



Formative Evaluation

Urban GreenSpace Pilot Program

PREPARED BY

Kera Collective

FOR

Green-Wood Cemetery

DATE

November 2022



Formative Evaluation: Urban GreenSpace Pilot Program



PREPARED FOR

Green-Wood Cemetery
<https://www.green-wood.com/>
Brooklyn, NY

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FUNDED BY

This evaluation project was funded through a grant from the Institute of Museum and Library Services (IMLS) (<https://www.ims.gov/>).

IMAGE CREDITS

Images in this report were taken by Hannah Heller of Kera Collective during program observations.

SUGGESTED CITATION

Kera Collective, 2022. *Formative Evaluation: Urban GreenSpace Pilot Program*. Unpublished report written for *Green-Wood Cemetery*.

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01 Summary and Recommendations



Summary and Recommendations

This section presents key takeaways from a formative evaluation of the Urban GreenSpace pilot program at Green-Wood Cemetery. Findings are based on observations of program activities and in-depth interviews and reflections with teachers whose students participated in programs in May and June 2022. The study explored teachers' and students' experiences in the program with a goal toward program improvement and enhancing students' awareness and learning in environmental science.

Urban GreenSpace programs are designed to develop students' skills in data collection, experimentation, and critical thinking but real-world connections were lacking.



Findings show that Green-Wood placed a strong emphasis on building students' capacity to collect data through observation and measurement and helping students think critically about data to draw conclusions about the environment around them. For example, in the Urban Heat Island program, students had the opportunity to take the temperatures of different materials in the cemetery and compare/contrast their data. Teachers said they appreciated these hands-on opportunities for "active learning" and for students to "really get their hands dirty." However, while students made some real-world connections during programs (e.g., considering city water use), teachers were not sure that these connections always resonated. Teachers suggested that pre-visit materials, such as videos related to program content and/or in-person or virtual visits from Green-Wood educators, would be valuable for reinforcing real-world environmental connections.

Programs positively influenced students' perceptions of cemeteries and Green-Wood as an environmental education resource in the community.



Many programs began by asking students why people might come to visit the cemetery, and students' responses demonstrated their consideration of Green-Wood as a valuable memorial, historical landmark, and environmental resource for the community (i.e., "getting away from the city," "observing different plants and animals"). Teachers also felt visiting the cemetery helped "take away the stigma" around going only for burials or to grieve and felt Green-Wood provides a "rich resource for learning" outside by providing sensory experiences in their lessons about the environment (e.g., the Urban Heat Island program concepts were reinforced by being able to feel the effects of the tree shade on a warm day—not something you can experience in the classroom).

The programs' flexible design was appreciated by teachers who made suggestions during and after programs to improve interactivity and curricular alignment.



Findings show that programs were readily adapted to suit the needs of individual classes. Many of these changes could be observed as the programs progressed, and facilitators worked with teachers to make different accommodations. For instance, the program format was adapted to include more interactive discussion options for students (e.g., pair-and-share, small groups, individual work) at the suggestion of teachers, and facilitators adapted their approach during programs to enhance student engagement (e.g., giving students time to reflect on their own before debriefing as a larger group). Teachers greatly appreciated this flexibility and praised facilitators' openness to feedback and ability to adapt. During post-program reflections and interviews, some teachers suggested providing even stronger curricular alignment with science and math standards (e.g., Next Generation Science Standards).

Small changes to program logistics and design can reduce students' distractibility in an outdoor environment and help enhance student learning.



Not surprisingly, findings show that students became somewhat distracted learning outdoors. Teachers noted that program introductions were sometimes long and involved too much lecture, leading to students' waning attention spans. Additionally, observations show that students were sometimes distracted by receiving materials (like clipboards) during introductions, missing some of the instructions provided by the facilitator. Teachers also noted that students can only realistically sit on the ground for a short period of time before becoming uncomfortable. Teachers suggested that programs incorporate more movement and small group work instead of large-group discussions (which was incorporated into some of the later programs).

Recommendations

01

Consider including pre- and post-visit activities and materials to introduce students to program themes and vocabulary and provide opportunities for students to tie program learning to real-world concepts related to environmental science. Teachers suggested short videos or having Green-Wood educators Zoom into the classroom to introduce and/or reinforce their onsite experience.

