



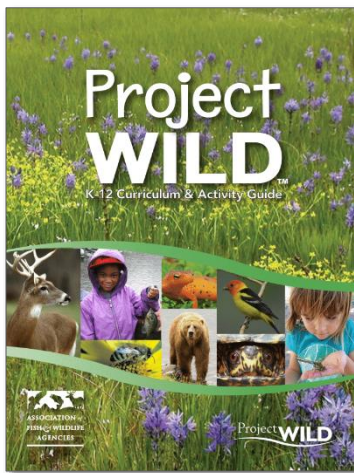
Project WILD and NAAEE's Guidelines for Excellence

The North American Association for Environmental Education (NAAEE), a premier professional organization for environmental educators, publishes several sets of guidelines that set standards for excellence in the field of environmental education. Below are examples from Project WILD materials on how key characteristics identified in NAAEE's publication *Environmental Education Materials: Guidelines for Excellence* are met.

Key Characteristics #1—Accurate and Inclusive and #2 Emphasis on Skills Building

"Deer Dilemma" from the *Project WILD K-12 Curriculum and Activity Guide*.

"Too many deer!" Everyone agrees, but what to do? Listen, engage, and cast your vote.



In this simulation of a board of commissioners meeting, high school students roleplay various individuals representing a wide variety of opinions on how best to respond to an ever-increasing deer population in and around a local park.

Conflicts around human interaction with wildlife are common in many communities. In "Deer Dilemma," students must consider thirteen different, and often conflicting, perspectives about the best way for the community to respond to a wildlife population that is out of balance. After reading and discussing a text that describes of dilemma, as well as a text on various strategies for managing deer populations, students are assigned roles, such as board members, community members, or townspeople. Prior to the meeting,

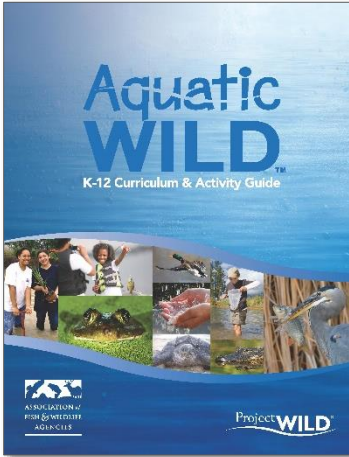
students are given time to develop their position based on the role they have been given and the information from the two texts.

The diversity of perspectives on how to best respond to the challenge of too many deer include points of view represented by differing opinions and concerns, such as how the deer herd will affect agriculture, safety, the wellbeing of the community, and the ecosystem. Community members with diverse perspectives include a farmer, a parent, a gardener, a biologist, a member of an animal rights organization, a park ranger, a resident whose family has been impacted by Lyme disease, a hunter, and a representative of a local tribe of indigenous people. Rather than promoting a particular point of view or strategy to managing the deer population, "Deer Dilemma" provides an opportunity for students to explore differing perspectives in a balanced way and form their own point of view while also learning communication and collaboration skills. While the focus in this activity is on a deer population, the process students undertake can apply to any environmental issue in which learners explore how different perspectives and proposed solutions can affect environmental, social, and economic systems.

Like all Project WILD materials, "Deer Dilemma" was developed, reviewed, revised, and tested in collaboration with many different stakeholders, including educators, wildlife biologists, and environmental managers.

Key Characteristic #3—Depth of Understanding

“Plastic Voyages” from the *Aquatic WILD K-12 Curriculum and Activity Guide*.



How can you help keep the plastic out?

This question helps set the stage for this upper elementary (grades 3-5) activity with an emphasis on actions each of us can take to address the environmental crisis of plastic pollution. Students examining the “voyage” in the lifecycle of plastics monitor plastic waste in their own households, learn about the effects on marine life, and propose ways to address the problem. Like all activities in the Project WILD and Aquatic WILD activity guide, the concepts in “Plastic Voyages” are connected to a larger set of unifying principles known as the [Project WILD Conceptual Framework](https://www.fishwildlife.org/application/files/1115/3790/7174/Project_WILD_Conceptual_Framework2017.pdf) (https://www.fishwildlife.org/application/files/1115/3790/7174/Project_WILD_Conceptual_Framework2017.pdf).

Over 200 principles that make up the conceptual framework are organized into three broad categories: Ecological Knowledge, Social and Political Knowledge, and Sustaining Fish & Wildlife Resources. Each activity then goes into depth on a few principles (typically 3-8) from one or more of these categories. “Plastic Voyages,” for example, connects closely to two principles relating to human impacts on fish & wildlife resources. These underlying principles can be considered as the theme of the activity. They are:

- Human effects on fish and wildlife and their habitats are a driving force affecting environmental quality worldwide; and
- Humans have the capacity to sustain themselves and wildlife.

