

The Integration of Environment and Aesthetics at the Clark: Creating Student and Public Tours

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THE CLARK



Image description: The campus tour with Professor Hank Art picturing (from left to right) group members Justin Betancourt and Mariana Garcia with Professor Hank Art in the middle (*top*). The campus tour with Matt Noyes picturing (from left to right) Matt Noyes, Ronna Tulgan-Ostheimer, and group members Joanie Cha and Justin Betancourt (*bottom*).

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Abstract

The Clark Art Institute believes that conserving the planet and connecting its visitors to the natural environment is as essential to their mission as exhibiting art. The main goal of the Clark Art Environmental Tours project is to engage the public more intimately with the landscape and environmental efforts of the Clark Art Institute, located in Williamstown, Massachusetts. The project is a product of the Fall 2023 ENVI 402: Environmental Planning Workshop at Williams College. The project has two deliverables, one catered to the general public and one designed for school children. This report details the environmental history of the Clark, the research informing the tours, the content of said tours, and further recommendations. As the Environmental Planning group from Williams College, we focused on fully developing a school tour targeted for 6th-8th grade levels, highlighting water management and reflecting on the natural versus human-made aspects of different water bodies at the Clark. This tour introduces interactive science components and an exploration of the anthropogenic influences on the natural environment. For the public self-guided tour, our group created a beginning framework and a series of recommendations for the museum to continue developing. We recommend that the public tour incorporate both digital and audio components to guide visitors along select “stops” on the preexisting campus and trail system. The public tour content is entirely adaptable to any format and ripe for further project work. The school tour is fully ready to be implemented in the intended months of May, June, September, and October but is flexible for edits from the Clark staff to any changes that must be made.

Introduction

Located in rural Williamstown, Massachusetts, the Clark Art Institute possesses a unique ability to leverage their vast campus and many sustainable efforts to highlight the relationship between the environment and art. The Clark recognizes how important its outdoor campus is for visitors to recreate on and appreciate the aesthetic value of the land. The Clark has expanded its mission since its original founding, hoping to share the campus as part of the Clark experience just as much as our galleries. Furthermore, in a more environmentally and politically conscious modern world, the Clark realizes the importance of its power as a museum in ways that go beyond sharing their collection. Especially in the past 20 years of operation, museum and campus management has been heavily informed by practices of sustainability and conservation in order to reduce the museum's carbon footprint and impact on the local environment.

Currently, as our clients explained, the museum needs to enhance public messaging that they are an environment-friendly institution and that they actively strive to incorporate sustainability into all of their operations and principles. For example, although the Institute's newest building, the Clark Center, has the LEED Gold certification, that certification is unknown to the general public (Art, 2023). This project aims to create both public- and grade-school-level programs which will allow people of all ages to recognize the Clark's environmental efforts and engage with environmentalism and the outdoors on campus.

For most of its existence since opening in 1955, the Clark Art Institute has focused on branding itself as a public art museum prioritizing art and education. This emphasis on the contents and beliefs of the museum rather than their connection to the land made minimal use of their surrounding landscape. However, in more recent years, the Clark has been shifting its priorities from promoting appreciation of fine art to being a welcoming haven where all can learn

and recreate in an accessible manner. Staff at the Clark believe that in order for this to happen, the Clark must renew the connection between its art collections and the landscape, buildings, and ecosystems the Clark campus is comprised of. Having made concerted efforts over the past 20 years via learning about the history of the land, incorporating it more into programming, and changing countless policies and practices of the Institute to prioritize conservation and sustainability, the Clark is making that change. However, in order for the community to engage with the environmental and sustainable practices of the museum, there must be an avenue for the public to learn about them. The clients of this project would like the public to know that land stewardship and sustainability are just as important to the Clark as its art and architecture. Introducing a public sustainability tour allows visitors to learn about the Clark's environmentally conscious initiatives by engaging in the outdoor campus in an inviting manner. The school guided tour aims to similarly get students outside, engaging with interactive and fun curriculum in the realm of environmental education. These projects will collectively expand visitor perception of the Clark's environmental and sustainability efforts to include the balance between curated aesthetic and stewardship over the land. Creating programming to educate the community and engage them with the Clark's campus provides a unique visit alternative to the potentially more intimidating or abstracted option of viewing art in a gallery.

The benefit of creating these tours, however, extends far beyond expanding the already rich programming at the Clark. The school tour pioneers STEAM (Science, Technology, Engineering, Arts, and Mathematics) programming at the museum, which has not extensively been offered before. The intentional integration of environmental education centered around anthropogenic impacts into youth curricula is essential for teaching kids how to take care of our planet. Our projects strive to highlight the importance of environmental education for the next

generation of scientists, politicians, artists and more by introducing it via an influential premier art museum. By learning about real life choices the Clark must make in order to balance aesthetics and sustainability, students are introduced to complex questions. The tour provides a fun, interactive, place-based style of learning for students to make new connections to content they learn didactically in school.

The general public tour demonstrates how environmental education extends to all ages, not just school children. Similarly to the student tour, the public tour teaches Clark visitors about the features of the museum and land around them. Adults who have more contextual experience with environmentalism and conservation can engage somewhat further with the detailed content at the Clark. Hopefully, this tour will inspire individuals to engage with sustainable practices in their everyday life. For many people, climate consciousness has become a critical issue in our modern warming world. It is important that Clark demonstrates their care for the climate to generate continued public engagement and support. Generally, the public tour hopes to showcase the interesting process behind many sustainable features of the museum and publicize the importance of land stewardship to the Clark's visitors. By calling the public into the museum's mission of stewardship and environmental sustainability, the Clark demonstrates how it prioritizes conservation and becomes a trailblazing model for peer institutions to follow. Furthermore, both of these projects emphasize learning indigenous and land history as part of art and science education.

Our main client is the Clark Art Institute itself, as we are providing recommendations and program outlines to be implemented at the museum. Specifically, we have been working with two representatives, Ronna Tulgan Ostheimer, Director of Education at the Clark and Williams College Professor Emeritus Henry "Hank" Art, the current Sustainability Projects Manager. The

clients have met with us over the course of the semester to give us campus tours and guide our project with helpful information and recommendations. We have met with one or both of them each week to check in on the progress of our week with varying focuses each week. Professor Art gave us a detailed tour of potential campus features for the self-guided tour including crucial background information. Ronna Tulgan Ostheimer explained potential focus topics for the student tour and further detailed the educational pedagogy of the Clark. Together, they have illuminated the ideology and history of the Clark for us all while providing expert guidance for our work.

Site Description and History

Our project strives to educate the Clark's visitors on environmental stewardship as we showcase the water features around the campus. For the general public's understanding and appreciation of the environment included in the self-guided tour, it is important to acknowledge and remind visitors of the indigenous history of Stone Hill, where the Clark is located. The museum is settled on the land of the Stockbridge-Munsee Community, composed of the Mohican and Munsee people, the original inhabitants who were forced out of their land and displaced (*Stockbridge-Munsee Mohican History in Williamstown, 2023*). As we introduce our self-guided public tour, we will begin with a land acknowledgment and add information on the indigenous tribe's connections to the land. Similarly, our second stop on the school tour will be at the Land Acknowledgement sign at the entrance gate of Stone Hill. On their website, the Clark briefly outlines the settlement history in Williamstown and Stone Hill. The site states, "While Native American Mahicans no doubt traversed Stone Hill on their journeys to and from their settlements in the Hudson and Connecticut River Valleys, to date there has been no evidence found of Native

American settlement on Stone Hill itself” (Sensing Place, 2016). While we do not have concrete evidence to add more context, we emphasize that the land acknowledgment goes beyond a statement of “past” hardships and instead highlights the importance of maintaining a connection and respect with the land and the people who have historically inhabited it.