02

Continue providing varied discussion and activity formats to enhance student learning in an outdoor environment. Teachers appreciated the switch from large- to small-group discussion and activities. Also consider allowing students more time to reflect on their data at the end of the program (e.g., Was my hypothesis correct?) and how it ties to a broader takeaway or real-world environmental concept.

03

Continue offering customization opportunities and a willingness to adapt as programs progress. Teachers greatly appreciated Green-Wood educators' flexibility to adapt programs as needed to their students' needs. Continue having conversations with teachers about how individual programs need to be adapted to increase curricular connections (e.g., alignment with the Next Generation Science Standards).

04

Consider small tweaks to the program structure to reduce students' distractibility outdoors. One small accommodation that Green-Wood educators used was a microphone so students could hear better outdoors. Portable seating (or blankets) for students to sit on might be another accommodation that could help increase comfort. Changes to the program format, such as passing out materials after introductory discussions, dividing classes among two educators (depending on size), and varying discussion formats (mentioned above) could also help in small ways.

02 Study background



About the study

Kera Collective partnered with Green-Wood Cemetery (Green-Wood) to conduct a formative evaluation of the Urban GreenSpace pilot program. The goal of the study was to explore students' and teachers' experiences in the program from two different schools in the Brooklyn area to inform future programs.

Study Objectives

- Whether Urban GreenSpace programs support and expand school learning (e.g., curricular connections, connections to next generation science standards, how much of the programs is redundant/do the programs need to age up?);
- The extent to which teachers trust and value Green-Wood as an environmental education resource to study and solve real-world environmental issues (e.g., flexibility to adapt the programs to schools' needs and curricular interests, ability to offer socio-emotional learning in an outdoor, neighborhood space);
- Students' development of skills and content knowledge necessary to problem-solve in environmental science (e.g., observation, asking questions, collaboration, real-world connections, data collection, comparison, experimentation);
- Students' and teachers' interest and self-efficacy in environmental science and their contribution to protecting our natural world (e.g., ways to address invasive species, attract more pollinators, positive perspective on how to address climate change); and,
- Challenges teachers encountered and suggestions for program improvement (e.g., what other types of programming would they like to see, what additional support is needed?)

Methodology

Kera Collective conducted ethnographic observations, in-depth interviews, and teacher reflections in May and June 2022 (with a slight extension into October 2022 to capture more teacher interviews).

Ethnographic Observations

Kera Collective conducted ethnographic observations of 6 Urban Greenspace programs in May and June 2022. At each program, a Kera data collector took detailed notes of facilitators', teachers', and students' behaviors and conversations related to the study objectives. Kera also noted contextual factors such as the number of students and teachers and the timing of different aspects of the program.

In-depth Interviews and Teacher Reflections

The two schools participating in the Urban Greenspace pilot program had a small number of teachers participating along with students. To capture as much feedback as possible, Kera Collective asked teachers to complete a short reflection on their experience after each program that they participated in as well as an in-depth interview at the end of their pilot program experience.

Kera Collective conducted 6 teacher reflections during the program and 4 in-depth interviews with some of the same teachers after the program was finished. After each program session, Green-Wood staff e-

mailed teachers a link to a Google form with four open-ended reflection questions about their experience that day (see Appendix A for the reflection questions). At the end of the program, Kera conducted in-depth telephone interviews with teachers about their and their students' experiences in the program as a whole (see interview guide in Appendix B). Interviewers took detailed notes of participants' responses to facilitate analysis.

Analysis and Reporting

All the data in this report are qualitative, meaning that results are descriptive. In analyzing the data, the evaluator studies observation notes, teachers' open-ended written responses, and interview notes for meaningful patterns and groups similar responses into codes representing trends and themes in the data. Findings are reported in narrative, supplemented with quotations from participants. Trends and themes in the data are presented from most- to least-frequently occurring. When describing the findings, this report uses proportions and qualitative data terms such as "most" and "some"—such descriptive language is intended to provide readers with a sense of the general patterns.

About the Urban GreenSpace Program

The Urban GreenSpace program is a new environmental education program for middle-school students (grades 6-8). The pilot version of the program was developed with funding from the Institute for Museum and Library Services (IMLS) and included students and teachers from two schools in Brooklyn, NY where Green-Wood Cemetery is located. Programs are focused on different environmental topics relevant to Green-Wood's location in an urban landscape, such as pollinators, climate change, and managing biodiversity. In each program, students are immersed in the outdoor environment of the cemetery participating in hands-on activities to learn more about these relevant environmental topics.