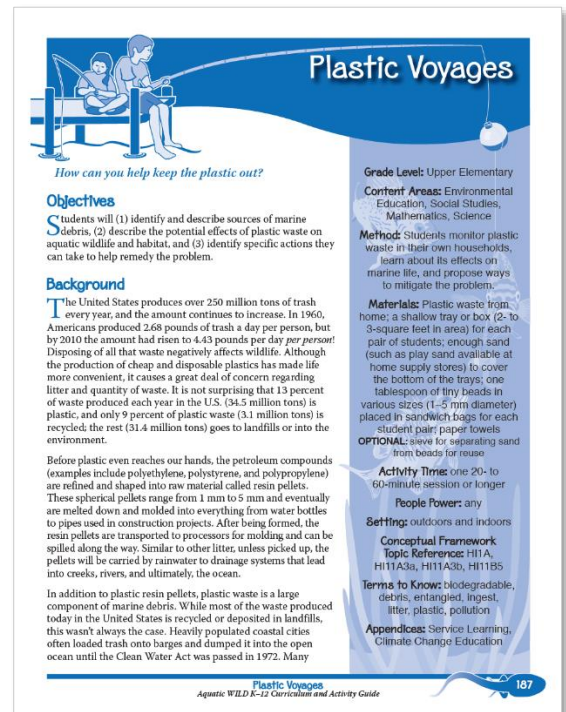
This second principle includes a sub-principle that also applies to the activity:

- The development and adoption of sustainable human lifestyles and social decisions can change the negative effects of human activity on wildlife.

Under this principle are yet more sub-principles:

- Individual lifestyle decisions including recreational choices, transportation options, housing selections, vocation, food, clothing, and energy use affect wildlife directly and indirectly; and
- Community conservation practices, plus social, cultural, and economic values affect environmental programs and activities.

The *Project WILD Conceptual Framework* helps tie together individual concepts—which are often listed as “Terms to Know” in an activity—into unifying themes, patterns, and interconnections associated with environmental literacy. The Framework also helps educators connect the activity to social, cultural, and ecological contexts relevant to their students or audience. In Plastic Voyages, students must think systematically to examine plastic waste from their households, within their community, and from industry. Students are prompted to ask questions and examine how plastic pollution moves into the ocean, the challenges of keeping plastic out of the environment, the damage plastic pollution causes, and how actions they can take to reduce plastic pollution. These questions and discussion points help students explore actions at the levels of the individual, the community, as a nation, and globally.



Key Characteristic #4: Personal and Civic Responsibility

“Wild Bill’s Fate” from the *Project WILD K-12 Curriculum and Activity Guide*

How does legislation affect wildlife?

“Wild Bill’s Fate” introduces high school students to the legislative process and how the system by which laws are created is tied to environmental decision making and action. While investigating wildlife-related pending legislation from their own state, students compare and report on differing social and political viewpoints concerning the legislation. Students also increase their awareness for how individuals and groups influence the outcome when laws are made as well as their own possible role in that process. By engaging learners through research on pending legislation, they reflect on their own opinions, the effects of their own actions regarding pending legislation, and potential outcomes and unintended consequences of bills. Through increased understanding of the legislative process, as well as building research and presentation skills, learners become more equipped for civic engagement and brining about positive, community-based changes that address environmental quality.



Wild Bill's Fate

Grade Level:
High School

Content Areas:
Social Studies, Language Arts,
Environmental Education

Method:
Students investigate pending state
legislation affecting wildlife.

Materials:
Writing materials, phone, email
accounts, envelopes and stamps,
Internet access.

Activity Time:
Two 45-minute sessions and then
ongoing work with occasional
reporting for several months.

People Power:
any

Setting:
Indoors

Conceptual Framework:
Topic Reference:
PLJA, PLUB1, PLUB2, PLUC

Terms to Know:
bill, law, legislation,
legislature, amendment

Appendices:
Using Local Resources

How does legislation affect wildlife?

Objectives
Students will (1) identify sources of information concerning legislation affecting wildlife, and (2) compare differing social and political viewpoints concerning legislation.

Background
Issues affecting wildlife are complex, and legislation affecting wildlife is no exception. Governments at the international, national, regional, and local levels make laws that affect wildlife. In this activity, students study their state's legislative process while inquiring into wildlife issues in their state.

