



Alaska State Envirothon

ADVISOR'S HANDBOOK



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Introduction

Envirothon Philosophy

The goal of environmental education is to develop knowledgeable, skilled and dedicated citizens who are willing to work toward achieving and maintaining a natural balance between quality of life and the quality of the environment. The mission of Alaska Envirothon is to increase students' knowledge of environmental issues and ecological sustainability principles through practical studies in their own communities. Several private, state and federal agencies and other partners collaborate through the Alaska Envirothon to promote and strengthen environmental education in Alaska.

FFA Convention and Envirothon Competition

The Alaska State Envirothon partners with Alaska Future Farmers of America Association to organize and facilitate a statewide four-day natural resource and agriculture education event. While the Envirothon Competition takes up one full day, the rest of the week is full of FFA-sponsored events, including career trainings and leadership themed workshops. Participants have the option to participate in the Envirothon only and will be charged a separate registration fee; however, students are strongly encouraged to participate in all the exciting workshops, competitions and tours provided by Alaska FFA. For more information on the Alaska FFA Convention, event registration, fees and workshop schedules, go to: www.alaskaffa.org or call 982-2310.

Alaska State Envirothon Program

The Alaska State Envirothon is a year-long, statewide environmental education program for students in grades 7 through 12 that culminates with a hands-on competition. Over the school year, students study concepts in natural science disciplines and in the spring, they travel to the state competition in order to put their knowledge and skills to the test. Participants visit five field stations led by natural resource volunteers who have helped develop the tests.

Combining in-class curricula with 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. Students also step away from the Envirothon experience excited about learning and motivated to pursue careers in environmental studies, environmental law, natural sciences and natural resource management.

Advisors

Advisors are teachers or adult mentors who coordinate local Envirothon study groups. An Advisor is responsible for promoting the Envirothon program, recruiting students to participate, and ensuring team members complete learning activities, curricula, registration forms and anything else necessary to prepare the group for competition.

Registration

Advisors must communicate their intent to participate in the Envirothon by submitting a Participation Form, available at www.palmersoilandwater.com. Advisors may bring any number of students and choose to register teams, individuals or a combination of both. We recommend having one advisor/adult chaperone for every five students.

Training

Study materials are also available on our website. Advisors are strongly encouraged to print all materials and create a master copy with dividers separating the subject areas. Study materials include lesson plans, activities, journal articles and/or power point presentations which have been created and/or gathered by natural resource specialists. These study materials should be used to guide and supplement training in the natural resource discipline areas over the course of the school year.

Additionally, Advisors are encouraged to seek training opportunities on their own. These may include presentations or discussions with local naturalists, foresters, soil scientists, wildlife biologists and fishery experts.



Advisor Resources are available at www.palmersoilandwater.com.

THE COMPETITION

The 2012 Alaska State Envirothon competition will be held on April 27th in Palmer, Alaska. During the competition, students' theoretical and field knowledge is challenged through a series of station tests under the supervision of natural resources specialists. During these tests, students are asked to perform hands-on tests such as measure the height of trees, describe nutrient cycles in aquatic systems, and identify signs of wildlife.

The competition wraps up with oral presentations, where teams present a proposal on how to solve an environmental problem pertaining to the current issue: *Nonpoint Source Pollution and Low Impact Development*.

Station Tests

Students choose to compete in one of two categories: Individuals or Teams. Both groups rotate through a series of five testing stations: Wildlife, Soils and Land Use, Aquatic Ecology, Forestry, and Nonpoint Source Pollution.

The stations are led by natural resource specialists representing private, local, state and federal agencies. Each station will last 45 minutes, with the first 15 minutes reserved for instruction and career training by the Station Leaders. Then, students will have 30 minutes to complete a 50-point test. Test questions may be asked in a variety of ways including, but not limited to, multiple choice, true/false, essay or fill-in-the-blank.

Tests are designed to involve students in fun, hands-on activities.

