools to create and leverage partnerships between schools and environmental providers | a. Maintain an online map and dashboard of outdoor learning opportunities on school grounds and throughout the District to be updated every three years | **OSSE H&W**<br>DOEE WPD |
| | b. Update the resource hub that demonstrates how green building elements and green infrastructure on school grounds can effectively be integrated into curriculum | **OSSE H&W**<br>DGS<br>DCPS Ops<br>DOEE WPD |
| | c. Create and promote outdoor spaces to encourage leveraging school, neighborhood and community spaces for outdoor learning, and provide recommendations for schools to utilize these neighborhood amenities | **DPR** |

# DISTRICT AGENCY COLLABORATORS

## Objective and Strategies

- All District agency collaborators provide opportunities to teachers, students and schools that support the environmental literacy goal.
    1. Cultivate and foster the knowledge and awareness necessary for the development and implementation of DC Environmental Literacy Plan at LEAs.
    2. Maintain state infrastructure for implementation of the DC Environmental Literacy Plan.
    3. Utilize multiple communication platforms to highlight environmental efforts and local environmental education opportunities.
    4. Collaborate on consistent programming with invested partners that support tiered learning opportunities.

## Background and Rationale

Since 2014, 46 states plus the District of Columbia have begun the process of developing, adopting, or implementing state environmental literacy plans; in 2019, the number of states that had implemented their plans increased from 13 to 20 (Bodor et al., 2020). The District adopted its state environmental literacy plan in July 2014.

Because these plans are still relatively new, research about them is only beginning to show up in the published literature. So far, these studies only consist of dissertations and theses. For example, Ruggiero (2016) evaluated state environmental literacy plans against the NAAEE guidelines, and Duncan (2016) evaluated a tool for assessing middle school environmental literacy linked to Oregon's plan. Ruggiero (2016) states that the District's state environmental literacy plan is a strong example of a well-written collaborative plan with strength in curriculum, professional development and assessment, as well as strong plans for graduation requirements and implementation.

According to information gathered by NAAEE, since beginning the process of developing their environmental literacy plans, many states report an increase in collaboration between state education agencies (SEAs), LEAs, natural resource agencies, university researchers and environmental educators. Environmental educators from many states also report an increase in verbal and in-kind support from SEAs and other local and state agencies. However, many of these plans were developed in anticipation of federal funding, so funding remains a major constraint for implementation in nearly all states (Bodor et al., 2020).

The US Department of Education's Green Ribbon Schools recognition program has identified and promoted environmental literacy as one of its three core pillars for demonstrating achievement. This designation has not only increased environmental literacy actions in thousands of schools nationwide, but it has resulted in unprecedented collaboration among state and local health, education and environmental agencies. Additionally, national initiatives and resources, such as Rethink Outside or the Youth Outdoor Policy Playbook, leverage the connections and partnerships between education agencies, policymakers and community interests and needs. Environmental literacy planning efforts

can be both the foundation that supports learning about the world and also the umbrella under which educational activities might fall.

# Local Context

Since beginning to draft the first DC Environmental Literacy Plan in 2011, there has been a concerted effort to collaborate with local, regional and national initiatives to drive the District's Environmental Literacy Plan implementation strategy. The 2023 DC Environmental Literacy Plan acknowledges changes that have occurred in the educational landscape, such as new social studies standards, initiatives to ensure healthy learning environments, the need for the creation of online learning content and improved tactics to share resources. OSSE continues to coordinate plan implementation on the updated objectives, strategies and action items. The updated plan builds upon progress that has been made in the 11 years since the first plan was written and continues to encourage collaboration across agencies to promote quality environmental education programs for students.

In 2023, DOEE began the process of drafting Sustainable DC 3.0, to be released in late 2024. Preliminary feedback suggests that the first education goal focused on students will remain the same, but the measurable target will be modified from the target of teaching 100 percent of children in the District about environmental and sustainability concepts by 2032 to 100 percent of schools offering environmental education programming by 2032. This shift aligns more closely with how progress is being measured through data collected through OSSE's SHP, as OSSE can track environmental education course offerings but not sustainability concepts, which may occur throughout the curricular continuum. References to the DC Environmental Literacy Plan will still be highlighted as a District plan that supports goals of Sustainable DC (DOEE, 2023a).

The 2014 Chesapeake Bay Watershed Agreement marked the first time the regional commitment (which began in 1983) included an environmental literacy goal. Action items within the DC Environmental Literacy Plan have been integrated into the District's Chesapeake Bay Watershed management strategies and action plans so that both initiatives move forward in tandem (Chesapeake Bay Program, 2022).

The DC Environmental Literacy Plan 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.

## Office of the State Superintendent of Education (OSSE)

OSSE's 2023-2025 Strategic Plan includes a goal to foster student and staff well-being, with the priority to unapologetically support the physical, mental and social-emotional health of students and staff by promoting safe, welcoming, healthy and joyful learning environments. As part of a strategic initiative to align health and education systems, OSSE will design and implement systems of support for early childhood programs and schools on how to integrate essential components of the CDC's Whole School, While Community, Whole Child (WSCC) model. Specifically, OSSE will leverage new tools, such as an ArcGIS map, to reach students and teachers across all grade levels to institutionalize outdoor learning as a means of supporting the physical, social, emotional and mental health of the community (OSSE, 2023m).

## Department of Energy and Environment (DOEE)

DOEE's strategic action plan includes educating the public (regionally, nationally and internationally), students and employees on DOEE's work. For example, through creating a renewable energy K-12 education program that incorporates technology, air quality and climate change education. The strategic plan incorporates provisions to increase awareness and accessibility of the recreational opportunities of the District's waters to all residents, including developing and delivering new environmental education programs, resources and outreach strategies to attract new participants; and expanding online education opportunities for families and schools. Lastly, DOEE plans to streamline workforce programs, standardize curriculum development to incorporate core technical education and cross-training and integrate work readiness and case management (DOEE, 2021).

## District of Columbia Public Schools (DCPS)

DCPS began revising its strategic plan, *A Capital Commitment,* in Fall of 2022. According to the Strategic Plan Engagement Report released in January 2023, one question asked at the listening sessions was what students might need academically, socially and emotionally to reach their full potential. Students recommended providing more enrichment programs outside of school, cultivating engaging programming that connects with their interests, and amplifying student voices. Educators and staff suggested creating more out-of-school enrichment activities (DCPS, 2023e).

