



## What is Envirothon?

North America Envirothon is North America's largest high school environmental education competition. Reaching more than 500,000 students across North America annually, the Envirothon succeeds in its mission to develop knowledgeable, skilled, and dedicated citizens who are willing and prepared to work towards achieving a balance between the quality of life and the quality of the environment.

The Envirothon works in partnership with local conservation districts, forestry associations, educators, and cooperating natural resource agencies to organize and conduct competitions on the local, regional, state, and/or provincial level. Winning teams from each state and province advance to the national Envirothon for an opportunity to compete for recognition, scholarships, and prizes.

Combining in-class curriculum and hands-on field experiences, the Envirothon program is an excellent way to supplement environmental education inside and outside the traditional classroom.

Envirothon participants gain valuable knowledge and training in ecology and natural resource management principles and practices. Many students step away from the Envirothon experience excited about learning and motivated to pursue careers in environmental studies, envi-

ronmental law, natural sciences, and natural resource management.

### **Everyone Benefits from Envirothon Participation —**

Envirothon is more than a competition. Together with teachers, schools and professionals, we hope to develop knowledgeable citizens who make informed decisions that affect the quality of life in our community. Ultimately we hope to create new leaders who will provide an educated vision for our future and the wellbeing of our environment.

### **Take advantage of Envirothon Today —**

Both teachers and students enjoy the Envirothon in-class learning that combines hands-on outdoor activities. The five member teams then compete in local Envirothon events and the local-winners advance to their state contests.

Teachers from science disciplines as well as history and cultural studies participate. Some involve their entire classes, others just advise one of two teams of one or two members as a club or afterschool activity. Open to high school students, a team may be sponsored by a high school, homeschooled group,

Testing  
Day



agricultural organization, scouts or community service group.

Teams are tested in five areas

- Aquatic Ecology
- Soils and Land Use
- Forestry
- Wildlife
- Current Issue

Ultimately, students are tested on their knowledge in five topic areas: soils and land use; aquatic ecology; forestry; wildlife; and a current environmental issue that changes each year. Through the program, students develop an understanding of effective teamwork, resource management and ecology. At the same time, they gain valuable exposure to a range of disciplines and possible career paths.

At Envirothon, the students work hard but also have fun.

## In This Issue

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# A Brief History

## *Pennsylvania Leads the Way*

In 1979, the Pennsylvania Soil and Water Conservation Districts created an “Environmental Olympics” competition as an approach aimed to encourage high school students to become interested in natural resource conservation and environmental issues. The Environmental Olympics, later shortened to Enviro-Olympics, quickly gained popularity as a hands-on outdoor competition designed to challenge and test each student’s knowledge of soils, aquatic ecology, forestry, wildlife, and current environmental issues.

For nearly a decade, the Pennsylvania Enviro-Olympics program demonstrated its ability to promote environmental literacy and supplement education in grades 9-12. The program quickly grew in size to include participation by 40 conservation district teams at the 1987 Pennsylvania State Enviro-Olympics, providing greater visibility for the program and stimulating the interest of neighboring states.

In 1988 the program became known as the Envirothon. That year, teams from Ohio, Massachusetts, and Pennsylvania competed at the first National Envirothon hosted and sponsored by the Pennsylvania Association of Conservation Districts.

Today the National Conservation Foundation in partnership with the National Association of Conservation Districts serve as leads for the Envirothon Competition. Currently over 500,000 students from across the nation compete in state competitions for a chance to be their state or territories representative to the National Envirothon Competition.

The National Competition provides students and teachers an opportunity to meet kids from across North America and share in over \$250,000 dollars of awards and scholarships..

The Colorado Association of Conservation Districts is proud to bring this program to Colorado, where the best teachers and students reside!

Training  
Day



## **Who's involved?**

**The Colorado Envirothon Program  
is open to all  
Colorado High school students in Grades 9-12.**

**It is also for 4-H members, FFA Chapters, FBLA groups**

**And**

**All Academics Courses!**

### **Envirothon Participants:**

- ⇒ Learn Real World Field Science Skills**
- ⇒ Learn to work as a Team**
- ⇒ Solve Real Environmental Resource Problems**
- ⇒ Develop and Build Presentation Skills**
- ⇒ Spend Time in the Outdoors**
- ⇒ Build Skills that Reinforce Classroom Learning**
- ⇒ Meet Field Professionals and Explore Careers**
- ⇒ Have Fun while Learning!**
- ⇒ Compete for a chance to go to nationals to win college scholarships.**

Remember: FFA Chapters can use it as a qualifier to the National FFA Competition in Wildlife and Forestry. Participants must compete in the State Competition!