Stone Hill, after indigenous displacement, has been documented through hand-drawn and digital maps as well as first-hand accounts and writing. Through teaching and research, Professor Hank Art created a comprehensive overview of Stone Hill history and land use, as well as other natural histories in the Williamstown area. The program introduced earlier, entitled “Sensing Place: Reflecting on Stone Hill,” is a culmination of information that helps the public understand the history and use of Stone Hill, the Clark’s most visited outdoor site. It shares the early history of land use post-initial settler-colonialism in the area, which was transformed to make space for farming and grazing. After the 1830s and leading into the 20th century, agriculture remained an important activity on the land (Sensing Place, 2016). Hand-drawn maps of the Williamstown area show the general layout and use of land (figure 2). While it is difficult to see and find where Stone Hill is on these maps, showing the way the land is gridded and split on the maps provides a historical backdrop and adds context to how the land was viewed and used before the Clark. Below is a postcard of Stone Hill and a hand-drawn map of Williamstown used in the “Sensing Place” program website (figures 1 and 2) (Sensing Place, 2016). These images allow the public to reflect on the land they explore at the Clark and reimagine the place as they traverse the trails. By including and recognizing these histories, our project hopes to invoke curiosity, respect, and further learning about the land where our environmental tour will be placed.

Figure 1: Postcard, “Grazing on the Green River Bank, Williamstown, Mass.,” postmarked 1916. Lent by Henry W. Art

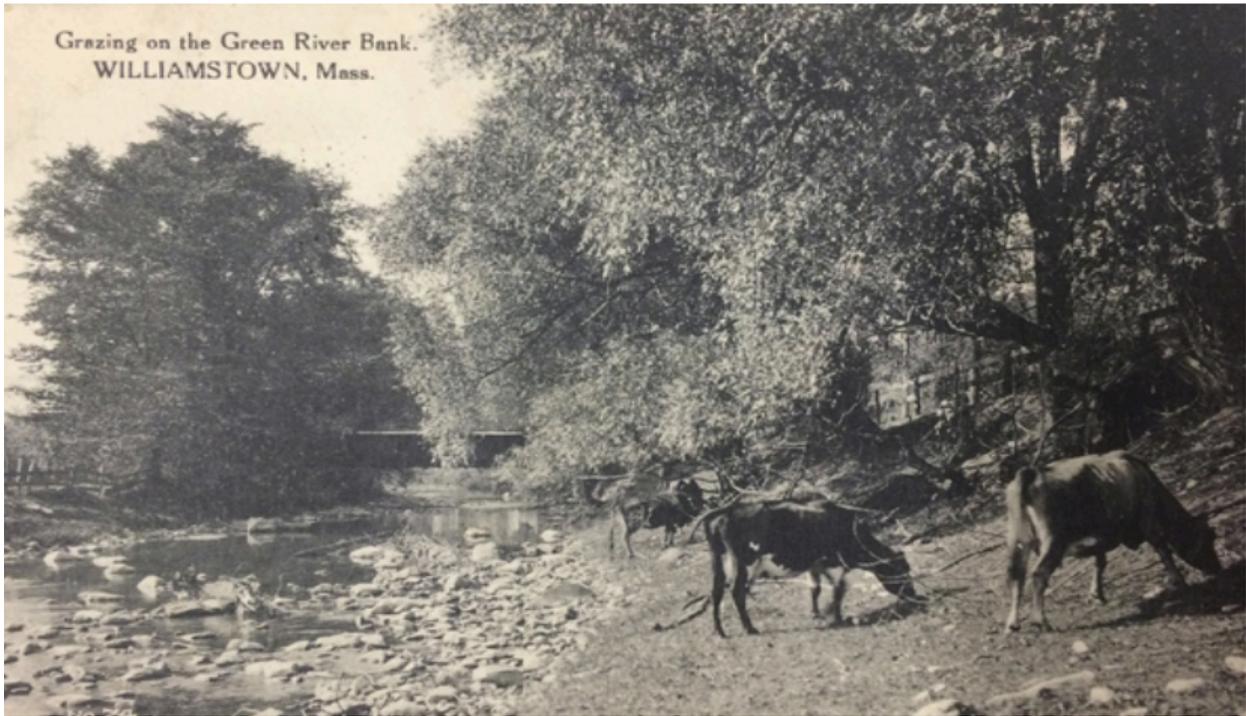
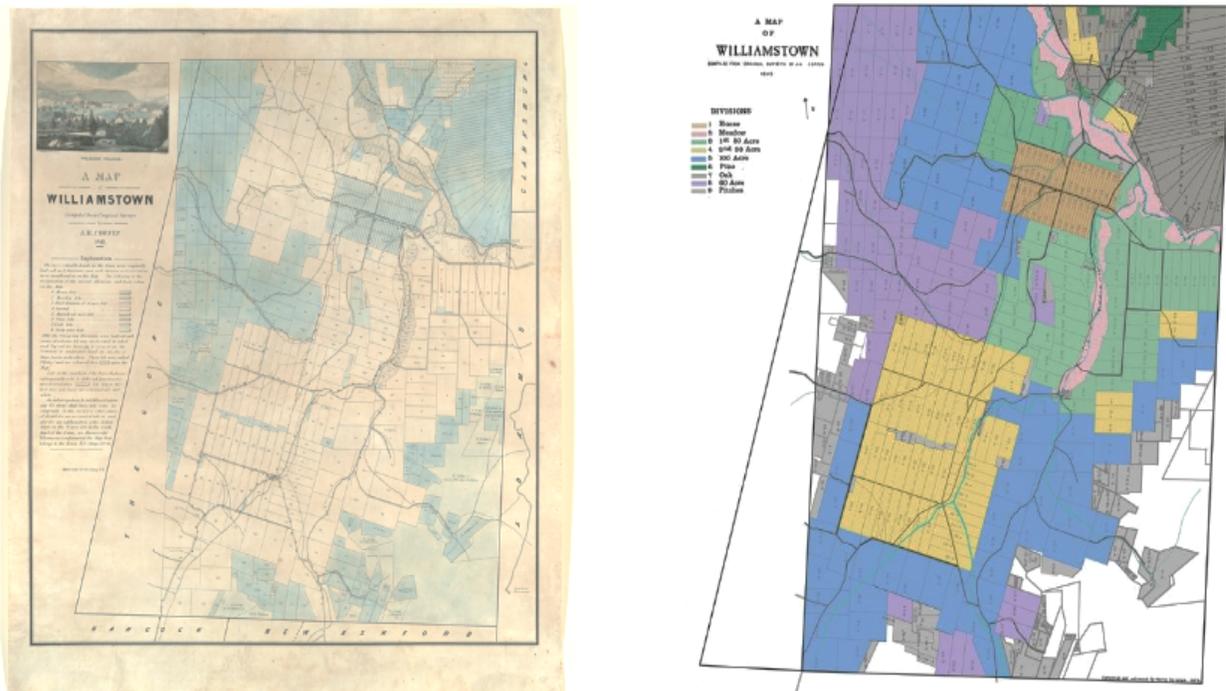


Figure 2: James Henry Coffin map, 1843 (left), based on information from 1750. Image courtesy of Boston Rare Maps, Southamptton, Massachusetts. Color coded version (right) by Henry W. Art shows lot types more clearly.



It is important to introduce the history of water use and allocation as that will be the main focus of our environmental tours for the public and students. For both tours, we will touch on the geological history of the land by educating groups about Glacial Lake Bascom, which 16,200 years ago was located where Williamstown is now (Sensing Place, 2016). Because of the historical source of lake water, Williamstown finds ample sources of water in its many local rivers and streams. The deep aquifer that is tapped for the Williamstown municipal water supply is recharged by groundwater above 1300' elevation, allowing Williamstown residents to rely on the town water supply rather than purchasing plastic water bottles. Matt Noyes, Clark Horticulturist and Grounds Manager, explained in an interview the clean lake water that used to exist aboveground now lies in the impermeable aquifers of Williamstown recharging the wells and moving water of the town (Noyes, 2023). The geological history of rock and hill formation, as well as the abundance of glacial water and movement, also explains the wetlands and meadows that now exist around the Clark. These histories are important to include in the tour as they allow visitors to learn the bigger picture of environmental processes and the Clark's initiatives to mitigate resource and environmental degradation.

In addition to this natural geographic history, we expand on the history of the land by highlighting the anthropogenic impacts that have altered the environment. The construction of the Williamstown Water Storage Tank, approved in 1991 and built in 1992, was a large project that shaped the landscape of Stone Hill and positionality of the Clark as a community-serving institution. The water tank was proposed by the Board of Selectmen and the Town Manager, Steven Ledoux, to be constructed as an above-ground water tank on Stone Hill for Williamstown residents. The Clark opposed this idea, not wanting their visually aesthetic outdoor campus to be ruptured by the infrastructure. Instead, the Clark proposed using a portion of the land on Stone

Hill to build an underground tank, where they would help pay for the construction (Brooke, 1991). Presently, the water tank supplies many town residents and the Clark with water. While the Clark has implemented sustainable practices to collect some of the reflecting pool water from pavers and green roofs, they still draw on the municipal water tank to augment recycled water.