Pilot Program Onsite



03

**Ethnographic
Observation
Findings**



Introduction

Kera Collective conducted ethnographic observations of six Urban GreenSpace programs at Green-Wood Cemetery. The following table details each program's date, school, grade, number of students present, and program topic. We planned to observe additional programs, however, because of weather and school scheduling conflicts, a few observations were canceled.¹ Findings presented on the following pages are organized around the study objectives.

Date	School	Grade	Number of Students	Program Topic
6/1/22	BUGS	7th	22	Biodiversity in urban grasslands
6/8/22	BUGS	7th	23	Biodiversity in urban grasslands
6/14/22 (morning)	BUGS	6th	21	Urban heat island effect
6/14/22 (afternoon)	BUGS	6th	22	Urban heat island effect
6/21/22	Sunset Park	6th	36 (2 classes combined)	Pollinator gardens at Green-Wood
6/24/22	Sunset Park	8th	4	Biodiversity in urban grasslands

¹ We had originally planned to observe 9 programs.

Extent to which Urban GreenSpace programs support and expand school learning

Findings convey information related to curricular connections made between the Urban GreenSpace programs and learning happening in the classroom, as well as the surrounding neighborhood. While the teacher interview data will best speak to specific curricular connections and ways the content can support Next Generation Science Standards, observation data explored what content students were coming into Urban GreenSpace programs already knowing. For instance:

Some students were familiar with Green-Wood Cemetery through previous school trips. The facilitator asked in the beginning of each program whether students had been to Green-Wood cemetery before. Most students in BUGS groups expressed they had come previously for other school programs, but students from Sunset Park Prep seemed to have less experience (i.e., one group was not asked if they had been, and a student in another group mentioned they had been the week prior for a different GreenSpace program).

Students were less familiar with the program's topic or theme. The facilitators began each program by asking students whether they were familiar with or knew anything about what they would be learning. Occasionally, a student provided a response related to the program topic; for example, one BUGS student replied, "something about heat," in relation to the theme of urban heat islands. However, most students did not seem to know or be able to anticipate what they would be learning about that day.

Urban GreenSpace programs' ability to offer socio-emotional learning

Findings show that students demonstrated socio-emotional learning (SEL) specific to engaging with content in a cemetery, as well as in nature. For instance:

Students acknowledged everyone might feel differently about being in a cemetery. The facilitator asked students at the beginning of each program what feelings may come up by being in the cemetery. Students' responses varied from ideas around grief, sadness, and loneliness to feeling calm and peaceful. One student suggested that while they felt "fine" being there, they could "picture people feeling weird." Another student said that how you feel might depend on whether you are visiting someone buried there or not.

Students were asked to engage respectfully with the graves and burials. Facilitators made a repeated effort to remind students to respect the burials, while at the same time acknowledging that it was okay to be near them. For example, facilitators reminded BUGS students that "it's okay to walk near the graves, just be respectful." When a student asked about the mausoleums, the facilitator explained that they are family members who want to be buried together, and "for the family, we don't touch them, we just appreciate them."

Normalizing engagements with death and cemeteries for students. Facilitators also asked most groups in the beginning of the program why people might come to visit the cemetery. Students' responses ranged from visiting a loved one who had died, to taking a walk, seeing famous burials, getting away from the city, and/or observing different plants and animals. Students also made different observations about the various burials, including the ages of different people when they died and the ways a person might be buried or interred. One student suggested they would want to be buried at Green-Wood.

Students were encouraged to be respectful of the natural environment. Many students had difficulty remembering to respect the natural environment, particularly when it came to picking the grass when seated on the ground for programs. Despite facilitators' and teachers' repeated efforts, it was a challenge to get students to focus.



Students walking in a line to avoid stepping on gravestones.

“

Facilitator: What feelings do we have about cemeteries?

Student: Grief because people died.

Student: Excitement.

Facilitator: Why excitement?

Student: Nature.

Facilitator: What's another feeling?

Teacher: Peaceful. Away from the city, not a lot of rambunctiousness.

”

Program Adaptability

Findings show that programs were readily adapted to suit the needs of individual classes. Many of these changes could be observed as the programs progressed, and facilitators worked with teachers to make different accommodations. For instance:

Programs were adapted to support student learning in different formats. For example, the first program involved a lengthy introduction with facilitators asking open ended questions of the entire group. Based on a teacher's recommendation, the following program's introduction was streamlined, and the discussion formats were varied to engage more students (e.g., pair-and-share, small groups, individual work). These formats also varied by individual students; for example, students were able to work in small groups ranging in size from 2-4, and some worked individually if they preferred. The facilitator also changed the urban heat island programs as they progressed by asking students to hypothesize what materials may be hotter or cooler and having students check to see if their hypotheses were correct at the end of the activity.



