

Environmental
Education Committee
Partnership for a Green City

2006-2007

**Annual
Report**

A Brief History

The Environmental Education Committee (EEC) falls under the umbrella of the larger Partnership for a Green City of Louisville, Kentucky. The Partnership was originally the vision of Alan Dittmer, past Department Chair of Teaching and Learning in the College of Education and Human Development at the University of Louisville, and David Wicks, current Director of the Jefferson County Public Schools Center for Environmental Education. The Partnership became a reality in August of 2004 due to their persistence in bringing the Partners together to begin the discussion.

The Partnership consists of Louisville Metropolitan Government, the University of Louisville, and the Jefferson County Public School system. Combined, these institutions represent over 25,000 employees, 120,000 students, 500 buildings, 7,000 vehicles, and 25,000 acres of land.

Initially, the leaders of the three Partners, were interviewed for vision and recommendations and appointed Partner representatives participated in facilitated cluster meetings to identify potential projects and collaborative opportunities focusing on environmental education, environmental management, and environmental health. The attention to environmental education as not only a contributing area but a central component of the organization is unique. Environmental education recommendations that emerged from these initial meetings included an environmental education collaboration with leadership from the UofL Center for Environmental Education; an outdoor classroom emphasis for schools with leadership from JCPS Center for Environmental Education, Brightside, and

Metro Parks; and a green issues orientation and professional development with leadership from the Human Resources offices of each institution. More specifically, the recommendations made for the Environmental Education Collaboration outlined the purpose, justification, implementation, and tasks for what would be the Environmental Education Committee. The recommendations called for a strengthened collaboration of JCPS/UofL/Metro Centers for Environmental Education which would be part of Kentucky Institute for Environment and Sustainable Development (KIESD), under the guidance of the Director, Dr. Russell Barnett, for administrative and grant support. Implementation recommendations included the hiring of a full-time, tenure-track environmental education faculty position in the UofL College of Education and Human Development (completed in August of 2006) and a joint UofL and Metro government appointment to focus on Metro Government EE programming for schools and the community. In addition, the following “key tasks” were included:

- Adopting the environmental education standards developed by KEEC and working with the U of L College of Education and Human Development to incorporate the standards into their preservice training program.
- Seeking approval for an environmental education endorsement at U of L through the Kentucky Professional Standards Board. This endorsement would be developed and administered through a collaborative effort between the JCPS Gheens Academy and the U of L College of Education and Human Development.
- Linking existing and future environmental education curricula to the JCPS Core

Content guides. Coordinating Metro Government education programs to ensure that they support the JCPS scope and sequence and, with the help of Metro Government agencies, developing future environmental education curricula.

- Professional Development— Developing and implementing a program for certified staff in JCPS to teach environmental education curricula identified above. Professional Development (PD) courses would be conducted using resources of U of L, JCPS, and Metro Government. Schools will be linked with community based educators and Metro Government agencies.
- Providing U of L graduate and undergraduate students with environmental education experiences in local schools, environmental education organizations, and Metro Parks through graduate assistantships, internships, and in-class observations.
- Creating a position for a school-based environmental leader to promote environmental education, energy reduction, recycling, outdoor classrooms, and environmental clubs at every JCPS school.
- Conducting and disseminating environmental education research on the impact of environmental education on student performance and on the impact of environmental toxins on cognitive learning.

In March of 2006, all three Partners adopted a Statement of Environmental Principles as a framework from which to guide policy, make decisions, and identify ways that each can support sustainable practices. This Statement is included in Appendix A.



Accomplishments in 2006-2007

In August of 2006, the Partnership for a Green City held a series of meetings that consisted of three focus groups to celebrate the successes of the Partnership and plan for the future. After an initial review, each day centered on the development of performance measures and priorities for a particular committee (Environmental Education, Environmental Management, and Environmental Health) of the partnership guided by the *Statement of Environmental Principles* (see Appendix A). The structure was centered on issues of:

- Sustainability
- New Projects
- Communication Strategies

This work led to a list of proposed outcomes and projects from which the Environmental Education Committee (EEC) set priorities at their first meeting in September (see Appendix B). Teddie Phillipson-Mower, UofL CEHD faculty, and Donna Griffin, JCPS Resource Teacher, were appointed as Co-facilitators. From the priorities the Committee established working groups. Working groups exist as long as needed and meet as decided by the group. Once a need is indicated, the EEC establishes a working group to meet that need. Committee members choose to join a working group and help develop goals, projects,



programs, and outcome measures to indicate level of success in that particular area.

