

balance

A NEWSLETTER FOR EDUCATORS



Published by the Children's Environmental Literacy Foundation

No generation has ever faced a more daunting agenda

“The generation now being educated will have to do what we, the present generation, have been unable or unwilling to do: stabilize a world population that is growing at the rate of a quarter of a million each day; stabilize and then reduce the emission of greenhouse gases, which threaten to change the climate—perhaps disastrously; protect biological diversity, now declining at an estimated rate of one hundred to two hundred species per day; reverse the destruction of rainforests (both tropical and temperate), now being lost at the rate of one hundred and sixteen square miles or more each day; and conserve soils, now being eroded at the rate of sixty-five million tons per day.

Those who follow us must learn how to use energy and materials with great efficiency. They must learn how to utilize solar energy in all its forms. They must rebuild the economy in order to eliminate waste and pollution. They must learn how to manage renewable resources for the long term. They must begin the great work of repairing, as much as possible, the damage done to the earth in the past two hundred years of industrialization. And they must do all of this while addressing worsening social and racial inequities. No generation has ever faced a more daunting agenda.”

—David Orr, *Chair of the Environmental Studies Program at Oberlin College*

“Green” trains are leaving the station. Did you get on the right one?

By KATIE GINSBERG, CELF & SUSAN SANTONE, CREATIVE CHANGE EDUCATIONAL SOLUTIONS

Thanks to Al Gore, the movie producer, you can't turn around without hearing the terms “carbon footprint”, “LEED Certification”, and “sustainability” bandied about in the mass media. These concepts are also appearing in the field of K-12 education. Given the state of the environment and global warming, a groundswell is building over educational projects and programs that promote environmental responsibility. The general awareness level is exponentially greater than just a few short years ago when CELF was first conceived.

Many schools are looking at ways to “go green” but have limited understanding of the process, the connection to curriculum or how to navigate it. With so many trains leaving the same station at the same time, how do we know which one to get on?

Reaching for environmental programs is often a “first response” by educators concerned about the state of the planet.

While this can be a good starting point, environmental education (EE) by itself does not fully address the full range of needs and concerns raised by sustainability. This stems from environmental education's traditional position within the curriculum.

Historically, environmental education has been – and continues to be - viewed as a part of the science curriculum or as a separate subject; only rarely is it viewed as a basic underpinning of the curriculum or as a basis for curriculum integration. As a result, current and future teachers perceive teaching about the environment as science focused and separate from their discipline. This separateness is reinforced by the content of available training opportunities. Teachers interested in learning about the environment must attend a separate EE workshop because environmental concepts are not integrated into other teacher education opportunities at either the pre-service or

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Real World Perspective

With each future issue of Balance, we will explore real world applications of sustainable thinking to share how leaders in a variety of fields employ the concepts, skills, and habits of mind taught in sustainability education. As educators come to understand the benefits of systems thinking, a vital characteristic of SE, and its ability to reshape education, they will discover how critical it is to the success of industry, government, science, economics and humanity worldwide. Fostering an ability to see interconnections from an early age and process these connections for future decision-making will create students, and citizens, who thrive educationally, emotionally, and productively.

Our first real world perspective was submitted by Steelcase, with an article that looks at how “Cradle to Cradle” thinking has already made a significant impact on the way products are being designed and developed across industries to combine all aspects of sustainability with a more holistic approach to the production process.

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Letter from the Director

Dear Friends,

As the challenges facing our world grow ever more complex, the need for educators to address real-world issues becomes increasingly important. The Children's Environmental Literacy Foundation (CELf) collaborates with school districts and teachers to raise awareness of sustainable development and to help incorporate it into K-12 education programs. Sustainability education (SE) infuses curriculum and instruction with concepts that link economic prosperity, ecosystem restoration and social stability.

