

**2022
Capital Region Envirothon**



May 5, 2022

**Current Environmental Issue:
Waste to Resources**

**SPONSORED BY THE FOLLOWING
SOIL AND WATER CONSERVATION DISTRICTS**

**Albany, Columbia, Montgomery, Orange, Rensselaer, Schenectady,
Schoharie, and Ulster**

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Introduction

Sponsored by the New York State Soil & Water Conservation Districts, the Envirothon Program is designed to:

1. Test each student's knowledge and understanding of Natural Resources and issues within New York State.
2. Cultivate the students desire to learn more about the natural world.

With stimulated interest in environmental concerns, motivated students will further develop their knowledge and skills and evolve into environmentally aware, action-oriented adults.

Envirothon activities begin locally with teams of five high school students competing for their County and Regional Envirothon titles. Local competitions are sponsored by the county Soil and Water Conservation Districts and supported by local environmental or recreational civic groups, or environmentally conscious companies. Teams are tested in five areas: aquatics, wildlife, forestry, soils, and a current environmental issue. County winners then move on to the state competition where their knowledge is challenged in the same five areas. Once a team is recognized as State Champion, its members become New York State's representatives at the National Envirothon Competition.

2022 will be the Capital Region Envirothon's 21st year. We look forward to seeing many schools from the area compete.

This booklet is designed to:

1. Encourage participation of high schools in the 2022 Capital Regional Envirothon.
2. Educate local business and industry groups and organizations about the Envirothon Program.

Regional Envirothon Information

Regional Envirothon Objectives

1. To cultivate a desire to learn more about our natural environment through a competitive event.
2. To develop a greater appreciation for our dependence on the natural environment.
3. To provide students with experience in environmentally-oriented activities.
4. To enable them to become environmentally aware, action-oriented adults.

Regional Envirothon Goals

Students will develop knowledge of:

1. The effects, both positive and negative, that individual actions can have on environmental problems.
2. The interactions and interdependence of our total environment.
3. Renewable and non-renewable resources.
4. Current environmental problems.
5. Local resource organizations and agencies available to assist them in environmental matters.



**NYS Envirothon
2022 Current Issues**

Waste to Resources

Designing a Comprehensive Local Solid Waste Management Plan

Based on a report by Solid Waste Environmental Excellence Protocol (SWEET), over the next five years, total landfill capacity in the U.S. is forecast to decrease by more than 15%. This means that only 15 years of landfill capacity will remain. However, in some regions it could be only half that. Hazardous Waste is an ever present issue with the prevalence of toxic materials in the waste stream and limited facilities available. Compounding the dilemma of reduced landfill capacity availability is the ban of recyclable scrap export by China. Until recently, more than 20% of recyclables generated in the U.S. have gone to China. Much of the cause for this ban is the contamination of recycling streams with unacceptable materials, where as much as 1 in 4 items placed in recycling bins in the U.S. is not suitable for recycling.

In addition, according to the USDA 40% of food cultivated and grown in the United States is wasted. Totaling over \$285 billion a year in losses, wasted food takes up approximately 24% of landfill volume which is the #1 landfill input according to the US Environmental Protection Agency. Wasted food also uses 14% of all fresh water, 19% of fertilizer and 18% of the cropland space used to produce all food consumed in the U.S. At the same time, about 13% of Americans are food insecure (ReFED).

You are a large County located 1.5 hours outside of a major metropolis. Your County is roughly 1/3 rural, 1/3 suburban, and 1/3 urban. The County's resources are already limited. Your State has a mandate for Planning Units (i.e. Counties in the State) to develop Local Solid Waste Management Plans. The State has also recently passed a law where large food waste generators (chain restaurants, food processors, supermarkets, etc.) must develop a plan to donate excess edible food and transport inedible food scraps to composting facilities beginning on January 1 of next year. Your nearest landfill is 75 miles away over the border in the next state, but only has 10 years left on its permit to accept materials from out of state. There are currently no food scraps composting facilities in the County however there are a small number of municipal and privately owned yard waste processing facilities. There is also one major food bank on the eastern portion of the County, however it is far and relatively inaccessible from most urban areas.