Working Groups:

Some working groups functioned fairly independently while other projects required expertise from a variety of working groups. The working groups are arranged from the most independent to the least. Their accomplishments are as follows:

Research

Students from the University of Louisville (UofL) in collaboration with Metro Government and Jefferson County Public Schools (JCPS) conducted five pilot studies that addressed some of the most critical questions concerning environment education and achievement. These studies were conducted by a team of graduate students and undergraduate students under the direction of a team of faculty and staff. The Department of Psychological and Brain Sciences supported these projects and funded a graduate student who could work full time on project coordination. The School of Public Health funded MA students as part of their internship program. This was truly an interdisciplinary research initiative with grass roots support. The questions addressed in these studies were:

1. What is the relation of environmental education field trips and achievement test scores?
2. What is the relation of canoeing field trips and classroom behavior and attendance in school?
3. Do children who participate in environment classrooms differ in achievement test scores from children in traditional classrooms?
4. What is the relation of physical activity during the school day and behavior in the classroom?
5. How can we characterize student diet, nutrition, eating habits and obesity in JCPS? Each of these projects obtained Internal Review Board (IRB) approval. See Appendix C for a more detailed summary of the studies.

The enthusiasm and broad interdisciplinary connections among these topics concerning environmental education and achievement led to a major initiative in the Honors Program at U of L. Faculty from across the University learned about the Green City Partnership and a new initiative that would allow interdisciplinary study followed by research and service learning in the community was developed by John Richardson, Director of the Honors Program. In the fall of 2007 semester, undergraduate students in the UofL Honors Program will have an opportunity to focus on the environment by selecting one of five courses (Introduction to Environmental Education; Reading the Natural Landscape; Urban Waters; Global Ecopolitics; Reading, Writing and Toxics: Children's Health and Environmental Justice). During the spring of 2008, these students will have the opportunity to conduct environmental research projects.



Outdoor Classrooms

This working group focused on improving the curriculum and instruction in outdoor classrooms. Rather than solely advocating for more outdoor classrooms in Jefferson County, this group also emphasizes the validity of using outdoor learning areas that are not specifically designed with this in mind and quality instruction to support learning.

Specifically, this working group:

1. Developed a soil hygiene plan to provide strategies for working with students in areas that may have contaminated soil.
2. Developed a recommendation list for outdoor classrooms. This list identifies materials, supplies and equipment necessary for setting up an outdoor classroom.
3. Developed an outdoor classroom backpack equipment list for investigating the school yard.
4. Reviewed the Brightside Outdoor Classroom Registry. The purpose of this database is to provide a resource for

educators who are interested in starting an outdoor classroom or adding to an existing one.

Middle School Environmental Education Pilot Project

In collaboration with this working group, teachers at Lassiter Middle School developed a plan for integrating EE into every classroom and the school culture. Members from all three Partners supported and facilitated a Professional Development Workshop with the Lassiter Middle School EE Steering Committee on June 4 and 5, 2007. Donna Griffin led the teachers through brainstorming sessions to more focused articulation of ideas to provide and promote Lassiter as an Environmental Magnet School. Teachers identified barriers and opportunities toward obtaining their goal, possibilities on how to achieve an embedded and integrated environmental curriculum, needs and present resources, outcome measures (how do we know if we are successful?), and motivational events for both students and faculty that would encourage school wide environmental focus, participation, and pride. A faculty retreat will be held at Jefferson Memorial Forest in August 10th for team building exercises and planning for the coming year.

Energy Fair

The Kentucky State Fair education 2006 energy exhibit equipment was used to develop an energy fair aligned with middle school science core content. An energy fair journal was developed to create pre and post energy fair lessons, as well as to encourage participation in the energy fair presentations. This exhibit was used at Lassiter Middle School, Farnsley Middle School, and UofL GreenThumbs for the Earth Day Celebration at UofL.

Food

This working group focused their attention on urban agriculture, healthy eating, and buying food locally grown. This group proposed several collaborations that would support the individual efforts of each member through sharing available resources. Due to the diverse issues incorporated within the topic of food, the group is developing priorities to help direct involvement. Through networking opportunities available through the EEC, members from all Partners participated and served in each other's programs. For example, UofL students have interned for both Oxmoor Farm and ACTIVE Louisville projects.