Our programs have caught the attention of national foundations, corporations and state level grant programs. As a result, we have recurrent, stable financial support that enables us to provide the programs and services schools need and want. With the groundswell of interest in sustainability issues, CELf will continue to pursue its mission to provide guidance, inspiration and concrete solutions to the challenge of reframing education to address our changing world. As Founder and Executive Director of CELf, I am encouraged by the level of commitment to teach sustainability we have

seen from so many teachers and administrators over the last year. I ask you to join us in this commitment.

Program Expansion

CELf will continue to expand programming options for both educators and students to meet increasing demand for professional development services, informational programs and resources. This year, CELf's programs will sponsor: three Summer Institutes for Sustainability Education for K-12 teachers; Ecological Footprinting for elementary schools; introductory community presentations; a series of "Learning with Leaders" seminars for high school students; and CELf's third annual "Students for a Sustainable Future EXPO" for middle and high school students at Pace University (read more about these programs at www.celfoundation.org)

National EPA Grant Program

CELf has built its reputation on our extensive outreach, informing and inspiring districts throughout the Tri-State Region about SE. Last year, Eastern Michigan University's (EMU) Institute for the Study of Children, Families, and Communities (ISCF) with support from EMU's Department of Teacher Education and Creative Change Educational Solutions (CCES), invited CELf to identify NY school districts that were at the forefront of integrating sustainability. Based on our in-depth research, CELf invited five school districts to compete for a national EPA grant. EMU and CCES selected Somers and Scarsdale as two of only four districts nationwide to participate in the EPA Grant Program, "Building Leadership Capacity for Sustainability Education."

CELf, EMU and CCES will continue to work with these districts for a total of 18 months to develop comprehensive strategic plans to integrate sustainability across their campuses, curriculums and communities. These replicable initiatives provide plans, products, and measured outcomes to serve as models and resources for communities nationwide. We urge all school and community members to visit Somers' (www.somers.k12.ny.us) and Scarsdale's (www.scarsdaleschools.org) websites and the grant website, www.blcse.org, to learn more about the programs and practices currently underway in these exemplary communities.

Westchester County Global Warming Task Force

Over the last 9 months, the members of the Task Force's Education Sector (including school district administrators, Board of Education members, Teacher Union representatives, Buildings and Grounds administrators, PTA/PTO representatives, environmental experts, members of county government and project consultants from the environmental management firm, First Environment, Inc.) have dedicated time from their busy schedules to hammer out an action plan for Westchester K-12 schools and institutions of higher education.

As Chair of this committee, I have seen their commitment to take direct action for change. Schools increasingly understand their role and responsibility to prepare students to understand the interconnections between climate change, environmental sustainability, economics and the health of human/non-human communities. With this plan, schools, businesses and government agencies will have the resources to reduce green house gas emissions and to promote sustainable development in Westchester.

I encourage you to share this newsletter with your colleagues, visit our website to learn more about sustainability education and programs for educators and students, attend the WGWF launch, join us with your students at EXPO '08, or think about some way in which you would like to address the sustainability challenge this year. We are committed to supporting teachers and administrators, students and parents as they take sustainability forward within and beyond their schools.

Best wishes,



Katie Ginsberg
Founder and Executive Director



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CELF Professional Development Programs

In July, over 75 participants from across the region completed CELF's annual summer professional development programs. Teachers and administrators learned how to infuse existing curricula with the critical thinking skills required to help K-12 students see the interconnectedness between the environment, the economy and societal issues, and produced practical products to apply these skills both to teaching and learning. CELF staff and co-presenters Susan Santone, Director, Creative Change Educational Solutions and Scott Beall, Director, Integrative Learning Systems, facilitated the two weeklong seminars. During the second week of the Institute, science curriculum consultant, Mary Beth Wilson, joined the Summer Institute staff. Additional guest lecturers and experts from across industry and government further enriched the workshops, along with participants from past Summer Institutes.

Institute participation included individual consultation with teachers' on their work products, and continued follow up support throughout the months of July and August. The goal was for educators to feel equipped with the knowledge and skills required to bring sustainability education into their curriculum and their schools.