Students engaged in a pair-and-share activity using handouts.

Facilitators and teachers continually adapted to make small program improvements. From one day to the next, and even between programs on the same day, facilitators adapted to individuals and groups. For example, the facilitator changed the discussion format when talking about different cemeteries, shifting from discussing one image at a time to looking at them all together for similarities and differences. The facilitator also made changes between two programs on the same day, having students in the afternoon answer some concluding questions on their own and then debriefing as a larger group (rather than answering them as a larger group as the morning program did).

Students' development of skills and content knowledge

Findings show that Urban GreenSpace programs support students' development of a wide range of skills necessary to problem-solve in environmental science.

Observation of the environment

Students were able to engage in observation during guided and unguided activities. For example, facilitators asked each group open-ended questions about which natural and unnatural materials students observed around them (see image). Data collection methods in the biodiversity themed program involved observations of different plants and animals growing or living in the cemetery. Students also made unprompted observations throughout programs, noting various insects as they walked. One student also observed there were no Mexican flags, to which another student replied in Spanish that was because "solo gringos mueren aqui" (only white people/Americans are buried here).



An activity where students observe and categorize natural materials.

“

Facilitator: If we had to categorize these into two groups how would we do that?

Student: Natural versus unnatural

Student: Living and not living

Student: Manmade and not man made

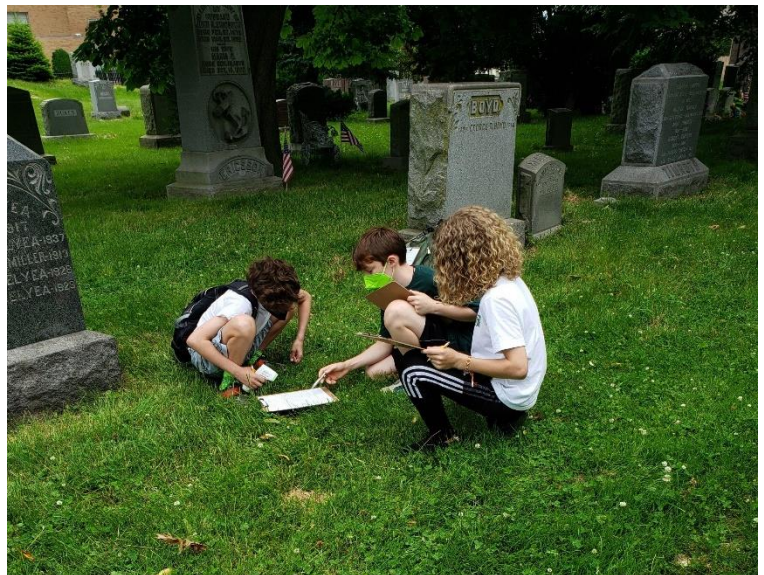
”

Asking critical questions

Some students demonstrated curiosity about the program content and/or being at Green-Wood through asking questions. For example, one student asked “Why is the grass tall if the gravestones are knocked over?”, wondering why the grass is not also knocked over. Another student wondered how you might find your loved one’s grave at Arlington cemetery if they all look the same. Some students asked a series of questions about the pond after hearing that the water in it is dangerous (i.e., “If it’s dangerous, why is there a duck swimming on it?” “What makes it dangerous in the first place?”). Facilitators also fostered student-student dialogue through asking open-ended questions and instructing students to respond to the questions either through pair-and-share or small group formats.

Peer-peer collaboration

Students collaborated with each other at several points during the programs. Most often, they were grouped together to collect data. Some students were instructed by their teacher to coordinate roles for the Urban Heat Island programs, with one person measuring temperature and the other recording the data. Students also helped one another when they had knowledge or skills to share; for example, some students encouraged and offered to help each other plant during the pollinator programs. Some students also made suggestions to each other about where to collect their data.



Students in a small group working together to collect data.

