Growing Watershed Stewards

A Lexington stormwater success story



When a Lesson Sticks

On a table at Glendover Elementary School, a collection of yellow sticky notes tells a story.

"I learned about watersheds." "How I can help stop pollution." "How not to waste water."

One student wrote about the West Hickman Creek watershed. Another explained how pollution affects water quality. Others connected what they learned to recycling, ecosystems, and protecting the environment. Months after participating in lessons through Lexington's environmental education program, students still remembered what they had learned and why it mattered.

For Danny Woolums, Environmental Education Program Manager for Live Green Lexington, those notes represent something much larger than successful lessons. They represent a generation of students beginning to understand the connection between their daily actions and the health of the community around them.

After more than a decade in environmental education, Woolums has built a career around the belief that environmental stewardship begins with understanding. A Master Certified Professional Environmental Educator, workshop facilitator, and longtime advocate for environmental literacy, he has helped countless students and teachers explore the natural systems that shape their communities.

"Every student lives in a watershed."

— Danny Woolums

That statement serves as both a scientific fact and a starting point. Whether students realize it or not, every driveway, neighborhood, schoolyard, creek, and storm drain is connected. Understanding those connections can transform the way students view the world around them.

From Individual Lessons to a Community Resource

The environmental education program that exists today is the product of more than fifteen years of growth and refinement.

When the program began, lessons primarily focused on stormwater and water quality issues through individual classroom presentations. While those lessons were valuable, educators saw an opportunity to create something more comprehensive. Instead of treating environmental education as a one-time interaction, they began building a curriculum that could grow alongside students as they advanced through school.

That vision gained momentum following an environmental education needs assessment conducted on behalf of the city, which helped shape a strategic plan for expanding environmental learning opportunities throughout Fayette County. The result was a more intentional approach that aligned environmental education with academic standards while creating meaningful opportunities for students to engage with local environmental issues.

Today, the Environmental Education Team provides free programming for public and private schools serving grades K–12 throughout Fayette County. Lessons are organized around three primary areas of study: Water Quality, Waste Management, and Sustainability. Each unit includes opportunities for related experiences such as field trips,

outdoor investigations, special presentations, and hands-on activities that help students connect classroom concepts to real-world situations.

Students may explore a local stream, learn about macroinvertebrates that indicate water quality, investigate how recycling systems work, or observe environmental projects taking place throughout the community. These experiences help transform environmental science from an abstract concept into something students can see, touch, and understand.

“We’ve got a thematic unit that is fully focused on water quality,” Woolums explained. “Students are able to grow in content over the course of their years in school.” What students learn in one grade becomes the foundation for what they discover in the next.

Making Stormwater Personal

For many students, words like watershed, runoff, and stormwater pollution initially feel distant and technical. The Environmental Education Team works hard to make those concepts personal.

Instead of relying on lectures, educators use hands-on activities that encourage students to experiment, observe, discuss, and discover. Students use EnviroScape watershed models to visualize how pollution moves through a landscape. They build topographic models out of construction bricks to understand watershed boundaries. They investigate wildlife habitat, learn how erosion affects streams, and explore how activities in one location can affect areas downstream.

One of Woolums’ favorite lessons challenges students to think about how decisions made on individual pieces of land influence a larger watershed. By the end of the activity, students discover that everyone is connected by water. The lesson is simple, but the realization can be powerful.

Students begin to understand that stormwater is not just a subject discussed during science class. It is the water flowing through ditches after a storm. It is the stream

running through a local park. It is the water that eventually reaches rivers, lakes, and communities downstream.

Woolums believes those local connections are what make environmental education meaningful. Students, he explained, begin to understand "the ways that they are impacting the watershed and the ways that the watershed might impact them later." That understanding helps students view environmental stewardship not as someone else's responsibility, but as something they can actively participate in every day.

When Learning Turns into Action

For teachers, one of the most rewarding aspects of the program is watching students apply what they have learned. Few examples illustrate this better than a story shared by Lauren Rister, a longtime educator at Glendover Elementary School, who has partnered with the program for years.

After participating in lessons about runoff and erosion, students began walking around their school grounds during recess and identifying areas where stormwater was creating problems. They pointed out locations where trees could be planted to help reduce erosion and improve environmental conditions.