Climate Change Education Working Group

This working group was initiated in December of 2006. The purpose of the group is to provide educational consulting and development specific to climate change for the Louisville community. Members of this working group are from the Climate Change and Environmental Education Committees of the Green Partnership. The Climate Change Committee, led by Art Williams, Director of Air Pollution Control, was formed as a result of Mayor Abramson's climate change initiative, supporting the reduction of greenhouse gas emissions to 7 percent less than 1990 levels by 2012.

Native Plant Educational Initiative

Based on priorities set in the initial meeting this year, interest was expressed in developing native plant demonstration gardens, or using gardens already established (such as at the Louisville Zoo) for the purpose of educating the public about the benefits of using native plantings in landscaping.

Conversation has begun between Lassiter Middle School, Jefferson Memorial Forest, and UofL to establish an educational native plant growing program using Lassiter's greenhouse and the Forest's land and resources/affiliation through Project Restore.

Reducing Exhaust Emissions through EE

The goal of this working group is to develop a plan to engage students in reducing vehicle exhaust emissions by training students to use tire pressure gauges to make sure tires are properly inflated, and raise consciousness about turning off idling cars (in car pool lines). This will be piloted at one school and then expanded to other schools and community sites.

Projects and Communication:

EE Committee members as well as members of the local and regional EE community used the monthly meetings as a forum for communicating about projects, conferences, and EE initiatives. The following represents a snapshot of information exchanged through the EEC and emerged as opportunities for collaboration:

- Campus Community Partnership for Sustainability 2007, April 20-22 at Eastern Kentucky University: UofL brought this conference to the attention of the EEC and made participation available to all partners. Student delegates from UofL explored community responsibility in sustainability issues and in collaboration with other College and University students from around the state developed an environmental ethics statement. This statement will be used by the students to launch discussion and practices of environmental and sustainable

commitment at their respective institutions.

- The Blackacre Conservancy requested participation of the EEC and members of the Partnership for a Green City to a lecture, "Natural Areas in an Urbanizing Environment: A Look at Today's Conditions."
- Last Child in the Woods Book Discussion, November 28, 2007, Waterfront Development Corporation: This discussion group initiated by the steering committee of the Partnership brought together all partners and community members in a discussion of Richard Louv's book focusing on its relevance to EE in our community and the role of partners in recognizing the role of unstructured time in the outdoors for children and adults.
- Project Restore: Louisville Metro Parks Department is initiating this project to remove exotic invasives and restore native plants throughout green spaces in Louisville Metro, incorporating school sites, and bringing an educational component to middle school students. Partnerships within the EEC were sought with the outcome of Metro Parks joining in the Middle School EE Pilot at Lassiter Middle School.
- Brightside Youth Summit, November 15, 2007: In conjunction with America Recycles Day, the Youth Summit sponsored by Brightside received support and assistance in implementation from JCPS and UL. Plans were developed through the EEC. Students, ages 10-18, from public and private schools throughout Metro Louisville, and surrounding counties came together for a day long

conference to develop plans for student-led environmental projects to implement at their schools as follow up. Partner members involved in this initiative submitted two proposals and were accepted to present papers at the NAAEE conference in October.

- Embedding Environmental Education in Preservice Teacher Education: UL and JCPS participated in a two part collaboration: 1) All preservice teachers in the General Methods and Introduction to Teaching courses received training in Project Wild, 2) Following Project Wild training, preservice teachers participated in a service learning project at Blackacre State Nature Preserve in which they applied knowledge of environmental education assisting in field studies with JCPS students. Because of the popularity of this project, it will be part of these courses next year.



- Floating Science Classroom, the ORSANCO, May 14-19: Sponsored by the Louisville Water Company and Metropolitan Sewer District. Educational programs were offered for 4th and 5th grade students connecting communities to the Ohio River.
- Greenthumb Environmental Club: UL student presentation to the EE Committee offering ideas for environmental projects and seeking

opportunities to support environmental education on the UL campus and in the community.

- Biodiversity Exhibit at the State Fair: Stephanie Darst of the Kentucky State Fair Board invited the Partnership to help with the exhibit, "The Mosaic of Life: Why Biodiversity Is Key to Our Survival of Earth. The purpose of the exhibit will be to increase visitors' understandings of biodiversity by illustrating ways that local, state and federal governments are protecting biodiversity. All three Partners were involved in the planning and implementation of the exhibit to be held at the state fair starting on August 16, 2007.



