

Land, Legacy and Learning II



A Master Plan for Environmental Education in Kentucky

Sponsored by:
The Kentucky
Environmental Education Council,
an agency of the Education Cabinet

Virginia A. Fox,
Secretary

Ernie Fletcher,
Governor

2004



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Accomplishments

In the five years since the first *Land, Legacy and Learning* was created, important strides have been made toward implementing the twenty recommendations in the document. For example:

- ✓ Recommendation one called for making environmental literacy a part of teacher certification. We have moved considerably closer to that goal thanks in large part to the assistance of Kentucky's Education Professional Standards Board (EPSB).
 - In 2002, the EPSB announced that all teacher preparation programs in Kentucky should include environmental education in their curricula.
 - In 2003, the EPSB approved the creation of an endorsement in environmental education. The endorsement means that colleges and universities across the state will be able to offer specialized training for teachers who wish to learn better strategies for using environmental education in their classrooms.
 - Working from positions of leadership in the national environmental education community, several Kentuckians worked to get the North American Association of Environmental Education accepted as one of the national partners to the National Council for the Accreditation of Teacher Education. This means that, in coming years, teacher education programs across the country will begin incorporating environmental education into what teachers must know to be certified.
- ✓ Recommendation four called on the Kentucky Environmental Education Council to produce a set of environmental education standards for Kentucky. In 2000, a committee of teachers, college faculty, and Kentucky Department of Education staff aligned the Kentucky Program of Studies with the National K-12 Environmental Education Standards. This subset of the Program of Studies represents what we believe Kentuckians must know and be able to do to be environmentally literate at the most basic level.
- ✓ Recommendation nine described a statewide network of environmental education centers at the eight state universities. This network would help coordinate programs statewide as well as improve environmental education at the college level. In 2003, with funding from federal grants and support from the Kentucky PRIDE bond fund created by the General Assembly in 2002, the Kentucky University Partnership for Environmental Education was formed. Faculty and staff from all eight state universities comprise this statewide network.

- ✓ Recommendation twelve called on state agencies to produce a cooperative environmental education program for Kentucky’s adults. In 2004, over twenty state, federal and private agencies and organizations will launch a \$1.2 million, five-year project to help Kentuckians better understand their role in improving water quality in the Commonwealth.
- ✓ Recommendation fourteen stated that the Kentucky Environmental Education Council should survey the environmental knowledge, attitudes and behaviors of Kentuckians every five years. The University of Kentucky Survey Research Center conducted the first of these surveys in 1999, and the results were published as part of the original *Land, Legacy and Learning*. The second survey will be conducted in mid 2004. Results from this second survey will be shared with the media and policy makers.
- ✓ Recommendation eighteen directed the Kentucky Environmental Education Council to create an Interagency Committee to coordinate environmental education at the Cabinet level. This committee was formed in 2000 and meets quarterly to make long-term plans, share information and develop collaborative projects.
- ✓ Recommendation nineteen directed the Kentucky Environmental Education Council to provide professional development opportunities for nonformal environmental educators (those who teach about the environment but are not employed as classroom teachers.) In the spring of 2003, Kentucky launched the environmental education certification program for nonformal environmental educators. Based on the national standards called “Guidelines for the Initial Preparation of Environmental Educators,” the program is one of only four such programs in the U.S. and includes rigorous coursework and authentic assessments. It also models best practices in environmental education.



Kentucky Department of Fish and Wildlife Resources





Land, Legacy and Learning II:

Helping Kentuckians Understand their Environment

Each year, Kentucky spends millions of dollars to clean up waterways, roads and illegal dumps. If a fraction of this money were spent to effectively educate people about how they can help prevent pollution, Kentucky would save a great deal of this money, both this year and for years to come. It costs much less to teach people how to prevent environmental problems than it does to clean up those problems. The costs to our health and to the quality and the beauty of the land Kentuckians cherish are harder to measure, but they are additional compelling reasons to invest in the environmental literacy of our citizens.