Figure 3: Archival photos taken in 1992 of the Water Tank's construction on Stone Hill. Photos provided to us by Professor Henry Art, originals at Williamstown Water Department.





Community Profile

The Clark welcomes people from all over the country and globe to come to the Berkshires to see their collection and enjoy their campus, partially due to the thriving art scene in the region with other nearby museums like Mass MOCA. While the Clark does not publicize any demographic data related to its visitors, it recognizes it attracts both local and international visitors. In Williamstown, where the Clark is located, the median age is 21.4 years and the median household income is \$96,000, with a 8.53% poverty rate. The population consists of about 4,570 people, and is 74.3% White, (non-Hispanic), 4.5% Black, 8.8% Asian, 5.8% Hispanic, and 5.83% multiracial (Data USA). In terms of the demographics of Berkshire County as a whole, the median age is 47 years and the median household income is \$63,100, with a 10.1% poverty rate. The population consists of 129,000 people, and is 86.9% White

(non-Hispanic), 2.5% Black, 1.74% Asian, 4.81% Hispanic, as well as 3.25% multiracial (Data USA). Overall, Williamstown has a higher median income, lower poverty rate, and slightly more diversity compared to the rest of the county. Our clients explained that traditionally, the majority of visitors going to the Clark are higher-income and interested in their world-renowned art collections. In the past few years, however, the museum has been trying to change its image to be more accessible and open to all people, not just the elite.

Many of the Clark's visitors come from out of town and stay around the Williamstown area after visiting. Locals and visitors alike indulge in the dominant culture of wealth and art, further enhancing the importance of Clark's positionality in the town. While the opinions and information of the Clark's visitors are not collected, we know that they expect the museum to be catered to meet the visions, needs, and elegance of wealthy New England which the museum upholds. The Clark has previously recognized that a significant portion of their visitors only use the outdoor space owned by the Clark, many of whom only use the popular trail system. This project, in whole, will aim to consider a wide demographic of people with diverse backgrounds and a variety of ways to interact with the Clark to make the museum a more accessible and communal space through the centering of environmental stewardship.

Methodology

Our methodology for completing this project centered around understanding the vision of our clients, familiarizing ourselves with the Clark and its campus, and developing our tours informed by environmental education standards. We accomplished that by completing interviews with experts on the Clark and the natural history of the land, educational professionals, and students themselves. We also fully reviewed a number of documents related to the Clark and

Stone Hill, many of which were provided to us by Professor Art. We selected visual aids to include in our tours from these resources. We conducted a detailed examination of the Massachusetts Department of Elementary and Secondary Education curricular requirements and learning standards for each year. More of our methodology is fully detailed below and in later sections.

Interview and campus tour with Henry (Hank) Art:

On October 18th, our group was given a general tour of the campus by Professor Hank Art. He has had a relationship with the museum for a long time and possesses an abundance of knowledge about the institution's history, so it was very helpful to be guided through the landscape by him. He also introduced us to the ways in which they are committed to sustainability. He guided us around the campus, detailing the history of Schow Pond, the low-mow lawns, the water feature, and the town water tank beneath Stone Hill (Art, 2023).

Reviewing Massachusetts DESE guidelines:

Throughout the initial week, we researched the Massachusetts Department of Elementary and Secondary Education guidelines to narrow our age range focus on and see what students are learning in school that can be relevant to the tour (Massachusetts DESE, 2019). These guidelines also showed us what middle school students have previously engaged with educationally and interact with in their classes on the day-to-day. See the [Department of Education Curriculum](#) section to read the full analysis.

Interview and campus tour with Matt Noyes:

Two weeks after we started the project, we were given a second sustainability tour by Matt Noyes. Noyes is the Horticulturist and Grounds Manager at the Clark and has spent many years managing the campus. He possesses intimate knowledge of the museum's landscape and

has been involved with many aspects of the Clark's sustainability features. With Noyes, we had a thorough tour explanation of the low-mow lawns, semi-permeable parking lots, water treatment and storage facilities (underground tanks, reservoir, sand tanks), water feature, pavers, and pasture (Noyes, 2023). We recorded the information he shared and even inserted a portion of the audio from this tour in our final presentation as an example of how audio expands understanding of physical landscapes.

Interview with Ms. Sarah Brill:

Ms. Sarah Brill is the science education teacher at Williamstown Elementary, as well as the director of the CliA (Center for Learning in Action) program that pairs Williams College students as Student Helpers and tutors with classes at the elementary school. We conducted this interview to get a better understanding of what students would be interested in for our school tour and to get recommendations from an experienced science teacher. Ms. Brill is a graduate from Williams College who studied Biology. She explained that she interacted with Schow Pond often for thesis sampling as a Williams student (Brill, 2023). Following along with the theme of sustainability and raising questions on the intersection of human versus environment intervention, Ms. Brill recommended introducing Schow Pond as a body of more “naturally” occurring water that could be compared with the reflecting pools (Brill, 2023).

Demonstration at Williamstown Elementary School in Ms. Tricia Kowalchuk's 6th grade classroom:

Nearing the end of the semester, we had the opportunity to visit a 6th grade classroom to share a blueprint of our school tour. We also wanted to see how students in our focal age range would react to an interactive filtration activity that we had recently decided on exploring. As one of our members had a prior connection teaching with this 6th grade classroom, we were able to

make a short presentation at the school. We used water bottles, dirt, sand, and other easily accessible materials to showcase the way groundwater gets filtered. While two members of our group mostly constructed the two filters, demonstrating each step for the students, one member of our group posed related prompts to the classroom. We provided general context for the students and connected to concepts they had already learned, such as the water cycle, or had experienced in their real life, such as various ways they used water. We discussed as a whole group why water might need to be filtered in the human and natural worlds. Students were curious and asked many questions, most of them expressing surprise that the filtration had worked to clear the previously murky water. The critical part of this demonstration is that we used the framework of the **scientific method**. Before we started, we explained some general context to give students a background. Then, explaining our activity, we gave students an opportunity to make **hypotheses** about what would happen. We ran the **experiment** and let students explain the **observed results**. Afterwards, we used **discussion** to talk about whether or not they felt like their hypotheses or guesses were accurate and why that was. Students even started to describe how they would change the experiment for **future research** without being prompted. See the full [school tour outline](#) for an in-depth explanation of the activity (pg 33).

Overall, this experience allowed us to interact with the student demographic we were interested in for our tour, which gave us new ideas to implement more dynamic questions and examples. We saw firsthand how important it is to give students space to connect the activity to previously held knowledge while also leaving plenty of opportunity to ask questions. The teacher of the classroom, Ms. Kowalchyk, also gave us good feedback and recommended that if we stuck with the demonstration, we should have clear cups and larger bottles to show future demonstrations (Kowalchyk, 2023). After visiting this classroom, we confirmed that this activity

was a great addition to the school tour. It also allowed us to experiment with ways of framing the activity and we realized how well the scientific method promotes learning and curiosity.

Literature/Document Review

To help us prepare for our research, Professor Art created a shared drive with many documents providing background information on the project. These included pre-existing Clark trail maps and guides, past material on topics such as invasive plant species and the natural history of the landscape, diagrams of the museum's drainage and water features, and a past draft for this sustainability trail project. These resources gave insight into how the Clark has operated and implemented past maps, trails, and sustainability measures against invasive plants.

Project Overview Documents

The overviews of each individual project provided to our group by the clients gave a clear outline of the goals of the clients and what material should potentially be included. For the school tour, they were looking for a program that “shares the Clark’s environmental ethic and efforts” while both “incorporat[ing] the Clark education pedagogy and approach” and “address[ing] state science/tech/engineering learning standards” (Tulgan-Ostheimer, 2023). Some of the suggestions for tour content included the Clark’s educational philosophy (engaging with art and nature together for greater human wellness), stewardship of the land, environmentally interesting features of the campus, balancing landscaping practices with sustainability efforts, LEED certification and its meaning, and site specific sustainability features.