- Open Air Marketplace Project: The JCPS Center for EE and Cultural Diversity Office developed an interdisciplinary curriculum to support understanding of the role of open air markets in societies around the world. The EE Committee has agreed to support the implementation of this curriculum through the development of student managed open air markets to culminate in spring 2008.
- Environmental Education Resource List: The JCPS Center for Environmental Education, on behalf of the EE Committee, revised and updated an EE Human and Organization Resource List reflecting environmental resources available in Jefferson County. The EEC served to clarify and edit the list as it developed.

- UofL Environmental Education Endorsement Program: There will be two Environmental Education courses offered next fall: Environmental Education Teaching Methods and Introduction of Environmental Education. These courses will be part of the Environmental Education Endorsement Program (pending approval) for inservice teachers. They can also be used as elective credits in the MAT program and complete the requirements for areas of concentration for either the Rank I or MED programs as well.
- Project WET, WILD, and Learning Tree Data Base: A data base of Environmental Educators that have been trained to facilitate the Project Workshops was developed and will be available to organizations that are interested in having a workshop given to their members.

Professional Development:

Professional Development (PD) emerged as an outcome of the need to create a common understanding of EE content knowledge and methods among the partners. The following sessions were presented as a collaboration of the EE committee. The audience included UL pre-service teachers, JCPS teachers, employees of JCPS, UL, and Metro Government, non-formal educators, and other interested community members.

As working groups developed their focus, the need for professional development was assessed. The following PDs are the outcomes of this process:

- Living Lands and Waters Alternative Spring Break March 5-9 and March 12-16, 2007: This weeklong PD was sponsored by Living Lands

and Waters and the Partnership for a Green City as professional development in riverbottom restoration with the outcome of restoring and enhancing the Beargrass Creek Watershed and cleaning up the Louisville Metro Waterfront on the Ohio River.

- Care of Classroom Pets Feb. 28, 2007: This PD was a collaboration of the EEC initiated by Metro Government Animal Services. Humane education is an agenda supported by the EEC based on research that links respect for domestic animals to responsible decision-making and behavior extending to people and the environment .
- Urban Agriculture, April 18: The Food working group developed this PD and the Food Literacy Project at Oxmoor Farm presented this session at Blackacre State Nature Preserve. Participants learned the basics of gardening in a city.
- Outdoor Classroom Development, April 25, 2007: This PD developed by the outdoor classroom working group presented strategies to integrate outdoor, experiential instruction with classroom curriculum.
- Middle School Environmental Education Pilot, June 4th and 5th, 2007: A steering committee of 10 teachers at Lassiter Middle School met with JCPS Center for Environmental Education, Brightside, and UL to develop framework for an optional magnet middle school PD.
- Healthy Foods / Food Diary Research, May 31 and June 1, 2007: Research developed by the research working group of the EEC (Angelique Perez) was presented to practical living teachers (PE, Health, Consumerism, Vocational

Studies). The research profiled eating habits of students and revealed student misconceptions about healthy eating and the need for focused instruction in nutrition. Findings from this study were published in a booklet called "Bridging the Divide: Growing Self-Sufficiency in our Food Supply, Community Food Assessment: A Regional Approach for Food Systems in Louisville Kentucky."

Future Goals and Directions

As the EEC enters the 2007-08 academic year, we will continue to build on the momentum and strength experienced from the past. A survey of the EEC membership suggested that the structure developed this past year provided opportunities for networking and collaboration, a sense of accomplishment and action, and inclusive participation opportunities.

General initiatives:

- Work toward identification of indicators and other outcome measures to be used as evidence of success and/or

needed focus in each working group and the EEC as a whole.

- Work with all three Partners to infuse environmental stewardship and education into existing frameworks.
- Work as an educational support group to other Committees of the Partnership.
- Seek ways to be proactive in issues of environmental education and the needs of the citizens of the Commonwealth of Kentucky.
- Continue to work toward and/or modify priorities as determined at the September 2006 meeting.