Environmental education is a perfect example of the idea that we “pay now or pay later”. However, because its benefits are not immediately apparent, it has been given a very low priority both in government planning about the environment and in the planning of educational programs. Realizing the need to improve environmental literacy in Kentucky, the Legislature created the Kentucky Environmental Education Council as a state agency in 1994. The Legislature charged the Council to:

- Create and update a five-year management plan to improve environmental education programs
- Establish an interagency subcommittee to advise the Council
- Establish regional environmental education centers at all state universities and establish a competitive system for awarding grants to these centers
- Seek private support for funding environmental education programs in the state
- Assist to integrate and evaluate environmental education in school curricula
- Monitor the environmental literacy of Kentuckians
- Make recommendations to promote environmental literacy in Kentucky

In 1999, the Kentucky Environmental Education Council issued *Land, Legacy and Learning*, the first comprehensive plan to improve environmental education and environmental literacy in the Commonwealth. For that document, citizens from across the state and from many different environmental perspectives came together to meet, discuss, compromise, write and rewrite. The result was an outstanding document that has been used by numerous other states and provinces as a model for their own state environmental education plans.

In 2004, a new Environmental Education Task Force reviewed the original document and agreed with its basic premise that Kentuckians must be taught the basic concepts and skills they need to make rational decisions about the

environment. The twenty recommendations in that first plan outlined how to achieve that goal. Many of the strategies outlined in the first plan have been implemented (see “accomplishments”, page 1), others are still to be realized, and other new challenges and opportunities have arisen during the past five years. Therefore, the recommendations in the new plan both continue to support the goals of the first plan and add new strategies for achieving those goals.



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Land, Legacy and Learning II lists nineteen recommendations, each followed by a brief explanation. Recommendations are grouped under four headings: **Teaching Our Children, The Role of Colleges and Universities in Preparing Educators and Future Leaders, Reaching Kentucky’s Adults, and Creating an Efficient System.** The recommendations are numbered consecutively and are not in any priority order. While grouped for clarity, the recommendations are strongly related to each other, and those in one section often support those in another. For example, the environmental education centers described in recommendation 9 would help implement many of the other recommendations in the report and therefore are considered very important to improving environmental education in Kentucky.

Some terms used throughout the document may need definition.

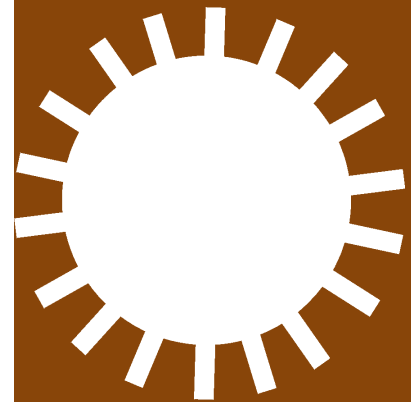
The **Program of Studies**, produced by the Kentucky Department of Education, is a document that lists the concepts and skills each child should learn in each grade level and in each subject, from primary through twelfth grade. Required by law, the Program of Studies is drawn from the national standards of the various disciplines.

The **Academic Expectations** are the broad ideas and sets of skills that students are expected to learn in Kentucky schools.

A **nonformal educator** is someone who provides educational services but is not part of the formal education system. For example, an interpreter working at a nature center, a forest ranger visiting a school, and an agency employee providing environmental education to the general public are all considered nonformal educators.

KEEC is often used as an abbreviation for the Kentucky Environmental Education Council.

The **Education Professional Standards Board** or **EPSB** is the board that oversees the certification process for Kentucky teachers.





Teaching Our Children

While environmental education is important to citizens of all ages, there is no doubt that children are its primary beneficiaries and central to improving environmental literacy in Kentucky is ensuring that every child in the state receives a balanced, academically-based environmental education as part of the curriculum. This section begins with the recommendation that environmental literacy become part of teacher certification. By improving the environmental literacy of teachers, this single recommendation, while challenging to implement, would significantly improve environmental literacy among Kentucky's young people.



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We continue to advocate for an environmental education consultant in the Kentucky Department of Education. However, as an interim step, we recommend that content area consultants at the Department of Education help make teachers and administrators aware of the educational value of environmental education.

While great strides have been made to align environmental education materials and programs with state and national standards, it is essential that those efforts continue. Therefore, this section recommends that all materials and programs be based on the state standards. Standards-based environmental education ensures that we provide the basic knowledge our citizens need to make their own decisions. Aligning standards for content, materials and programs will help teachers and students choose environmental education that is balanced and age-appropriate.

