

INDIANA ENVIROTHON COMPETITION 2024 INFORMATION BOOKLET



A GREAT EXPERIENCE FOR:

Green Club Teams

Home School Teams

FFA Teams

Academic Teams

4-H Teams

Scout Teams

And more!



The 2024 Indiana Envirothon is sponsored by:

Environmental Education Association of Indiana

Indiana Association of Soil and Water Conservation Districts

Indiana Society of American Foresters

Indiana University—Integrated Program in the Environment

Smithfield Foods

Visit us on the web at: www.indianaenvirothon.org

Find us on Facebook. Search: Indiana Envirothon

What is The Envirothon?

The Indiana Envirothon promotes environmental education to high school aged students. The goal is to raise awareness of the importance of achieving and maintaining a natural balance between the quality of life and of the environment.

How Does it work?

In-class curriculum is combined with hands-on field experiences to demonstrate the role people have in important environmental issues. Envirothon is an exciting, fun way for high school students to learn about the environment and the issues facing current and future generations.

Envirothon builds awareness. It helps show tomorrow's leaders the positive and negative effects individual actions have on the environment. Youth who take part understand differences between renewable and nonrenewable resources, understand environmental interactions and interdependencies, and know who provides information that can be used in the future for their benefit.

Students have fun while becoming environmentally aware during the competition!

Teams of five students (grades 9-12), representing a school or organization, compete at Indiana Envirothon contests by answering questions and by studying resource problems in each of the five environmental areas which include: soils/land use, aquatic ecology, wildlife, forestry, and a current environmental issue.

Students begin training for Envirothon by studying the resource materials that cover each natural resource area and those objectives related to them. Natural resource professionals provide presentations to the students sharing job experiences and information on the resource areas.

Students will participate in **one** of the regional contests, where teams will be tested in the five resource areas. Teams are allowed to choose the closest regional contest to their location. The top two teams, from regional contests with < 12 teams competing, or three teams, from regional contest with 12 or more teams competing, will be invited to participate at the Indiana state competition. In addition to taking the state test in the five resource areas, they will provide an oral presentation covering their solution to the current environmental issue. The State competition combines the scores from both the written and oral component to declare a state winner.

The top team from the Indiana State Envirothon Competition will represent Indiana in the National Conservation Foundation (NCF) Envirothon Contest. The NCF-Envirothon is a multi-day event. Typically, over 50 participating teams from the U.S., Canada, and China merge the knowledge from their home state/provincial contests with hands-on teaching stations during a five day competition. Written tests and oral presentations are again part of the contest.

Awards and Recognition

1. Participation certificates are provided to all participants. These make good reference materials for your career portfolio and provides you with a item that can be proudly displayed as an accomplishment in your high school career.
2. The top three placing teams at a regional event will receive medals for each of the five students on the team. The top teams will also receive a plaque for their school.
3. At the Indiana Envirothon State Contest, medals will be given to the top three placing teams in each of the following categories: written tests, oral presentation, and overall. Plaques will also be given out for the top three teams. A traveling trophy will be given to the top overall team in the Indiana State Contest.
4. The team representing Indiana at the NCF-Envirothon competition will have registration fees paid for the 5 team members and 1 or 2 advisors, along with an additional undetermined monetary sponsorship to help defray other expenses by the Indiana Envirothon Committee. Travel expenses are the responsibility of the winning team. A portion of the expenses incurred MAY be reimbursed by Indiana Envirothon.

2024 Contests and Dates

Teams will select the contest sites of their first and second choice. First choice will be given if space is available based on date registration is received. Two teams per school/organization may register. If additional teams from the school/organization would like to participate, permission must be requested from the regional coordinator and will be based on space availability. Regional Coordinators reserve the right to cancel contest if registration numbers are inadequate.