Your County is charged with developing a proposal to develop a comprehensive Local Solid Waste Management Plan to present to the County Executive who will then report the plan to the Governor. At minimum, your proposal should cover the following items:

- Describe an effective outreach and education strategy address for the above scenario
- How will your plan inform and/or coordinate with solid waste generators such as schools, businesses, commercial and industrial facilities?
- How will your plan coordinate with and/or employ the services of MSW landfills, hazardous waste collection services, end markets for recyclable material, emergency

feeding programs?

- How will your plan assess existing infrastructure and equipment and how will it assess and implement new infrastructures and technologies?
- How will it deploy resources to support where there are gaps and stimulate the development of new infrastructure
- How will your plan coordinate with neighboring Counties?

Resources for the Current Issue will be available at:

www.nysenvirothon.org

The Competition

The Regional Envirothon competition consists of a variety of methods to test the students' knowledge and understanding of the environment. Testing takes place in five categories: aquatics, forestry, soils, wildlife, and a current environmental issue.

Competition Site

The Capital Region Envirothon will be held at the New York State Power Authority's Visitor Center at Lansing Manor in Blenheim, NY (<http://www.nypa.gov/vc/blengl.htm>)

The Visitors Center and the adjacent attractions are located on State Route 30, 17 miles south of Middleburgh.

From New York City and points south: Take the New York State Thruway (Interstate 87) north to Catskill (Exit 21), then Route 23 west to Grand Gorge. At Grand Gorge take Route 30 north approximately 10 miles.

From Albany and the northeast: Take the New York State Thruway (Interstate 90) west to Interstate 88 (Exit 25A). Go west to Route 30A south (Exit 23). Continue south through Middleburgh as Route 30A becomes Route 30. The Visitors Center is 17 miles south of Middleburgh.

From Syracuse and the northwest: Take the New York State Thruway (Interstate 90) east to Canajoharie (Exit 29). Turn east on Route 5S and continue to Route 162, which becomes Route 30 south. Take Route 30 through Middleburgh; the Visitors Center is 17 miles south of Middleburgh.



Regional Envirothon Rules

1. Students in grade levels 9 through 12 participate. Grades 7 and 8 may participate, but are not eligible to go on to the State Envirothon.
2. A team must consist of a minimum of four (4) members and a maximum of five (5) members. Only one alternate per team will be allowed to attend the competition. The alternate will not be allowed to participate in the testing.
3. Each school may send up to three (3) high school teams (9th through 12th grade) and one (1) middle school team. Team members may not be drawn from different schools (*no all-star teams*). BOCES teams are eligible to compete, as are members of sovereign Native American National Schools. Home-schooled students are also eligible.
4. In the Regional competition, each individual school team will stay together during the competition. The team advisor or coach must travel with the team but shall not assist the team in the actual competition.
5. The advisor(s) will be responsible for a team's proper conduct at all times. A team escort will travel with each group to ensure arrival at the proper testing location, however they will not be responsible for student behavior.
6. Competition will consist of six (6) stations – Soils, Wildlife, Forestry, Aquatics, Current Environmental Issue, and an Oral Presentation.
7. Competition will be conducted by cooperating agencies and/or independent environmental organization personnel.
8. The committee's decisions are final on all events.
9. A school's intention to enter teams in the Regional Envirothon must be submitted by **April 15, 2022** to their local Contact person listed at the back of this booklet.
10. Registration forms must be submitted by **April 22, 2022**.
11. The Capital Region Envirothon will be held on **May 5, 2022** at the New York State Power Authority's Visitor Center at Lansing Manor.
12. Transportation to the event will be the responsibility of each participating school.
13. A winning team will be the team with the highest cumulative total points for the six events. In the event of a tie, a tie breaker question series will be used to determine the winner.
14. Rules and regulations of the Regional Envirothon are subject to change. Any and all changes will be explained to all team members and advisors at the Envirothon site.
15. Cooperating agencies, advisors and team members involved in the competition will be requested to complete an evaluation of the program following the competition.
16. An oral presentation will be part of the competition. Please see rules on page 12.
17. In the event that the winning county team cannot compete in the State competition, the second place team for that County shall be allowed to enter the State competition.