Scarsdale Teachers Institute, Scarsdale, NY

Twenty-eight enthusiastic teachers and administrators participated in the first of two five-day sustainability workshops held under the auspices of the Scarsdale Teachers Institute in Scarsdale, NY. Among the panoply of disciplines represented were: high school geology, math and chemistry; middle school health and physical education, ELA, social studies, science and technology; and K-5 elementary education. The participants, learning from a range of curricular examples already in use across the nation, were richly rewarded with a deeper understanding of general sustainable development issues and their relevance

in teaching children to become systems thinkers. Guest panelists included Steelcase's Melissa Desota via a web-i-nar from the company's Michigan Headquarters and facilitated by Waldner's Business Environments' Director of Business Development Mia Schipani. Other guest presenters included Laura Myerson, Ossining Middle School teacher and '06 CELF Institute participant and three students from the Brewster school district's Do Right Enterprises Inc. enrichment program (see page 11).

The teachers, working mostly in grade-level teams, all completed their participation in the Institute armed with a unit or curriculum action plan which was developed during the week and was ready for implementation during the '07-'08 school year. The quality of collaboration amongst the participants as well as the instructional products they developed was outstanding.

Participants Comments

"We have developed an action plan that will take us through our year. I have been exposed to new ways of thinking and teaching my curriculum through a really practical, necessary lens."

"The workshop helped clarify my thinking, exposed me to new data, and presented a new perspective that has inspired and given me some direction to impact communities."

"I received the knowledge of what sustainability education actually is and have many materials and activities I can now incorporate into current curriculum."

"We were able to re-write a unit that I will implement this year. This will permeate every aspect of my teaching."

"The course content touched so many areas that broadened my understanding. Being well informed allows meaningful discussion and opportunity to dispel erroneous information from kids, etc."

"This course was absolutely fantastic! The



2007 CELF Summer Institute participants

instructors were extremely knowledgeable! They provided valuable guidance and numerous opportunities for collaboration."

"The workshop opened the door to an area where I thought I had some knowledge in but now have areas to explore in depth."

"I liked how the course ran (like a) tight ship. The course leaders helped to balance lecture with hands-on activities and walked us through all we needed to know! I loved the individual group conferences which helped to differentiate."

CELF Summer Institute for Sustainability Education, White Plains, NY

The second of the two '07 five-day workshops attracted participants from districts throughout Westchester, Putnam and Dutchess Counties, as well as New York City and Boston. All took part in developing materials to teach the concept of sustainability, and curriculum units were produced not only for subjects like AP Environmental Science and Chemistry classes, but for middle school interdisciplinary teams and elementary general education as well. Either in-service or graduate credits were offered for completing the workshop. CELF's partnership with Manhattanville College's Graduate School of Education enabled interested participants to apply for 3 graduate credits upon completion and approval of their curricular units. Among the final projects were full-year enrichment programs based on sustainability and systems thinking; middle school interdisciplinary units; student research assignments; faculty in-service workshops; and plans for new

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approaches to pre-service instruction.

MANY THANKS to our guest speakers: Melissa Billings, Chappaqua School District elementary school teacher and past Institute participant, who shared how sustainability education has impacted her as a 3rd grade teacher; Jon Koch, Founder and Partner of U.S. Renewables Group, who illustrated the selection process of investment in energy sources and discussed the importance of creating an environmentally literate generation to address energy issues; Zach, an 8th grade student of presenter Scott Beall, who expressed his commitment to and understanding of sustainable business; and Assemblyman Adam Bradley, who outlined his proposed legislation for a NYS sustainability curriculum.

Finally, we are very grateful to Sobeida Cruz, New York Power Authority (NYPA) Community Relations Manager, who coordinated the use of the beautiful Jaguar Room in NYPA's recently LEED-EB Gold-Certified office building. Many thanks to Sobeida for

also arranging guided tours of NYPA's green building by engineering and building staff for workshop participants. What an appropriate and inspiring setting for the 2007 Institute!