SOUTHWEST INDIANA

Tuesday, March 12, 2024
Warrick County 4H Center
133 E Degonia Rd
Boonville, IN 47601
Contacts: Susan.King@in.nacdnet.net
tina.boerner@in.nacdnet.net

SOUTH CENTRAL INDIANA

Wednesday, March 13, 2024
Lawrence County Fairgrounds
11265 US-50
Bedford, IN 47274
Contact: stephanie.baker@in.nacdnet.net

NORTHWEST INDIANA

Thursday March 14, 2024
Red Mill County Park
0185 South Holmesville Rd.
LaPorte, IN 46350
Contact: Lschwab@Laporteco.in.gov

EAST CENTRAL INDIANA

Thursday, March 14, 2024
BSU Environmental Education Center
2500 W University Avenue
Muncie, IN 47306
Registration Contact: luanne.holeva@in.nacdnet.net
Site Contact: elforstater@bsu.edu

WEST CENTRAL INDIANA

Friday, March 15, 2024
Ivy Tech Community College
1650 E Industrial Dr,
Terre Haute, IN 47802
Contact: jan.came@usda.gov

NORTH CENTRAL INDIANA

Wednesday, March 13, 2024
Camp Buffalo
9400 N Boy Scout Rd
Monticello, IN 47960
Contact: amanda.heltzel@in.nacdnet.net

CENTRAL INDIANA

Wednesday, March 6, 2024
Franklin University Science Center
Franklin, IN 46131
Contact: BONeal@franklincollege.edu

NORTHEAST INDIANA

Thursday, February 29, 2024
Peabody Public Library
1160 E State Road 205
Columbia City, IN 46725
Contact: nadean.lamle@in.nacdnet.net

2024 INDIANA STATE CONTEST

April 24, 2024
Beck Center, Purdue University
4540 U. S. 52 West
West Lafayette, IN 47906
Contact: dzolman@live.com

2024 NCF-ENVIROTHON CONTEST

July 28—August 3, 2024
Hobart and William Smith Colleges
Geneva, New York
IN Representative contact: teddie.mower@gmail.com

Covid-19 Update

The 2024 Indiana Envirothon regional and state competitions are scheduled to take place in person; however, this may be updated as county and/or state guidance changes. Please check this page and our Facebook frequently for updates.

*****REFERENCE MATERIALS FOR ALL SUBJECT AREAS*****

References listed were current and active on November 20, 2023. If one of the web links is no longer valid please contact your regional coordinator and check the Indiana Envirothon website for any updates: [Topic Resources - Indiana Envirothon](#)

Aquatic Objectives (Objectives are connected to IN standards. See website)

1. Identify assisting agencies and laws that govern Indiana waters, and develop a working understanding of the programs which benefit our water resources.
2. Define a watershed and the interaction of its components.
3. Define and understand the difference between non-point source and point source water pollution, as well as types of water pollution (organic, inorganic, thermal, toxic, etc.) and their impacts.
4. Be able to conduct water tests and interpret data for assessing water quality ie: dissolved oxygen, BOD5, turbidity, nitrate/nitrite etc.
5. Identify aquatic organisms, be able to classify them by pollution tolerance groups, and determine their indication of aquatic health.
6. Understand the unique characteristics of freshwater resources (lakes and ponds, rivers and streams, reservoirs, wetlands, and groundwater).
7. Understand the basic concepts of hydrology and the water cycle.
8. Be familiar with the distribution of the Earth's water and understand water's changing states and processes of the water cycle.
9. Be familiar with citizens' simple actions that can be implemented to prevent nonpoint source pollution.
10. Be able to identify and understand the interaction of segments of a community where water pollution can occur.

Aquatic Resources

Volunteer Stream Monitoring Training Manual by Hoosier Riverwatch

<https://www.in.gov/idem/riverwatch/2332.htm>

USGS Water Resources

Water cycle: <https://www.usgs.gov/special-topics/water-science-school/science/water-cycle>

Water Facts: <https://www.usgs.gov/special-topic/water-science-school/science/facts-about-water>

Watersheds

<https://www.in.gov/idem/nps/2369.htm>

Agencies Working on Clean Water:

<https://engineering.purdue.edu/watersheds/resources/WatershedAgencies.pdf>

Be familiar with the agencies, programs, and roles of each agency

Nonpoint Source Pollution basics:

