



## SUBMISSION FORM

All submission forms must include the following information. Separate submission forms must be turned in for each eligible program. **Deadline: July 1, 2022.** Please include this submission form with the electronic entry. If you do not receive an email confirming receipt of your entry within 3 days of submission, please contact [Gage Harter](#).

### PROGRAM INFORMATION

County: County of Henrico  
Program Title: Experience the James  
Program Category: Environmental

### CONTACT INFORMATION

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### SIGNATURE OF COUNTY ADMINISTRATOR OR DEPUTY/ASSISTANT COUNTY ADMINISTRATOR

Name: Brandon Hinton  
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Signature: 

## **Abstract of the Program**

Through a grant from the Virginia Department of Conservation and Recreation, Henrico County Public Schools fourth graders had the unique opportunity to participate in an engaging field experience led by the educators at the James River Association. Approximately 600 HCPS fourth grade students and their teachers traveled to Deep Bottom Park in Varina, Virginia, where they participated in two stations to explore both the land and the water. On land, students took a short hike to a location where they could see the James River on one side and Four Mile Creek on the other. They learned how wetlands filter water, absorb excess runoff to prevent floods and provide habitats. Students also had the opportunity to explore the James River from “The Spirit of the James” pontoon boat and participate in a fish trawl. Students learned that the variety of species we collected in the trawl net is an important indicator of the health of the James River. Following the field experience, students completed an action project aimed at helping the James River watershed by bringing awareness to the need to conserve this important natural resource.

## **The Problem or The Need for the Program**

The Virginia Department of Education defines environmental literacy as having the “knowledge, skills and dispositions to solve problems and resolve issues individually and collectively that sustain ecological, economic and social stability.” ([Virginia Department of Education, 2019](#)) At the elementary level, all fourth grade students in HCPS participate in a meaningful watershed educational experience — or MWEE — to learn about sustainability and conservation efforts that aim to protect our watersheds. This project aims to improve elementary teachers' and students' science content knowledge, specifically pertaining to watersheds, erosion, ecosystems, food webs, plant life, and human effects through a hands-on, real-world learning experience. This field experience supports the study of watersheds and Virginia's natural resources (Virginia Standards of Learning 4.8). In addition, this trip directly connects to the fourth grade MWEE plans and our

goal of ensuring that our students are environmentally literate stewards who understand the importance of protecting our watershed. While watersheds are a primary focus, students are also learning about the wetland ecosystem and the numerous species of plants and animals that call the James River their home. Each of the participating schools qualifies as a Title-I school, including two priority schools, Laburnum and Highland Springs elementary schools. The federal Title-I program provides assistance to students most in need of instructional support in challenged schools and focuses on closing the achievement gap.

### **Description of the Program**

Through meaningful watershed educational experiences, students from 10 Henrico County elementary schools used the natural resources of Deep Bottom Park to investigate its many habitats in order to understand:

- How the natural world functions.
- The connectivity of the watershed and how Richmond-area waterways relate to the Chesapeake Bay.
- Science SOLs 4.2 Living Systems: Plants and Animals, 4.3 Living Systems: Ecosystems, and 4.8 Earth Resources: Virginia's Natural Resources, as they are framed within the context of the James River, its tributaries, ecosystems and habitats.

In early summer 2021, the HCPS elementary science specialist and elementary science coach submitted a grant proposal to the Virginia Department of Conservation and Recreation, focused on providing meaningful watershed education experiences for fourth grade students at Title-I schools in Henrico County. This grant was awarded in the summer of 2021 and planning for these field experiences occurred in fall 2021. During October and November 2021, schools participated in a virtual lesson with James River Association educators and then traveled for their field

experience at Deep Bottom Park. Inclement weather in the fall canceled three trips which have been rescheduled for Spring 2022. The Henrico County Transportation Department was used to provide transportation from the elementary schools to the field trip site. Before the lesson, James River Association environmental educators worked with fourth grade teachers to lead an in-class, virtual lesson followed by a one-day field experience that helped students connect in-class lessons and the real world. Through a day of hands-on learning at Deep Bottom Park, students examined habitats and ecosystems that depend on a healthy James River. During each field experience, students rotated through learning stations that highlighted aspects of the curriculum aligned with the 2018 Virginia Department of Education fourth grade science SOLs. This provided underserved populations experiences with content specifically pertaining to watersheds, erosion, ecosystems, food webs, plant life and human affect. James River Association educators, including Nat Draper, director of education, also provided lessons in class (virtually), as well as during a field experience to support watershed education and environmental literacy.

Through this partnership with the James River Association, students and teachers were able to participate in a variety of activities to expand their understanding of our James River watershed. Prior to their field trip, students participated in an interactive virtual lesson to meet the James River Association educators and learn important background information that would support their learning during the field experience. During the lesson, students explored a map of Virginia and its bordering states and identified the sources of water in Virginia. They reviewed the four major rivers — James, York, Rappahannock and Potomac — and identified how all of these rivers flow to the Chesapeake Bay and eventually to the Atlantic. Through an Interactive 360 video, students were able to dive into the James River and explore the plants and animals that live underwater. The students were engaged throughout lessons using the Nearpod learning platform and were more prepared to extend their learning on the upcoming field experience.

A maximum of two fourth grade classes traveled on each trip. Fourth graders from 10 Henrico County schools made the trip, over the course of approximately 18 days of trips. On the trip students participated in two stations — a land-based hike and an experience on a boat on the James River. Both of these stations took place at Deep Bottom Park in Henrico County.