Specific initiatives:

- Through the UofL Center for Environmental Education, JCPs Center for Environmental Education and Louisville Metropolitan Government, we will develop a coordinated and comprehensive Environmental Education Plan that will help coordinate environmental education in the region. This may include an inventory of environmental education resources in our community, an interdisciplinary research agenda, professional development for environmental educators in both formal and nonformal environments, alignment of community and governmental

education programs with local school district curriculum, identification of needs in after school and adult programs, an inventory of current environmental course and program offerings at U of L, and funding strategies for EE in our community.

- A Faculty Development workshop will be developed and implemented for the Teaching and Learning Department at UofL. This workshop will cover what EE is, what it looks like in our community, developing integrated lesson plans and critical thinking skills, ideas for embedding EE into preservice and inservice courses (including service learning), and available resources and opportunities.
- Opportunities for Internships and service learning will be developed among Partners. For example, students involved in the Environmental Honors Program will compose environmental writings of different genre to be included in a reader for middle school students.
- We will continue to work with Lassiter Middle School Environmental Education Magnet school as they implement EE back into the school.



Appendix A: Statement of Environmental Principles

Statement of Environmental Principles

As stewards of metro Louisville and of all its resources, we understand the interdependence of humans and the environment. We must apply thoughtful and creative planning to achieve a thriving economy built on the principles of sustainability. We must foster conservation, pollution prevention, and restoration of ecosystems with both public policy and personal behavior. We must promote a common agenda for Louisville as a green city, preserve and enhance the quality of life for our citizens and future generations, and widen recognition of the importance of good stewardship of the community's natural resources.

- **Leadership Commitment and Measures**

We will implement these principles by demonstrating community leadership and collaborative planning and by adopting best environmental practices. We will establish goals, objectives, and indicators; conduct an annual self-evaluation of our progress; and jointly issue a public report.

- **Sustainable Use and Protection of Natural Resources**

We value and conserve natural resources and will seek to preserve and make sustainable use of our air, water, soil, and forests. We will protect and conserve nonrenewable natural resources through efficient use, careful planning, and collaborative land-management programs. We will reduce the use of substances that may cause environmental damage to the air, water, earth, and its inhabitants. We will safeguard all habitats affected by our facilities and operations, especially the public lands we manage, while promoting biological diversity. We will conserve open spaces through comprehensive planning.

- **Land and Water Management**

We will promote natural areas for biological diversity, protect areas along streams and water bodies, and plant native species. We will enhance, enlarge, and protect our urban forests. We will practice responsible water use.

- **Reduction and Disposal of Waste**

We will combine resources to reduce or eliminate waste through source reduction, reuse, and recycling in our own facilities and operations and for the metro area in general. We will handle and dispose of all waste using safe and responsible methods.

- **Energy Use**

We will conserve energy and improve the energy efficiency of our buildings, vehicles, and equipment and of the goods and services we use. We will use environmentally safe and sustainable energy sources, while achieving savings. We will increase our use of energy from renewable sources.

- **Transportation**

We will build and redevelop our community to minimize transportation demands, while providing pedestrian- and bicycle-friendly pathways and an effective public transit system. We will work to reduce vehicle miles traveled in the community, while implementing the vision of our organizations using energy-efficient vehicles.

- **Purchasing Products and Services**

We will pool our knowledge and resources to jointly purchase green products and services. We will work with our suppliers to adopt sustainable approaches and solutions. We will partner to create a stronger market for environmentally friendly and regionally produced products and services.

- **Design and Management of the Built Environment**

We will design, build, restore, and manage our facilities and neighborhoods in ways that promote and protect health and safety. We will use school campuses, partners' buildings, and lands as settings for learning.

- **Public Health**

We will monitor our policies and practices to assess and reduce public health risk. When potential risks are identified, we will identify and implement solutions.

- **Environmental Education**

Through environmental education, we are committed to developing and supporting environmentally literate citizens. We will involve colleagues, students, and citizens in demonstrating the ability to implement these principles.

www.partnershipforagreencity.org
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Partnership for a Green City

UofL



Jefferson County
Public Schools
Shaping the Future

Adopted:
December 5, 2005

Adopted:
December 15, 2005

Adopted:
January 8, 2006

Appendix B: List of proposed outcomes and projects from which the EEC set priorities at their first meeting

Partnership for a Green City Environmental Education Committee: Proposed Outcomes for 2006-2007

Input from the September 20, 2006 EEC Meeting

Outcomes by Environmental Principles: All outcomes except those followed by an asterisk were developed by the Partnership for a Green City Focus Groups meeting in August of 2006.