<https://nepis.epa.gov/Exe/ZyPDF.cgi/200049A9.PDF?Dockey=200049A9.PDF>

Forestry Objectives (objectives are now connected to IN Standards. See website)

1. Know the parts of a tree and be able to explain the tree's life cycle.
2. Identify common tree species without a key and identify specific or unusual trees & shrubs through the use of a key.
3. Understand the term silviculture and be able to explain the uses of the following silviculture techniques: thinning, prescribed burning, single tree & group tree selection, shelterwood method, clear-cutting with & without seed trees, & coppice management.
4. Know how to use forestry tools & equipment to measure tree diameter, height & basal area.
5. Understand how the following issues are affected by forest health & management: biodiversity, forest fragmentation, forest health, air quality, aesthetics, fire, global warming, water quality & recreation.
6. Understand how forestry management practices and policy affect sustainability.
7. Understand how economic, social & ecological factors influence forest management.
8. Understand the economic value of forests and know many of the products they provide to people & society.
9. Know the typical forest structure: canopy, understory and ground layers and crown classes.
10. Understand forest ecology concepts and factors affecting them, including the relationship between soil and forest types, tree communities, regeneration, competition, and primary and secondary succession.
11. Know how the wood waste created by Indiana's sawmills is fully utilized.
12. Understand that actively managed forests are more efficient at carbon storage than unmanaged forests.
13. Understand that carbon captured by trees remains in the wood products that are produced when they are harvested.

Forestry Resources

Envirothon Forestry Guidelines, specifically Tree Physiology

https://envirothon.org/wp-content/uploads/2019/10/physiology_of_trees.pdf

A Landowner's Guide to Sustainable Forestry in Indiana—Part 1

<https://www.extension.purdue.edu/extmedia/FNR/FNR-180.pdf>

Importance of Hardwood Tree Planting

<https://www.extension.purdue.edu/extmedia/FNR/FNR-219.pdf>

Planting Forest Trees and Shrubs in Indiana

<https://www.extension.purdue.edu/extmedia/FNR/FNR-IDNR-36.pdf>

Forest Management Basics. North Carolina Forestry Association.

<https://www.ncforestry.org/education/education-materials/forest-management-basics>

Using the Tree Measuring Stick. Ohio State University Extension.

<https://ohioline.osu.edu/factsheet/F-62>

Hardwood Ecosystem Experiment: Sustaining our Oak-Hickory Forests

https://mdc.itap.purdue.edu/item.asp?Item_Number=FNR-542-WV

An Introduction to Trees of Indiana (Price: \$7.00)

https://mdc.itap.purdue.edu/item.asp?Item_Number=4-H-15-80A

Wood is Good. Indiana Hardwood Lumbermen's Association.

<https://www.ihla.org/wood-is-good/>

STEM: Tree Life Cycle. Project Learning Tree.

<https://www.plt.org/stem-strategies/tree-lifecycle/>

Carbon Benefits of Wood-based Products and Energy. USDA Forest Service, Climate Change Resource Center.

<https://www.fs.usda.gov/ccrc/topics/carbon-benefits-wood-based-products-and-energy>

Timber Harvest and Carbon. USDA Forest Service, Office of Sustainability & Climate.

<https://www.fs.usda.gov/sites/default/files/TimberHarvest-Carbon-3pg-v3.pdf>

Forest Literacy Framework. Sustainable Forestry Initiative/Project Learning Tree.

<https://www.plt.org/forestliteracy>

Soil and Land Use Objectives (objectives are now connected to IN Standards. See website.)

1. Know and understand the 5 soil forming factors, their influence on soil properties, and the soil forming processes.
2. Know basic characteristics of the 12 soil taxonomic orders and know what soil orders are in Indiana.
3. Be able to recognize and identify features of soil profiles, properties, characteristics, structures, and be able to determine soil texture.
4. Understand that soil fertility relates to physical and chemical properties of the soil including quantity of nutrients essential for plants, and why it reflects the physical, chemical, and biological state of the soil.
5. Be able to define soil health and identify the 4 key principles and conservation practices that can be used to build soil health.
6. Recognize the importance of soil and that biological diversity is important for soil health and the health of those connected to the soil.
7. Understand the relationships of soil ecosystems as well as hydrologic, carbon, and nutrient cycles to soil management.
8. Understand how different land uses and conservation practices impact soils and erosion, and the importance of soil management to agriculture/rural areas, urban environments, and to clean water, including point and non-point source pollution.
9. Understand key terminology relating to soils and land use.
10. Identify partnering agencies of the Indiana Conservation Partnership and be aware of the programs that assist land users with soil issues.