Students had the opportunity to explore the James River from “The Spirit of the James,” a 45-foot pontoon boat. For many of our students, this was their first experience on a boat and exploring the water. As the captain navigated the boat down the James, the students made observations and were very inquisitive. When they spotted a bald eagle, the educators explained the effect that a pesticide called DDT had on the bald eagle population and how a species that was near extinction is now thriving on the James River. They learned that the water’s brown color of the water is a result of sediment pollution caused by erosion, which prevents sunlight from reaching the underwater plants. Without adequate sunlight, underwater plants cannot perform photosynthesis, which affects the producers in the river food chain producers.

The students were so excited when the captain announced that they would be catching some fish today! The educators led a discussion about animals that we may find in the James and students predicted what they might catch. After trawling with the net for a few minutes, students worked together to pull in the rope. All eyes were focused on the net as they tried to figure out what they had caught. The educators carefully placed the fish into clear bins filled with water so that all students could make observations and use the laminated picture guides/keys to try to identify the fish they had caught. Students and teachers loved being able to touch and hold the fish. What a catch! Catfish, crab, hogchoker, carp, bowfin and more! James River Association educators discussed each fish that we had caught and reviewed the behavioral and physical adaptations

that help each fish survive in their habitat. Students learned that the variety of species we collected in the trawl net is an important indicator of the health of the James River.

On a silent hike, students listened carefully and made observations about the land and water around them. They heard the crunching of the fall leaves on the ground and owls communicating in the distance. They observed bird houses that have been installed to increase the number of prothonotary warblers along the James River. Students saw a great blue heron standing very still on the bank of the river hunting for fish to eat. They saw plants growing out of the water and tall marsh grasses blowing in the wind. Students shared their observations and asked questions about the ecosystem they were exploring. They learned how wetlands filter water, absorb excess runoff to prevent floods and provide habitats. Students also selected leaves from the ground and made observations to identify the trees from which they fell. The James River Association educators discussed native and invasive species of plants and explained the important role that plants play in our local watershed.

This field experience provided hands-on, relevant, and engaging information that encouraged students to be good stewards of the environment. As part of their “meaningful watershed education experience,” students complete an action project to help our James River watershed and bring awareness to the need to conserve this important natural resource. Using the most current “State of the James” report from the James River Association helps our students identify an area of focus. Some action projects include painting storm drains, making posters, filming public service announcements and cleaning litter on the school grounds. This field experience on the James River enhances students' understanding and interest in protecting this amazing resource in their own backyard.

**The Cost of the Program:**

This program was made possible thanks to a \$20,000 grant from the Virginia Department of Conservation and Recreation.

James River Association educators led the pre-travel virtual lessons, communicated the field experience agenda with classroom teachers and facilitated the land- and water-based stations at Deep Bottom. The cost associated with the field experience on the river with the James River Association was \$1,000 per day. This covers the cost of the boat, the fuel and James River Association educators. The total cost for the James River Association for 10 schools (17 days of field experiences) was \$17,000.

Buses provided by the school division's Pupil Transportation Department were used to transport students and teachers from their school to the field trip site at Deep Bottom Park and boat landing in Varina, Virginia. The total cost for HCPS' Pupil Transportation Department was estimated at \$3,000 for all 10 schools.

**The Results/Success of the Program:**

To date, this field experience has positively affected eight schools with a total of 436 students and 47 teachers. Additionally, two more schools will participate in the spring, with a total of 114 students and six teachers. About 550 students and 53 teachers will have benefited at the completion of this grant. Students have been highly engaged and have gained firsthand knowledge that they have applied in the classroom, which they can use as good stewards of our natural environment. The science portion of Virginia's Standards of Learning assessment will not take place until this spring, and may give further information about the impact of the program.

However, teachers see the trip as beneficial to their students and themselves, as evidenced by the following feedback:

*"Thank you so much for a great day! It was one of the best field trips I have ever been on."*

*"Thank you so much for having us on the trip! I know our students loved every moment of their land and water adventures. I still have kids referencing the day! I am so grateful that our school was chosen to go on such an amazing field trip."*

*"As many of our students said today, 'This was the BEST Monday ever!' The fourth grade had the opportunity to join the James River Association on a boat and nature walk. We met at Deep Bottom Park to explore the James River wetlands and habitat. Not only did we get to see many animals but we got to hold the fish! It was an unforgettable experience. We are sending a huge thank you to the James River Association. Our students are going to be talking about this trip for a long time. You gave them an opportunity like no other and I can not thank you enough for that."*

*"Thank you so much for an awesome trip. We had the best time and our kids haven't stopped talking about it. This was the best field trip experience I have been on as a teacher. Thank you again for an amazing day!"*

*"Thank you again Genevieve, you and the crew were amazing as always. So thankful we got this grant and could go. The students were still talking about it yesterday. I hope we can do this every year."*



**Worthiness of Award:**

Protecting the James River watershed is a shared responsibility highlighted throughout this program. Thanks to the Virginia Department of Conservation and Recreation grant, we were able to provide students and teachers with hands-on experiences on the James River. This trip enhanced their knowledge of the river's ecosystem and taught participants ways that they can help protect and conserve this natural resource. This collaboration between the James River Association and Henrico County Public Schools enabled students to experience the river in ways that created meaningful, real-world connections to what they have been studying in the classroom. This program also provided teachers with valuable professional development as they participated in the field experience. Through their participation in this experience, students and teachers learned more about the problems affecting the James River watershed and brainstormed solutions to these problems that were then implemented through service projects.