The 2007 CELF Summer Institute for Sustainability Education was funded through a generous grant from the Clarence E. Heller Charitable Foundation, a Special Legislative grant from Assemblyman Adam Bradley and from contributions from individual donors.

Participants Comments

"The instructors were so inspiring and knowledgeable, yet so approachable and down-to-earth. ...able to help me generate big ideas and lesson plans."

—3rd grade teacher
Byram Hills School District

"I am hoping to include this theme throughout the Technology curriculum next year. I have a much greater theoretical understanding of the topic."

—Middle school technology teacher
Katonah-Lewisboro School District

"I didn't realize how much potential there was to meet standards simultaneously. We always studied urban vs. rural communities, but never how they depended on each other."

—Somers School District

"I can help the teachers I teach to meet multiple standards, so that the educators integrate standards more naturally, more easily and more meaningfully."

—Professor of Education, College of New Rochelle

Visit the CELF website for frequent updates on upcoming events and scheduling details on the 2008 Summer Institutes for Sustainability Education, as well as other programs available for teachers and students throughout the year.



Participate in a two-day professional development workshop focused on teaching product life cycles, environmental product design, and ecological economics.

This creative workshop provides a complete 6-lesson unit with experiments and hands-on activities, writing and assessments, projects AND a supply kit of materials. Inquiry-based lessons integrate standards in biology, chemistry, physics and earth science.

To learn more, visit www.creativechange.net and click on "Designed by Nature."

FACILITATORS: Susan Santone, Creative Change Educational Solutions and Katie Ginsberg, Children's Environmental Literacy Foundation

TARGETED AUDIENCE: Science teachers grades 5-8

DATE: Thursday and Friday, July 10-11th, 9am-3pm

LOCATION: Manhattanville College

FEE: \$125 includes curriculum, lunch and supply kit

STIPENDS: Up to \$200 for using the materials in fall 08 and having your students participate in a program evaluation.

CONTINUING EDUCATION CREDITS: 1

Space limited to 20 participants. To reserve your spot, email Katie@celfoundation.org.

This program is made possible with support from the Clarence E. Heller Foundation and the American Honda Foundation.

in-service levels. This lack of integration creates the perception that EE is a special topic. It also reinforces western societal beliefs that humans are separate from the environment and that EE is limited to understanding and caring for the environment. Because of this, environmental education cannot on its own respond to the full range of issues raised by the complex ecological, social and economic challenges of our time.

Sustainability Education: Not Environmental Education

Readers may know that interdependence between humans and the environment is a foundational principle of Sustainability Education. All humans consume natural resources and produce waste that must be absorbed by the natural world; thus, all human activities (including economic and social systems) are embedded within larger ecological systems. Interdependence is therefore an integral part of everything we do and needs to be the foundation of teaching in all disciplines and at all educational levels.

The centrality of ecological interdependence often leads to equating sustainability education (SE) with environmental education (EE); however, they are not the same. While sustainability education has ecological health as a core principle, it goes further to integrate social equity, cultural assumptions, and economic concerns. And, while some EE covers this as well, not all EE is SE.

Take, for example, an EE unit on the water cycle and stream health. While these topics are important and necessary for students to understand, an SE unit would go further to include the interactions between humans and water, social justice aspects of water scarcity, and fundamental questions about whether water is a right or a commodity. (The depth and scope would depend on grade level, of course.) An SE approach would also examine fundamental cultural values that determine how we conceive of and interact with water. How do we value water? Do we perceive it as unlimited and free? What

mindset is reinforced by an economics lesson that charts increased profits from sales of bottled water, but ignores questions about aquifer depletion and water scarcity? With its attention to economic, social and ecological concerns, SE addresses these and other questions. As such, it expands beyond the discipline of science and requires that students integrate economic, social, cultural, and civic literacy with scientific understanding.