Some proposed state laws directly affect wildlife. Other laws considered by a state legislature may have a strong effect on wildlife, although the laws may not relate directly to wildlife.

While state governments make many decisions that affect wildlife, protecting and managing wildlife in any state is the responsibility of a state agency—usually a state wildlife department.

When state legislatures meet, the public can learn what bills are under consideration. State legislature websites provide access to pending and current legislation. In addition to reading bills that may someday become laws, citizens can track the stages of a bill during the legislative process—such as dates for discussion or voting among committees, congressional representatives, or senators. Keyword searches on these websites can help identify bills that are specifically important to wildlife. Citizens may also contact their state wildlife agency and ask for the legislative liaison for information. Wildlife-oriented private groups and organizations will also be watching the legislature and can be asked to help identify wildlife-related bills.

The major purpose of this activity is for students to recognize that there is a legislative process that affects wildlife. Students may also begin to develop awareness for actions citizens can take to influence legislation.

Procedure

1. Ask students to explain how laws could affect wildlife. Do they know of any laws that are intended to protect certain species of wildlife, provide for wildlife habitat, or regulate interactions between wildlife and people?
2. Appoint a few students to research what bills in their state, if passed, would affect wildlife. Students can obtain information about pending legislation from their state legislature's website. Appoint one or two other students to contact the state agency responsible for management of wildlife. Have other students (as individuals or in pairs) contact representatives of a diverse and representative range of organizations interested in wildlife that might have information about any pending legislation. Organizations could include the Association of Fish and Wildlife Agencies, Ducks Unlimited, the National Audubon Society, the National Wildlife Federation, the Sierra Club, the Wildlife Management Institute, and local conservation groups and clubs.
3. Have students research and then prepare a report for the class summarizing their findings. Reports should include a list of bills under consideration, with a short paragraph of information about each, including the issues behind each bill. If possible, also summarize the supporting or opposing arguments for each bill.
4. Next, have the class divide into teams of four to six students, with each team selecting one piece of legislation to review.
5. Each team should keep a file of documents on the bill they are studying that includes (1) the legislative bill number and title, (2) when it was introduced to the legislature, by whom, and where, (3) its route to and through committees, (4) when it passes through the House and Senate, and (5) when it is signed into law or, if not signed into law, what happens to it. Daily updates on the status of pending legislation can be found through state legislature websites. Note that students should pay particular attention to amendments, which may drastically alter the intent of a bill. See if amendments improve or hamper the intent. Then try to determine if an amendment is intended to improve or "kill" the legislation. Students should also research individual legislators championing bills who are in positions to influence outcomes. What are the legislators' interests and priorities? What discussion points or shared values might influence these individuals?
6. Have each team prepare a list of questions its members have about their bill. The state agencies and other organizations originally contacted would be appropriate sources of additional information at this time, as well as the offices of state legislatures. Review students' questions before they contact any organization or individual to make sure the questions are adequately prepared. Educators should also ensure there is an even distribution among contacts (e.g., avoiding a situation in which one organization is contacted by five or six groups of students while another organization is not contacted at all). In addition to the legislative liaison at the state wildlife agency and members of private conservation groups, students might contact staff working for the person who introduced the legislation, a representative of local business interests, and people "on the street" who may or may not know about the proposed legislation. Make sure students research the organization from which they obtain information, as the mission and goals of the organization will influence its opinion of legislation.
7. Have students share the answers and information they obtain from different organizations with the class. In light of the information they have gathered, do students support or oppose the passing of the bill into law? Why?

Wild Work

How do Environmental Attorneys, Legislators, Audubons, Game Warden, Wildlife Managers, and Lobbyists help protect wildlife? To find out, load to www.projectwild.org

In Step with STEM

Challenge students to read and summarize articles from academic, peer-reviewed journals that can help inform students' opinions about issues affecting wildlife and legislation.

When state legislatures meet, the public can learn what bills are under consideration. State legislature websites provide access to pending and current legislation. Keyword searches on these websites can help identify bills that are specifically important to wildlife.

Assessment

1. Identify one bill that has been introduced into your state legislature and that will affect wildlife. Describe the bill and explain its major purpose. Offer and support your opinion as to whether this bill should be passed.
2. Describe two opposing viewpoints, if any, affecting wildlife that relate to this bill.
3. Explain any possible unanticipated consequences from passage of this bill.
4. Identify two stages at which you or other members of the public could influence the bill's passage or defeat. Describe what action citizens might take at those stages.