We recommend that schools model appropriate environmental practices through such actions as energy conservation, reducing solid waste and protecting local water resources. Finally, we strongly recommend that a significant percentage of environmental education instruction take place outdoors where students can see at first hand the beauty of natural systems as well as how human systems affect them.

1. Environmental literacy should be a required part of teacher certification.

To have environmentally literate citizens, we must have environmentally literate teachers. While this recommendation does not call directly for funding, its adoption would require many changes in the way we prepare teachers. The implementation of this recommendation would require either legislation or a very significant commitment from those who prepare our teachers. The Task Force realizes that such action is a major undertaking and may require substantial discussion. Nevertheless, we believe it is the single most important step toward improving the quality of environmental education in our schools.

A first step toward realizing this goal was taken in November 2003, when the Education Professional Standards Board (EPSB) approved the creation of an endorsement in environmental education. The endorsement means that colleges and universities across the state will be able to offer specialized training for teachers who wish to learn better strategies for using environmental education in their classrooms. In addition, in 2002, The EPSB announced that all teacher preparation programs in Kentucky should include environmental education in their curricula.



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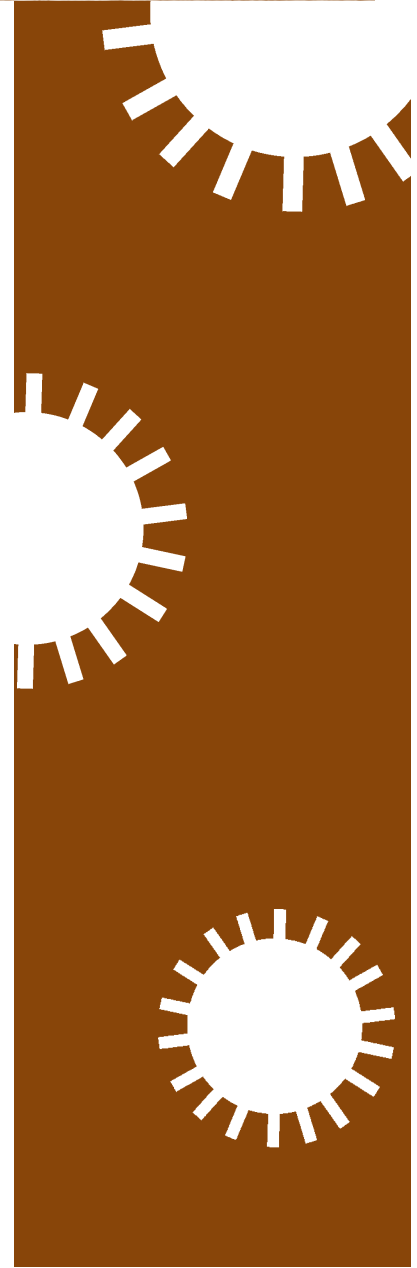
2. The Department of Education should hire a full-time environmental education consultant who works to infuse environmental education into the curriculum.

Environmental education is truly interdisciplinary. Therefore, since the traditional curriculum is discipline-based, environmental education often falls through the cracks in our educational system and is neglected. Hiring an environmental education consultant in the Kentucky Department of Education would both ensure that environmental education is taught consistently in the schools and that it supports the curriculum guidelines set by the Department of Education. Annual costs for funding this position are approximately \$80,000. As of 2004, no progress has been made toward implementing this recommendation. A first step toward realizing this goal would be to encourage all content area consultants at KDE to make environmental education both visible and effective in P-12 settings.

3. Environmental education content, materials, and programs should be standards-based.

Though there is always more work to be done, significant progress has been made by both formal and nonformal environmental educators to align materials, curricula and programs with the state and national environmental education standards. The Task Force strongly recommends that all environmental educators continue to make strong efforts to base environmental education on the state and national environmental education standards.

In 1998, the Kentucky Environmental Education Council appointed a committee of educators to correlate standards for environmental education in Kentucky. The committee of twenty four teachers (representing all grade levels and all subject areas), college professors, nonformal educators and staff from the Kentucky Department of Education aligned the Kentucky Program of Studies with the National Environmental Education Guidelines for Learners. This





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alignment is now available on the Kentucky Environmental Education Council website and includes suggestions from Projects Learning Tree; Food, Land and People and the National Energy Education Development Project to teach specific standards. People designing environmental education materials, curriculum and programs may want to refer to these standards.