Teams

Teams are comprised of five students from the same school or association (i.e. FFA, 4-H, home-school organization, etc.). By studying and competing as a team, students may choose to elect an "expert" for each station area. With this approach, each member can take the lead on study sessions and present to the other members of the team.

Oral Presentation

For the oral presentation, each team presents a plan and proposes a solution to an environmental problem related to the current environmental issue: *Nonpoint Source Pollution and Low Impact Development*. Teams will integrate concepts from all subject areas into their proposal in a manner that the public will clearly understand. The students will leave the competition with an understanding of real-world issues involving ecology and the environment.

Competition Scoring

Top scoring individuals and teams will be recognized at the awards banquet Saturday evening, April 28th.

1. Station Tests: Top Scoring Individual and Top Scoring Team will be recognized from each: Wildlife, Soils and Land Use, Aquatic Ecology, Forestry, and Nonpoint Source Pollution (50 points)
2. Oral Presentation: Top Scoring Team will be recognized. The presentation is judged by a panel of experts and the score is based on the average of all the judges' scores (100 points)
3. Overall Team Winner: The overall winner is determined by the cumulative total (400 points possible) including the 5 station test scores (50 points each) plus the final oral presentation score (100 points). If needed, the tiebreaker shall be determined by which team received the higher Oral Presentation Score, and then if needed the higher Current Issue score.

The overall team winner with all members in grades 9 through 12 will represent Alaska at North America's Canon Envirothon. This year, the competition will be held in Selinsgrove, Pennsylvania from July 22—July 28.

The chief sponsor, Palmer Soil and Water Conservation District, will make a significant financial contribution to support the winning team's travel expenses to the national Canon Envirothon Competition. Information on the Canon Envirothon Competition can be found at www.envirothon.org.

Rules and Regulations

The Alaska State Envirothon shall be conducted under the following rules and regulations:

1. Only students enrolled in grades 7 through 12 or equivalent home school ranking in the current school year are eligible to participate in the Alaska State Envirothon. Teams may be composed of 7th and 8th grade students, 9th – 12th grade students or a combination of the two. Only teams composed of 9th -12th grade students will qualify to represent Alaska at the national Canon Envirothon.
2. A class, school or organization may send any number of students to the Alaska State Envirothon and students can compete as individuals, as a team of five, or a combination of both.
3. Each team must consist of five students from the same school or organization.

4. Participants must be accompanied by an adult Advisor during all Envirothon events. Advisors are responsible for ensuring that students display proper conduct.
5. Advisors and participants are not allowed to access the testing stations before the competition or during breaks.
6. No advisor, sponsor, teacher, alternate or parent may communicate with participants once the competition begins. When messages between competing team members and others are necessary, they shall be delivered by members of the Alaska State Envirothon Committee. No contact between advisors and their team shall be made until after all testing and oral presentations are completed.
7. A Team Buddy will accompany teams from station to station throughout the competition. This position may be assigned to Advisors and/or other volunteers.
8. Weapons, tobacco, illegal drugs, and alcohol are not permitted during any part of the competition. No backpacks will be allowed on the testing circuit.
9. Only content keys, reference materials, and equipment provided by the Alaska Envirothon Committee will be allowed for use at the event. No electronic, battery-operated or solar-powered equipment including cell phones may be used by teams during any portion of the competition.
10. Judges' decisions are final on all events.
11. Noncompliance with any of the aforementioned rules will be grounds for disqualification.
12. Competition fees are non-refundable.

Team Presentation

Advisors will receive, by email, notification of the oral presentation scenario approximately three weeks before the Alaska State competition.

Teams should begin immediately formulating their presentation. Preparation time will not be provided the day of the competition.

Teams will be scored on the organization and development of their argument, the reliability of the content and overall presentation skills.