Extensions

1. Debate contrasting viewpoints concerning the proposed legislation.
2. In addition to current pending legislation that affects wildlife, students may research past bills that were never enacted into law, bills from other states legislatures, bills from the federal government, or ordinances from municipal governments.
3. For a longer term project in which high school students actively participate to influence the legislative process, contact your state Project WILD coordinator (see www.projectwild.org) for information on obtaining the activity "Know your Legislation: What's in it for Wildlife?"
4. High school students can analyze how social, political, and economic influences lead to environmental laws and regulations through focusing on the Endangered Species Act of 1973. See the activity "The Law: Before and After" from *Science and Civics: Sustaining Wildlife*. Visit the online store at www.projectwild.org for ordering information.

Aquatic Extensions

1. Focus on water-related legislation. Identify any possible effects on aquatic wildlife and aquatic habitats if the legislation is passed.
2. Write a letter to a legislator expressing your opinion about proposed legislation affecting aquatic wildlife. Include at least three statements that support (with evidence) your perspective concerning the proposed legislation.

Key Characteristic #5: Instructional Effectiveness



“Lights Out!” from the *Project WILD K-12 Curriculum and Activity Guide*

Lighting up the night sky comes with a cost. Excessive, misdirected, or obtrusive artificial light, or “light pollution” adversely affects economic, cultural, aesthetic, and environmental resources—including our wildlife species. While it is a problem in most communities, and one that connects to learners’ everyday lives, many opportunities are available for students to take action to help reduce light pollution. The Project WILD activity “Lights Out!” is designed for a wide range of grade levels, with options for younger students in the upper elementary grades, as well as older middle and high school students. Students investigate light pollution and its impacts, read a case study of a real world “Dark Sky Hero,” conduct a lighting audit of their school grounds, and then design an action plan to reduce light pollution in their community.

“Lights Out!”, like other Project WILD activities that have the “field investigation” designation, involves students in going outside to collect data in order to answer questions about or solve problems in their local environment. While many Project WILD field investigations use a student-centered approach for formulating research questions, in “Lights Out!” the questions are presented to students as part of a series of steps for conducting a school light audit:

- Does the lighting (on the school site) fall where needed?
- What types of bulbs are being used in the lighting fixtures on the school grounds? and
- When are the lights on, and for how much time?

These questions requiring direct observations are combined with research questions to be explored online or by accessing data made available by the school administration, including “what is the annual cost of operating outdoor lights on the site?” The questions support multiple ways by which students build understanding while conducting a lighting audit: through direct observation, research, reading, and discussion on wildlife and light pollution, mapping the locations and reach of outdoor lighting, and conducting calculations (of power use, annual costs, carbon emissions).

A hallmark of Project WILD materials that “Lights Out!” exemplifies is encouraging educators and learners to engage with community organizations. Project WILD activities underscore the importance of collaboration by highlighting and connecting to the work of many types of organizations involved in environmental stewardship, such as The International Dark-Sky Association, which helped establish categories of light pollution as seen here in the image to the right.

“Lights Out!” takes an interdisciplinary approach and clearly spells out the goals and objectives of the activity. The topic of light pollution is used to integrate content across the curriculum, with the areas of study (social studies, environmental education, science, and language arts) identified on the first page reference information. Also clear at the beginning of the activity are the measurable learning objectives. These objectives directly relate to the assessment strategies provide to the educator. A detailed background section to build both educator and student knowledge concludes with a purpose statement, “. . . for students to understand the effects of light pollution on wildlife and consider real-life examples of how to address light pollution. Students are encouraged to become active in reducing light pollution and to become “Dark Sky Heroes” in their community.”

Illuminating Light Pollution

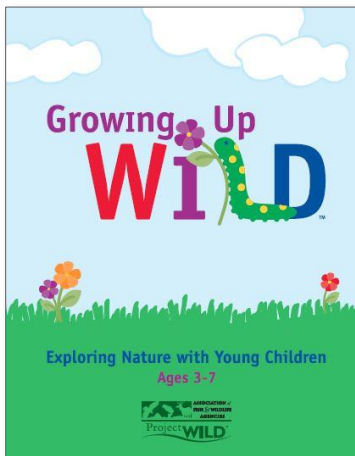
The International Dark-Sky Association (IDA), a nonprofit organization dedicated to preserving dark skies worldwide through education and responsible outdoor lighting, describes four common instances of light pollution: urban sky glow, light trespass, glare, and clutter. Artificial lighting that causes these types of light pollution reduces our ability to see distant stars, planets, and other objects—thereby reducing opportunities for many people to learn about and develop an appreciation of the cosmos.