4. Professional development opportunities should be provided that help teachers learn content and pedagogy related to environmental education. Professional development for teaching about the environment should be based on the Program of Studies and Academic Expectations and should conform to the professional development standards produced by the Department of Education and by local schools and school districts.

Since the goal of professional development in environmental education is to help teachers use environmental topics to teach concepts already required in the curriculum, those providing professional development opportunities should strive to make environmental education an integral part of the curriculum, rather than only an occasional experience in only a portion of the schools. Professional development opportunities should be job imbedded and long term. The environmental education endorsement is one example of such professional development. The two recommendations that follow relate to recommendation 4.

5. Environmental education content, materials and programs should be based on criteria listed below. Environmental Education should:

- be standards based
- contain hands-on activities that lead to problem solving and critical thinking
- have community-based instruction
- be interdisciplinary
- include authentic assessments
- be age appropriate
- use inquiry-based approaches
- use scientific processes to study interactive systems
- serve all students
- promote independent thinking
- address social, cultural, and physical diversity

The purpose of this recommendation is to raise both the quality and consistency of the methods used to teach our students about the environment. Many teachers already know that environmental education is good education. National research shows schools that use their local environments as a theme to integrate the curriculum make strong gains in numerous educational outcomes including standardized test scores, the ability of students to solve real-world problems, and the reduction of discipline problems (Lieberman and Hoody, 1998).

6. Kentucky schools and school districts should implement policies and programs that support a healthy learning environment as well as model appropriate environmental practices. Such policies and programs can teach by example and encourage behaviors that balance environmental protection with lifestyle choices.

The people who design and operate schools, as well as the students and teachers who work and learn in the buildings, have countless opportunities to implement environmentally friendly practices at each school. These practices should include, at least, the following.

- Appropriate siting of new schools
- Energy efficiency
- Solid waste reduction
- Use of native plants in landscaping
- Reducing runoff from school grounds
- Monitoring indoor air quality
- Creation, use and enhancement of outdoor learning areas.

7. Meaningful environmental education requires immersion into the natural environment in which a particular student lives.

Kentuckians of all ages are increasingly separated from the natural environment in which Americans once worked, played and moved about. In the past, most Americans lived on farms or in rural communities. This allowed them to see “in action” how natural systems worked and how human actions affected them. In today’s predominantly urban society, most Kentuckians, including our children, have little or no such contact with those same systems. Therefore, we strongly recommended that a significant portion of learning about the environment take place outdoors where students can actively observe and study the natural world.



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Land, Legacy and Learning II:

The Role of Colleges and Universities in Preparing Educators and Future Leaders

All students who graduate from a Kentucky college or university should achieve a level of environmental literacy sufficient for them to understand how their own individual actions affect the environment and how the environment is affected by public policy decisions. As an excellent first step toward this, Kentucky's Education Professional Standards Board has begun working with colleges and universities to include environmental education content at both the undergraduate and graduate levels of teacher education. Currently, however, many college students in Kentucky, including those preparing to be teachers, still complete their four-year undergraduate degrees and even graduate work without ever achieving this basic level of environmental literacy. We believe the most effective way to address this issue is to support and maintain the existing Centers for Environmental Education at each state university.



The General Assembly mandated the creation of these centers in 1990 with KRS 157.915(3), which states that one of the functions of the Kentucky Environmental Education Council is to “establish and help coordinate the activities of regional environmental education centers and advisory committees at all state universities to serve as networks for the dissemination of environmental education programs, materials and information across the state.” These centers will serve as catalysts to improve the way college and university students, elementary and

secondary teachers and the public learn about their environment. While these centers are located on the campuses of the eight state universities, their roles are to provide leadership and technical assistance to all colleges and universities in Kentucky, including those in the Kentucky Community and Technical College System (KCTCS).