The public “Sustainability Trails” tour project hoped to create an interpretive trail system utilizing current trails to “educate, inform, and inspire those encountering the museum and its

campus” (Art, 2023). Some of the suggested potential content focuses included hydrology of the Clark campus, invasive exotic management, forest and woodland management, agriculture in the pasture, historic ancient woodlands adjacent to the CAI, building infrastructure, habitat diversity of the campus, tall grass meadows and landscape maintenance plans, wildlife interface with deer, bears, and other fauna, and maintenance of the trail system.

Clark Art Institute 2022 Strategic Plan

In 2022, the Clark Art Institute adopted its Strategic Plan. The museum’s website describes the Strategic Plan as “a framework for the Institute’s future, embracing the three key elements that define the Clark and inform every aspect of our operations: art, ideas, and nature” (Meslay, 2022). The Strategic Plan is located on the website in a pdf format. It clearly delineates the three pillars of the plan (art, ideas, and nature) and how the museum plans to accomplish those goals. Our project indisputably will incorporate all three of these pillars; however, the portion our project relates most closely to is number three, nature. In the Strategic Plan, the nature portion mainly describes how it will recommit to sustainable action. This goal is broken down into three subgoals:

1. Investing in sustainability and reducing their carbon footprint
2. Accessible year-round nature and land programming for connection between art and nature
3. Build partnerships to expand capabilities in environmental conservation, nature, and land-based educational programming

The Strategic Plan identifies clear entities with whom they hope to connect in order to complete subgoal #3 such as Williamstown Rural Lands, the Berkshire Regional Planning Commission, Mass Audubon, and more (Meslay, 2022). However, for subgoal #2, the Strategic

Plan broadly gestures at the types of programming it hopes to see rather than what the actual programming will be. This is where our project slots into nicely. The Clark hopes to “identify constituencies that have a particular interest in programming related to the environment and the Clark’s natural setting and develop specific offerings to engage this audience” (Meslay, 2022). The school and public sustainability tours are an excellent fit for this goal and will successfully accomplish other goals along the way. Over the course of our research, we have worked to identify any gaps in the Clark’s programming that our tours can fill. By recognizing two key gaps, the middle school demographic and environmental education as a whole, our project recognizes new potential constituencies for the Clark to tap into. Furthermore, by speaking with educational professionals and actually visiting a classroom, we have identified precisely what this missing demographic wants to engage with in terms of programming. Overall, the Clark Sustainability Tours further this aspect of the 2022 Strategic Plan by aligning with the general vision of recommitting to environmentalism. However, this project also addresses specific goals and action items outlined in the Strategic Plan by identifying a demographic and educational gap at the museum, reaching out to those constituents (teachers and students) to incorporate them into the process of developing the tours, and most importantly, actually *creating* the nature programming at the core of this Strategic Plan Goal.

The Natural History of Stone Hill

The drive that Professor Art provided us with contains a vast amount of material and information regarding the natural and anthropogenic history of Stone Hill. Given that Stone Hill represents an impactful portion of the Clark’s landscape, it is an essential feature to include in the tours.

There are many pictures of the construction of the Stone Hill water tank (previously described in this report) and a memo describing the planning process. These photographs informed the creation of this project and can also be used as visual aids during the tours. They are a great example of heavy anthropogenic interaction with the land that nowadays, goes almost entirely unseen. As far as anthropogenic impact, the water tank is also a huge infrastructural staple to the town for storing town water.

There are also numerous past student reports on the natural history of Stone Hill in the form of field guides about specific areas. These reports originate from a class that Professor Art taught while at Williams College called “BIOL 255: Natural History of the Berkshires: Stone Hill.” These reports oriented us to more detailed histories of specific parts of Stone Hill, including the Stone Bench, the Clark Meadow, the Christmas Brook Headwaters, the Wet Meadow just adjacent to the reflecting pools, the Clark Woods, and finally, Schow Pond. When considering which features to include in our tours, we read through these reports and considered heavily how they could be connected more explicitly to land management practices of the Clark. When we decided to focus more on water, the history of Schow Pond field guide by Funmi Adejobi (Williams College, class of 2017) deepened our knowledge of the pond (Adejobi, 2016). While no specific details from the field guide are directly included in our tours, the report highlights the both natural and anthropogenic history of the Pond, a theme that is reflected heavily in our tours. In this way, all of the material detailing the history of the Clark landscape informed the creation of the tours.

Figure 5: Images of the underground filtration room at the Clark taken by Joanie Cha and Justin Betancourt. Water from the reflecting pools is cycled through the sand filter tanks (teal) to remove detritus and algae. Water is treated with chlorine dioxide. The filtration room is connected to the 300,000 gallon reservoir where water is stored in the winter months (not pictured).



Moreover, we have identified ways to further highlight the sustainability measures around the campus. The Clark already has maps of their trails and landmarks, however, they do not explicitly incorporate information on their environmental efforts. These pre-existing trails have the space to offer visibility and publicize the environmental stewardship efforts the Clark is proud of. The addition of new information into these trail maps allows for their sustainability work to be more publicly known in an organic and subtle way. Additionally, the insertion of more information on these maps, both regarding the history of the land and sustainability efforts, can enhance the interpretation of the space beyond the trails and the outdoor campus. The opportunity to insert and share the Clark's initiative for environmental stewardship also allows for the schematics of care and maintenance that the Clark spearheads. For example, the presentation on invasive exotics can be reoriented to highlight sustainable practices and protecting the native environment. Additionally, the natural history presentation lacks information on Indigenous peoples inhabiting the land and Hank Art regrets that he overlooked that history. In our tours, we can incorporate some forms of land acknowledgment and information about these peoples in an accessible and inclusive way.

The self-guided tour will rely on Clark campus trails outlined on the existing trail map (figure 6). Visitors will be able to walk along existing Clark trails, familiar to many, with a deeper appreciation for the history and stewardship of the land. If signage is not allowed for the tour, the existing trail map kiosks located around the outdoor campus could be used to orient the visitors while also referring them to the digital, more thorough version of the tour. The pre-existing maps and kiosks will also make it easier for Clark visitors and staff to connect to the addition of more information to their sites instead of creating a whole new trail system.

Figure 6: Map of the trails on the Clark campus. Copyright © 2023 The Clark Art Institute.



Department of Education Curriculum

We have reviewed the Massachusetts Department of Elementary and Secondary Education (DESE) curriculum guidelines for Science and Technology Engineering. The clients suggested we survey the elementary and middle school educational standard and select an audience for our tour based on a good match with specific curricular focuses. One of the museum’s past STEM-focused school programs, entitled “Water Works,” has programs designed for children from preschool to 8th grade. Middle school is a great age for this program to be catered to because young adults at this age possess a fiery sense of curiosity and whimsy but are

old enough that they often critically question the world around them. The Massachusetts DESE guides schools across the state by having Learning Standards for each subject in each grade. Learning Standards are described as “clear and shared expectations for what all students should know and be able to do at the end of each year” (Massachusetts DESE, 2023). We explored their Science and Technology/Engineering Learning Standards in detail.

Based off the learning standards for each grade, it seems like our school tour would work best with 5th, 7th, or 8th-grade students. Starting in 5th grade, children learn about interactions between human practices, the Earth’s functions, and what humans can do to help the environment. Examples include “treating sewage” and “capturing polluting emissions from factories or power plants” (Massachusetts DESE, 2019). Fifth grade students also begin to learn about organism level interactions in an ecosystem and how organisms function as part of a larger network. Because the Clark wants a tour that will teach the children about their efforts to reduce the Clark’s anthropogenic impact on the environment and how to be stewards of local ecosystems, starting our search at this age is a good fit. However, it would be best to focus on students that already come in with prior knowledge, so middle school seems like the best fit. Students learn more about human impacts on the environment, use of natural resources, and climate change in the 7th and 8th grades. Section ESS3 of both the 7th and 8th grade guidelines, entitled “Earth and Human Activity,” shows that our tour is very well-suited for their grade level (Massachusetts DESE, 60, 66). The 8th grade curriculum, in particular, focuses on fossil fuels, oil consumption, and how anthropogenic activities have furthered climate change (Massachusetts DESE, 66). When we discussed our ideas with Ronna Tulgan Ostheimer, she was enthused about designing our tour for 7th or 8th grade, explaining that the Clark has struggled with attracting

middle school students in the past. She suggested tailoring our tour to the 7th-grade standards and using it with slight modifications for middle schoolers of all years.

