

**2020
Capital Region
Envirothon**



April 29, 2020

**Current Environmental Issue:
Water Resources Management: Local Control and Local Solutions**

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

Albany, Montgomery, Rensselaer, Schenectady, Schoharie

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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.

2020 will be the Capital Region Envirothon's 19th 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 2020 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
2020 Current Issues**

Water Resources Management: Local Control and Local Solutions

Key Topics & Learning Objectives

1. Understanding How Groundwater and Surface Water Systems Function.

Objective 1: Knowledge of Hydrologic Cycle

1. Stream Classification
2. NY Water Classification
3. Global Hydrologic Cycle
4. Streamflow

Objective 2: Knowledge of Groundwater and Surface Water Interactions

1. Water Science Basics
2. What is Groundwater
3. Groundwater Basics
4. Flowing Wells

Objective 3: How Human Activities Effect Groundwater and Surface Water

1. Groundwater and Surface Water: A Single Resource (USGS Circular 1139)
2. Drinking Water Pocket Guide #3
3. NYS Groundwater Assessment

2. Understanding the Importance of Water Quality and Quantity as a Foundation in a Healthy Ecosystem

Objective 1: Understanding the Connection between Groundwater and Surface Water and How They Affect Each Other

1. Groundwater and Surface Water: A Single Resource (USGS Circular 1139)
2. Introduction to Watershed Ecology

3. Understanding A Variety of Water Quality Indicators in Different Landscapes

Objective 1: Knowledge of water quality impacts such as agriculture practices, urban development, nitrates, toxic algae, etc.

1. Water Quality and Agriculture
2. Water for Long Island

Objective 2: Understand the indicators of water health, including physical, chemical, and biological properties and its role in the hydrological system.

1. Groundwater and Surface Water: A Single Resource (USGS Circular 1139)
2. Water Quality Indicators

4. Understanding a variety of water quantity indicators in different landscapes

Objective 1: Knowledge of water quantity impacts such as agriculture practices, urban development, and groundwater levels.

1. Design and Methods of USGS Stream Quality Assessment
2. Water Resources

Objective 2: Understanding of stream gauges and groundwater maps.

1. Groundwater and Surface Water: A Single Resource (USGS Circular 1139)

2. Drought Forecasting for Streams and Groundwaters

5. Understanding how sustainable and best management practices enhance and protect water quality and quantity for humans and wildlife.

Objective 1: Understand the importance of moving toward sustainable practices to protect water quality and quantity.

1. Smart Water Use on Your Farm or Ranch

Objective 2: Understand best management practices that improve water quality and quantity such as improved agriculture practices, urban planning, and water efficiency.

1. NY State Nutrient Standards Plan

2. Quick Reference Guide to BMPs

3. Agricultural BMPs

Objective 3: Understand the role of technology: flow meters, observation wells, Airborne Electromagnetic (AEM) Surveys, Unmanned Aerial Vehicles (UAV) (drones, GIS, etc.) precision agriculture, etc.

1. Streamflow Estimator

6. Understanding the differences of local, regional, and national systems that manage natural resources and the importance of each in water resources.

Objective 1: Knowledge of various conservation agencies including NY Soil and Water Conservation Districts and how partners work together for conservation success

1. Non-Point Source Management Plan

7. Understanding the social, economic, political impacts of natural resources management and decision making.

Objective 1: Describe the social, economic, and political impacts of regulating water quality and quantity.

1. NYS Water Resources Management Strategy

2. Watershed Plans Guidebook

3. Water Conservation and Long-term Planning

Objective 2: Understand the delicate balance behind decision making-funding projects, social responsibility, and regulatory authority.

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

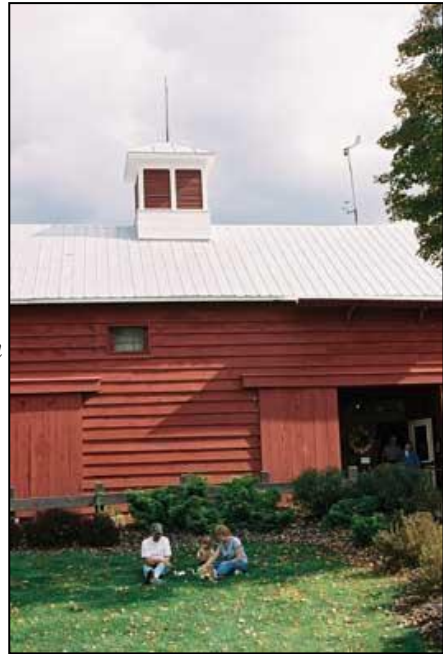
The Capital Region Envirothon will be held at the New York State Power Authority's Visitor Center at Lansing Manor in Blenheim, NY (<http://www.nypa.gov/vc/blengil.htm>)