Brown text – outcomes added during the Sept. 20th EEC meeting

Green text - high priority outcomes (do sooner, rather than later)

Leadership Commitment and Measures:

- Partnership sponsors annual roundtable environmental education conference
- **Broaden the Coalition (D.W., A.L)**

Sustainable Use and Protection of Natural Resources:

- **Public Education on Use of Land (D.M., T.M.)**
- **Rain barrels and rain gardens**
- **Partners using native plants in landscaping and create demonstration landscape to educate public – i.e. Brightside (D.M., K.R, M.G.)**
- **Maintaining own yards, plants**
- **Cut down on resource use, especially in schools – reuse as much as possible**

Land and Water Management:

- Partners' land features managed biodiversity (outdoor classrooms, parks, green spaces, etc.) (D.H.)
- **Soil testing (1st step for edible garden in public places) and training**

Reduction and Disposal of Waste:

- Ongoing training for recycling and composting (C.G., J.D.)
- **Litter Education (E.W.)**
- **Re-thinking use of resources in schools (especially in cafeteria), more re-cycling efforts in schools, airports, malls, etc.) (C.S., K.Y., E.W.J.A.C.)**
 - **Bottle bill**
 - **Recycled paper (school, bookstores, businesses)**

- Study of environmental consequences of recycling, as well as economic consequences
- Educate about results

Energy Use:

- Educate public to conduct building audits and follow-through on recommendations* (adapted)
- Energy Fairs (J.D., D.W.)

Transportation:

- (Educate through a PR campaign*) Partner programs with incentives and disincentives for mass transit / buses / bikes / carpooling

Purchasing Green Products and Services:

- Develop a Green Buying Guide with recommendations from agencies within the 3 Partners for distribution to community members* (C.G.)

Design and Management of the Built Environment:

- Public Information meetings (may also be professional development) promoting LEED buildings, public involvement in planning and decisions about neighborhoods*
- Model “Green” behavior (C.S.)

Public Health:

- Healthy Lifestyle Programs
- Public education about chemical free buildings and grounds
- PTA program (15 minutes max) for distribution on DVD or CD-rom with information promoting healthy students with healthy living strategies including info on asthma*

Environmental Education:

- Directory of existing resources / services of all partners*
- EE Endorsement for teachers* (D.B.)
- Increase # of outdoor classrooms (all Partners) (D.B., K.R., D.H.)
- All EE providers in the Partnership characterize their programs through Environmental Principles as the first steps to a unified approach (adapted)*
- Revise the EE / Outdoor Classroom Curriculum Map to incorporate the programs of all EE providers in the partnership, formal and non-formal* (D.B., K.R.)
- All employees of the partnership and students have a nature immersion experience (A.L., J.A.C.,
- EE focus centers
- Nature / EE Trolley Hop (J.C.)
- Environmentally Literate staff (all partners) through PD on “the clock”. * (A.M., D.W.)
- Research on Environmental Education (collaborations with partners on efficacy of EE, needs, etc.)* (B.B., D.W., A.L., D. H., J.A.C., D. B., J.C., R.K., L.L.)
 - EE and Impact on Achievement
 - Adventure (canoe trips) and engagement in learning
 - Exercise: Impact on school behavior
 - Energy Exhibit: Impact on environmental behavior
- Core Content = EE
- PR campaign for EE using students to communicate ideas (D.W.)

- Outdoor Classrooms:
 - Resources
 - TARC / transportation grant program (T.S.)
 - Partnering with schools and other agencies (K.Y.)
 - Farmer’s Market gardens (M.L.)

Good Food (D.W., K.Y., C.S., E.W., C.G. J.D.)

- Organic / Small farm co-op
- Plastic trays vs. Styrofoam
- Educate on benefits of good and nutritious food

Prioritizing of Proposed EE Outcomes

Proposed Outcome	Do Sooner	Do Later
Public Education on Use of Land (D.M., T.M.)	1	3
Partners using native plants in landscaping and create demonstration landscape to educate public – i.e. Brightside (D.M., K.R, M.G.)	3	
Re-thinking use of resources in schools (especially in cafeteria), more re-cycling efforts in schools, airports, malls, etc.) (C.S., K.Y., E.W.J.A.C.) <ul style="list-style-type: none"> ○ Bottle bill ○ Recycled paper (school, bookstores, businesses) ○ Study of environmental consequences of recycling, as well as economic consequences ○ Educate about results 	5	1
Energy Fairs (J.D., D.W.)	1	1
Increase # of outdoor classrooms (all Partners) (D.B., K.R., D.H.)	4	
All employees of the partnership and students have a nature immersion experience (A.L., J.A.C,		
Environmentally Literate staff (all partners) through PD on “the clock”. * (A.M., D.W.)	6	
Research on Environmental Education (collaborations with partners on efficacy of EE, needs, etc.)* (B.B., D.W., A.L., D. H., J.A.C., D. B., J.C., R.K., L.L.)	7	