## University of the District of Columbia (UDC)

UDC's Equity Imperative is the strategic plan designed to regenerate the university as a public higher education model of urban student success. The 2022 plan includes goals to work more closely with DCPS and public charter schools, with an initiative to provide STEM teacher training for schools in wards 7 and 8. According to UDC's strategic planning report, roughly 70 percent of the university's enrollment is comprised of DCPS graduates. UDC has strengthened its alliance with the Anacostia High School feeder pattern and other public schools. It is also overhauling academic offerings to provide seamless, multi-credentialed, lifelong learning pathways with strategic on- and off-ramps according to students' needs from workforce to degree programs. By leveraging partnerships with District schools, local industry and federal agencies, UDC has an unprecedented opportunity to supplement classroom instruction with experiential learning and better accommodate the evolving needs of its diverse student population (UDC, 2022).

## Department of Parks and Recreation (DPR)

In December 2023, DPR released its master plan, Ready 2 Play. Strategy 3C (Promote healthy lifestyles and connection to nature) includes several activities that align with environmental literacy: Expand nature-based play and outdoor environmental education programming to connect residents to immersive and meaningful experiences with nature (3C.3); expand opportunities and programming of affordable river-based recreation in DC's rivers (3C.4); and increase the number of urban farms, community gardens, gardening classes, tool shares, fruit trees and other food-producing landscapes in communities with low food access and in areas that lack access to private yards (3C.5). DPR currently has seven nature parks/conservation areas and three environmental education centers in the District, plus Camp Riverview in Scotland, Maryland (DPR, 2023).

# Status

The development and formal adoption of the DC Environmental Literacy Plan has helped to improve cross-agency communication and collaboration, to centralize implementation with OSSE, and to solidify funding for programs. As a result, the District has emerged as a national leader in environmental literacy plan implementation. By strategically embracing and collaborating with other District initiatives and priorities, the District's investment in environmental literacy programs has grown significantly since the DC Environmental Literacy Plan was submitted to DC Council in 2012.

## DOEE-Led Environmental Literacy Initiatives

DOEE manages several environmental education grant programs with funding primarily from the US Environmental Protection Agency's Chesapeake Bay Implementation Grant and Clean Water State Revolving Fund, the US Fish and Wildlife Services' Aquatic Resources Education grant, as well as the Anacostia Clean Up and Protection Fund and the District Stormwater Enterprise Fund. In 2014, DOEE awarded its largest, multi-year environmental education grant: $1.2 million toward overnight meaningful watershed educational experiences for District fifth graders. In response to the COVID-19 pandemic, overnight programs transitioned to experiences facilitated on or near school grounds in 2021; however, in 2023, DOEE awarded a $600,000 grant to reach fourth grade students via Nature Near Schools and fifth graders through overnight experiences. Environmental education projects have also been awarded through the Community Stormwater Solutions grant program, as well as a grant to work with middle school students. DOEE continues to offer professional development for teachers at schools participating in the RiverSmart Schools program and the Project WILD suite of training workshops, which are open to all interested educators. Additionally, DOEE administers a grant of more than $315,000 to fund educational trips for the general public on the Anacostia River.

In 2020, DCPS, DOEE and UDC signed a Memorandum of Agreement to serve as anchor partners in the Anacostia High School Redesign. DOEE and UDC are now working with DCPS to provide educational programming, teacher professional development, student mentorship and other resources to support environmental, civil engineering, public leadership, and social justice-focused goals. DOEE has also awarded Community Stormwater Solutions grants to engage local environmental education non-profit partners in project-based learning and sustainability efforts at Anacostia High School. DOEE's Watershed Protection and Fisheries and Wildlife divisions provide environmental education programs for students and educator trainings.

## OSSE-Led Environmental Literacy Initiatives

Within OSSE, the environmental literacy program is housed in the Division of Health and Wellness (H&W), which is organizing its programs through the lens of the WSCC Model (CDC, 2021). By focusing on youth, addressing critical education and health outcomes, organizing collaborative actions and initiatives that support students and strongly engaging community resources, the WSCC approach offers important opportunities that may improve healthy development and educational attainment for students. The physical environment component stipulates that a healthy and safe physical school environment promotes learning by ensuring the health and safety of students and staff. The environment includes the physical school building, the land on which the school is located and the area surrounding it, and also health aspects related to the school's physical condition (e.g., ventilation, natural lighting), protection from physical threats (e.g., crime, traffic safety, injuries) and biological and chemical agents (e.g., pollution, mold, pesticides, cleaning products) (CDC 2021). OSSE's current programs include an Environmental Literacy Leadership Cadre for elementary school teachers and the Capital LEAF school recognition program. In addition, OSSE programming supports outdoor learning, school gardens and farm-to-school activities.

On the horizon are opportunities to explore alignment with environmental literacy plan implementation. OSSE H&W has promoted outdoor learning as a means of enhancing academic learning experiences and supporting the physical, social, emotional and mental health of the school community. While outdoor learning on its own does not necessarily translate into an environmental education program, it may provide leverage to create outdoor classrooms and spaces that lend themselves to hands-on activities and investigations. OSSE H&W also released a revised Local Wellness Policy template in 2021 to support LEAs in meeting their federal US Department of Agriculture and local Healthy Schools Act requirements for health policies. This new WSCC-aligned template includes subsections for LEAs to identify efforts and goals in improving environmental literacy and environmental sustainability. LEAs are required by the US Department of Agriculture to engage the school community in the development of their Local Wellness Policies, update them every three years and to post them publicly so they are accessible to educators, parents, students and community members. As LEAs continue to transition to the new template, OSSE will review the policies and provide guidance and technical assistance. Further, new social studies standards and an updated CTE Strategic Plan are also ways to connect environmental literacy across OSSE initiatives.