Additionally, Ronna Tulgan Ostheimer highlighted the idea of focusing on water for the education tour. She had also shared that a similar water-focused tour, entitled *Water by Design*, had been created and implemented at the Clark in the past (*Water by Design*). This tour presented students with the water feature design, raising questions on how art exists through the aesthetic and sustainable designs in the feature. We took great inspiration from this past project and altered many of the core ideas such that our tour emphasizes experiential rather than didactic learning experience for students. We designed our tour to accomplish this by making it interactive through organic enthusiasm where students can come to conclusions on their own and connect the information to their personal lives. For the structure of the tour, Tulgan-Ostheimer suggested we start by asking a basic question about the sustainability feature and then connect it to how students have observed similar sustainability practices in their everyday lives, followed by a brief lesson, and lastly move on to an interactive activity.

Case Studies

To ensure an inclusive and efficient program for the tours, it is vital to review and analyze the successes of other programs that are given in similar settings. These case studies of similar programs give us essential information on how to structure our programs. The example studies are from various places, including nearby art and environmental museums, education centers, and college campuses. The most notable programs from these sites are analyzed here, outlining how their ideas can be successfully integrated and implemented into our tours. To better

understand how visitors engage and reflect on these programs, conducting site visits and interviews with the people spearheading these programs would benefit our project construction.

Educational Guided Tour:

1) Five Rivers' New York Education Center (~1 hour away):

The Five Rivers Environmental Education Center is located in Delmar, New York, and has over 450 acres of outdoor space, with guided tours and trails available for visitors. This outdoor and educational center is known as one of New York State's environmental conservation and education centers. The large outdoor area allows for this organization to host multiple education programs throughout the warmer months. Their mission is to provide inclusive and interactive outdoor learning and recreation spaces. Specific educational programs are varied depending on student grades. They have multiple types of programs, including after-school outdoor programs, mindful nature walks, and bird observation. The website has bountiful resources of outdoor activities that are used in this educational center, ranging from "field journals," "sound maps," "Sensory Bingo," and endless arrays of other activities. This site is very useful as it gives plenty of examples of successful and interactive outdoor activities for young students.

- Link to outdoor activities: <https://www.dec.ny.gov/education/72444.html>

Sustainability Tours:

1) Smithsonian Institution "The Building"- National Museum of African American History and Culture in Washington DC

“The Building” at the Smithsonian is the National Museum of African-American History and Culture in Washington, DC. This museum is located in the middle of the city and has been designed with sustainable features in an effort to divert energy and resource use from the building’s footprint. Atrius, a business intelligence group that provides sustainable consulting to business infrastructure, recommended the sustainability efforts and report that the Museum implemented. While the building layout is not similar to what is at the Clark, the structure, language, and tools used in their green screen online guide can provide examples of a successful tour through the sustainability language and sources used. In their sustainability guide, the Smithsonian Museum provides a specific outline of its water features, a feature that the Clark wishes to concentrate on for our tour. In this section, the guide outlines the Museum’s approach to developing a stormwater management system that includes harvesting rainwater to reduce usage of outside potable water sources. The guide includes pictures of the water filtration system, the number of gallons collected and filtered, and a diagram showing how water travels through roof collectors all the way to the filtering system and then to the public facilities. Their use of language, diagrams, and information shows us a comprehensive layout that is easy to digest and follow. The online guide also shares a slide on the importance of using low-emitting materials for signage. While this idea was introduced, it was not further explained, but further research on this would be beneficial if we decide to create signage for our outdoor guide.

- Link to Greenscreen Dashboard:

<https://buildingos.com/s/smithsonian/NMAAHC/?chapterId=1001>

2) Williams College Map Tour:

The Williams College Sustainability and Environmentalism website has many resources outlining campus sustainability efforts. Among these resources is an interactive audio tour of

sustainable features and buildings on campus. The map is accessed online and represented as a 3D model, where site visitors can browse the campus and select the specific locations they are interested in. The audio is all recorded by the same person and varies by length, depending on the amount of sustainability features each location has. The language and phrasing used in the recordings are easily understandable and catered to the general public, who may not be aware of the importance or meaning of sustainability. One of the biggest takeaways from this tour is the nature of the information shared, as the tour's creators made it a point to continuously tie the features back into the larger scheme of environmental and conservation importance. They also outline the projects' history and challenges, sharing the issues that arise in engaging with sustainability in a society where this is a new adoption. Similarly, the sustainability tour will incorporate information on the complexity and positionality of the museum and its environmental features into the grander picture of climate and resource protection. The audio aspect of this tour is also interesting and interactive for the Clark's visitors and would be an effective alternative if signage is not possible on the trails.

- Link to audio sustainability tour:

<https://map.williams.edu/?id=640#!bm/?ct/8158.0?sbc/?t/2289:1>

Recommendations

School Tour:

There is space for growth with both tours. The school tour should be reviewed by employees at the Clark to refine the program and specific information at each stop. While we have offered information and analysis to the best of our ability, the Clark docents and staff will decide which information is most accurate to the Clark's vision as well as how to teach the ideas.

As we have tested the interactive component with students at Williamstown Elementary School, we do feel strongly about the Clark implementing, if not the same demonstration, at least a similar interactive aspect. We also have received feedback from the educators we interviewed that adding visuals, which can be laminated versions of the water flow maps or the water cycle, can help the students work and imagine the larger systems we explore in the tour. Additionally, we recommend that the Clark revisit the ideas from the *Water by Design* tour as they successfully took lessons learned from the tour to reflect on the way water is featured and depicted in art found in their gallery (*Water by Design*). We have gone through the referenced art pieces from that tour and outlined which fit closely with the ideas of aesthetics, and the connections between “natural” and “human” intervening water management.

Public Tour:

Going forward with the public tour, our team identified, through class presentations and feedback from fellow students, that the information shared will reach the most people if there are physical signs or guides. Having digital or physical guided components like a brochure is fantastic, but having site-specific guiding features more clearly orients visitors to specific locations. It also encourages them to look up from their phones and actually see the land. However, from our work with Professor Art and Ronna, it is clear that creating physical signage is a time-consuming and sometimes staggering process. For this reason we also recommend leaning into having a digital tour, which can be a quicker solution with interactive results.

We identified that the Bloomberg Connects app, an app already used by the Clark, would be a great fit for the tour. It is easy to download, already actively publicized to visitors, and has currently one page related to sustainability. By having a subsection of the app specifically designated for the Sustainability Trails project, it will be easily accessible to the public and easy

to integrate into the Clark's current programming. QR codes that connect users to the app and existing audio tours already exist on trail maps and bookmarks around the campus (figures 7 & 8). With these digital tours, we also recommend having an audio component, where the public can listen to museum experts talk through the site features. There are already museums that have integrated audio components on the Bloomberg Connects app. As noted in the description of our campus tours with Professor Art and Matt Noyes, having a real person and professional conversationally orient and teach us was incredibly meaningful. Not only is it clear that they are well-versed in their knowledge and deeping care about the land, but they speak in clear, non-intimidating language that is accessible to all. Therefore, we think it would add a unique facet to the tour to have audio components recorded by experts on the Clark and the land. We have recommended the inclusion of at least 4 stops on the Sustainability Trail project, however, we suggest that the tour could expand far beyond that. Part of the benefit of a self-guided tour is that visitors may opt-in to the length and challenge of the tour they would like. See below for more details about the content and goals of the public tour so far.

Figures 7 & 8 (left to right): Figure 7 shows a QR code that connects phone users to an audio tour of an art installation. Figure 8 shows a QR code that connects visitors to the Bloomberg Connects application.