Murray State University Center for Environmental Education

In the 2002 regular session, the General Assembly passed KRS 224.43-505, which created a bond issue whose funds would be used to clean up abandoned landfills. The interest from that bond issue was directed to the KEEC to “implement the environmental

education center component of the Environmental Education Master Plan”. In January 2004, monies began accumulating in this fund. However, in a few years, when the bond funds are spent, the interest will be substantially reduced. Therefore, efforts need to be continued to adequately and permanently support the efforts of higher education to improve the preparation of future leaders in the Commonwealth to address environmental issues.

The next three recommendations describe the functions of the environmental education centers at all state universities.

8. The statewide network of environmental education centers should be maintained and supported at each state university to promote coordination, collaboration and consistency in their respective areas of the state, as well as to:

- **Prepare educators and future leaders**
- **Coordinate regional services, including working with other institutions of higher education in their areas.**
- **Develop programs and curricula**
- **Conduct and disseminate research**

This recommendation addresses two great needs in environmental education in Kentucky. One of these is the improved preparation of those who teach others about the environment; the other is the more effective use of the many environmental education services already available. The established centers at each regional university serve as both a statewide network for the coordination of services and a force for change within each institution.

In 2003, faculty and staff from the eight state universities formed KUPPEE, the Kentucky University Partnership for Environmental Education. This unique partnership between state universities creates a collaborative mechanism to improve environmental education across the Commonwealth.

9. Colleges and universities in Kentucky, including those in KCTCS, should make environmental education an integral part of general education requirements. Collaborative interdisciplinary courses need to be developed that link ecology and other natural sciences, social sciences, the humanities, and teacher education. We recommend that the Council on Postsecondary Education work with administrators and appropriate faculty committees at Kentucky’s colleges to integrate education about the environment into the general education requirements. In order to assist in this process, the centers for environmental education should be placed administratively to best facilitate cross-disciplinary collaboration.

Colleges and universities in Kentucky should take advantage of the many curricular models available to improve environmental literacy among postsecondary students. One of the roles of the centers is to guide these curricular





changes. No student should leave a Kentucky college or university without a basic understanding of the interaction of natural and socioeconomic systems. Both our ecological and our economic future depend on this understanding. Therefore, institutions should assess and evaluate the environmentally related courses or modules they currently teach and prepare a curriculum that better prepares students to make sound environmental decisions.

10. Kentucky teachers must be better prepared to teach about the environment. This preparation requires significantly higher levels of environmental literacy and demonstrated competency in environmental education instructional methods. The Kentucky Education and Professional Standards Board has taken two significant steps toward this goal. The first is the requirement that all teacher preparation programs in Kentucky include environmental education in the curriculum. The second is the creation of the environmental education endorsement, which allows teachers to specialize in environmental education at the graduate level.



Kentucky Department of Agriculture

Courses that prepare teachers to teach about the environment should contain experiences consistent with educational reform, including child-centered, experiential, collaborative learning. A major role of the environmental education centers will be to guide these changes in teacher preparation and professional development, including offering the environmental education endorsement.

Two things need to happen if Kentucky's teachers are to be better prepared to teach about the environment. First, they must have a stronger background in the subjects that are the basis of environmental education, including, but not limited to, ecology. Second, they must know the most effective instructional techniques for presenting that

knowledge to students. National and Kentucky standards have been developed which outline what teachers need to know and be able to do to be effective environmental educators.

Classrooms across Kentucky operate differently than they did twenty years ago. Now students learn by doing actual projects. They work in teams to gain both knowledge and skills useful in real-world settings. National research shows that there simply is not a better vehicle for providing these kinds of experiences than environmental education. Teacher education students who experience this kind of learning themselves will be much more successful applying it to their own classrooms, a gain both to environmental education and to education in general. Therefore, this recommendation also encourages colleges of education to offer environmental education courses that model these techniques, including the frequent use of outdoor settings for instruction.



While it is essential that young people become environmentally literate, adults make the lifestyle decisions that affect Kentucky's environment. Therefore, adults should know the environmental consequences of their personal actions, as well as how environmental policies affect them. In order to gain this understanding, adults should know such basic ecological concepts as watersheds, ecosystems, biodiversity, and energy transfer, among many others.

This section of the master plan focuses on improving the environmental literacy of the general adult population. It does not address the education of the regulated community, but rather focuses on providing knowledge that will help adult citizens make day-to-day decisions about environmental issues facing their communities.