## Additional District Environmental Literacy Initiatives

In 2016, the District's Office of Planning began drafting amendments to the District of Columbia's Comprehensive Plan, a 20-year framework that guides future growth and development in the District. Originally adopted in 2006 and amended in 2011, it addresses a wide range of topics that affect how we experience the city. These topics include land use, economic development, housing, environmental protection, historic preservation, transportation and more. The Comprehensive Plan Amendment Act of 2020 was introduced to DC Council in April 2020 and public hearings began in November 2020 (DC Council, 2020). In May 2021, the DC Council approved the District's Comprehensive Plan. The updated plan has a chapter focused on the citywide element of Environmental Protection, which includes policies for schoolyard greening and sustainability education, with corresponding actions for education regarding consumer education, clean water and partnerships for environmental education. Chapters for the element of Educational Facilities and the element of Parks, Recreation and Open Space include policies focused on school design, using sustainability features as teaching tools, greener schoolyards and site planning (Office of Planning, 2021). The Energy Administration hosts an annual Electric Vehicle Grand Prix, a hands-on educational opportunity for high school students. The Urban Sustainability Administration monitors progress on Sustainable DC 2.0, which includes implementation of the DC Environmental Literacy Plan as a core action to reach the education goals and targets. Many divisions also support activities for the summer youth Green Zone Environmental Program.

In 2023, DCPS and the XQ Institute announced that Coolidge High School will begin the process to redesign its high school experience. The redesign framework will use the United Nation's (UN) Sustainable Development Goals to address the needs of the school community. The school model will emphasize action research, global experiences and wellness. The school's ultimate goal is for all students to graduate as advocates of sustainable practices through the exploration of the UN Sustainable Development Goals in order to transform themselves and the world (Coolidge, 2023).

In November 2023, the Chesapeake Bay Program's Education Workgroup convened a Leadership Summit on Environmental Literacy for high-level leadership from state education agencies and state natural resource agencies to communicate how the Chesapeake Bay Watershed Agreement can be a driver for high-impact sustainable school actions and exposure to green careers. As many of the metrics within the agreement had goal dates of 2025, the Chesapeake Bay Program is looking toward the future by acknowledging that the "Bay of the Future" is not the "Bay of the Past." The

Beyond 2025 Steering Committee will share recommendations that continue to address new advances in science and restoration, along with a focus on the partnership for going beyond 2025 (Chesapeake Bay Program, 2023).

By formalizing a commitment to ensuring that District students have access to academic courses, outdoor field experiences and volunteer opportunities that reflect the diversity of prospective careers within the environmental field, the vision of well-informed District students graduating high school who are prepared to be competitive in the green economy can be realized.

The following section outlines the strategies the District will use over the next three years to achieve the DC Environmental Literacy Plan's District Agency Collaborator Objective. In Table 7, the strategies are further broken down into action items, which include concrete contributions from District agencies to the pursuit of this common goal.

# Strategies to Achieve the District Agency Collaborator Objective

**All District agency collaborators provide opportunities to teachers, students and schools that support the environmental literacy goal.**

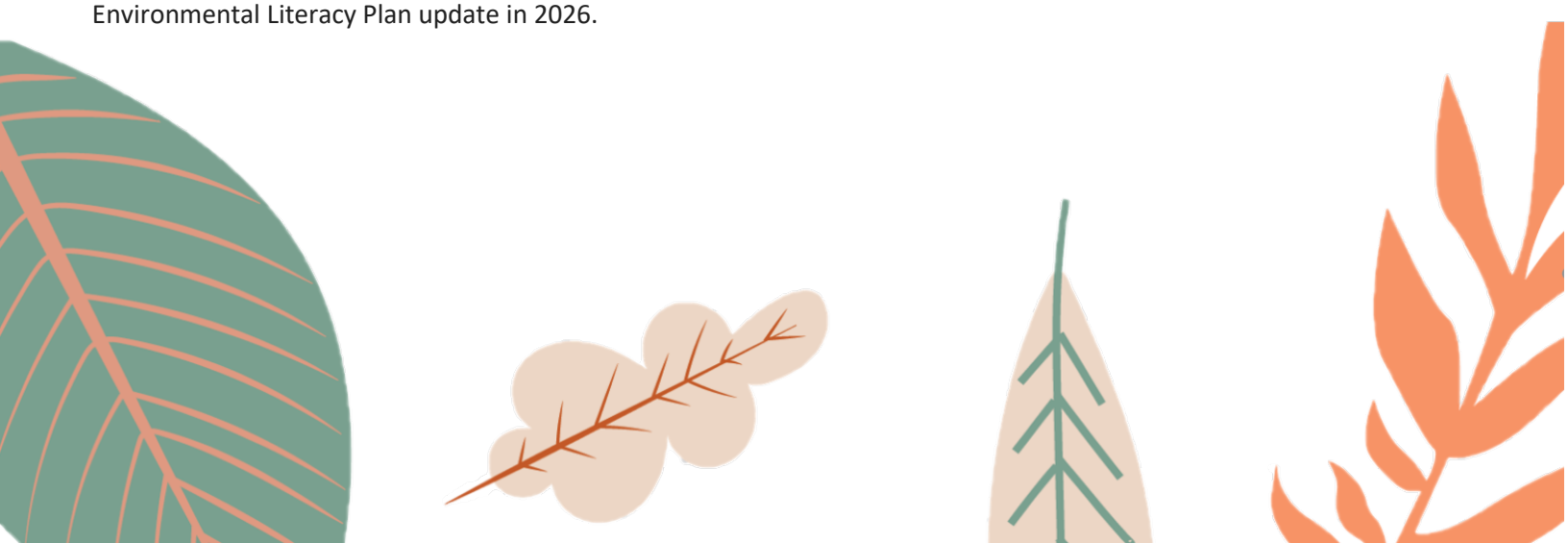
## Table 7. District Agency Collaborator Strategies and Action Items

| Strategy | Action Item | **Lead** Partner |
|---|---|---|
| DA1. Cultivate and foster the knowledge and awareness necessary for the development and implementation of the DC Environmental Literacy Plan at LEAs | a. Create systems of support for principals and LEA leaders to build awareness, engagement and participation around environmental literacy | **OSSE H&W** DCPS Charter LEAs |
| | b. Identify barriers to implementation of environmental education programming at schools that report little or no participation in the SHP | **OSSE H&W** |
| DA2. Maintain state infrastructure for the implementation of the DC Environmental Literacy Plan | a. Regularly convene the Environmental Literacy Advisory Committee to review progress and provide implementation recommendations | **OSSE H&W** |
| | b. Designate staff within each agency to support ELP efforts and to provide OSSE with yearly updates on progress | **OSSE H&W** All agencies |
| | c. Identify ongoing, committed funding to support meaningful watershed educational experiences | **DOEE WPD** |