> *"I did not ask them to do this,"*
>
> *— Lauren Rister*

For Rister, that moment demonstrated the true value of environmental education. Students were no longer simply recalling information from a lesson. They were applying their knowledge to real conditions in their own environment.

She has observed similar examples over the years. Students become champions for proper recycling techniques. They remind classmates what belongs in recycling bins. They pick up litter around playgrounds so that trash does not wash into storm drains. They share

lessons with family members and encourage environmentally responsible behaviors at home.

Parents regularly tell her how much students enjoy the lessons and how excited they are to discuss environmental topics after school. Environmental stewardship begins to shift from something students learn about to something they practice.

Helping Students Connect the Dots

At Glendover Elementary School, fifth-grade teacher Cathy Cook has watched the program make those connections year after year. Cook first partnered with the Environmental Education Team while teaching fourth grade. After seeing the value the lessons provided, she later helped expand programming into fifth grade.

She believes one of the program's greatest strengths is its ability to connect classroom concepts to the world beyond school.

> *"I like them to know the world around them. It just opens up the ideas of what they might do."*
>
> *— Cathy Cook*

That exposure matters. Many students may never have considered careers related to environmental science, sustainability, engineering, natural resources, or public service. By interacting with environmental educators and participating in hands-on activities, students gain a better understanding of the work happening throughout their community and the opportunities available to them.

Cook also values the critical thinking skills the program helps develop.

> *"I really want thinkers. I want you to be able to connect the dots."*
>
> *— Cathy Cook*

Environmental education provides countless opportunities for that kind of thinking. Students connect pollution prevention to water quality. They connect erosion to aquatic habitat. They connect recycling to resource conservation. They connect individual choices to community outcomes. Those connections help transform environmental issues from isolated facts into a broader understanding of how communities function.

Building Knowledge That Lasts

One of Woolums' favorite traditions is returning to classrooms and asking students what they remember from previous lessons. Again and again, students surprise him.

Months or even years after a lesson, students can often identify the watershed in which they live. They remember learning about pollution, erosion, deposition, wildlife habitat, and runoff. They recognize how environmental conditions affect both people and wildlife. They understand that actions occurring upstream can affect communities downstream. As students move through the program, concepts build upon one another.

Fourth-grade students may learn how erosion affects stream habitat. When they encounter macroinvertebrates and stream ecology in later grades, they are able to connect that knowledge to previous lessons and develop a deeper understanding of water quality. Environmental education becomes a continuous story rather than a collection of disconnected facts.

"My biggest hope is always that students walk away with a sense of purpose and a sense of agency,"

— Danny Woolums

They understand that they have the ability to affect their watersheds, they have the ability to affect their local environment, and that they care enough that they want to do something about it.

More Than a Permit Requirement

Public education and outreach are important elements of Lexington's Municipal Separate Storm Sewer System (MS4) Permit compliance efforts. But the success of Lexington's environmental education program demonstrates that environmental education can provide benefits far beyond regulatory requirements.

The program is helping create informed residents, engaged students, supportive teachers, and stronger connections between people and the environment. Its impacts can be seen in students who understand what a watershed is. It can be seen in students who recognize pollution problems and want to solve them. It can be seen in students who pick up litter before it reaches a storm drain, remind family members to recycle, or suggest ways to improve environmental conditions around their school.

And sometimes, it can be seen on a simple yellow sticky note written by a student who has just discovered that individual actions matter.

"I learned how I can help stop pollution."

For Lexington, those seven words represent far more than a successful lesson. They represent a future generation of residents who understand that clean streams, healthy watersheds, and sustainable communities depend on people who care enough to act.

Request Free Environmental Education Lessons

Did you know that the Department of Environmental Quality & Public Works offers free environmental education programming in Fayette County classrooms?

The Environmental Education Team works with public and private schools in grades K–12 throughout Fayette County.

Lessons focus on:

- Water Quality
- Waste Management
- Sustainability

Each unit includes a related experience such as a field trip, special visit, outdoor investigation, or hands-on educational program. Any Fayette County teacher can invite an environmental educator into their classroom.

To get started, email **EnviroEd@lexingtonky.gov** and include your school name and grade level or subject area. The Environmental Education Team will connect you with your school's assigned educator and help bring engaging, standards-based environmental education directly to your students.