Soil and Land Use Resources

Indiana Soils: Evaluation for Agriculture and Home Sites

www.extension.purdue.edu/extmedia/ID/ID-72-W.pdf

Chapters 1 (Soil Formation), 2 (Soil Properties) and Glossary

Indiana Conservation Partnership, (including partnering agencies links)

icp.iaswcd.org/about/contact/

Focus on “about” and “mission.” <https://icp.iaswcd.org/>

Soil Biology and Fertility

<https://www.soils4teachers.org/biology-life-soil>

<https://www.soils4teachers.org/fertility>

Guide to Texture by Feel

https://www.nrcs.usda.gov/sites/default/files/2022-10/texture_feel.pdf

The 12 Orders of Soil Taxonomy

https://www.nrcs.usda.gov/sites/default/files/2022-06/orders_hi.pdf

https://www.nrcs.usda.gov/sites/default/files/2022-08/Soil_Orders_Map_of_the_United_States.pdf

Principles for High Functioning Soil

https://www.nrcs.usda.gov/wps/cmیس_proxy/https://ecm.nrcs.usda.gov%3a443/fncmis/resources/WEBP/ContentStream/idd_90E0FF75-0000-CB1E-9678-1D817AFD3B4E/0/Principles_for_High_Functioning_Soil_2018.pdf

Soil Health Checklist

<https://www.nrcs.usda.gov/sites/default/files/2022-12/NRCS-Checklist-for-Growers-Factsheet-2021-English.pdf>

Wildlife Objectives (objectives are connected to IN Standards. See website.)

1. Understand the role of federal and state agencies, and the programs and laws that govern Indiana wildlife and the protection, conservation, management, and enhancement of Indiana's wildlife and their habitat through improvement practices.
2. Identify Indiana wildlife species (mammals, birds, reptiles, amphibians, fish, crustaceans, mussels, insects, spiders, etc.) by physical characteristics, tracks, movement patterns, habitat suitability, and other unique characteristic signs.
3. Identify and differentiate between extinct, extirpated, endangered, threatened, and species of special concern. Understand the importance of biodiversity and the implications of its loss. Describe factors affecting Indiana species and the methods being used to improve existing populations.
4. Describe the current struggles of native Indiana wildlife species impacted by biological and physical agents as well as the introduction of invasive non-native species and cite examples of current and potential concerns to native populations.
5. Identify basic wildlife survival needs of Indiana wildlife, the niche they serve, and habitats where they may be found. Describe specific adaptations of Indiana wildlife species to its environment and its role in the ecosystem.
6. Describe situations that limit or enhance population growth and discuss the concept of carrying capacity and limiting factors. Be familiar with examples that have or may occur in Indiana.
7. Be able to name habitat requirements for wildlife and the factors that affect suitability. Recognize the importance of wildlife adapting to its environment and be able to explain advantages of anatomical, physiological, and/or behavioral adaptations of wildlife to their environment.
8. Understand wildlife and wildlife related terminology such as: habitat, ecosystem, biodiversity, herbivore, endangered, food web, niche, invasive, etc.
9. Be familiar with current events that may be impacting Indiana wildlife, whether year-round residents or migratory species. (Due to how current the event there might not be a cited reference for this objective.)

