



# 4-H

# NATIONAL HEADQUARTERS

USDA

## National 4-H Environmental Curriculum

4-H environmental curriculum provides youth with the knowledge and skills to make informed environmental decisions (supports goal 1) through:

- engaging youth in outdoor activities designed to increase environmental literacy,
- providing youth with instruction about key environmental relationships,
- exploring information about environmental career opportunities, and
- creating opportunities for youth to pursue experiences that support an in-depth understanding of environmental issues and solutions.

### Butterfly WINGS

WINGS, Winning Investigative Network for Great Science, is a partnership between 4-H youth and professional scientists. Participating youth are “citizen scientists” who collect data on butterflies to help professional scientists determine:

- The presence or absence of specific butterfly species
- The abundance of butterfly species by state and county throughout the country

The information helps butterfly scientists better understand and conserve butterfly populations. The citizen science data collection process benefits the field of butterfly science:

- WINGS gives participants have an opportunity to further the scope of butterfly research throughout the country.
- WINGS is a long-term monitoring project. The data will grow into a comprehensive database for comparisons and trend assessment.

### Teaming with Insects

Studying nature inspires creativity by demanding that youth see what is around them and requires them to use all of their senses. Because science is interconnected, many of the activities show interrelationships among insects, plants, and the environment. The curriculum, *Teaming with Insects*, increases youth science literacy using insects and their relatives. Each manual has age-appropriate activities in the following categories (chapters): Be and Entomologist; Biodiversity; Invasive Species; Integrated Pest Management; and Forensic Entomology.

### Exploring Your Environment

The National 4-H *Exploring Your Environment* series provides opportunities for youth to engage in learning about environmental science through hands-on, experiential learning experiences in the natural sciences and technology. Facilitators are instructed in planning, managing and teaching environmental concepts to youth through indoor and outdoor activities on their own and with others. Additional ideas and activities are provided to enhance learning by doing, as well as to provide information to develop a deeper understanding of ecological concepts.

**a. Exploring Your Environment: Ecosystem Services:** Youth will have the opportunity to engage in hands-on activities that focus on how living and non-living organisms interact within the ecosystem and provide benefits for humans and other living beings.

**b. Exploring Your Environment: Earth’s Capacity:** Focusing on environmental stewardship, youth will learn scientific research techniques, responsible practices and innovative technologies that positively address environmental issues such as air and water quality, land use, carrying capacity, product life cycle, and ecological sustainability.



**c. Exploring Your Environment: Facilitator's Guide:** The Facilitator's Guide will provide training, supplemental activities and resources to ensure the high quality delivery of the curriculum to individual youth and groups of young people.

## Forests of Fun

The new 4-H *Forests of Fun* curriculum will open the world of forests to your youth. At every age level the materials present activities that involve youth in learning about trees, forests, forest ecology and human reliance on forests. Youth will discover forest resources near home and around the world.

**Level 1 - Follow the Path:** Youth will have fun learning about characteristics of leaves and trees, different forests, what forests need to grow and thrive and the different products people get from trees and forests. *Grades 3-5.*

**Level 2 - Reach for the Canopy:** Youth will take a closer look at the inner-workings of trees, explore forest change, learn about forest health and discover the benefits trees have in people's lives. *Grades 6-8.*

**Level 3 - Explore The Deep Woods:** Youth will probe the finer points of tree id, explore forests on a global scale, learn to care for trees and discover aspects of forest conservation. *Grades 8-12.*

## Outdoor Adventures

Hiking Trails includes shelter selection; Leave No Trace camping skills; outdoor cooking and environmental awareness and appreciation.

**Backpacking Expeditions** focuses on being out on the trail for an extended period of time. It will include clothing needs; setting up tents; using backcountry stoves; basic nutritional needs; menu planning for multi-day hikes; personal hygiene and basic first aid.

**Camping Adventures** focuses on hiking for a day. It will include clothing needs; what to pack in a daypack; reading topographic maps and orienteering skills.

## There's No New Water

There's No New Water! is a water conservation and water quality curriculum grounded in a simple yet powerful concept that water is a finite natural resource whose quantity and quality must be responsibly preserved, protected, used, and reused. The There's No New Water! curriculum is designed for high school age youth, with six sequential learning modules that utilize effective pedagogy and scaffold learners' knowledge and skills. The curriculum is intended for delivery in out of school group settings and facilitated by an adult. The curriculum begins with an exploration of the natural water cycle; explores human interventions that affect water quality and quantity; examines the effects of the urban/rural interface on water quality and quantity; includes the identification and implementation of service-learning projects that address local water conservation issues; and culminates with a set of activities for younger youth and families designed to be led by teens as teachers.

## Power of the Wind

The activities in *The Power of the Wind* involve young people in the engineering design process as they learn about the wind and its uses. Youth work with members of a team to design, create, build, and test a wind powered device. The device must solve a problem and requires the designers to balance options and constraints. Participants are guided to make adjustments and retest until the vehicle or machine solves the original problem. They learn about transfer of energy and using machines to make work easier. They explore properties of electromagnetism while using wind power. Some activities ask youth to use their research and analytical skills to examine national, state and local issues surrounding wind power. Skills such as teamwork, learning from others, planning, organizing and following through on a project are developed and utilized throughout.

National 4-H curriculum is available at: <http://www.4-h.org/resource-library/curriculum/>