The development of systems-thinking skills is another critical component of SE. These skills are necessary for students to understand the complex relationship between humans and the environment and to be able to critically analyze how their actions will impact the natural world. A balanced education about such issues as population, consumption, the environment, natural resource management, human health and well-being, and sustainable development must become an integral part of the curriculum in teacher education programs. This interdisciplinary approach will give future teachers repeated exposure to environmental concerns in the proper context — related to all human activities, ideas and values — as well as avoid adding new requirements to already crowded curricula. SE represents a more systemic and holistic way of thinking that will benefit all learning.

But SE is not just about intellectual engagement and thinking skills. Like EE, it also encourages stewardship of the natural world, engages students in meaningful community action, and promotes in students a sense of wonder about the world. These are areas where SE and EE truly overlap.

Sustainability is not a simple topic to check off

While “sustainability” itself is a distinct term, the word does not represent a stand-alone field as much as it signifies an approach to an existing field. For example, sustainable agricultural and sustainable economics (unlike their

“While sustainability education has ecological health as a core principle, it goes further to integrate social equity, cultural assumptions, and economic concerns.”

“unsustainable” cousins) are grounded in value, principles, systems, methods and policies that advance the “three Es” of ecology, equity, and economic well-being. In other words, a sustainable approach to economics concerns itself with this triple bottom line, while “conventional” economics does not.

This distinction parallels sustainability’s role in shaping curricula. When fully implemented, sustainability is a method or approach to content that helps students consider what is at stake ecologically, socially, and economically (although perhaps not all at once, or in every lesson). A sustainable approach to chemistry examines the ecological and social implications of chemical applications, whereas a ‘conventional’ chemistry class may omit these questions. Thus, while the term “sustainability” needs to be understood by students (see below), SE can—and often does—occur without every mentioning the word.

Everything labeled “sustainable” may not be

As the term ‘sustainability’ gains traction in everyday use, it is often misused or misunderstood. In the business world, “sustaining profitability” or “sustainable growth” are becoming catch phrases; however, these terms typically refer to ensuring increased profits or share prices, regardless of social or environmental costs. (Daly, 1997). Likewise, schools that speak of sustainability only in terms of test scores, enrollment, or funding are using the

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term in a one-dimensional way. Thus, while sustainability should be seen as an approach to curriculum, it is valid and important for students to examine the uses and misuses of the term in different contexts.

For example, middle school students in a language arts or consumer economics course might examine food labels that claim the product is “sustainable” by conducting research on the broader environmental and social impacts of the production methods used; students could compare and contrast methods in order to determine criteria for what constitutes “sustainable.” An activity such as this could occur as part of a broader unit on product lifecycles or agriculture. To extend this into media literacy, students could research industry standards and regulations for terms such as “organic”, “natural” or “Fair Trade.” (Students may be surprised to learn that some claims, such as “organic,”

have legal standing while “natural” does not. “Fair Trade” is a certification granted by an international nongovernmental body.)

Beware the quick fix

It’s easy to be distracted by all the “green” noise out there and the dozens of programs and curricula popping up under the “sustainability” umbrella. Sorting through the clutter, it’s important to remember that SE is NOT an isolated subject to stuff into an over-crowded curriculum. Successful, meaningful SE is threaded throughout core curriculum and is always supported by rigorous systems thinking. And, when fully implemented as a system, SE involves deep transformation of the very nature of the school, including operations, climate, community relationships, as well as the curriculum. And, while SE curricula, events, or projects can support this work, they cannot

work alone.

There are no quick fixes or instant approaches to SE, but the good news is that many schools are already implementing components of the work in meaningful ways. Successful advances can happen by expanding on this work and examining leverage points for change in other areas of school curriculum, climate, management and operations. There are plenty of “green” trains leaving the station; make sure you get on the right one.

(Editor’s note: Systems thinking and its role in teacher training for SE will be addressed in the next issue of “Balance”).