| Strategy | Action Item | Lead Partner |
|---|---|---|
| DA3. Utilize multiple communication platforms to highlight environmental efforts and local, District-specific environmental education opportunities | a. Explore opportunities to publicly report school-level participation in environmental literacy initiatives | **OSSE H&W**<br>DCPS<br>Charter LEAs |
| | b. Develop a coordinated outreach strategy for teachers, to include materials (e.g., environmental literacy guides fact sheets) and outreach events | **OSSE H&W**<br>OSSE TAL<br>DOEE WPD<br>DOEE USA<br>DOEE AREC<br>DGS<br>DPR |
| | c. Promote the use of existing resources and websites by adding website and newsletter content at least twice per year | **All agencies** |
| DA4. Collaborate on consistent programming with invested partners that support tiered learning opportunities | a. Develop a strategy to continue or improve leveraging resources and funding across agencies to ultimately reach all students with environmental programming | **DPR** |

# CONCLUSION

Over the last ten years, the District has made great strides to advance the District's environmental literacy goals – with a concerted effort to increase collaboration, build support systems and create lasting impacts within our spheres of influence. The District of Columbia's environmental education community has worked to generate a thriving culture of environmental stewardship. The DC Environmental Literacy Plan ensures that schools are creating unique and empowering opportunities both inside and outside of the classroom for students to grow into environmental stewards and gain the skills they need to flourish as future leaders. District agency collaborators will continue to champion this effort and work together to advance the actions set forth in this updated plan as we look toward the next DC Environmental Literacy Plan update in 2026.



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# APPENDIX A: Workgroup

Under the Healthy Schools Act of 2010, the Office of the State Superintendent of Education (OSSE) is designated as the lead agency to triennially develop an environmental literacy plan, in conjunction with the following agencies:

- Department of Energy and Environment;
- District of Columbia Public Schools;
- District of Columbia Public Charter School Board;
- Office of the State Superintendent of Education;
- District of Columbia State Board of Education;
- University of the District of Columbia;
- Department of Parks and Recreation;
- Department of General Services; and
- Department of Employment Services.

## Workgroup Members

In February 2023, OSSE began meeting individually with agency representatives to discuss updating the DC Environmental Literacy Plan. The Environmental Literacy Advisory Committee, established as part of the 2020 plan, shifted its focus in 2023 to the plan update. A kickoff meeting was held in April 2023 to begin reviewing action items and reviewing goals. OSSE hosted three additional meetings to finalize the plan. Below are workgroup members.

- Department of Energy and Environment
    - Patricia (Trinh) Doan
    - Adrienne Farfalla
    - Kalie Johnson*
    - Julie Lawson
    - Oana Leahu-Aluas
    - Teresa Rodriguez

- District of Columbia Public Schools
    - Lauren Allen
    - Jonathan Rifkin*
    - James Rountree

- District of Columbia Public Charter School Board
    - Audrey Williams

- Office of the State Superintendent of Education
  - Chelsea Charland
  - Grace Manubay
  - Jhatia McKnight
  - Candice Mott
  - Sam Ullery

- District of Columbia State Board of Education
  - Kathleen Coughlin
  - Eboni-Rose Thompson

- University of the District of Columbia
  - Xavier Brown
  - Jacob Campbell
  - Diego Lahaye
  - Allison Schneiderman

- Department of Parks and Recreation
  - Jacqueline Ellison
  - Watani Hatcher

- Department of General Services
  - Brooke Hartman

- Department of Employment Services
  - Traci Hamilton
  - Hakeem Rogers

* Denotes participants who no longer work at the listed agency

# A P P E N D I X B: Glossary of Terms

## Acronyms

CTE: Career Technical Education

DCEEC: District of Columbia Environmental Education Consortium

DCPS: District of Columbia Public Schools

DGS: Department of General Services

DOEE: Department of Energy and Environment

DOES: Department of Employment Services

DPR: Department of Parks and Recreation

ELP: Environmental Literacy Plan

LEA: Local Education Agency

LEED: Leadership in Energy and Environmental Design

LID: Low Impact Development

MWEE: Meaningful Watershed Educational Experience

NAAEE: North American Association for Environmental Education

NGSS: Next Generation Science Standards

OSSE: Office of the State Superintendent of Education

PCSB: Public Charter School Board

SBOE: State Board of Education

SEER: State Education and Environment Roundtable

SHP: School Health Profile

STEM: Science, Technology, Engineering and Math

UDC: University of the District of Columbia

WSCC: Whole School, Whole Community Whole Child Model

**DC Environmental Education Consortium (DCEEC):** A network of environmental and conservation educators that works to increase capacity to provide meaningful environmental education for the residents of the District of Columbia. Members provide environmental expertise, professional development opportunities, curricula and resources and hands-on classroom and field experiences to District schools. (dceec.org)

**District of Columbia Public Charter School Board (PCSB):** Organization established to ensure students and families in Washington, DC, have access to quality public charter school education through setting tough academic standards, using a comprehensive application review process and effective oversight, providing meaningful support and actively involving parents, school leaders, the community and policymakers. (dcpcsb.org)

**Department of Employment Services (DOES):** District government agency that provides comprehensive employment services to ensure a competitive workforce, full employment, life-long learning, economic stability and the highest quality of life for all District residents. (does.dc.gov)

**Department of Energy and Environment (DOEE):** District government agency that improves the quality of life for the residents and natural inhabitants of the nation's capital by protecting and restoring the environment, conserving our natural resources, mitigating pollution, increasing access to clean and renewable energy and educating the public on ways to secure a sustainable future. (doee.dc.gov)

**Department of General Services (DGS):** District government agency that elevates the quality of life for the District through construction, maintenance and real estate management. DGS is responsible for building and maintaining safe and green state-of-the-art public facilities, including all DCPS buildings. (dgs.dc.gov)

**Department of Parks and Recreation (DPR):** District government agency that promotes health and wellness, conserves the natural environment and provides universal access to parks and recreation services. (dpr.dc.gov)

**District of Columbia Public Schools (DCPS):** The District's largest local education agency. Any reference to DCPS indicate the LEA, not the District's public and public charter schools more broadly. (dcps.dc.gov)

**Environmental Literacy:** The development of knowledge, attitudes and skills necessary to make informed decisions concerning the relationships among natural and urban systems.