# Envirothon 2015 Resource Topic -

## Urban Community Forestry

### Key Topics

- Understand what sustainable urban & community forestry is and why it is important.
- Understand of the numerous benefits of urban/community forests to society, often referred to as ecosystem services.
- Understand the costs associated with urban/community forests.
- Understand what an urban forest management plan is and why it is an essential tool.

### Learning Objectives

Describe the economic, social, and environmental benefits of urban/community trees to local communities.

- Comprehension of the effects of urban/community trees on air quality and water quality.
- Knowledge of research showing that trees contribute to our health, well-being and quality of life.
- Understanding of threats to urban/community forests such as invasive species, insect and diseases, climate change, fire, air pollution, lack of management capability and development pressures.
- Understand what a tree inventory is and what it is used for.
- Understand the components of an urban/community forest management plan.
- Basic knowledge of models and tools used to calculate the value of tree canopy functions

### Urban and Community Forestry Key Points

It is mostly a matter of size that determines whether you use the term urban forestry or community forestry where you live. Small, rural-oriented municipalities may not relate well to the word “urban”, so community forestry is the preferred term. In large towns and cities, urban forestry is entirely appropriate. To cover all bases in a single expression, urban and community forestry is widely used. Urban and Community Forestry can be defined as the planting and care of amenity , or landscape, trees, collectively, in human settlements. Urban and community forests broadly include urban parks, street trees, landscaped boulevards, public gardens, river and coastal promenades, greenways, river corridors, wetlands, nature preserves, natural areas, shelter belts of trees and working trees at industrial brownfield sites.

### Benefits of Urban Forests

Urban forests are dynamic ecosystems that provide needed environmental services by cleaning air and water helping to control stormwater, and conserving energy. They add form, structure, beauty and breathing room to urban design, reduce noise, separate incompatible uses, provide places to recreate, strengthen social cohesion, leverage community revitalization, and add economic value to our communities.

The value of trees in our community is often overlooked but trees make human habitats more livable. As we busily go about our days, we don't always stop to think about how trees soften the many harsh aspects of our built environment. Here is a list of some of the benefits that our community forest provides:

## Economic Benefits

Trees are great for saving on energy costs. They provide shade in the heat of summer which means less need for air conditioning. If they are deciduous (meaning they lose their leaves in winter), trees allow for sun exposure during the winter season.

- Trees add to assessed property values, especially mature trees and fruit trees.
- Trees are a good investment because they return more benefits than the cost.

## Environmental Benefits

Trees sustain the long-term environmental health of the community.

- Trees help moderate the effects of harsh climate. They help filter the intensity of the sun and they regulate temperature, wind, and snow and rain.
- Forested areas have less water runoff and erosion.
- Trees provide a natural filter to stormwater and reduce flooding.
- Groundwater recharge is enhanced in forested areas.
- Trees improve air quality by absorbing carbon and producing oxygen. Trees also filter pollutants from the air.
- Trees provide habitat for birds and other wildlife.

## Community Benefits

Urban trees make walking places safer as they safeguard pedestrians from traffic.

- Trees provide screening and privacy.
- Trees reduce glare and reflection.
- Trees buffer sound, reducing noise pollution.

## Aesthetic Benefits

Trees add to the beauty and peace of our surroundings.

- Trees contribute positively to our quality of life.
- Trees can serve as a source of community pride.

## Health Benefits

Studies have shown that forested areas like parks can reduce blood pressure and benefit the overall emotional and psychological health of individuals.

- Trees help create recreational areas that can be enjoyed by walkers, runners, cyclists, and more.