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 **March 27, 2020** to their local Contact person listed at the back of this booklet.
10. Registration forms must be submitted by **March 27, 2020**.
11. The Capital Region Envirothon will be held **April 29, 2020** at the NYS Power Authority at Blenheim/Gilboa, New York
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

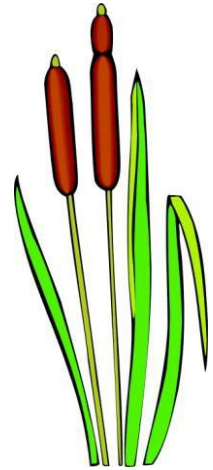


ANSWERS:

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

AQUATICS

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

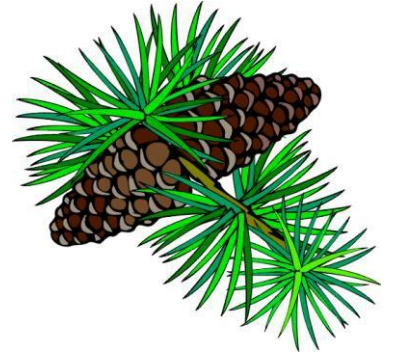


ANSWERS

1. C
2. B
3. C
4. C
5. 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**

Problem Solving Oral Presentation

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 in February (<http://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. We will provide you with a list of materials allowed for the oral presentation.

The problem-solving oral presentation will be conducted as follows:

- Each team will have **ten minutes** to make their presentation before the Envirothon judges. Presentations must be **at least seven minutes** long **but no longer than ten minutes**.
- Presentations will be scored by a panel of judges.
- All members of the team must participate in the presentation--everyone must have a speaking part. The alternate will not be allowed to participate.
- Students will be allowed to bring prepared visual aids to be used during the oral presentation before the judges.
- Only the materials on the materials list or otherwise noted will be allowed.
- Students may be as creative as they want but must not use any materials that are not listed. Visual aids will be inspected. Use of anything not on the list will disqualify the visual aids and teams will not be allowed to use them. **NO EXCEPTIONS.**
- Each member of the group is allowed to use one prepared note card (4" x 6" only) to aid them in their presentation. Anything larger will not be allowed. Note cards will **NOT** be allowed to be used as visual aids.
- Teams may organize their members to give the report in any way they choose, but are reminded that all team members must participate in the presentation. Costumes or "dressing for a part" will be considered visual aids: only the listed materials may be used. **NO EXCEPTIONS.**
- There is to be no direct contact with the judges during the presentation: therefore no brochures, handouts, pamphlets, etc. will be allowed to be distributed to them.

Materials List

- 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
- 4X6 index 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 27 and 28, 2020.



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 **March 27, 2020**, 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 **March 27, 2020**, 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.



Application for Grant Funding
Due Date: March 27, 2020
Capital Region Envirothon

School Name _____

Contact Name _____

Number of Students that will attend _____

Would your students be able to attend if this funding was not available? _____

What funding are you requesting? Transportation _____ Substitute Teacher _____

What is the amount of the funding you are requesting and explain how you arrived at this amount:
(Example: bus driver \$50 Round trip mileage @ \$.575/mile x 00 miles = _____)

Calculate travel to NYPA Visitors Center, North Blenheim, NY

To whom should the check be made payable to? _____

Please return to: Danielle Parker
Schoharie County SWCD
173 S Grand Street, Suite 3
Cobleskill, NY 12043

Or email: Dparker@schoharieswcd.org

NOTE: grant is based on a reimbursable agreement – teams must attend to

receive funding.

Teams must be from one of the following counties: Albany, Montgomery, Schenectady,
Schoharie or Rensselaer

Regional Envirothon Committee

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

Albany County Soil and Water Conservation District

Susan Lewis

24 Martin Road

Voorheesville, NY 12186

(518) 765-7923 (p)

susan.lewis@ny.nacdnet.net

Montgomery County Soil and Water Conservation District

Scott Davis

4001 St. Hwy. 5S

Fultonville, NY 12072

(518) 853-7008 (p)

(518) 853-3294 (f)

scott.davis3@ny.nacdnet.net

Rensselaer County Soil and Water Conservation District

Megan Myers

61 State Street

Troy, NY 12180

(518) 271-1740 (p)

(518) 271-1806 (f)

megan.myers.renscoswcd@gmail.com

Schenectady County Soil and Water Conservation District

Nicholas Klemczak

24 Hetcheltown Road

Glenville, NY 12302

(518) 399-6980 (p)

(518) 399-5040 (f)

nickklemczaksswcd@yahoo.com

Schoharie County Soil and Water Conservation District

Danielle Parker

173 South Grand Street

Cobleskill, NY 12043

(518) 823-4535 (p)

(518) 823-4538 (f)

DParker@schoharieswcd.org

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!