Making real-world connections

Findings show some ways students made real-world connections. When the facilitator shared statistics about water use on golf courses, one student commented that they “think we should stop wasting water on golf courses.” Some students also had the opportunity to plant plants in the pollinator program, making a real-world connection to pollinators by creating plants they could pollinate. The facilitator also asked students whether they thought different statistics about water use in NYC were true or false, which required them to reason through to an answer using prior knowledge (e.g., whether an amount sounds like too much or too little depending on what they know about the size and population of the city).

“

Teacher: Do brick and stone absorb heat?

Student: Yes.

Facilitator: Has anyone ever been on the roof? What color are they usually?

Students: Black, gray, white.

Facilitator: If you have a roof that's black, how does that feel in the summer? Really hot right. Does anyone have one that's painted white?

Student: The black roof attracts heat, and it gets hotter and the white reflects heat.

Student: Reminds me how on playgrounds they have rubber on the ground [to protect from the hot pavement].

Teacher: And what about metal slides?

Students: “Ow!” “Yikes!”

”

Data Collection in the Cemetery

Several of the programs included opportunities to collect data. In the Urban Heat Island program, students collected data by taking temperatures of different materials in the shade and sun in three different parts of the cemetery. And, students in the Biodiversity program collected data by observing how many different animals, plants, and sounds were in the cemetery. Students also developed skills around using different tools to collect data, such as rulers and thermometers. Students were particularly engaged when using the electric thermometers, which enabled them to efficiently collect their data.



Students using thermometers to collect data.

Data Analysis

At the end of the program, students were asked to identify patterns they noticed in their data, and what might explain those patterns. For example, after establishing what different heights of grass existed in the two areas they collected data, students were asked why there might be more animals in the tall grass. In response, some students suggested that animals might have better shelter, more food, more places to construct homes, and more places to hide in the tall grass. Students were also asked to analyze data from a chart that was included on the Urban Heat Island handout.

“

Facilitator: What patterns did we notice?

Student: Living things are cooler.

Facilitator: Great example of a pattern.

Student: Things in the sun are hotter.

Student: Living things are cooler even in light.

Student: And darker headstones are warmer even in shade

Facilitator: Interesting, that tells us that material is more significant than sun exposure.

”

Comparing and Contrasting Observations

Students compared and contrasted their data in both the Urban Grasslands and Urban Heat Island programs (comparing data collected in multiple areas of the cemetery). In the Grasslands program, students also had the opportunity to look at several images of different cemeteries and compare and contrast their qualities (e.g., how much open space did they include, how planned did they look).

Experimentation

Students were exposed to different approaches to scientific experimentation in the Grassland and Urban Heat Island programs. For example, the facilitator explained they would be using Green-Wood as a “mini city” in which to collect temperatures, modeling ways scientists create conditions to collect data. Students were also able to experiment within these experiments, collecting data from material they found along the way. For example, one student took the temperature of a plastic flower they found.

Students' and teachers' interest and self-efficacy in environmental science

Students shared ideas about ways to address climate change. In one program, students acknowledged that rising temperatures were a problem because intense heat can be dangerous for people and animals and increase expenses (e.g., more money spent on air conditioning, which is also bad for the environment). When facilitators asked students what they thought solutions to climate change might be, students shared different projects they had finished working on at school, including presentations on supporting women's and girls' education, plant-based diets, electric cars, renewable energy sources, and reducing food waste.

Challenges encountered

Group management was a consistent issue throughout all the programs. While some groups were able to stay focused more easily than others, many students had difficulty staying on task and were often distracted. Teachers and facilitators repeatedly asked students to focus, stop pulling up the grass, stop chatting with each other, etc.



Students were reluctant to divide into groups to collect data from different areas.

**04 Teacher
Reflections +
In-Depth
Interview
Findings**



Introduction

Kera Collective asked teachers to respond to a few reflection questions after each program experience as well as participate in an in-depth interview after the whole program experience. Reflections and interviews explored teachers' and students' experiences in the program, perceptions of students' learning, and suggestions for program improvement. Data were collected primarily in May and June 2022 (with an extension into October to allow for more teachers to participate post-summer break). Due to the small sample size and similarity in responses, teacher reflections and interview findings are presented together.

Participant Characteristics

Four teachers completed 6 total reflections after individual programs, and 4 teachers participated in in-depth interviews after their program experience.² Of those who participated:

- All the teachers had participated in onsite school programs at Green-Wood before.
- For interviewees, two teach 7th and 8th grade, and two teach 6th grade.
- For interviewees, two teach math, one teaches social studies, and one is an administrator.