Rules

1. Teams consist of 5-members
2. Oral presentations must be **10-12** minutes in duration.
3. Each team member must have an equal part in the oral presentation.
4. There may be a question period by judges.
5. Visual aids must be prepared by team members *beforehand* using *only* materials from the list provided by the Alaska Envirothon Committee (see below). No computer generated materials may be used. No photographs or printed material may be used. Prepared presentation materials will be turned in at competition registration and returned to teams just prior to their presentations.
6. Oral presentation judging will follow the Canon Envirothon protocol.

Visual Aids Material List:

- 2 sheets of newsprint or poster board, not to exceed 27"x 33"
- 8 water base markers
- 4 sheets of 8.5" x11" construction paper (blue, green, red, yellow)
- Glue stick
- Ruler
- No. 2 Pencils
- 10 note cards 3" x 5"
- Black ballpoint pens
- Standard office scissors

Rules and Regulations of the Alaska Envirothon are subject to change. Changes to these rules will be communicated through the Alaska State Envirothon website, by email, or during the event.

Envirothon Learning Objectives

Alaska Wildlife

- 1) Identify Alaskan wildlife species using mounted specimens, skins/pelts, picture, skulls, silhouettes, decoys, wings (waterfowl), scat, tracks, animal sounds, or other common signs. Animal tracks may be original or molds made of the prints. Wildlife signs may be real or reproduced.
- 2) Use a key or field guide to identify Alaskan wildlife species or signs. Wildlife species or signs may be presented in any form as described above.
- 3) Identify general food habits (herbivore, omnivore, carnivore), habitats (terrestrial, aquatic, fossorial), and habits (diurnal, nocturnal) using skull morphology and/or teeth.
- 4) Understand the concepts of habitats, biodiversity and adaptation, and give examples of each.
- 5) Understand the concepts of wildlife population dynamics, such as carrying capacity, birth, mortality, age-structure and mating systems.
- 6) Understand how non-native (exotic), invasive species in Alaska threaten the environment and the biodiversity of many wildlife species.
- 7) Understand the terminology and factors that affect threatened and endangered Alaskan wildlife species. Know the meaning of extinct, extirpated, endangered, threatened, candidate species and reintroduction.

Aquatic Ecology

- 1) Know the processes and phases for each part of the water cycle and understand the water cycles role in soil nutrient erosion, climate influences, and natural hazards.
- 2) Understand the concept and components of watersheds and be able to identify stream orders and watershed boundaries. Know the factors of a healthy watershed and an unhealthy watershed.
- 3) Know how to perform and interpret chemical water quality tests, including pH, dissolved oxygen, and suspended sediment. Understand why and how aquatic organisms and water quality is affected by the physical, chemical and biological conditions of the water.
- 4) Understand the concept of water conservation and explain ways Alaskans can reduce their water usage.

5) Identify common aquatic macroinvertebrate species and explain how they contribute to the overall picture of a stream's health.

6) Understand how soil is impacted by point and non-point source pollution and the importance of soil management to agriculture and clean water.

Forestry

1) Know the parts and tissues of a tree and be able to explain the growth cycle and life cycle of a tree.

2) Understand the process of photosynthesis and respiration and how they are important to the growth and reproduction of trees.

3) Identify common Alaskan tree species, such as white and black spruce, cottonwood and paper birch without a key, and identify specific or unusual Alaskan trees and shrubs through the use of a key.

4) Know the typical forest structure: canopy, understory and ground layers and crown classes. Understand the stages of succession for Alaska's two forest types: Boreal and Rainforest.

5) Identify the abiotic and biotic factors in a forest ecosystem, and understand how these factors affect tree growth and forest development. Consider factors such as climate, insects, microorganisms and wildlife. Use a cross-section of a tree to determine the age of the tree and describe how the annual life cycle affects the appearance of its annual rings.

6) Know how to use forestry tools and equipment including D-tape and an inclinometer in order to measure tree diameter, height, basal area and volume of wood.

7) Explain the "Ecosystem Services" provided by trees, and understand why trees and forests are important to human health, recreation, wildlife and watershed quality.