Daly, Herman. (1997) “Sustainable Growth? No Thank You.” pp. 193-196 in *The Case Against the Global Economy and for a Turn Toward the Local*. ed. by Jerry Mander and Edward Goldsmith. San Francisco: Sierra Club Books.

My CELF: A two-time CELF Summer Institute graduate shares her perspective

By BETH DORÉ, ASSISTANT PRINCIPAL & 5TH GRADE TEACHER, AUSTIN ROAD ELEMENTARY SCHOOL, MAHOPAC,

It is appropriate that I have been asked to write an article for the CELF newsletter called “Balance.” Personally, this year, I have been in search of greater “balance” in all aspects of my life. What I hope to do in this article is to offer an interesting perspective on my experiences, thus far, with sustainability education as both a teacher and an elementary administrator.

I am fortunate, over the past fifteen years to have been a full-time teacher, a half-time teacher/half-time assistant principal simultaneously, and a full-time assistant principal in two different school districts in both Putnam and Westchester Counties.

I truly believe my first experiences with sustainability started in my home when I was young. With mom on the Conservation Board, and dad on the Recreation Commission, I grew up in a household where the thermostat was always set at 68 degrees in the winter and recycling, reusing, conserving and preserving were a given.

I was introduced to the word “sustainability,” in the first CELF Summer Institute in 2005, with Gunter Pauli world-renowned environmental businessman and sustainability educator (founder of ZERI). The focus for me primarily related to literacy and science. As a team, we worked on creating

lessons, connecting the environmental “fairy tales” written by Pauli to science activities, sustainability issues and the need to conserve the Earth’s non-renewable resources.

This summer, I participated in CELF’s fourth Summer Institute for Sustainability Education, held in the “green” New York Power Authority White Plains headquarters. The Institute had a healthy representation of teachers and educational leaders from surrounding school districts. It created a very positive environment to be able to communicate, cooperate and learn with fellow educators from all over Westchester and Putnam County and beyond. Some of the most effective

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green schools alliance

ALL schools N-12 interested in becoming cleaner, greener and climate neutral, visit the Green Schools Alliance: www.greenschoolsalliance.org for free/low-cost programs, resources, and workshops.

Take the GSA Pledge. Be a Global Leader in your community.

2007 EXPO—Learning from the Real World

The **2nd Annual CELF Students for a Sustainable Future EXPO**, held at Pace University on April 26th, was a resounding success for a record number of students, teachers, exhibitors and community members. The EXPO is an annual educational convention designed to partner students and teachers with corporations, NGOs and government agencies and highlight how they are incorporating green ideas and technology in creative ways. This interactive experience educates and informs while it celebrates, cultivates and spreads 21st Century ideas and practices. Over 1,000 participants attended the one-day event, which included almost 50 exhibitors in Pace University's Goldstein Gym (Pleasantville, NY) and school districts from throughout the Lower Hudson Valley and Manhattan and the surrounding region.

The event brought together professionals from numerous fields to showcase products, practices and trends, with topics including: green design/building/maintenance, green



consumer products, alternative energy/energy consumption, habitat protection and restoration, socially responsible investing, sustainable communities, sustainable and Fair Trade agriculture, green mapping/GIS, water quality, and educational and student programs, plus more.

The EXPO Experience

- 🌱 A bustling EXPO connecting companies and kids to bring the latest technologies, products, and practices to schools and communities.
- 🌱 A forum to hear presentations from sustainability educators, business and political leaders on the terminology and thinking integral to sustainability.
- 🌱 Exposure of students to a wide variety of emerging career paths to inspire them to choose fields of study and innovative career options that will help guide us to a sustainable future.
- 🌱 Networking opportunities and conversations that enhance the way teachers and students work, dialogue and learn, as well as business-to-business connections.
- 🌱 An exciting live “Birds of Prey” demonstration from Pace University’s Jim Eyring where students learn about the importance of habitat protection and its relationship to economic and land use decisions.