Wildlife Resources

DNR Fish & Wildlife

<https://www.in.gov/dnr/fish-and-wildlife/> Be familiar with About Us; 2023-2024 Hunting and Trapping Guide; 2023—2024 Fishing Guide; Nongame & Endangered Wildlife; Nuisance Wildlife; Wildlife Resources; Wildlife Diseases; Animals; and Invasive Species

Indiana Wildlife

DNR: <https://www.in.gov/dnr/fish-and-wildlife/wildlife-resources/animals/>

Purdue Extension: <https://www.extension.purdue.edu/extmedia/FNR/FNR-413-W.pdf>

Kaufman, Kenn, et al. *Kaufman Field Guide to Nature of the Midwest*. Houghton Mifflin Harcourt, 2015.

Invasive Species

<https://www.in.gov/dnr/rules-and-regulations/invasive-species/> Be familiar with invasive species currently found in Indiana

<https://stopaquaticinvasives.org/> Know the basic protocols for finding and preventing the spread of aquatic invasive species

Ecology and Habitat

https://www.indianaenvirothon.org/uploads/1/3/4/9/134908295/wildlife_ecology.pdf

Endangered Species Act

<https://www.fws.gov/endangered/laws-policies/>

<https://www.fws.gov/sites/default/files/documents/endangered-species-act-basics.pdf>

<https://www.fws.gov/endangered/laws-policies/esa-history.html>

Understand the basics of the ESA; Be familiar with the history of the ESA and how it has changed over time (principal amendments in 1978, 1982, 1988, and 2004)

Is Extinction Forever?

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4404403/>

Migratory Bird Act of 1918

<https://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php> Understand the basics of the Migratory Bird Act

Diseases in Wildlife

<https://www.extension.purdue.edu/extmedia/FNR/FNR-485-W.pdf>

<https://www.purdue.edu/fnr/extension/be-on-the-watch-for-ehd-in-deer/>

2024 Current Issue:

Adapting “Renewable Energy for a Sustainable Future”

Current Issue Objectives

1. Define energy and explain how energy is relevant in our everyday lives.
2. Explain how traditional non-renewable energy sources such as petroleum, coal and natural gas are extracted and utilized to create energy.
3. Identify the environmental, social, and economic advantages and disadvantages of these traditional non-renewable energy sources and evaluate their suitability for meeting the world’s energy needs of the future.
4. Describe the criteria for an energy source to be renewable and identify examples.
5. Explain how Solar, Wind and Hydroelectric systems generate electricity, and identify the technological advancements that have made that possible.
6. Identify the environmental, social, and economic advantages and disadvantages of Solar, Wind and Hydroelectric power and evaluate their suitability for meeting the world’s energy needs of the future.
7. Describe the impact of renewable energy projects have on natural resources and the environment on both local and global scales.
8. Identify actions or innovative approaches to address negative impacts from renewable energy on natural resources and the environment.
9. Explain the benefits and limitations of concurrent use of renewable energy projects on agricultural lands.
10. Describe the landscape of renewable energy across various regions of the world, including strengths and challenges.
11. Explain the barriers to transitioning to renewable energy and identify solutions to these barriers.
12. Define Energy Justice, and describe its connection to environmental justice and climate justice.

Current Issue Resources

Renewable Energy for a Sustainable Future Current Environmental Issue Study Resources- Part A: envirothon.org/wp-content/uploads/2023/09/2024-Current-Issue-Part-A.pdf

Indiana ACADEMIC Standards

Visit the Indiana Envirothon website for connections to the Indiana standards.