SAMPLE TEST QUESTIONS

SOILS

- Of the following soils, the one in which capillary water would ultimately rise to the greatest height is:
 - coarse sand
 - sandy loam
 - clay
- If a soil has a Munsell color notation of 7.5YR 5/6, the hue is:
 - 5
 - 6
 - 5/6
 - 7.5
 - 7.5 YR
- Which of the following elements is commonly considered to be immobile in soil?
 - Nitrogen
 - Phosphorus
 - Potassium
 - Sulfur
- Which of the following are not soil forming factors?
 - time
 - color
 - parent material
 - climate
- What is the term that describes material, such as sand, silt, or clay deposited on land by streams?
 - soil
 - complex
 - alluvium
 - morphology

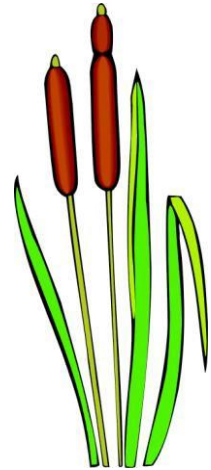


ANSWERS:

- | | | | | | |
|----|---|----|---|----|---|
| 1. | C | 3. | B | 5. | C |
| 2. | E | 4. | B | | |

AQUATICS

- Many fish such as shad, spend most of their life in the ocean, returning to freshwater to lay eggs. This cycle is called
 - spawning
 - planktonia
 - anadromous
 - metamorphic
- Decomposition in wetlands occurs at a slow rate due to soils that are
 - saturated and aerobic
 - saturated and anaerobic
 - saturated and oxygenated
 - unsaturated and aerobic
- Which of the aquatic ecosystems described below contain aquatic insects?
 - marsh, pond, and swamp only
 - marsh, bog, and lake
 - all of them
 - none of them
- Which is a possible aquatic food chain?
 - algae-northern pike-beaver-merganser
 - duckweed-dragonfly-bloodworm-scud
 - algae-tadpole-largemouth bass-great blue heron
 - cattail-muskrat-osprey-leopard frog
- The middle zone of a thermally stratified lake is called the :
 - euphotic zone
 - thermocline
 - epilimnion
 - hypolimnion

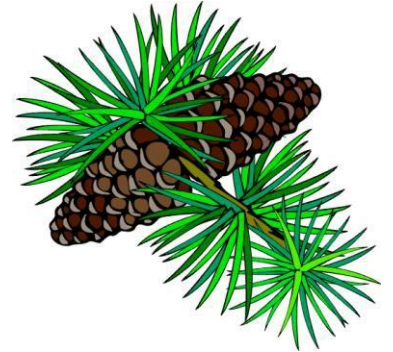


ANSWERS

- C
- B
- C
- C
- B

FORESTRY

- In planting seedlings, the one reason air pockets should not be left around roots is:
 - air pockets provide easy access for rodents
 - they cause roots to dry out and result in seedling mortality
 - they provide over-wintering space for insects
 - air pockets trap nutrients in rain runoff
- Growing tissue just inside the bark of a tree is referred to as the :
 - cambium layer
 - inner bark
 - xylem tissue
 - none of the above
- The Asian Longhorn Beetle is causing the greatest damage to:
 - Colorado Blue Spruce
 - Red Oak
 - Norway Maple
 - Flowering Dogwood
- Maps can be scaled in four ways. Which map will show small features to the greatest detail?
 - 1:250,000
 - 1" = 1 mile
 - 1:24,000
 - 1/6000
- Which of the following is a common pioneer species?
 - Aspen
 - Beech
 - Sugar Maple
 - Hemlock



ANSWERS

- B**
- A**
- C**
- D**
- A**

WILDLIFE

1. Which of the following was the first bill to control the interstate transportation of illegally taken wildlife?
 - A. The Endangered Species Act
 - B. The Lacey Act
 - C. The Wildlife Conservation Act
 - D. The Pittman-Robertson Act