Motivation for Participation

Teachers chose to participate in the Urban GreenSpace programs because they saw alignment with their teaching goals and a logistically convenient opportunity to connect with a resource in their community. For instance:

- **Two teachers reported that the program goals aligned with initiatives happening at their school, as well as their teaching goals.** One teacher said their school has a sustainability team that looks to Green-Wood as a “good place for environmental lessons.” Another teacher said that Green-Wood offers an “outdoor classroom,” providing students with opportunities to learn new skills and gain experiential, cross-curricular experiences outside the classroom.
- **Two teachers also noted the convenience of visiting Green-Wood.** One explained that they like Green-Wood’s educational programs because they are “easy” to get to. Another emphasized that “anything related to Green-Wood is a win-win,” and they would make “any excuse to get to Green-Wood” because it is located within walking distance of their school.
- **Two teachers also noted the significance of Green-Wood as a community destination.** One teacher noted that the program offered “a great way to engage with the community.” Another teacher emphasized Green-Wood’s beauty and historical significance, noting “that’s magic for these kids, to realize this is at their doorstep.”

² There were only 10 teachers total who attended programs with students at the two participating schools. Background characteristics were collected during in-depth interviews only.

Opinions of Scheduling and Logistics

In general, teachers agreed that, while scheduling a school trip always has complications, the convenience of being able to visit somewhere close by, as well as support from Green-Wood staff, helped make the process easier. More specifically:

- **Teachers noted the convenience of proximity and flexibility.** For example, one teacher noted the convenience of being able to walk across the street to visit, making it easier to fit the programs into their schedule. Another appreciated that Green-Wood staff who oversaw the scheduling were “very flexible” and thought their follow up after the program was “great.”
- **Two teachers noted minor complications involved in booking a trip to Green-Wood.** For example, one teacher suggested that programs be closer to 50 minutes since their school periods are only 60 minutes. One teacher also remarked on the time of year, noting that the end of the school year (when programs were scheduled) always gets a bit busy.

Most Engaging Aspects of the Program

Teachers appreciated the hands-on aspects of the programs, as well as the role of Green-Wood staff in facilitating the programs. Specifically:

- **Teachers agreed that the most engaging aspect of the Urban GreenSpace programs were opportunities for students to engage in “hands on” learning.** For example, they appreciated that students were able to use thermometers to collect their own data for the Urban Heat Island program and plant their own plants during the Pollinator program. One teacher described activities like this as “active learning,” and another appreciated the chance for students to “focus in on the task,” and “really get their hands dirty.” One teacher also noted the novelty of planting for students, saying “probably 75% have never planted anything before in their lives.”
- **Teachers also appreciated the Green-Wood facilitators.** They praised facilitators’ design of the lesson plans, their openness to feedback, ability to adapt, and their patience. Two teachers also appreciated facilitators’ use of the microphone, which they felt helped students stay engaged and focused.

Least Engaging Aspects of the Program

Teachers mostly thought activities where students had to sit quietly for long periods of time were least engaging; one teacher noted the vocabulary could be challenging at times. Specifically:

- **Teachers agreed that some aspects of the program, particularly the introduction, were too long and not interactive enough.** Teachers said the introduction (before the hands-on activities) involved too much lecture; one teacher noted that “they can only sit and listen for a max of ten minutes if they're in a natural setting,” before becoming distracted by the grass and other natural elements. Another teacher noted that sitting in a circle for such a long time can become physically uncomfortable for the students. Teachers suggested activities that involve more movement, small group work, and other ways to engage students rather than large-group discussion. These ideas were reflected in the teacher’s reflections after the programs as well.
- **One teacher observed that the vocabulary used during the program could be challenging for students,** making it hard for them to understand what they need to be doing for each task.

Curricular Connections

While two teachers agreed that programs aligned with their curricular goals, the others had mixed feelings. Specifically:

- **Two teachers felt the program content aligned with their sustainability and math curriculums.** For example, one noted that the content aligns with urban design and sustainability conversations they have had in their classroom. Another teacher appreciated that the data collection in the Biodiversity program (e.g., measuring and finding averages of grass length), supported their goals around developing math skills, particularly those associated with “mental math.” However, another math teacher said they did not observe many math skills in the Pollinators program they participated in.
- **Two teachers felt the program could align more closely with science and social studies.** For example, one teacher said their colleague who teaches science had recommended closer alignment with the Next Generation Science Standards. Another teacher said she did not think the programs aligned with her social studies curriculum.