11. State, federal and local agencies should organize cooperative, collaborative, interdisciplinary programs to improve adult environmental literacy. One goal of these programs should be behavior that results in an improved environment.

One of the least-served audiences in the state, with respect to environmental education, is the general adult population. Agencies that deal with the environment have the expertise to provide basic information needed in any adult education program about Kentucky's natural resources. This recommendation calls for applying the valuable resource represented by the combined expertise of environmental personnel in state agencies to the very great need for improved environmental literacy in the adult population.

12. A survey of the environmental literacy of the general adult population of Kentucky should be conducted every five years. The results should:

- Assess the environmental knowledge, attitudes and behaviors of Kentuckians
- Identify gaps in environmental knowledge in order to determine how to increase the environmental literacy of the state's residents
- Better assess the attitudes and reported behaviors of Kentuckians and aid in the efforts to educate and inform citizens concerning environmental topics

Something as complex as environmental literacy is not easily measured, especially in a survey format. Nevertheless, it is possible to get a "snapshot" view of some of the things Kentuckians know at any given time. This recommendation suggests that taking this periodic snapshot will help inform educators about those areas of environmental knowledge that may need to be enhanced. A survey created by the adult literacy committee of the Master Plan Task Force was administered in the spring of 1999. The results of this survey (which are available in the 1996 Master Plan) will serve as baseline data to measure progress in improving adult environmental literacy in coming years. KEEC will conduct another such survey in 2004.





Creating an Efficient System

The goal of the recommendations in this section is to create a more effective and efficient system of environmental education in the Commonwealth. Since so little funding is devoted to teaching children and adults about the environment, we can scarcely afford to waste a dime of that funding on an inefficient system. The recommendations in this section suggest ways to help state agencies focus their resources more efficiently and ways that formal and nonformal educators can work more effectively together. Perhaps most importantly, the recommendations list criteria for evaluating programs.

13. The Kentucky Environmental Education Council should be fully funded, including creating two additional positions for professional staff.

The legislation that created KEEC calls for hiring four staff members but provides enough funding for only two of those positions. Currently the Council receives a fixed total of \$150,000 a year from environmental fines and penalties. This amount must cover employee compensation and operating expenses. Therefore this recommendation calls for funding all four of the positions listed in the establishing legislation and for paying those salaries from the General Fund, thus freeing the entire \$150,000 from fines and penalties to help implement the plan and to provide grants to schools. The total needed to fund all four positions, including benefits, is \$200,000 in fiscal year 2005-2006.

14. The environmental education centers described in recommendation 9 should also house a full time environmental education coordinator whose task is to ensure that the nonformal environmental educators in their region work effectively with the formal education community.

While there are many environmental education resources available, most teachers and other citizens are unaware of them and need help to use them most effectively. Therefore, environmental education centers at the state universities should head efforts to coordinate services in their areas.

15. Programs that deliver environmental education should be evaluated regularly.

Evaluations are valuable for a number of reasons. For example, evaluations help agencies and organizations determine if their programs are effective, including whether those programs are creating desired changes in attitudes or behaviors among participants. Program evaluations can also be used to market programs or to raise funds for future programs.

While it is essential to evaluate environmental education programs and to use those evaluations to improve existing programs and design new ones, it is also important to understand that good program evaluations are complex and

multifaceted. Program directors without extensive experience with evaluation would do well to seek assistance from a local college or university, private company or other entity with specific expertise in evaluation.

At a minimum, the following questions should be asked when evaluating environmental education programs and materials.



Whitesville Elementary

- Have measurable learning goals, or learning outcomes in the case of participants, been established for the program, and are they used in the evaluation? Do these learning goals and outcomes define what we want participants to know, believe, value, and be able to do because of their experiences?
- Does the evaluation measure both learning goals and participant outcomes?
- Have a variety of methods been employed to assess the measurable learning goals?
- Have appropriate experts been involved in designing the evaluation process?
- Are there plans to use the evaluation to make needed changes in the program?
- Is the content of the program balanced with respect to the various issues involved?
- Is the program cost-effective? Especially if it is a statewide program, does it build systemic, sustainable improvement?
- Is the program proactive? Does it reach those who need the services as well as those who request them?
- Are there follow-up activities built into the program where appropriate?
- Does the program focus on Kentucky issues or how Kentucky issues relate to global issues?
- Do the methods used to deliver information in the program use the best available technologies and the most audience-appropriate formats?
- For programs to be used in schools, did a professional, Kentucky-based educator assist in the development or review of the program?
- Also, for school programs, is the instruction infused in an ongoing school unit, rather than taught as a “drop in” activity?