2. Foxes and coyotes do not typically occupy the same territory because
 - A. their niches are too closely related
 - B. intense interspecific competition exists
 - C. intense intraspecific competition exists
 - D. A & B
 - E. A & C

3. What is the primary food preference for beaver during the winter months?
 - A. berries
 - B. crustaceans
 - C. tree bark
 - D. none of the above

4. What are the four North American flyways?
 - A. Atlantic, Mississippi, Central, Pacific
 - B. Hudson, Mississippi, Colorado, Pacific
 - C. East, mid-east, mid-west, West
 - D. Atlantic, Mississippi, Colorado, Pacific

5. Retrices refer to
 - A. pelts
 - B. feathers
 - C. beaks
 - D. food stuff



ANSWERS

1. B
2. D
3. C
4. A
5. B

ORAL PRESENTATION RULES AND REGULATIONS

ADAPTED FROM THE NYS ENVIROTHON RULES AND REGULATIONS

The New York State Envirothon has made the problem solving oral presentation a mandatory part of the competition. The scenario will be posted on the NYS Envirothon website - www.nysenvirothon.org

The Capital Region Envirothon will have an oral presentation this year which will be worth up to 20 points. Students will have the opportunity to do their presentations the day of the event. **You may participate by following the new Google Slide rules or by using the poster board rules from past events. This decision is entirely up to you as a team.**

The oral presentation component will be totaled into the team's final score just like the five other components (soil/land use, aquatic ecology, forestry, wildlife, and current issue). The problem-solving oral presentation will be conducted as follows:

1. The oral presentation problem is based on the NCF Current Issue and will be available on the New York State Envirothon website by the end of January. This will give all teams sufficient time to prepare.
2. New this year: The 2022 Envirothon Oral Presentation portion of the contest will use Google Slides to generate their presentation graphics.
3. Students will create a maximum of 20-slide slideshow in Google Slides. NO sounds, video clips, videos or slide transition animations may be used. This slide show will be emailed to the Capital Region Envirothon Committee to CREnvirothon@gmail.com by **3 PM on Wednesday April 27, 2022.**
4. The following are the only items a team is permitted to use to develop its presentation, including all visuals that will be used during its presentation. Use of any other materials is prohibited.
 - Google Slides
 - Flash Drive 1 per team
 - a. Each flash drive will be labeled with a team number
 - b. A backup copy of your team's presentation should be loaded on this and brought to the event.
 - Note cards
 - a. Each team will be allowed 5 note cards, size 4"x6" note cards to utilize for their presentation
 - Pencils
5. Rules and Guidelines for PowerPoint Presentations
 - Only graphics and pictures created by the team may be utilized on the slides. Any other material needs to be cited in the references on the last slide.
 - The use of videos or sound on Google Slides is prohibited.
 - No animation features can be utilized for slide transition, or on the slide itself.
 - A maximum of 20 slides can be used per presentation.
 - NO role playing or skit scenarios are allowed.
 - Slide shows are final at the time they are turned in on Wednesday April 27th by 3 PM.
6. Each team will have ten minutes for its presentation before the Envirothon judges. The judges will then have five minutes to ask the students questions. Presentations should be between 7 and 10 minutes. Points will be deducted for presentations less than 7 minutes or longer than 10 minutes.

7. A laptop computer (with your presentation preloaded), projector, and slide advancer will be provided in your presentation room.
8. Teams should include both pros and cons in their presentation.
9. All 5 members must have a speaking part. Points will be deducted if all 5 members do not participate. The alternate will not be allowed to participate.
10. All references should be cited on the last slide of presentation. **Students may use both sides of the note cards for their notes.**

Materials **NOT ACCEPTABLE** for use and could be counted towards a disqualification of the team:

Pens or ink of any kind
 Sounds, graphic motions or video clips
 Edited slide shows after April 28, 2022