School Tour

The following section is the school tour outline in its entirety:

The Clark's Waterscapes

Clark Outdoor Campus and Clark Center

Campus Educational Tour (Grades 7-8)

Tuesday-Friday at 10:00 am to 3:30 pm (time frame)

Offered in September/October and May/June

- Could be rain or shine, rain would add to the experience of discussing water! Except for lightning
- Weather is enjoyable outside
- The reflecting pools contain water, allowing students enjoy the beauty of the pools and visualize the flow of water cycling in the water feature

Length: 60-90 minutes

Meet the school group near Admission's desk

Goal: Encourage greater awareness and thoughtfulness about the relationship between human beings and the natural environment, especially water, and realize the ethic, ethos and possibility of human stewardship for the environment. Water is an essential molecule for all life on Earth.

Tour Theme: *How does the Clark manage water on its campus and maintain a balance between aesthetics and environmental stewardship?*

Main Points of Theme:

- There are a variety of ways the Clark manages water, maintaining the balance between aesthetic and conservation in the Pond, the Reflecting Pool, the wetlands, stormwater collection and runoff, and general water use in the museum.
- While the Pond seems much more “natural” than the reflecting pool because of its aesthetic and function, perhaps there is a gray area between products of human intervention and the purely “natural” world.
- What is nature? Are humans themselves part of nature like other life on Earth?

Water Tour Script

Stop 1: Clark Relationship to Land

Location: Clark Center

Hello everyone! Welcome to the Clark Art Museum. Today our tour will take about an hour. We will learn about the Clark’s relationship to the land and water and about how an institution like the Clark thinks about their environmental responsibility and specifically how we manage water on the Clark campus.

We’ll get to look at two different bodies of water, including Schow Pond which supports more of a “natural” ecosystem and the Clark’s carefully designed Reflecting Pool. Who’s been to the water feature before? Fantastic. We will get to do a really cool hands-on water filtration experiment and even dance on hollow stones together. We’ll be doing this experiment to see how “human-made” water filtration processes compare with and mimic filtration in the natural world. We’ll get to have a sense of how water in both the Reflecting Pools and Schow Pond gets clean! A big theme of today will be talking about what we each think nature is at the Clark.

Let’s get started! For our first stop, we are talking a little bit about the Clark’s relationship to the land, then for the next stop we will head to the Land Acknowledgement sign outside.

Clark Campus

[Step outside the front entrance of the museum so students can see the parking lot and parts of campus - we will walk towards the Land Acknowledgement next]

Question: Have you been to other art museums?

→ let them raise their hands

Question: What are some differences between the Clark and other museums?

→ call on 3-4 students

One thing that's different about the Clark Art museum is that it's located on a large piece of land in a rural location which contrasts with many other art museums located in dense, urban areas. The campus consists of 140 acres of land including all the gallery buildings [you may have visited before/where we started our tour today/located right behind me], the pasture with all those awesome herds of cows and cool art installations, the trails on Stone Hill for hiking and exploring, and many more acres of forest.

Question: What are some of the **benefits** and **responsibilities** the Clark has for being on this land? Talk to a partner next to you then let's share out.

→ Let students discuss the benefits and responsibilities of being on the land. If they cannot come up with responsibilities, prompt them with questions about responsibilities they have at home or that their school has e.g. are there any tasks or responsibilities you have to maintain land at home like yard work, shoveling snow, general chores?

One of the benefits of the Clark campus is that visitors are able to enjoy the outdoors just as much as the indoor art!

Question: What are some ways we engage with art and versus the outdoors? Are there any common feelings that you have looking at each?

This is part of a larger shift and awareness in society about how we think about the environment and the relationship between nature and humans. The Clark recognizes how important its outdoor campus is for visitors to recreate on and appreciate the aesthetic value of the land. Especially in recent years, the Clark has expanded its mission, hoping to share the campus as part of the Clark experience just as much as our galleries. With the intentional inclusion of our campus as an essential part of visitor experience comes a responsibility to **take care** of the land, both for the sake of the environment and maintaining the visual aesthetic as an art museum for visitor enjoyment. Those are all the responsibilities of being on the land that we talked about earlier, just like how you might take care of your own room or house.

Before we take a walk over to our next stop, the Clark's Land Acknowledgement sign, I want to ask you a question:

Question: As we walk over the sign, I want you to think about those responsibilities the Clark has to **maintain** and **conserve** the land that we briefly brainstormed.

→ Pause for a [short] second to let that question sink in.

Now, as we walk, I want you to notice places on campus that you see that the Clark might **maintain!!** Let's go!

Stop 2: Land Acknowledgement

Location: Land Acknowledgement Sign

Question: Alright, now that we have arrived at our next stop, did anyone see any examples of places on campus that the Clark maintains?

→ Call on a couple students

Another responsibility the Clark has other than just maintaining the land is knowing the history of the land.

Question: Before we begin, do any of you guys know what a Land Acknowledgement is? Have you heard or seen one before? What do you think that means?

We want to acknowledge that the land that we inhabit as well as the land that the Clark stands on is the historical homelands of Native Americans. These people were the Stockbridge-Munsee Mohicans and they were forcefully removed from their land by European settlers. It is important to acknowledge that this land is sacred to them and nature is something that we should protect.

Question: Any questions on that information? Why do you think it's important to talk about this?

→ They lived on these lands (SUSTAINABLY) and in this region for thousands of years before Europeans displaced them in the 1700s.

The Clark Land Acknowledgement is a very recent development - the process only began in 2020 and it was implemented in 2021. This is representative of a very important evolution of ideology at the Clark. In a much more environmentally and politically conscious world, the Clark realizes the importance of its power as a museum in ways that go beyond sharing our collection.

The land acknowledgment is an example of how the Clark has realized and embraced its responsibility for the land and how it grapples with the truths of historical systems of

oppression. Being an art museum means having power to either be complicit in these systems or oppression or work to counteract them.

One of the most important aspects of nature is water, as it's essential for sustaining life on our planet.

Question: How do you use water in your daily life? What do you feel when you look at water?

→ Let students share out to the group

Water is very valuable, and it's important to not waste it. The Clark is responsible for managing its water use sustainably, and they make many efforts to do so.

Before we walk over to one of the Clark's bodies of water, Schow Pond, as our next stop, I want to pose a question to think about while we walk.

Question: We already noticed some places where the Clark maintains the land. As we walk over the sign, I want you to think about the pros and cons of human-maintained environments and natural environments and where they might intersect. Each person should notice some examples of what looks "natural" and what looks "human-made" or "intervened-with" as we walk through some of the campus.

Now let's walk to Schow Pond!

Stop 3: Schow Pond and the Natural Environment

Location: Schow Pond (open system)

Question: Ok, now, find a NEW person you haven't talked to yet today. Share with them the specific examples you saw as we walked over.

→ Let students mix around and briefly share

Question: Now, I have another question. Is human interaction part of the natural world? Talk to your partner briefly, then we will share out.

→ Let students share ideas freely without guidance or judgment

Fantastic. I want you all to think about those ideas while we learn about this next stop! We are at Schow Pond.

Question: How do you think this pond was created/how did it get here? Based on what we just talked about, is it natural, human-made, or something in between?

→ let students think for a second then call on a couple students

Schow Pond is a more "natural" environment that is suitable habitat for many critters and plants. Schow pond supports more living organisms than other "human-made" water features

do on the campus. The Clark does not interfere with the natural growth and cycles that occur here. However, this pond is the product of over 100 years of human interaction.

Review History:

- The pond is fed by what is called a natural spring. When rainwater precipitates down to Earth's surface, gravity pulls it down as it filters through layers of the soil. The top layer of soil that is saturated with water is called the water table. A spring, like the one that feeds this pond, is a point in the ground where the water table meets the Earth's surface and groundwater comes up.
- This pond was originally a swampier environment, probably filled with trees and shrubs that grow in wet soils. Then, in the 1800s, it was dredged to make a watering hole for livestock.
- Later it was made into a farm pond, and was named Leake's Pond
 - For many generations, children would come to this pond to play, find animals like newts and geese, as well as skate over in the winter. It was an important part of the town's culture. Williams College even used it in the early 1900s as their hockey rink.
 - The pond was expanded to its current size by workers
- In the 1950's, the Wall family would buy the property, and the name was changed to Wall's Pond. The Wall family later gave their property to the Clark Art Institute.
 - Currently, it's known as Schow Pond
- The water in the pond comes from rainwater runoff from the surrounding landscape AND is fed by a natural spring as described before.
- The pond fills up with sediment from runoff and native and invasive aquatic plants so that over time the pond is filled in and disappears as it returns to being a swamp.
 - The Clark plans to dredge the pond every once in a while in order to maintain it as a body of water.
- It looks natural, but it has been shaped by humans.