16. A Cabinet-level interagency committee should meet quarterly to ensure that state administered environmental education programs are effective, efficient and accessible.

Many state agencies conduct some kind of environmental education. Some of these programs are quite small and represent only a portion of one person’s time.





Others devote the work of whole departments to environmental education. No matter their size, most state programs attempt to be all things to all people. That is, they try to teach directly in the schools, to work with adult groups and to provide information and education to the regulated community as well. Further, since each agency teaches about its own environmental niche (i.e., water, forests, wildlife, energy, etc.) environmental education provided by state agencies tends to be fragmented. The goal of establishing this committee at the Cabinet level is to make it possible to consider real changes that would make environmental education services by state government more effective, more efficient and more accessible.

Therefore, we recommend that the Kentucky Environmental Education Interagency Committee should consist of Cabinet Secretaries (or their designates) from each Cabinet involved in environmental education. At a minimum, this should include Agriculture, Environmental and Public Protection, Commerce, Education, Transportation, Economic Development, Health and Human Services, the Council on Postsecondary Education and Cooperative Extension. This committee should meet quarterly. All these Cabinets and agencies have substantial programs in, or influence over, environmental education. We recommend that the persons appointed to serve on this committee have sufficient authority to make meaningful decisions about programs.

17. The Kentucky Environmental Education Council should provide professional development opportunities for nonformal educators that align with KDE and NAAEE guidelines.

The nonformal education sector provides at least as much environmental education as that in the formal school and college setting. Those in the nonformal sector represent staff in state and federal agencies, parks, nature centers, and business and industry. While many of these people are highly trained educators, others are experts in particular environmental fields who have little background in curriculum development or instructional methods. Since the nonformal environmental education community provides so much environmental education to our students and adult citizens, this recommendation addresses the need for them to receive training that helps them do the following things:

- Gain a better understanding of how the information they provide fits in with what students need to know at each grade level.
- Gain a better understanding of how to work with teachers to enhance ongoing environmental learning.
- Learn improved instructional strategies to provide environmental education in age appropriate formats.
- Understand the history and philosophy of environmental education including the belief that environmental education should be taught without advocating a particular viewpoint.
- Be environmentally literate.

Kentucky is currently one of four states designing standards and performance-based certification programs for nonformal educators. While this program is voluntary, we believe that participation in its workshops and assessments will significantly improve each individual's ability to teach about the environment and, eventually, will significantly improve the field as a whole.

18. Classroom teachers and nonformal environmental educators should collaborate to integrate environmental education throughout the curriculum.

Many teachers feel unprepared to teach about the environment. However, most do wish to provide at least some environmental education to their students. Therefore, they often ask a nonformal educator to come into the classroom and make a one-time presentation about an environmental topic. While these presentations sometimes supplement a larger environmental unit the teacher is teaching, just as often they are taught in a vacuum with neither preparation nor follow-up for the presentation. This is a less than ideal way to provide environmental education.

This recommendation asks both teachers and nonformal educators to work together to provide a better experience for the students, with each supplying their particular expertise to more in-depth instruction.

19. Traditional members of the environmental education community in Kentucky, including the Kentucky Environmental Education Council, the Kentucky Association for Environmental Education, members of the Kentucky Interagency Committee and others, should make concerted efforts to include those who have not traditionally been part of the network but who now offer significant contributions to environmental education. These would include such entities as health educators, community and city planners, and directors of service learning programs, among others.

As more people become aware of our need to help citizens understand the places they live and their relationships to those places, as well as the strong relationship between student achievement and environment-based learning, we should expect people from more disciplines to begin teaching about the environment. We are already seeing this trend in such areas as health, service learning and community planning. Those who have traditionally thought of themselves as environmental educators should proactively seek ways to work with these “new” groups to look for collaborative ways to improve our citizens’ knowledge of the environment.



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