- Students should be prepared to talk on the topic and not read facts from the slides. Slides that are heavy on text and read from will not receive a high score. Slideshows will be inspected prior to presentations and will be previewed for three things: no more than 20 slides, no motion, sound bites or video clips and references. Also, no cell phones, ear buds or digital devices are allowed in the room. **(NO EXCEPTIONS)**
- Each team member is allowed to use one prepared note card (4" x 6" only) to aid them. Note cards may not be included as part of the visual aids. Students may use both sides of the note cards. **ALL NOTE CARDS MUST BE HANDWRITTEN! NO PRINTED OR TYPED MATERIAL WILL BE ACCEPTED.** Teams using anything but the materials listed for their Oral Presentation will be subject to disqualification.
- Students should work with fellow team members to prepare for the problem-solving presentation. Teachers and coaches should not prepare their team's presentation.
- Teams may organize team members in any way, but are reminded all team members must participate. Costumes or "dressing the part", roll playing, or "skits" are not allowed. **(NO EXCEPTIONS)**
- There is to be no direct contact with the judges before, during, or after the presentation. Distribution of brochures, handouts, pamphlets, etc. is prohibited.
- Advisors are allowed in the room to watch the presentation **ONLY** if the team members permit it. Advisors are not to speak, give any signals, leave the room, or influence the presentation in any way.
- English is the designated language of the NYS Envirothon. All written tests and oral presentation scenarios will be in English.

Materials List For Poster Board Presentations

- 2 sheets of white poster board (22"x28")
- Markers – 8 colors
- Assorted (10 colors, not white) construction paper (9"x12")
- Glue
- #2 pencils
- Scotch tape
- 4"x6" note cards (one per student) – must be handwritten, not printed or typed
- Scissors

*Pens or ink of any kind, stencils or photo copied graphics, tools for creating geometric shapes, could be counted towards a disqualification

Awards

Plaques will be given to the first place team from each county. The first place team from each county has the opportunity to go on to represent their county at the State Envirothon, which will be held at Hobart & William Smith Colleges in Geneva, NY on May 25 and 26, 2022.



Regional Envirothon Registration Form

Information must be legible

County_____

Team Name_____

Team Members	Grade	T-shirt Size
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Team Advisor_____

School Name_____

Address_____

Telephone_____

E-mail Address_____

Note: Registration form must be completed and returned by **April 22, 2022**, to your local Soil and Water Conservation District.

Regional Envirothon Registration Form

Information must be legible

County _____

Team Name _____

Team Members	Grade	T-shirt Size
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Team Advisor _____

School Name _____

Address _____

Telephone _____

E-mail Address _____

Note: Registration form must be completed and returned by **April 22, 2022**, to your local Soil and Water Conservation District.

The Day of the Envirothon

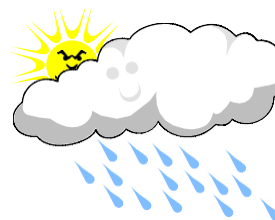
School Pride

Each team is encouraged to display school pride! Wearing your school colors or a school cap is the best way to start. Team members should decide before the competition what they are going to wear. ***Remember to include your Envirothon T-shirt which students will receive the day of the event.*** Teams are also encouraged to bring school banners, flags, and pennants to display on your bus, van, or cars. Let everyone know that you are there!

Teams should also encourage their principals, teachers, and parents to attend the competition and awards ceremony. Your participation in this competition is something to be proud of.

Be Prepared!

1. ***Dress warmly and in layers!*** Temperatures at the site of the competition may be cooler than the temperature at your home.
2. ***Wear proper foot attire!*** It may be muddy and wet on the trails. Cold feet are miserable. It's up to each of us to dress appropriately.
3. The program will be outside unless it's raining heavily or snowing. Only then will it be held inside.
4. The program will not be canceled.
5. We hope that the program is fun and educational for all. If you're not dressed for the weather, you will not enjoy being there.



Regional Envirothon Committee

The Regional Envirothon Committee consists of the following districts and their representatives:

Albany County SWCD

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Ulster County SWCD

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Questions?

If you have any questions not answered in this manual, please do not hesitate to contact a member of the Regional Envirothon Committee.



Learn more about our planet!

Participate in the Envirothon!