Student Takeaways from the Program

Teachers described several student take-aways from the Urban GreenSpace programs, including skill development and an increased awareness of Green-Wood as an important community space. Teachers' reactions were mixed about whether students made real-world connections. Specifically:

- **Teachers agreed that students developed key skills related to problem solving in environmental science.** Teachers said students developed or practiced skills such as observation, close listening, data collection, teamwork and cooperation, sharing materials (e.g., data collection tools), critical thinking, and collaborative problem solving. Two teachers said the planting activity activated “executive functioning” skills for students, prompting them to think about “sequential processes” in terms of the order of steps. Another teacher said students developed skills related to “respecting the natural environment.”
- **Teachers discussed positive changes in students' perceptions of Green-Wood and cemeteries.** For example, two teachers noted that being able to spend time in a cemetery can “take away the stigma” around going only for burials or to grieve. Another teacher said students benefit from being aware of this “natural environment” in their own community, where students can “see turtles swimming in their space.” One also added that some students' parents have worked at Green-Wood, contributing to the idea of the space being more than just a cemetery, but rather a space that students associate with their community.
- **Teachers had mixed feelings about whether all the programs fostered real-world connections for students.** For example, one teacher thought that the Urban Heat Island program was more successful than the Invasive Species program because students were able to compare the temperature differences in a variety of places, helping them understand “what makes the city livable and how [the environment] helps cool it.” This same teacher thought the Invasive Species program would benefit from better “framing” to establish a clear relationship between what students were observing at Green-Wood and “the whole ecosystem.” That said, a different teacher said the Invasive Species program helped students “realize how vital some animals are to be able to live in this world.” Another teacher felt uncertain that their students made a connection between the organic waste used during the Pollinator program and what they already know about compost.

Perceptions of Green-Wood as a Resource for Environmental Education

When asked specifically whether Green-Wood offers a valuable opportunity for students to study and solve real-world environmental issues, teachers felt Green-Wood had great potential to do so. For instance, one teacher noted that Green-Wood provides a “rich resource for learning,” appreciating that they have their own education staff to support this goal. Another noted the value of being outside and having sensory experiences to relate to the ideas in the lessons (e.g., the Urban Heat Island program concepts were reinforced by being able to feel the effects of the tree shade on a warm day—not something you can experience in the classroom).

Suggestions for Improving the Program Experience

Teachers' suggestions for program improvement included incorporating more hands-on activities and group work, ideas about modifying data collection, and ideas for new content in the future. Specifically:

- **Teachers generally agreed that less time could be spent on the seated introduction.** Teachers instead agreed that more time should be spent on hands-on activities, “exploration,” and opportunities for small group work (i.e., rather than large-group discussion, which can be distracting to do outside).
- **Teachers also largely agreed that repeated visits along with pre-visit materials would enhance student learning.** For instance, two teachers spoke to the value of pre-visit materials, such as videos related to program content and/or in-person or virtual visits from Green-Wood educators, as valuable for reinforcing program ideas. Another teacher felt that multiple visits would also help “scaffold” ideas and help students build their learning from visit to visit.
- **Two teachers suggested improving the data collection for the Urban Heat Island program.** For example, they suggested modifying activities so they still work well on a cloudy or cool day. One teacher also felt that more time might be spent on testing and instruction around the thermometers (e.g., demonstrating how they work on different surfaces while the students are still seated). Another suggestion was to simplify the worksheets used for data collection to make them shorter, with more targeted data collection assignments.
- **Teachers had ideas about what new content might be incorporated in the future.** For example, they suggested more content about the history and design of the cemetery, information about the lakes and “aquatic resources” at Green-Wood, incorporating theater and storytelling, and more information about specific monuments and statues at Green-Wood.

05 Appendix



Appendix A: Teacher Reflection Guide

GREEN-WOOD CEMETERY: URBAN GREENSPACE PROGRAM CLASSROOM TEACHER REFLECTION GUIDE

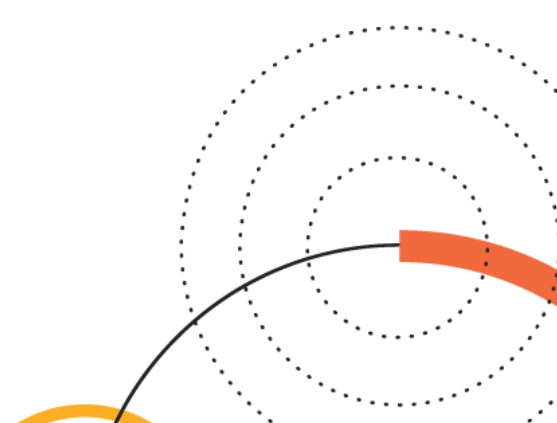
Thank you for agreeing to participate in an evaluation for Green-Wood Cemetery's Urban GreenSpace Program. We are asking you to reflect on your and your students' experiences for each of the programs you attend in person with your class by responding to the questions below 1-2 days after the program.

