Virginia Association of Counties

ACHIEVEMENT AWARDS

SUBMISSION FORM

All submission forms must include the following information. Separate submission forms must be turned in for each eligible program. **Deadline: July 1, 2025.** Please include this submission form as the first page of your 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: Powhatan County

Program Title: Meaningful Watershed Educational Experience (MWEE)

Program Category: Agriculture, Environmental, & Energy - Specifically Environmental

CONTACT INFORMATION

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Title: County Administrator

Signature:

Executive Summary

Program Title: *Meaningful Watershed Educational Experience (MWEE)*
Submitted by: Powhatan County Public Schools
Award Category: Virginia Association of Counties Achievement Award

Powhatan County Public Schools (PCPS) STEM Department, in collaboration with local and state partners, has implemented a dynamic, student-led environmental education program called the **Meaningful Watershed Educational Experience (MWEE)**. Since 2018, this two-day annual event at Fighting Creek Park has provided all fourth-grade students—approximately 350 each year—with hands-on science learning led by high school AP Environmental Science and Ecology students.

This innovative peer-teaching model addresses the challenge of delivering high-quality, outdoor science education in a rural setting. It empowers high school students as instructors while engaging younger students in the study of watershed health, human impact on ecosystems, and environmental stewardship.

MWEE exemplifies successful **intergovernmental and community collaboration**, featuring key partnerships with the Powhatan Extension Office, Monacan Soil and Water Conservation District, James River Master Naturalists, Master Gardeners, and the Department of Forestry. The program has been funded through a combination of grants and local STEM resources.

As a **replicable and adaptable model**, MWEE represents a sustainable, place-based solution to improving environmental literacy and student engagement across grade levels. It reflects Powhatan's commitment to innovation, partnership, and preparing students to be informed, responsible citizens.

1. Challenge or Situation Faced by the Locality

Powhatan County Public Schools (PCPS), a rural division in *central* Virginia, faced the challenge of providing engaging and meaningful science education—particularly around environmental literacy and civic responsibility. Students from economically diverse backgrounds, including those from a Title I elementary school, often lacked access to high-quality outdoor learning despite living in a region connected to the Chesapeake Bay watershed.

Recognizing that traditional classroom instruction wasn't sufficient to develop environmental stewardship, PCPS seized the opportunity to empower older students to lead meaningful environmental learning for younger peers.

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2. Program Description and Implementation

Since 2018 (with a pause during COVID), PCPS has hosted an annual **Meaningful Watershed Educational Experience** at Fighting Creek Park. The two-day event involves all fourth-grade students—approximately 350—rotating through interactive science stations facilitated by approximately 40 high school AP Environmental Science and Ecology students.

High school students serve as peer educators, leading activities focused on water quality, human impact, conservation, and environmental responsibility. Over time, these

student instructors grow in confidence, ownership, and independence—demonstrating the power of experiential learning and leadership.

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3. Innovation

The PCPS MWEE stands out for its unique and innovative features:

- **Peer-Led Instruction**: High school students take on the role of instructors, designing and executing lessons for younger learners.

- **Locally Customized Curriculum**: While based on the Chesapeake Bay Program's MWEE framework, Powhatan's version reflects the locality's geography, student needs, and available resources.

- **Immersive, Place-Based Learning**: By transforming a local park into a living classroom, MWEE connects students to their immediate environment through experiential science learning.

The PCPS MWEE flips the traditional educational model by making high school students the instructors. They design and lead interactive stations on topics such as watershed importance, water quality, human impact, and personal responsibility. This peer-teaching approach boosts leadership, ownership, and retention—both for those teaching and those learning. This event not only engages younger students through hands-on STEM activities—it also creates meaningful learning for high school students.

By leading the stations, they apply what they've learned in class, strengthen their understanding, and develop leadership and communication skills. Some even discover new things about themselves—natural teachers often emerge, sometimes to their own surprise. In a close-knit community like Powhatan, there's something special about former fourth-grade teachers seeing their students return as confident young adults. It's a full-circle moment that highlights the lasting impact of our schools.

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4. Partnerships and Collaboration

The MWEE program is sustained by strong intergovernmental and community partnerships, including:

- **Powhatan Extension Office**
- **Monacan Soil and Water Conservation District**
- **James River Master Naturalists**
- **Master Gardeners**
- **Virginia Department of Forestry**

  These partners provide expert guidance, materials, training, and volunteer support, ensuring each station is rigorous, hands-on, and aligned with real-world environmental science practices.

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5. Financing and Staffing

MWEE has been financed through a combination of grants and local support:

- **AAIA STEM Grant**
- **Izaak Walton Foundation in-kind donations**
- **Virginia Department of Conservation and Resources (DCR) Grant**
- **PCPS STEM funds**

Staffing includes environmental science teachers, instructional coaches, local experts from partner organizations, and dedicated support from PCPS central office staff. The bulk of the facilitation is carried out by the high school student volunteers, making the program highly cost-effective and scalable.

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6. Results and Impact

- **Student Reach**: Annually engages 350+ fourth graders and 40+ high school students.
- **Environmental Literacy**: Increases understanding of local ecology and personal responsibility.
- **Leadership Development**: High schoolers gain confidence, communication, and instructional skills.
- **Equity**: Ensures all fourth-grade students, regardless of school or background, receive a high-quality science experience.

- **Community Connection**: Strengthens collaboration between schools and local environmental agencies.

7. A Model for Other Localities

The PCPS MWEE is a scalable and adaptable model that other counties can replicate using:

- Local parks or outdoor learning areas
- High school mentors
- Partnerships with community-based environmental organizations

Its flexibility allows implementation in diverse settings—rural, suburban, or urban—and it aligns with state standards for science and civics education.

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8. MWEE Station Summaries

Students rotate through the following hands-on stations in small groups. Each station includes a student record sheet for reflection and data collection.

Macroinvertebrates as Water Quality Indicators

- **Part 1**: Students create food chains and learn macroinvertebrate life cycles.

- **Part 2**: They collect and identify organisms from the creek to assess stream health.

Biocubes (One Cubic Foot)

- Students investigate biodiversity in a small area, sketch, observe, and classify living and nonliving components.

Our Impact on the Ecosystem

- Students match waste items to decomposition times and discuss how individual actions impact the watershed.

Mapping Our Watershed

- Students map water flow from Fighting Creek to the Chesapeake Bay and discuss the impact of runoff and pollution.

Forest Dichotomous Key

- Students use keys to identify local tree species and discuss their role in the ecosystem and watershed.

Animal Tracks

- Students examine and identify local animal tracks, discussing their place in the watershed ecosystem.

Journey of a Water Molecule

- A dice-based simulation helps students understand the complexity and variability of the water cycle within the Chesapeake Bay Watershed.

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9. Conclusion

The Meaningful Watershed Educational Experience (MWEE) embodies the mission of the Virginia Association of Counties Achievement Award. It offers a local, innovative solution to a critical educational need. It integrates community partnership, environmental literacy, and leadership development into a replicable model for other school systems.

By connecting students of all ages with nature, science, and each other, MWEE inspires stewardship, empowers youth, and fosters a lasting commitment to the health of Virginia's watersheds.

We respectfully submit this program for consideration and believe it represents the best of what county schools can achieve through collaboration, creativity, and care for the community.