## Resources:

International Arboriculture Society  
Sustainable Urban & Community Forestry  
U.S. Forest Service



# Urban Community Forestry

2015 Local information—

## Prepared Graduate Competencies in Science

*The preschool through twelfth-grade concepts and skills that all students who complete the Colorado education system must master to ensure their success in a postsecondary and workforce setting.*

### Prepared Graduates:

*Analyze the relationship between structure and function in living systems at a variety of organizational levels, and recognize living systems' dependence on natural selection*

*Explain and illustrate with examples how living systems interact with the biotic and abiotic environment*

*Analyze how various organisms grow, develop, and differentiate during their lifetimes based on an interplay between genetics and their environment*

*Explain how biological evolution accounts for the unity and diversity of living organisms*

*Describe and interpret how Earth's geologic history and place in space are relevant to our understanding of the processes that have shaped our planet*

*Evaluate evidence that Earth's geosphere, atmosphere, hydrosphere, and biosphere interact as a complex system*

*Describe how humans are dependent on the diversity of resources provided by Earth and Sun*

### 21st Century Skills and Readiness Competencies in Science Colorado's Description of 21st Century Skills

*Colorado's description of 21st century skills is a synthesis of the essential abilities students must apply in our rapidly changing world. Today's students need a repertoire of knowledge and skills that are more diverse, complex, and integrated than any previous generation. These skills do not stand alone in the standards, but are woven into the evidence outcomes, inquiry questions, and application and are within the nature of science. Science inherently demonstrates each of Colorado's 21st century skills, as follows:*

#### Critical Thinking and Reasoning

*Science requires students to analyze evidence and draw conclusions based on that evidence. Scientific investigation involves defining problems and designing studies to test hypotheses related to those problems. In science, students must justify and defend scientific explanations and distinguish between correlation and causation.*

### **Information Literacy**

Understanding science requires students to research current ideas about the natural world. Students must be able to distinguish fact from opinion and truth from fantasy. Science requires a degree of skepticism because the ideas of science are subject to change. Science students must be able to understand what constitutes reliable sources of information and how to validate those sources. One key to science is understanding that converging different lines of evidence from multiple sources strengthens a scientific conclusion.

### **Collaboration**

Science students must be able to listen to others' ideas, and engage in scientific dialogs that are based on evidence – not opinion. These types of conversations allow them to compare and evaluate the merit of different ideas. The peer review process helps to ensure the validity of scientific explanations.

### **Self-Direction**

Students in science must have persistence and perseverance when exploring scientific concepts. Students must generate their own questions, and design investigations to find the answers. Students must be open to revising and redefining their thinking based on evidence.

### **Invention**

Designing investigations and engineering new products involves a large degree of invention. Scientists and engineers often have to think “outside the box” as they push the limits of our current knowledge. They must learn from their failures to take the next steps in understanding. Science students also must integrate ideas from multiple disciplines to formulate an understanding of the natural world. In addition to using invention to design investigations, scientists also use findings from investigations to help them to invent new products.

For Information On:

The Colorado Envirothon Rules and Regulations:

<http://www.coloenvirothon.com/rules.html>

Competition Study Resources:

<http://www.coloenvirothon.com/local-programs-and-areas-of-study.html>

Colorado Content Standards 2015 Competition:

<http://www.coloenvirothon.com/teacher-and-student-resources.html>

Colorado Entry and Participation Forms:

<http://www.coloenvirothon.com/participation.html>



# COLORADO ENVIROTHON

The Colorado Envirothon Program is brought to you by the Colorado Association of Conservation Districts and the following Resource partners:

- The 76 Conservation Districts of Colorado
- The Colorado State Conservation Board
- The Colorado Department of Agriculture
- The Natural Resources Conservation Service
- US Fish and Wildlife Service
- Colorado State Forest Service
- Colorado Parks and Wildlife
- Trout Unlimited

"Conservation is a state of harmony between men and land."

Aldo Leopold



## Contact Us

Give us a call for more information about Colorado Envirothon:

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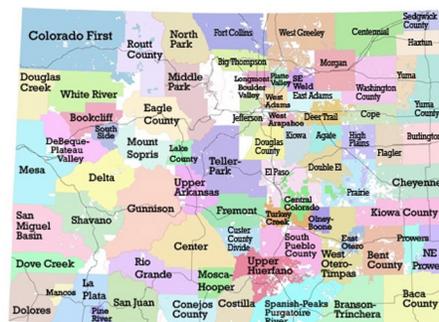
719-754-3400

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Visit us on the web at [www.coloenvirothon.org](http://www.coloenvirothon.org)

*"We do not inherit the earth from our ancestors, we borrow it from our children."*

Native American Proverb



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