Type of light pollution	Description
sky glow	illumination of the night sky often associated with artificial lights of cities and other urban areas
light trespass	occurs when light spills into areas where it is not needed, wanted, or intended such as into a neighbor's windows
glare	the presence of excessive bright light that causes discomfort and interferes with depth perception. Example: bright LED billboards on highways
clutter	excessive grouping of artificial lights, frequently occurring in urban areas. Example: large parking lots (such as car dealerships) and areas around a sport stadium

Lights Out!
Project WILD K-12 Curriculum and Activity Guide

Key Characteristic #6: Usability

“Spider Web Wonders” from *Growing Up WILD: Exploring Nature with Young Children*



Materials within the Project WILD family of programs are developed with the goal of ease of use for a variety of audiences—for educators who are new to the field or lack any formal training in education, for parents and caregivers involved in homeschooling, and for veteran formal (Pre-K through 12) and nonformal educators.

Every activity within Project WILD publications follows a common activity template intended to make the information provided easy to understand and reference. In the Growing Up WILD activity “Spider Web Wonders,” for example, graphic organizers direct the educator’s focus to several categories of information that will help in planning how to use the activity: correlations to standards (Head Start Domains as well as accreditation criteria set by the National Association for the Education of Young

Children), suggested age ranges of learners, additional resources, “Quick Facts” background information, key vocabulary, materials and prep, and various categories of procedures—such as the “Warm Up,” “Ready, Set, Go!” and the “Wrap Up” which provides suggestions for assessing learning and development. Additional activity sections found in every Growing Up WILD activity include “Healthy Me” (how can we stay safe around spiders?), “Helping Hands” (create a spider refuge), and “Might Math” (how many legs does a spider have? how does this compare to other animals?). A section on “Art Projects” (creating a spider with craft materials) helps the educator connect the theme across the learning and development domains through creative expression using easily accessed materials. The Music & Movement and the Centers & Extensions sections also offer easy to use, clear, and engaging activity ideas that are easily adaptable to most education settings. A “Snack” suggestion for each activity (hummus on crackers with eight pretzel legs) provides instructions for snacks that young learners can help create. Snacks featured focus on healthy diets, the needs of economically disadvantaged communities, and diverse cultural traditions.

Developed by teams that include early childhood educators, Spider Web Wonders was field tested prior to being published. Input from educators on the activity will continue to help guide future versions. Like all Project WILD materials, Spider Web Wonders is available as part of a larger activity guide that educators typically obtain when participating in professional development training.



Standards and Correlations

Head Start Outcomes
Health 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11, 1.1.12, 1.1.13, 1.1.14, 1.1.15, 1.1.16, 1.1.17, 1.1.18, 1.1.19, 1.1.20, 1.1.21, 1.1.22, 1.1.23, 1.1.24, 1.1.25, 1.1.26, 1.1.27, 1.1.28, 1.1.29, 1.1.30, 1.1.31, 1.1.32, 1.1.33, 1.1.34, 1.1.35, 1.1.36, 1.1.37, 1.1.38, 1.1.39, 1.1.40, 1.1.41, 1.1.42, 1.1.43, 1.1.44, 1.1.45, 1.1.46, 1.1.47, 1.1.48, 1.1.49, 1.1.50, 1.1.51, 1.1.52, 1.1.53, 1.1.54, 1.1.55, 1.1.56, 1.1.57, 1.1.58, 1.1.59, 1.1.60, 1.1.61, 1.1.62, 1.1.63, 1.1.64, 1.1.65, 1.1.66, 1.1.67, 1.1.68, 1.1.69, 1.1.70, 1.1.71, 1.1.72, 1.1.73, 1.1.74, 1.1.75, 1.1.76, 1.1.77, 1.1.78, 1.1.79, 1.1.80, 1.1.81, 1.1.82, 1.1.83, 1.1.84, 1.1.85, 1.1.86, 1.1.87, 1.1.88, 1.1.89, 1.1.90, 1.1.91, 1.1.92, 1.1.93, 1.1.94, 1.1.95, 1.1.96, 1.1.97, 1.1.98, 1.1.99, 1.1.100, 1.1.101, 1.1.102, 1.1.103, 1.1.104, 1.1.105, 1.1.106, 1.1.107, 1.1.108, 1.1.109, 1.1.110, 1.1.111, 1.1.112, 1.1.113, 1.1.114, 1.1.115, 1.1.116, 1.1.117, 1.1.118, 1.1.119, 1.1.120, 1.1.121, 1.1.122, 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