Soils and Land Use

1) Understand the importance of soils and appreciate the relatively small amount of usable soils that exists on Earth.

2) Understand the origin and types of soil parent material.

3) Understand basic soil forming processes: addition, losses, translocations and transformations.

4) Recognize and understand features of Soil Profiles, and be able to use this information to determine basic soil properties and limitations.

- 5) Identify and describe soil characteristics (texture, structure and color, using Munsell color charts).
- 6) Recognize that biological diversity is important for soil health and hence plant, human, and environmental health.
- 7) Understand the procedure for taking a soil sample and conducting nutrient analysis.
- 8) Understand how soil is impacted by point and non-point source pollution and the importance of soil management to agriculture and clean water.

Nonpoint Source Pollution and Low Impact Development

- 1) Identify point and nonpoint source pollutants.
- 2) Demonstrate the cumulative effects of nonpoint source pollution.
- 3) Learn to read and interpret a contour map while identifying important map clues about watersheds and water quality.
- 4) Compare local household and community nonpoint source pollution to surface water quality standards.
- 5) Identify ways to reduce or eliminate nonpoint source pollution.
- 6) Understand the concept of eutrophication and what human actions cause an excess of phosphorous and nitrogen into surface waters.
- 7) Describe how green infrastructure works as a strategy for managing storm water.
- 8) Understand the function of Low Impact Development practices, including bioretention, grass, swales, vegetated roof covers, and permeable pavements.
- 9) Understand how soil is impacted by point and nonpoint source pollution and the importance of soil management to agriculture and clean water.

State Competition Preparation Checklist

Maintain close contact with the Alaska State Envirothon Director prior to the competition. Ensure the following checklist is completed:

1. Advisors have submitted a Participation Form (available at www.palmersoilandwater.com) with all participant's information.
2. Your team has registered for Convention with Alaska FFA and the registration fee has been paid. Go to: www.alaskaffa.org and click State Convention tab or contact Alaska FFA Advisor Amy Harmon at harmonfamily@gmail.com or 982-2310.

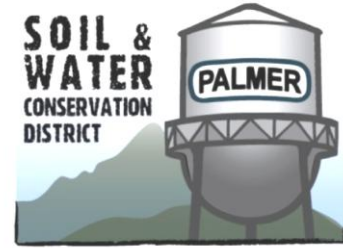
OR

Your team has registered for the Envirothon Competition only by submitting a Participation Form and mailing a check to Palmer Soil and Water Conservation District: 259 South Alaska Street Palmer, AK 99645.

3. Transportation has been arranged to the competition location.
4. Team members are familiar with the rules of the competition.
5. Team members are trained in each of the test areas: wildlife, soils and land use, aquatic ecology, forestry and nonpoint source pollution. Study guides are available on the Alaska State Envirothon web site: www.palmersoilandwater.com.
6. Team members are developing oral presentation skills.
7. Program updates and FAQs are posted periodically on the Alaska State Envirothon web site www.palmersoilandwater.com. Check it frequently.

Partners

The Alaska State Envirothon is made possible because of Palmer Soil and Water Conservation District and contributions from the following organizations:



Sponsors

- Alaska Future Farmers of America
- Salcha-Delta Soil and Water Conservation District
- BP
- Wells Fargo
- Fairbanks Soil and Water Conservation District
- Alaska Pacific University Spring Creek Farm
- NRCS
- Alaska Department of Environmental Conservation, Division of Water
- Alaska Department of Fish and Game
- US Fish and Wildlife Service



Resources

Study Guides

Study guides are available at www.palmersoilandwater.com.

Sample Test Questions

Sample tests are available on the Canon Envirothon website at www.envirothon.org.

Oral Presentation Judges' Scoring Sheets

The Alaska State Envirothon will use the Canon Envirothon Judges' Scoring sheets to score presentations. Copies are available on the Canon Envirothon website at www.envirothon.org.

Contacts

Envirothon

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