www.indianaenvirothon.org

Rules and Information

1. Students must be currently enrolled in grades 9-12, as of the 2023-2024 school year at the time of the regional contest to be eligible to be contestants. Non-competing students/children cannot attend.
2. Teams must consist of five contestants. One alternate per team is highly recommended. Teams of 4 may use an alternate (1) from another willing team, but if that team places the team of 4 must have a candidate from their school/group to go to state contest. Alternates not part of the 5 member team will not be allowed at the team table during testing. Alternates may be grouped together to take tests for exposure, but are not able to place at the contest.
3. Schools or organizations may participate in only one regional competition annually.
4. Registration fee is \$70 for each team. Fee covers lunches for six (6) students and one (1) advisor. Each additional person brought will be charged an \$8 fee per person. Lunch will be provided. State registration fee is \$75 for each team.
5. A school or organization may send up to two (2) teams to regional competition. Teams from the same school must participate in the same regional competition. Regional competitions are limited to the first 25 teams who register by post-mark per site. If additional teams from the same school/organization would like to participate, permission must be requested from the regional coordinator and will be based on space availability.
6. Coaches and alternates may accompany their teams during the resource presentations at Indiana Regional Contests. Coaches and alternates are not to accompany teams to any testing area including the Hands-on Tour during the Indiana State Envirothon Contest or judging rooms during team presentations.
7. A pre-designated time will be allowed at each station for resource presentations.
8. Notes may be taken during each resource presentation, but cannot be used during the testing period. Please bring your own materials.
9. Contest will consist of 20 questions per test (100 questions total). All tests will be given at one time after teams have rotated through all five (5) resource presentations. Test questions will cover information in the suggested reference materials listed. Team members work together to answer test questions, submitting one completed test per team for each resource subject.
10. The top teams in each regional competition are eligible to compete at the state competition. (Regions with < 12 teams may send 2 teams to State and regions with 12 or more may send 3 teams to State.) In case of a tie, the Current Issue test scores will be used to determine the teams' placements. If a tie still remains then a predetermined order of resource subject test scores will determine placement. If a tie should still remain, the regional coordinator will determine protocol for placement and the decision will be final.
11. School dress code/appropriate dress will apply. Be prepared for inclement weather. Contests will take place rain, snow or shine unless a weather emergency is declared for the area.
12. The state winning team is eligible to compete at the NCF-Envirothon. If the state winning team cannot participate, the next place team may represent Indiana at the NCF-Envirothon competition. (see clarifications below)
13. In the event a procedural dispute or question that is not covered in this information or in its addendum, the issue will be decided by the Indiana Envirothon Appeals Committee. With respect to test questions, the decision of the Indiana Envirothon Test Committee is final.

Rules and Information Continued

- Participants must sign Code of Conduct form, photo/video release and medical release. These must be received for each student upon arrival the day of contest.
- Possession or use of cell phones or other electronic devices by students at any Envirothon Contest is prohibited. Advisors may hold these items or they may be left in backpacks or locked vehicles.
- Tobacco, intoxicants, or drugs are not allowed on site.
- Scores (events and final) for each team will be shared with all teams following the regionals and the state competition.
- NOTE: Non-adherence to these rules may prevent a team from placing.**

Clarifications for Teams Representing Indiana at the NCF-Envirothon

- The state winning team is eligible to compete at the NCF-Envirothon. (*The top 3 teams from the state contest must inform the Indiana State Envirothon Officers within 10 calendar days of the state contest of their availability to attend the NCF-Envirothon.*)
- The team must consist of the 5 students that participated as a team during the state contest. If the state winning team cannot participate due to a team member or members being unable to participate, the team must forfeit the opportunity to compete and the next place team(s) may represent Indiana at the NCF-Envirothon competition. Registration fees cover only the 5 original team members and up to 2 chaperones. Any other guests will be charged additional fees.
- The Indiana State Envirothon Officers and/or Committee will first offer the opportunity to the 2nd place team and if they are unable to participate, then the 3rd place team. If both of these teams are unable to participate, a final decision will be made by the Indiana State Envirothon Officers and/or Steering Committee to either continue down the list of teams to a pre-determined placement or choose not to have Indiana represented at the NCF-Envirothon.
- The decision of the Indiana State Envirothon Officers and/or Steering Committee on this matter will be final.
- The original winning team may request the Indiana State Envirothon Officers and/or Committee to petition the NCF-Envirothon for last minute replacements. The decision will be decided upon by the Indiana State Envirothon Officers and/or Steering Committee and that decision will be final. Replacement of team members will be based upon emergency situations.

2024 Envirothon Officers

Acting President/Vice-President*

Teddie Phillipson-Mower
trphilli@indiana.edu

Acting Secretary

Teena Ligman
tdligman@att.net

Treasurer

Stephanie Baker
Stephanie.Baker@in.nacdn.net

* Chair for the Appeals Committee

