

NYS Learning Standards application to the Envirothon

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Mathematics, Science and Technology

Standard	Key Idea	Explanation	NYS Suggested Sample tasks and Application to the Envirothon
1		Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions.	
1	1	The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing, creative process.	<p>Hone ideas through reasoning, library research and discussion with others, including experts</p> <ul style="list-style-type: none"> The Envirothon requires students to take part in self-directed group study, requiring independent research and sharing of information within the group. The Envirothon exposes students to professionals working in the environmental field through subject trainings and also on the day of competition.
1	3	The observations made while testing proposed explanations, when analyzed using conventional and inventive methods provide new insights into phenomena.	<p>Use various means of representing and organizing observations (e.g. diagrams, tables, charts, graphs, etc) and insightfully interpret the organized data</p> <ul style="list-style-type: none"> Students are required to interpret their data and others during the science-testing portion of the competition in order to answer questions posed by the stationmaster.
2	1	Information technology is used to retrieve, process, and communicate information and as a tool to enhance learning.	<p>Access, select, collate, and analyze information obtained from a wide range of sources such as research data bases, foundations, organizations, national libraries, and electronic communication networks, including the Internet.</p> <ul style="list-style-type: none"> In addition to basic factual information and training, students are given suggested reading lists and topics for further study. As a team they are encouraged to research the subject areas and work together to increase their knowledge base and hence place higher in the competition.
3		Students will understand mathematics and become mathematically confident by communicating and reasoning mathematically, by applying mathematics in real-world settings, and by solving problem through the integrated study of number systems, geometry, algebra, data analysis, probability and trigonometry.	

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3	1	Students use mathematical reasoning to analyze mathematical situations, make conjectures, gather evidence, and construct an argument.	Derive and apply formulas to find measures such as length, area, volume, weight, time and angle in real world context. <ul style="list-style-type: none"> During testing, students are asked to perform field based tasks (i.e. finding the height of a tree through indirect measure)
3	5	Students use measurement in both metric and English measure to provide a major link between the abstractions of mathematics and the real world in order to describe and compare objects and data.	Use the appropriate tools for measurement. <ul style="list-style-type: none"> Students are expected to use the appropriate tools and tests to conduct measurement of a number of parameters during the hands-on portion of the competition.
4		Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.	
4	1	Living Environment – Living things are both similar and different from each other and nonliving things.	Explain how diversity of populations within ecosystems relates to the stability of ecosystems. <ul style="list-style-type: none"> Students are asked to know concepts such as keystone species, carrying capacity, and resource limitation
4	6	Plants and animals depend on each other and their physical environment.	Explain factors that limit growth of individuals and populations. <ul style="list-style-type: none"> Students explore topics such as carrying capacity in wildlife and human use of resources. Explain the importance of preserving diversity of species and habitats. <ul style="list-style-type: none"> Students are expected to know the theories and ideas relating to keystone species and species diversity and may be asked questions regarding these topics during testing. The current events station requires an interdisciplinary approach that requires students to take into account the needs of both animals and humans and their relationship to the abiotic and biotic resources of an environment. Explain how the living and nonliving environments change over time and respond to disturbances. <ul style="list-style-type: none"> Students are expected to know the range of healthy indicators for water and soil science, as well as effects on forest species and wildlife.

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4	7	Human decisions and activities have had a profound impact on the physical and living environment.	<p>Describe the range of interrelationships of humans with the living and nonliving environment.</p> <p>Explain the impact of technological development and growth in the human population on the living and nonliving environment.</p> <p>Explain how individual choices and societal actions can contribute to improving the environment.</p> <ul style="list-style-type: none"> The current event issue takes a major environmental concern and encourages students to explore the impacts of human development on the environment.
7		Students will apply the knowledge and thinking of mathematics, science, and technology to address real life problems and make informed decisions.	
7	1	The knowledge and skills of mathematics, sciences and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision-making, design and inquiry into phenomenon.	Analyze science/technology/society problems and issues on a community, national, or global scale and plan and carry out a remedial course of action.
7	3	Skills and Strategies for Interdisciplinary Problem Solving.	

Social Studies

Standard	Key Idea	Explanation	NYS Suggested Sample tasks and Application to the Envirothon
5	4	The study of civics and citizenship requires the ability to probe ideas and assumptions, ask and answer analytical questions, take a skeptical attitude toward questionable arguments, evaluate evidence, formulate rational conclusions and develop and refine participatory skills.	<p>Participate in activities that focus on a classroom, school or community issue or problem.</p> <p>Suggest alternative solutions to a hypothetical or historical problem.</p> <p>Propose an action plan to address the issue of how to solve the problem.</p> <p>Role-play the main characters involved in an actual community controversy, attempting to generate alternatives in their roles.</p>

English Language Arts

Standard	Key Idea	Explanation	NYS Suggested Sample tasks and Application to the Envirothon
1		Students will read, write, listen, and speak for information and understanding.	
1	1	Listening and reading to acquire information and understanding involves collecting data, facts, and ideas; discovering relationships, concepts, and generalizations; and using knowledge from oral, written and electronic sources.	<p>Interpret and analyze complex informational texts and presentations, including technical manuals, professional journals, newspaper and broadcast editorials, electronic networks, political speeches, and debates, and primary source material in their subject areas courses</p> <p>Synthesize diverse information from diverse sources and identify complexities and discrepancies in the information.</p> <p>Make perceptive and well-developed connections to prior knowledge.</p> <ul style="list-style-type: none"> Students are expected to use resources from a wide variety of locations to fill out both their scientific knowledge and their knowledge of the current issue and build upon previous knowledge.
1	2	Speaking and writing to acquire and transmit information requires asking probing and clarifying questions, interpreting information in one's own words, applying information from one context to another and presenting the information and interpretation clearly, concisely and comprehensibly.	<p>Present a controlling idea that conveys an individual perspective and insight into the topic.</p> <ul style="list-style-type: none"> Students are expected to explore differing opinions and viewpoints in relation to the current issues topic. <p>Support interpretations and decisions about relative significance of information with explicit statement, evidence and appropriate argument.</p> <ul style="list-style-type: none"> Students are then expected to synthesize these viewpoints and information into a cohesive presentation.
3		Students will read, write, listen and speak for critical analysis and evaluation.	
3	1	Listening and reading to analyze and evaluate experiences, ideas, information and issues requires using evaluative criteria from a variety of perspectives and recognizing the difference in evaluations based on different sets of criteria.	Analyze, interpret and evaluate ideas, information, organization, and language of a wide range of general and technical texts and presentations across subject areas, including technical manuals, professional journals, political speeches, and literary criticism.
3	2	Speaking and writing for critical analysis and evaluation requires presenting opinions and judgments on experiences, ideas, information, and issues clearly, logically and persuasively with reference to specific criteria on which the opinion or judgment is based.	<p>Make effective use of details, evidence, and arguments and of presentational strategies to influence an audience to adopt their position.</p> <p>Monitor and adjust their own oral and written presentations to have the greatest influence on a particular audience.</p> <p>Use standard English, a broad and precise vocabulary, and the conventions of formal oratory and debate.</p>