**Healthy Schools Act:** Landmark law designed to improve the health and wellness of students attending public and public charter schools in the District. The act took effect August 2010 and includes a provision that requires the development of an environmental literacy plan.

**Inquiry-Based Learning:** Inquiry is a multifaceted activity that involves making observations; posing questions; examining books and other sources of information to see what is already known; planning investigations; reviewing what is already known in light of experimental evidence; using tools to gather, analyze and interpret data; proposing answers, explanations and predictions; and communicating the results. Inquiry requires identification of assumptions, use of critical and logical thinking and consideration of alternative explanations. (National Science Education Standards, pg. 23)

**Leadership in Energy and Environmental Design (LEED):** Suite of rating systems for the design, construction and operation of high-performance green buildings, homes and neighborhoods. (usgbc.org/leed)

**Meaningful Watershed Educational Experience:** Approach to seamlessly connect standards-based classroom learning with outdoor field investigations to create a deeper understanding of the natural environment. Students explore local environmental issues through sustained, teacher-supported programming that includes, but is not limited to, issue definition, outdoor field experiences, action projects and sharing student-developed syntheses and conclusions with the school and community.

**Office of the State Superintendent of Education (OSSE):** The state education agency for the District of Columbia. OSSE's mission is to remove barriers and create pathways for District residents to receive a great education and prepare them for success in college, careers and life. (osse.dc.gov)

**Place-based Education:** The process of using the local community and environment as a starting point to teach concepts in language arts, mathematics, social studies, science and other concepts across the curriculum.

**Service-Learning:** A teaching strategy that connects community service to academic objectives in a way that students feel greater meaning and relevance to what they learn and in a way that develops strong citizenship skills. The National Youth Leadership Council identified eight components of high-quality service-learning: (1) youth voice, (2) meaningful, (3) link to curriculum, (4) diversity, (5) progress monitoring, (6) reflection, (7) duration and intensity, and (8) partnerships.

**State Board of Education (SBOE):** Board established on June 12, 2007, as part of the District of Columbia Public Education Reform Amendment Act of 2007. Responsible for advising the State Superintendent of Education on educational matters, including: state standards; state policies, including those governing special, academic, vocational, charter and other schools; state objectives; and state regulations proposed by the mayor or the State Superintendent of Education. (sboe.dc.gov)

**Sustainability:** Nexus of environmental health, economic prosperity and social vitality. Sustainability meets the needs of the present without compromising the ability of future generations to meet their own needs.

**Sustainable DC (SDC):** A government plan launched in 2011 to address goals and the interconnections between the built environment, climate, energy, food, nature, transportation, waste, water and the green economy. The Sustainable DC 2.0 Plan was updated in 2019, adding Education and Economy to the list of sections for which Sustainable DC sets goals, targets and actions. The remaining sections are Governance, Equity, Built Environment, Climate, Energy, Food, Health, Nature, Transportation, Waste and Water. (sustainable.dc.gov)

**University of the District of Columbia (UDC):** Chartered in 1974, UDC is a pacesetter in urban education that offers affordable and effective undergraduate, graduate, professional and workplace learning opportunities. As a public, historically Black and land-grant institution, the university's responsibility is to build a diverse generation of competitive, civically engaged scholars and leaders. (udc.edu)

# A P P E N D I X C: Environmental Literacy Organizations with Resources for Schools

To compile these resource lists, OSSE created an online survey for organizations to complete. Responses were collected from February – May 2023, and all the data in these tables are self-reported.

## AIR – includes air quality, climate change

| Organization | Curricular Resources | School-based Presentations | Field Experiences | Professional Development | Funding | Community Service |
|---|---|---|---|---|---|---|
| Alice Ferguson Foundation | X | | X | X | | |
| Anacostia Watershed Society | | X | X | X | | X |
| Casey Trees | X | X | X | X | | |
| Chesapeake Bay Foundation | X | | X | X | | |
| Dance Exchange | X | X | X | X | | |
| Department of Public Works – Office of Waste Diversion | | X | | | | |
| District Dept. of Transportation – Urban Forestry Division | | X | | | | |
| Dumbarton Oaks Park Conservancy | | | X | | | |
| Earth Force | X | X | | X | X | X |
| EcoRise | X | | | X | X | X |
| Green Scheme | X | | X | | | |
| Living Classrooms Foundation – National Capital Region | X | X | X | X | | X |
| National Children's Museum | X | | | | | |
| National Energy Education Development Project | X | | | X | | |
| National Environmental Education Foundation | X | | | | X | |
| National Oceanic and Atmospheric Administration | X | | | X | | |
| National Park Service – National Capital Parks-East | X | X | X | | | |
| National Park Service – National Mall & Memorial Parks | | | | X | | |
| National Park Trust | X | X | X | | X | |
| NatureBridge | | | X | | X | |
| Office of the State Superintendent of Education | X | | | | | |
| Student Conservation Association | X | | X | | | |
| US Botanic Garden | | | X | | | |
| US Department of Agriculture – Forest Service | X | | | | | |
| US Environmental Protection Agency | X | | | | X | |

# WATER – includes stormwater, rivers and aquatic wildlife

| Organization | Curricular Resources | School-based Presentations | Field Experiences | Professional Development | Funding | Community Service |
|---|---|---|---|---|---|---|
| Alice Ferguson Foundation | X | | X | X | | |
| Anacostia Riverkeeper | | | X | | | X |
| Anacostia Watershed Society | X | X | X | X | | X |
| Casey Trees | X | X | X | X | | |
| Chesapeake Bay Foundation | X | | X | X | | |
| Dance Exchange | X | X | X | X | | |
| Department of Energy and Environment | X | X | X | X | X | X |
| Department of Public Works – Office of Waste Diversion | | X | | | | |
| Dumbarton Oaks Park Conservancy | | X | X | X | | X |
| Earth Conservation Corps | | | | | | X |
| Earth Force | X | X | | X | X | X |
| EcoRise | X | | | X | X | X |
| FRESHFARM | X | X | | X | | X |
| Friends of Kenilworth Aquatic Gardens | X | | X | | | X |
| Friends of Peirce Mill | X | | X | | | |
| Green Scheme | X | X | X | X | | X |
| Izaak Walton League | X | | | X | | X |
| Live It Learn It | | X | X | | | |
| Living Classrooms Foundation – National Capital Region | X | X | X | X | | X |
| National Children's Museum | X | | | | | |
| National Environmental Education Foundation | X | | | | X | |
| National Museum of the American Indian | X | | X | X | | |
| National Oceanic and Atmospheric Administration | X | X | | X | X | |
| National Park Service – National Capital Parks-East | X | X | X | | | X |
| National Park Service – National Mall & Memorial Parks | | X | X | X | | X |
| National Park Trust | X | X | X | | X | |