Question: So now that we've learned the history of Schow Pond, let's revisit our early questions. Is Schow Pond natural?

→ Let a couple students share their thoughts

Question: For our next question, let's break into groups of 3's (either count off or let them group up, wait for them to get into groups quickly). Ok, so I want your groups to talk about the human interaction that went into the making of Schow Pond as we see today be part of the natural environment. What's different about humans changing what the pond looks like than plants growing into the pond or a beaver building its dam here?

- Let students talk for a while, but no need to share out here → we will continue this discussion at future stops.

The pond is full of life and beautiful in its own way. It makes me feel serene and happy when I see beautiful parts of the natural world at the Clark, in addition to the pond supporting the local ecosystem!

Now, we will walk to our next stop which is a similarly beautiful part of the Clark where the community can gather.

Potentially pick up a cup of water for filter sample in a transparent cup

[Walk through building to Reflecting Pool]

[Can talk about and slightly explain the water cycle and as we move]

Question: Now, let's quickly go over the water cycle! Before we begin, what do you guys know about it? Have you learned about it in school before? Does a volunteer want to quickly explain it to me?

- If students have a good grip, then it can be a very quick reminder of just evaporation, condensation, precipitation, runoff, infiltration, etc. Just fill in any gaps.

The water cycle works at the Pond as it does in all other open bodies of water around the world. Water is transported from one place to another through evaporation when the sun heats up water and transforms it into a gas we call water vapor (the humidity you feel on a muggy day, but there is water in the air all the time) which rises up to the sky and cools. When the water vapor is cooled sufficiently, it condenses into droplets of liquid water, forming dew near the ground and clouds in the atmosphere. These droplets get heavy by combining with one another and get released as precipitation in the form of rain or snow!

Stop 4: The Water Feature and the Built Environment

Location: Reflecting pool (closed system)

This is the Clark's Reflecting Pool! It was constructed in 2014.

Question: Why do you think this was built here at the Clark? What impression does it leave on you when you see it?

- Let some students share out

It was added to the outdoor campus for both its aesthetic beauty as well as to center nature at the Clark. It also serves as a scenic spot for people to gather! Take a second to look into the pool and take note of what you see.

Question: How was it different from the water we saw at the pond? Also, I'm going to ask a similar question to what we asked at Schow Pond: how might it be human-made and how might it also be natural?

→ Let some students share out

This reflecting pool is an example of an environment that is altered and built by humans. The water cycles and filtration that occurs here is similar but not quite the same as it is at the pond.

Question: What else do you notice about this feature?

[Draw from student observations, add on to what they say e.g. talking about the stones, the walls, the size, color of the water, presence/lack of wildlife, etc.]

If you look around, you can see that it is three-tiered, there being three pools of different sizes. The water moves via gravity down waterfalls from one pool to the next.

Question: Where do you think the water from this feature comes from? Do you think the natural water cycle plays a role here? *Remind them of the natural water cycle and ask whether or not that gives them any ideas. Then press for what else? Why would the natural water cycle not be enough to maintain the aesthetic purpose of the Reflecting pool and pepper other questions like this...*

→ Let a couple students share out

Much of the water is recycled, meaning collected from a natural source and reused rather than using entirely town drinking water. The Clark captures water from three roofs, which collect rainwater for the pools. Roof and terrace collected-water is also used for some of the irrigation of lawns in the summer. After the water feature is drained for the mid-fall to mid-spring period, the collected water is used as a non-potable water source to flush toilets. The water cycle, a naturally occurring process, contributes to this human-made feature just like it contributes to the water in the Pond.

Share laminated pictures of the Stone Hill Water Tank construction with the students. Ask them to pass them around.

Here is a picture of the Stone Hill Water Tank which was constructed UNDERGROUND on Stone Hill in 1992! It stores much of the town water supply, and the reflecting pool can tap into that water when there is not enough rainwater collected.

Question: Why do you think the water is so clear?

→ call on 2-3 students rapid fire

It was through a process of trial and error! It took about 10 whole years for the Clark groundsteam to figure out how to maintain a healthy cycle of recycling, cleaning and storing the 170,000 gallons of water it takes to fill these pools. Much like the process of creating art, through paintings or sculptures, it takes much time and expertise to perfect this system! Now, they are able to save a lot of water and energy!

Share laminated pictures of the Gensler waterflow diagram here to the students. Ask them to pass them around.

Here you can see what we just talked about. This diagram shows the complicated system of how some of the water in the reflecting pools is collected rainwater and how all of the water cycles through the filtration room before going back to the pools.

Stop 5: Pavers and Water Filtration exercise

Location: Pavers near reflecting pool

Now, come look at these stones beneath your feet! They were designed to collect rainwater as well.

Question: When you jump on them, what do you notice? How does it sound?

→ call on 2-3 students rapid fire

Now let's do a dance competition! **dance break**

As we explained, the pond is subject to the natural water cycle! Here, the Clark tries to recreate the water cycle artificially through its filtration systems, chemical treatments, and routinely draining the pool so that the water is always clean. This could be seen as the center of the Clark's commitment to sustainability! Cleaning the pool used to require lots of energy and resources, but they've been able to simplify the process.

To demonstrate some of the demonstrations between the natural water cycle occurring at the Pond and the human-managed parts of the water cycle in the reflecting pool system, we are going to do a cool water filtration exercise!

Collect Water for Filtering Demonstration in a transparent cup

Water Filtration Activity

Materials required:

- 2 (clear) plastic water bottles OR 2 clear plastic cups each with a funnel
- Scissors to cut the plastic water bottles in half
- A cup of water from Schow Pond and a cup of water from the reflecting pools (about 8-12 oz each)
- Sand
- Medium sized gravel
- Leaves
- Cheesecloth (a kleenex wipe will also work, something of that type)
- Rubber band

Steps:

Question: Are you all familiar with the scientific method? What is the first step?

→ Let students explain

Usually we start with an **observation** or a **question** and form a **hypothesis** or informed guess based on some of the information we already know. Let's start by observing our water first.

1. Pass the two transparent cups of water around for students to look at and notice the difference
2. While students are noticing, explain the purpose of this experiment:

Now, as we explained, the Clark Reflecting Pools and Schow Pond both have systems that filter the water that goes into them. If you think about it, water in natural ecosystems has to get filtered somehow; it doesn't just keep getting dirtier and dirtier, carrying everything it comes into contact with forever. One of the ways water is filtered in the natural world is when it **infiltrates** into the ground, it actually gets filtered by soil and roots. In that way, the water that feeds Schow pond is groundwater which has been filtered by the soil.

Similarly, the Clark filtration room, in that picture we just showed, has tanks of sand that collect organic detritus that ends up in the reflecting pool waters. This is similar to, but more controlled and clean than groundwater filtration. Let's see how each of these processes compares to filtering water.

3. Cut each water bottle in half and flip the top part upside down in the bottom part with the cap off to act as a funnel. Alternatively, place a clear funnel in each clear cup. We will have two cups of water by now: one with pond water and one with pool water.

To simulate groundwater filtration, we will add different components of soil that would filter water, like sand and gravel.

4. Using a rubber band, wrap the mouth of the water bottles with a layer of cheesecloth to catch the sand we are about to add.
5. To one water bottle funnel, add a layer of sand first, then gravel, then leaves. (Emulates natural ground)

To stimulate the Clark system, we will just use sand.

6. To the other water bottle funnel, add just a layer of sand (emulates the Clark sand filters).

Now, we pose some hypotheses of what we think might happen based on how the waters look now and what we know about each system.

Question: How do you think the two waters look different now? How do you think each filter will work? Will they both make them cleaner? Will they make them dirtier?

→ Let students discuss and make some hypotheses - they don't have to be well formed and there are no right or wrong answers

7. Pour the Schow Pond sample in the filter with sand, gravel, and leaves and pour the reflecting pool sample in the other filter with just sand (about one cup each).
8. Let students gather around and watch as the water filters through each filter.
9. Pass each filter around to students to let them see what the water looks like after it passes through the filter and/or how long it is taking to filter.