<ul style="list-style-type: none"> ○ EE and Impact on Achievement ○ Adventure (canoe trips) and engagement in learning ○ Exercise: Impact on school behavior ○ Energy Exhibit: Impact on environmental behavior 		
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**Appendix C: Handout of Research Paper Summaries.
 Research Findings From the Early Intervention Lab at the U of L Department of
 Psychological and Brain Sciences**

BILL 172

Rachel Knecht (rdkne01@louisville.edu) & Jenny Cundiff (jmcund02@louisville.edu)

Study:

We looked at the relationship between physical activity (# of minutes per week, recess) and behavior (standardized teacher rating scale, office referrals) as it relates to third graders. The impetus for our study was the recently passed Bill 172 allowing (but not forcing) teachers up to 30 minutes of physical activity a day to count as instructional time.

Findings:

- On average, as classroom physical activity increased, teacher ratings of student behavior also became less negative (more activity → better behavior)
- On average, as classroom physical activity increased, the number of classroom referrals decreased (more activity → better behavior)
- On average, classes who participated in recess reported half as many referrals as classes who did not participate in recess (more activity → better behavior)
- However, teacher ratings of behavior between classrooms who had recess versus classrooms who did not was not statistically, significantly different.

CANOEING AND ATTENDANCE AND BEHAVIOR

Daniel Bright (dabrig02@louisville.edu)

Study:

This study looked to see if there was a relationship between canoeing field trips and the students' attendance and behavior. It involved four schools, twelve teachers, and 300+ students.

Findings:

- There was no relationship between the canoeing and attendance
- Teachers' were optimistic about the trip, commented on student excitement, relevance to class curriculum, etc.

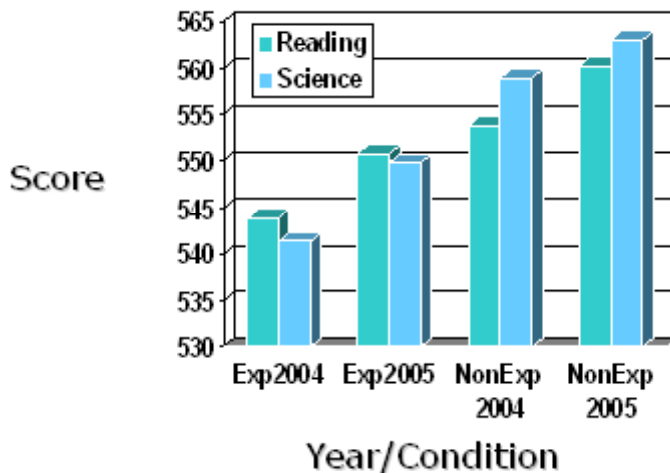
- Limited to one trip, multiple variables affected the data, limited number of teacher responses

ENVIRONMENTAL EDUCATION ON ACHIEVEMENT AND CLASSROOM BEHAVIOR

Laura LaPradd (lmlapr01@louisville.edu)

Questions to be Answered

1. Do achievement scores in classrooms involved in an Environmental Education program differ from classrooms who are not involved in EE?
2. Does attendance in classrooms involved in an Environmental Education program differ from classrooms who are not involved in EE?
3. Do teachers who employ EE report increases in motivation and interest in school?



Findings:

- No differences in attendance
- Some indication of differences in achievement. However initial ratings in EE school were much lower in achievement so comparison was not adequate.
- Evidence that teachers report noticing some behavioral differences.
 - o Teachers reported significant differences in student interest.

BLACKACRE AND ACADEMIC ACHIEVEMENT ON CATS.

Matt Edlin (jmedli01@louisville.edu)

Study:

This study looked to see if there was a relationship between participation in the Blackacre program and academic achievement as measured by Reading and Science scores on the CA¹ Science Scores