| | | | | | | |
|---|---|---|---|---|---|---|
| NatureBridge | | | X | | X | |
| Office of the State Superintendent of Education | X | | | X | | |
| Out Teach | X | X | X | X | X | |
| Project WILD | X | | | | | |
| Student Conservation Association | X | | X | | | X |
| Urban Adventure Squad | X | X | X | X | | X |
| US Botanic Garden | X | | X | X | | X |
| US Department of Agriculture – Forest Service | X | | | | | |
| US Environmental Protection Agency | X | | | | X | |
| Ward 8 Woods Conservancy | | X | X | | | X |
| Wilderness Leadership and Learning, Inc. | | | X | | | X |

# LAND – includes plants, soil, urban planning and terrestrial wildlife

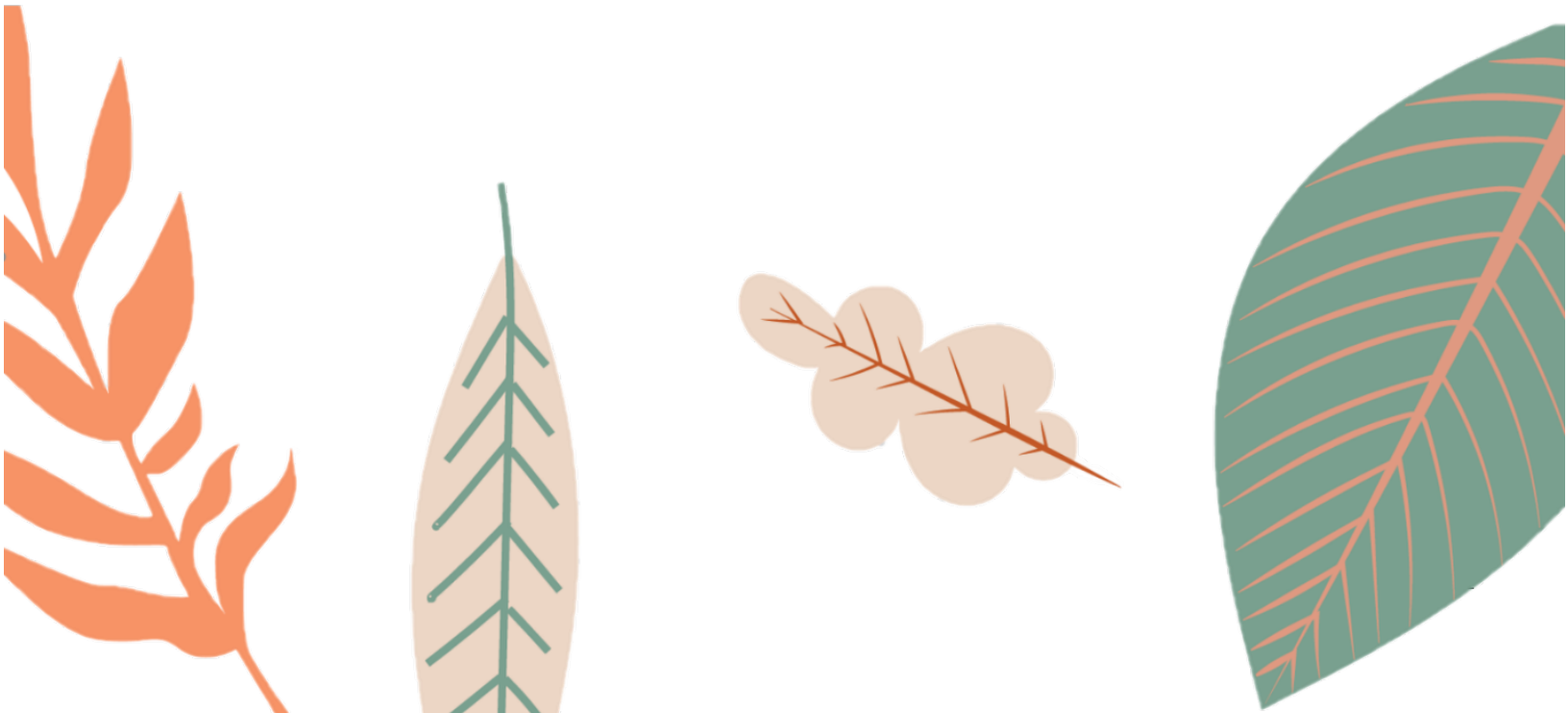
| Organization | Curricular Resources | School-based Presentations | Field Experiences | Professional Development | Funding | Community Service |
|---|---|---|---|---|---|---|
| Alice Ferguson Foundation | X | | X | X | | X |
| Anacostia Riverkeeper | | | X | | | X |
| Anacostia Watershed Society | X | X | X | X | | X |
| Arcadia Center for Sustainable Food and Agriculture | X | X | X | X | | X |
| Casey Trees | X | X | X | X | | |
| Chesapeake Bay Foundation | X | | X | X | | |
| Cintia Cabib – Independent Documentary Filmmaker | | X | | | | |
| City Blossoms | X | X | X | X | | X |
| Common Good City Farm | | X | X | | | X |
| Conservation Nation | X | | | | | |
| Dance Exchange | X | X | X | X | | |
| Department of Energy and Environment | X | | X | | X | |
| Department of Parks and Recreation | | X | | | | |
| Department of Public Works – Office of Waste Diversion | | X | | | | |
| District Dept. of Transportation – Urban Forestry Division | | X | X | | | X |
| Dumbarton Oaks Park Conservancy | | X | X | | | X |
| Earth Conservation Corps | | X | X | | | |
| Earth Force | X | X | | X | X | X |
| EcoRise | X | | | X | X | X |
| FoodCorps | X | X | X | | | X |
| FRESHFARM | X | | | X | | X |
| Friends of Kenilworth Aquatic Gardens | X | | X | | | X |
| Friends of the National Arboretum | X | X | X | X | | X |
| Green Scheme | X | X | X | X | | X |
| Hillwood Estate, Museum & Gardens | | | X | | | |
| Live It Learn It | | X | X | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Living Classrooms Foundation – National Capital Region | X | X | X | X | | X |
| National Children's Museum | X | | | | | |
| National Environmental Education Foundation | X | | | | X | |
| National Museum of the American Indian | X | | X | X | | |
| National Oceanic and Atmospheric Administration | X | | | X | | |
| National Park Service – National Capital Parks-East | X | X | X | | | X |
| National Park Service – National Mall & Memorial Parks | X | X | X | X | | X |
| National Park Trust | X | X | X | | X | |
| NatureBridge | | | X | | X | |
| Office of the State Superintendent of Education | X | | | X | | |
| Out Teach | X | X | X | X | X | |
| Project WILD | X | | | | | |
| Student Conservation Association | X | | X | | | X |
| Univ. of the District of Columbia – Master Gardener & 4H | | X | X | X | | X |
| Urban Adventure Squad | X | X | X | X | | X |
| US Botanic Garden | | | X | X | | |
| US Department of Agriculture – Forest Service | X | | | | | |
| US Environmental Protection Agency | X | X | | X | X | |
| Ward 8 Woods Conservancy | | X | X | | | X |
| Wilderness Leadership and Learning, Inc. | | | X | | | X |