We do not expect that you will remember everything about your experience but we are interested to hear about anything that you do remember. All responses are confidential (i.e., your name will not be associated with your responses). The context for the program only will be used by the evaluator to be able to talk with you more in-depth in a telephone interview at the end of your experience.

1. 1. Which school are you and your students from?

Mark only one oval.

- Brooklyn Urban Garden School
 Sunset Park Preparatory School



2. 2. Which program date and time are you providing a reflection for?

Mark only one oval.

- May 31st 8:15-9:58 am
- May 31st 12:45-2:40 pm
- June 1st 8:15-9:58 am
- June 1st 12:45-2:40 pm
- June 6th 9:20-10:50 am
- June 8th 9:01-10:56 am
- June 10th 9:20-10:50 am
- June 14th 9:01-10:56 am
- June 14th 12:45-2:40 pm
- June 16th 9:20-10:50 am
- June 21st 1:15-2:45 pm
- June 24th 9:30-11:00 am
- Other: _____

3. 3. What was the most engaging part of the program that day? Why was that the most engaging?

4. 4. What was the least engaging part of the program that day? Why was that the least engaging?

5. 5. What would you keep about the program you experienced that day? Why is that?

6. 6. What would you change about (or add to) the program you experienced that day? Why is that?

7. 7. What is your first name?

8. 8. What is your e-mail address?

Appendix B: Teacher Interview Guide

Thank you for agreeing to participate in an interview about Green-wood Cemetery's Urban GreenSpace Program. Your feedback is important for understanding teachers' and students' experiences. We realize it may have been a couple weeks since you and your class participated in a program. We do not expect that you will remember everything about your experience but we are interested to hear about anything that you do remember. All responses are confidential (i.e., your name will not be associated with your comments).

1. Why were you interested in having your class participate in the Urban Greenspace programs? Can you tell me more? [topic of interest, aligned with the curriculum, etc.]

Can you remind me what the program(s) you attended were about? What topics were they focused on?

How familiar were students with the program topic(s) beforehand (very familiar, new)?

2. How was the process of scheduling the programs? Did you encounter any logistical challenges (or do you have feedback for improving the process)?
3. What was most engaging about the program(s)? What do you think your students liked most? Why is that?
4. What was least engaging about the program(s)? What do you think your students liked least? Why is that?
5. [You may have already mentioned this but] How, if at all, was the program connected to your curriculum? Can you give me an example from the program and how it connects?

[If not mentioned] How, if at all, was it connected to next generation science standards?

Were you able to adapt the program(s) to your curricular needs and interests?

6. What do you think students took away from the program? Can you give me an example?

What, if any, skills did they use related to problem solving in environmental science?

[Probe for examples of: observation, asking questions, collaboration, data collection, comparison, experimentation]

What, if any, real-world connections did they make? Can you give me an example?

[Probe for examples of: solutions to real-world environmental problems]

7. Based on your experience with Urban Greenspace, what are your perceptions of Green-Wood as a resource for environmental education? How about as a resource for studying and solving real-world environmental issues? Why is that?

8. What, if any, suggestions do you have for improving the program experience in the future?

Were any aspects of the program redundant to what you already do with students?
How so? What (if anything) would you change to address this?

What other types of programs or activities would you like to see in the future?

9. Is there anything else you would like to mention that I did not ask about?

I have a few final questions to ask for context:

10. Have you ever participated in an onsite school program at Green-wood Cemetery before this?

11. What grade level(s) do you teach?

12. What subject(s) do you teach?

With gratitude, Kera Collective thanks Green-Wood Cemetery for the opportunity to learn more about the new Urban Greenspace program.

Our doors are always open—don't hesitate to reach out with anything that's on your mind!



Kera Collective explores, measures, and furthers the meaning-making that occurs between museums and people.

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