Question: What happened to the water in each filter? Did they align with our guesses? Why or why not? What are the benefits of having varying levels of "cleanliness" in each water source?

→ Call on some raised hands, really encourage students to question their thinking or try to push towards the **why**

Share laminated pictures of the filtration room with the students. Ask them to pass them around.

The water coming from the water feature is probably already clean. The chemicals and sand filter they use probably filter out microscopic bacteria and life that you can't see without a microscope. That might be why it looks the same (if it does).

The "natural soil" filter does a (potentially) surprisingly good job filtering out the organic material from the water. Even though soil is sometimes thought of as simply dirty, it serves many purposes in ecosystems, including actually being able to make some water cleaner!

You can see here the pictures of the actual Clark water filtration room where all of the reflecting pool water is cleaned just like our filter we made with sand. Those green tanks are filled with sand!

Both of these filtration systems are alike. It's cool to think about how the natural world and the human world are similar and like we have discussed before, are maybe more connected than we think!

Let's walk back inside to talk about what you all have learned!

(Future work: Possibility to go into the galleries and apply some of the points from the tour to images of water in paintings.)

List of Recommended Paintings used in the *Water by Design* school tour:

- **Gerome:** Fella Women Drawing Water
- **Pissarro:**
 - Port of Rouen, Unloading Wood
 - The River Oise near Pontoise
- **Caillebotte:** The Seine at Argenteuil
- **Monet:**
 - The Cliffs of Etretat
 - Seascape, Storm
- **Renoir:**
 - Sunset
 - Bay of Naples, Evening
 - Bridge at Chatou
- **Sisley:** The Loing and Mills of Moret, Snow Effect
- **Courbet:** The Sailboat
- **Constable:** Cloud Studies
- **Inness:** New Jersey Landscape

Stop 6: Conclusion

Location: Back inside Clark Center

This concludes our tour for today. We hope you enjoyed your visit to the Clark!

Question: What are some of the things you've learned today? What was your favorite part?

→ call on 2-3 students

(If students don't already mention):

- Something that we can see here is that there can be a spectrum of what is "human-made" and "natural." Most of what we think of as natural water sources actually have a lot of human involvement! And what we think of as artificially made by humans can be seen as part of the natural world as well.
- Overall, it's important to know that humans can interfere with the water cycle for better or worse. Can you see any positives or negatives to creating a controlled environment like the one in the Reflecting Pool?
- Also, it's important to keep in mind that everything that we see here at the Clark today is the product of many decisions made by people. Each step towards being more

sustainable was thought of very carefully, because any project will have an impact on the environment. The goal is to make our impact as small as possible!

- What are some of the specific considerations of balancing aesthetics and environmentalism you've seen at the Clark? Can you think of any examples?
- How will you interact with and view the environment now? How does learning about the Clark's environmental ethics change how you think about the Clark?

Now, whenever you visit the Clark, you can teach your friends and family all about the differences and similarities between the different water bodies, or waterscapes of the campus. Whenever you see a body of water, natural or not, you can also consider all the questions we asked and observations we made today. Water of all forms sustains its own life and can be manipulated for human use. There is a difficult balance between human aesthetic and environmental stewardship for a place like the Clark, but, as we've seen here today, it is possible to take care of an environment while making art!

For after:

Can give instructions of making a water filter at home to the teachers for them to do back at school

Public Tour

The following section is the public tour general guidelines that could be used as the basis for a further project:

Public Sustainability Trail

April to September

Clark Outdoor Campus

Campus Tour (All ages)

Digital Format

Length: 30 minute walk

Self guided tour: Bloomberg app and signage, audio component

Goal: Get the general public acquainted with some of the different environmental efforts being done by the Clark.

Tour Theme: *How does the museum balance aesthetics and tradition with land stewardship and sustainability?*

Main Points of Theme:

- Museums, the Clark included, have traditionally prioritized their elite-level art galleries and maintained their picture-perfect aesthetics, making little use of their surrounding landscape.
- The Clark's new philosophy is that they are a sanctuary for connecting to the beauty in both art and the natural world, their campus is just as important as the art
- They now strive to protect the environment of their campus while also preserving their aesthetics

Trail Map with Stops



Land Acknowledgement

Before we begin the tour, we would like to acknowledge that the land that we inhabit as well as the land that the Clark stands on is the historical homelands of the Stockbridge-Munsee Mohicans. They were forcefully removed from their land by English settlers and now reside in Wisconsin. It is important to acknowledge that this land is sacred to them and nature is something that we should protect.

The Clark has been doing its part to protect the environment on its vast campus.

Clark Campus

The Clark Art museum is located on a large piece of land in a rural location which contrasts with many other art museums located in dense, urban areas. The campus consists of 140 acres of land including all the gallery buildings, the pasture on Stone Hill where the herds of cows graze, trails for hiking, and many more acres of forest.

In recent years, the museum has been trying to connect their outdoor space with their indoor art galleries, as well as making many strides in protecting nature on their campus. When the Clark completed construction and renovation in 2014, it opened its new Clark Center. This LEED Gold certified building was designed by Japanese architect Tadao Ando and had sustainability at the forefront. **The process of creating this building was a constant collaboration between aesthetics and sustainability.**

This is part of a larger shift in the way we think about the relationship between nature and humans. Land stewardship has become a key value for the Clark. They have been balancing being environmentally-friendly with maintaining their visual aesthetic as an art museum for visitor enjoyment.

One of the most important aspects of nature is water, as it's essential for sustaining our planet. The Clark is responsible for managing its water use sustainably, and they make many efforts to do so.

Let's take a look at the Clark's water features.

Stop 1: Reflecting Pool and the Clark's Water Systems

Location: Water Feature

This is the Clark's main water feature, the Reflecting Pool, which incorporates a natural feature, water, into a man-made art piece. Notice its crystal clear water. It looks rather tranquil and still, but there is a wide array of processes that maintain its clean appearance.

This pool is connected to the Clark's water filtration systems, including water tanks, pipes, sand filters, and a massive reservoir. They collect rainwater from its Green Roofs, and it runs down through the pipes into its water storage. If you step on the stone pavers next to the Pool, you can feel that it is hollow underneath.

Mention the Stone Hill Water Tank, didn't want to take up too much of the town water

Stop 2: Parking Lots

Location: Clark Center, walk to Land Acknowledgement Sign, look at campus

[Discussion of how parts of the parking lots are semi-permeable surfaces.

Benefits to the environment:

- Stormwater management
- Less runoff into local watershed system
- Less pollutants
- Recharging of groundwater
- Rainwater can be filtered as it slowly infiltrates ground]

Stop 3: Meadow, low-mow lawns

Location: Clark Center

[Discussion of decision to include low-mow portions of campus.

- Benefits local ecosystems via supporting pollinators, providing food and habitat for animals, filtering water and pollutants, and decreasing soil erosion
- Low-mow is still monoculture
- Discussion of balancing aesthetic and sustainability across campus]

Stop 4: Land Acknowledgement & Clark Relationship to Land

Location: Clark Center

[Much of the content in this stop could be similar to the Land Acknowledgement and Clark Relationship to the Land stop in the student tour]

Conclusion

During the first part of the semester, our team had the opportunity to understand the vision of our clients, research similar case studies, and compile valuable information about the Clark campus. We transitioned to planning the structure, figuring out the demographics of the tour and gradually began to explore the actual material we would share in the tour. Our information came together in the final weeks, when we officially decided that most of our effort would go into the school tour. Our interactions with the different people at the Clark including Professor Hank Art, Ronna Ostheimer and Matt Noyes, and the teachers at the Williamstown Elementary School, including Ms. Sarah Brill and Ms. Kowalychyk helped us narrow and shape our tour, which officially aimed to teach middle school students about the connections between environments and humans.

The public tour still needs finalization in form and content. We have outlined some of the important and noteworthy features that can be further explored in the future. The format of the tour will be a self-guided walking tour open to all members of the public. We ultimately recommend incorporating aspects of other audio tours, physical brochures or field guides, on-campus signage, and apps. Going forward, the public tour can be shared through the Bloomberg Connects app, which is currently already used by the Clark and allows users to access information on their personal devices. Regardless of fluctuations that may occur going forward with both tours, we outline the importance of acknowledging and maintaining the history of the land and the people who have inhabited it.

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