# RESOURCE CONSERVATION – includes energy, waste and recycling

| Organization | Curricular Resources | School-bsed Presentations | Field Experiences | Professional Development | Funding | Community Service |
|---|---|---|---|---|---|---|
| Alice Ferguson Foundation | X | | X | X | | X |
| Anacostia Riverkeeper | | | X | | | X |
| Anacostia Watershed Society | X | X | X | X | | X |
| Chesapeake Bay Foundation | X | | X | X | | |
| Common Good City Farm | | X | X | | | X |
| Conservation Nation | X | | | | | |
| Dance Exchange | X | | X | X | | |
| Department of Energy and Environment | X | | X | | | X |
| Department of General Services | X | X | | | | X |
| Department of Public Works – Office of Waste Diversion | | X | | X | | |
| Dumbarton Oaks Park Conservancy | | X | X | X | | X |
| Earth Conservation Corps | | | | | | X |
| Earth Force | X | X | | X | X | X |
| EcoRise | X | | | X | X | X |
| FRESHFARM | X | X | | X | | X |
| Friends of Kenilworth Aquatic Gardens | | | | | | X |
| Green Scheme | X | X | X | X | | X |
| Live It Learn It | | X | X | | | |
| Living Classrooms Foundation – National Capital Region | X | X | X | X | | X |
| National Children's Museum | X | | | | | |
| National Energy Education Development Project | X | X | | X | X | |
| National Environmental Education Foundation | X | | | | X | |
| National Museum of the American Indian | X | | X | X | | |
| National Oceanic and Atmospheric Administration | X | | | X | | |
| National Park Service – National Capital Parks-East | X | X | X | | | X |
| National Park Service – National Mall & Memorial Parks | | | X | | | X |

| | | | | | | |
|---|---|---|---|---|---|---|
| National Park Trust | X | X | X | | X | |
| NatureBridge | | | X | | X | |
| Office of the State Superintendent of Education | X | | | X | | |
| Project WILD | X | | | | | |
| Student Conservation Association | X | | X | | | X |
| Urban Adventure Squad | X | X | X | X | | X |
| US Botanic Garden | X | | X | X | | X |
| US Department of Agriculture – Forest Service | X | | | | | |
| US Environmental Protection Agency | X | | | | X | |
| Ward 8 Woods Conservancy | | X | X | | | |
| Wilderness Leadership and Learning, Inc. | | | X | | | X |



# HEALTH – includes outdoor physical activity, gardens and food

| Organization | Curricular Resources | School-based Presentations | Field Experiences | Professional Development | Funding | Community Service |
|---|---|---|---|---|---|---|
| Alice Ferguson Foundation | | | X | | | X |
| Anacostia Riverkeeper | | | X | | | |
| Anacostia Watershed Society | | X | X | X | | X |
| Arcadia Center for Sustainable Food and Agriculture | X | X | | | | |
| Chesapeake Bay Foundation | X | | X | X | | |
| Cintia Cabib – Independent Documentary Filmmaker | | X | | | | |
| City Blossoms | X | X | X | X | | X |
| Common Good City Farm | | X | | | | X |
| Dance Exchange | X | X | X | X | | |
| Department of Energy and Environment | | X | | | | |
| Department of Parks and Recreation | | X | X | | X | X |
| Department of Public Works – Office of Waste Diversion | | X | | | | |
| Dumbarton Oaks Park Conservancy | | X | X | X | | |
| Earth Force | | | | | X | X |
| EcoRise | X | | | X | X | X |
| FoodCorps | X | X | X | X | X | X |
| FRESHFARM | X | X | | X | | X |
| Friends of Kenilworth Aquatic Gardens | X | | X | | | |
| Friends of the National Arboretum | X | X | X | X | | X |
| Friends of Peirce Mill | X | | X | | | |
| Green Scheme | X | X | X | X | | X |
| Hillwood Estate, Museum & Gardens | | | X | | | |
| Living Classrooms Foundation – National Capital Region | | X | X | | | |
| National Environmental Education Foundation | X | | | X | X | |
| National Oceanic and Atmospheric Administration | X | | | | | |
| National Park Service – National Capital Parks-East | X | X | X | | | X |

| | | | | | | |
|---|---|---|---|---|---|---|
| National Park Service – National Mall & Memorial Parks | | | | X | | |
| National Park Trust | X | X | X | | X | |
| NatureBridge | | | X | | X | |
| Office of the State Superintendent of Education | X | | | X | X | |
| Out Teach | X | X | X | X | X | |
| Student Conservation Association | X | | X | | | X |
| Univ. of the District of Columbia – Master Gardener & 4H | | X | X | X | | X |
| Urban Adventure Squad | X | | X | X | | |
| US Botanic Garden | | | X | | | |
| US Department of Agriculture – Forest Service | X | | | | | |
| US Environmental Protection Agency | X | | | | | |

# APPENDIX D: Environmental Literacy Framework

## *for the District of Columbia*

Environmental literacy is the development of knowledge, attitudes and skills necessary to make informed decisions concerning the relationships between natural and urban systems


## An environmentally literate* person:

- can discuss and describe ecological and environmental systems and human impacts on these systems;
- engages in hands-on, outdoor learning experiences that involve discovery, inquiry and problem solving;
- is able to question and analyze information pertaining to his or her surrounding environment; and
- has the capacity to take actions that respect, restore, protect and sustain the health and well-being of human communities and environmental systems.

*as defined in the DC Environmental Literacy Plan adopted 2014

The Environmental Literacy 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–Grade 8) or **science subject area** (high school) and aligned with the **Next Generation Science Standards (NGSS) Performance Expectations**. Included are **environmental contexts for learning** and **guiding questions** designed to scaffold 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 suggestions for extending learning beyond the classroom.

| Grade Level | NGSS Performance Expectations | Environmental Contexts for Learning: Guiding Questions | Sustainability Initiatives |
|---|---|---|---|
| **Pre-K** | See the District of Columbia's Early Learning Standard 5.0: Scientific Inquiry* | **The World Around Us:** How can we use our five senses to learn about the environment? | **Nature:** Extend your classroom into the schoolyard. |
| **K** | K-PS3-1, K-PS3-2.<br>K-LS1-1.<br>K-ESS2-2, K-ESS3-1,<br>K-ESS2-1, K-ESS3-2. | **Living Things:** What do plants and animals need to survive? | **Nature/Food:** Visit an urban garden or farm. |
| **1** | K-2-ETS-1-1.<br>1-LS1-2, 1-LS3-1.<br>1-ESS1-1, 1-ESS1-2. | **Patterns and Growth:** How do natural patterns affect living things?<br>How do plants and animals change over the course of their lives? | **Nature:** Visit a zoo/aquarium. |
| **2** | 2-PS2-1, 2-PS2-2.<br>2-LS2-1, 2-LS2-2,<br>2-LS4-1.<br>2-ESS2-1, 2-ESS2-2,<br>2-ESS2-3. | **Changing Landscapes:** How do plants and animals support each other in our community?<br>What forces change our local landscape? | **Water:** Explore a local waterway.<br>**Built Environment:** Survey your neighborhood. |
| **3** | 3-LS2-1, 3-LS3-2.<br>3-LS-4.<br>3-ESS2-1, 3-ESS2-2,<br>3-ESS3-1. | **Environmental Changes and Adaptations:** How have local changes in climate affected the environment?<br>How do living things adapt to changes in the environment? | **Nature:** Travel to a rural farm.<br>**Waste**: Tour a recycling center or landfill. |
| **4** | 4-PS3-2, 4-PS3-4.<br>4-ESS3-1, 4-ESS3-2.<br>4-LS1-1, 4-LS1-2.<br>4-ESS1-1, 4-ESS2-1. | **Earth's Resources:** How do humans use natural resources?<br>What processes influence the Earth's physical features? | **Waste:** Conduct a cafeteria waste audit.<br>**Transportation:** Organize a walk/bike to school day. |
| **5** | 5-PS3-1.<br>5-LS1-1, 5-LS2-1.<br>5-ESS2-1. | **Web of Life:** We are what we eat; how does energy cycle through the food web?<br>How do the four spheres of the Earth's systems interact? | **Food/Water/Nature:** Engage in an overnight Meaningful Watershed Educational Experience. |

| Grade Level | NGSS Performance Expectations | Environmental Contexts for Learning: Guiding Questions | Sustainability Initiatives |
|---|---|---|---|
| **6** | MS-ESS3-1, MS-ESS3-2, MS-ESS3-3, MS-ESS3-4, MS- ESS3-5. | **Earth and Human Activity:** What are the consequences of human activity on air, land, and water over time? | **Built Environment:** Tour a green infrastructure site. |
| **7** | MS-LS2-1, MS-LS2-2, MS-LS2-3, MS-LS2-4, MS-LS2-5. | **Exploring Solutions:** How can we creatively address the environmental consequences of human activity? | **Nature/Water:** Improve local watershed health by reducing stormwater runoff at your school. **Food**: Define healthy-healthy eating and design a personal healthy-eating goal. |
| **8** | M5-PS3-1, M5-PS3-2, M5-PS3-3, M5-PS3-4, M5-PS3-5. | **Earth Works:** How do the choices you make affect the environment? | **Waste:** Analyze your carbon footprint and create a personal action plan to reduce it. **Energy:** Conduct a school-wide energy audit. |
| **High School Subject Area** | **NGSS Performance Expectations** | **Environmental Contexts for Learning: Guiding Questions** | **Sustainability Initiatives** |
| **Earth Science** | HS-ESS2-2, HS-ESS2-4. HS-ETS1-1. HS-ESS3-1, HS-ESS3-5. HS-ETS1-1. | **Our Changing Planet**: How do changes in climate occur, and how do they impact Earth's systems and human activity? | **Waste/Transportation:** Research the ways current transportation and waste systems impact climate. |
| **Biology** | HS-LS1-5, HS-LS1-6, HS-LS1-7. HS-LS2-1, HS-LS2-2, HS-LS2-7. HS-ETS1-2. | **Designing and Evaluating Solutions**: What are the ecological impacts of our food choices? How can humans reduce their environmental footprint? | **Food:** Design and evaluate a nutrition plan for a healthy adult that supports a sustainable local food system. **Nature:** Conduct a biodiversity transect. |
| **Chemistry** | HS-PS1-2, HS-PS1-3, HS-PS1-6. HS-ESS2-2, HS-ESS2-5, HS-ESS2-6. HS-ETS1-3. | **Collect and Analyze Data:** What evaluation can be made about the health of the District and it's residents based on a cross-section of data? | **Nature/Water:** Conduct water-, soil-, and air-quality tests in the District and analyze the results. |
| **Physics** | HS-PS3-3, HS-PS3-4. HS-ETS1-4. | **Alternative Energy:** What innovations will help meet future energy needs? | **Energy/Built Environment:** Compare the efficiency of existing power systems and design a carbon-neutral energy generation system. |

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District of Columbia
Office of the State Superintendent of Education

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