2008 STUDENTS FOR A SUSTAINABLE FUTURE EXPO
APRIL 30, 2008 AT PACE UNIVERSITY, PLEASANTVILLE, NY
Join co-sponsors **STEELCASE, WALDNER'S BUSINESS ENVIRONMENTS, and WHOLE FOODS**. To learn more about EXPO'o8, or to register as an exhibitor or reserve space for your school's field trip, visit: www.celfoundation.org/expo.html.

A special thanks to our EXPO'o7 Presenters: Assemblyman Adam Bradley; Pace Law School's Marie Quintin and Sean Dixon; sustainability educator Scott Beall; and Pace University Associate Dean of Academic Affairs and Research Dr. Richard Schlesinger; Westchester County Executive Andrew Spano; and keynote speakers: Whole Foods Green Mission Specialist Jennifer McDonnell and Award-winning architect Michael McDonough.

"I was particularly impressed by the level of eloquence, knowledge and passion displayed by the student presenters. Their level of commitment to their causes showed, and reflects the level of commitment of their teachers. My hope for the future was restored."

Eileen Gallagher, Briarcliff Middle School Teacher

How do you know if the product you selected is an environmentally sustainable one?

True Green

What do all of these products – the Tartan® running track at Stanford University, the brightly colored gDiaper™, Formawall™ exterior building panels at Andrews Air Force Base, Wet Women® Surf Wax, and the new Answer® system workstation – have in common?

They're all certified as Cradle to Cradle™ (C2C) products, safe for both human and environmental health, and designed for easy recovery and reuse of materials. As a way to identify “green” products across a variety of industries from cleaning products to commercial interiors, C2C is an important new sustainability benchmark.

C2C was introduced by McDonough Braungart Design Chemistry (MBDC), a sustainable product and process design consultancy in Charlottesville, VA, to combine all of the aspects of sustainability into one process. Its foundation is an analysis of component materials against 19 human and environmental health criteria. In addition to materials assessment, C2C measures four other sustainability criteria including energy use, water stewardship, recyclability, as well as the manufacturer's record of social responsibility.

Launched just two years ago, C2C already has been called “a landmark in industrial design” by I.D. Magazine (Jan/Feb 2006). Noted interior design and sustainability expert Penny Bonda, FASID, LEED AP, has referred to the standards that C2C sets for sustainable product design as “state of the art.”

The Value of Sustainability

The importance of C2C is largely due to its potential to dramatically impact the environmental footprint of commercial interiors. The U.S. Green Building Council states that buildings account for 36% of all energy used, including: 65% of electricity consumption; 30% of raw materials use; 30% of waste; 30% of greenhouse gas emissions;

and 12% of potable water use.

Embracing sustainable solutions and using C2C products can help reduce waste, improve air and water quality, conserve resources, and deliver significant health – and economic – benefits to business.

Susan Pelczynski, senior associate and assistant director of interiors for Hickok Cole Architects in Washington, D.C. and a LEED accredited professional designer, believes that sustainable design can, and does, deliver measurable productivity gains for a business. “A bad workplace environment means people are out sick, they're not performing well, or they just don't want to come in to the workplace. Employee productivity is a huge factor for every business. If you can show, for example, how you can improve productivity 12% with a sustainable workplace, then that company can either hire 12% fewer employees, or get that much more productivity. You can make that case, if your client is willing to make the investment.”

More and more clients are willing to make the investment, and even make sustainability a priority in their projects, says Nicolette Brandstedt, resource director at the Gensler office in Chicago. “Most of our clients are educated about sustainability, and we always bring it up to them on a project. But a lot of them bring it up to us.”

Clients raise the same issue with manufacturers. Nearly 85% of Steelcase client proposal requests have an environmental component today compared to just 40% two years ago. The questions are getting more sophisticated, too, as customers frequently ask about specific materials, or how particular chemicals are used.

100 Parts Per Million

To provide meaningful answers to sustainability questions, the C2C process analyzes a product's component materials down to the molecular level. “We do a deep dive into every material that goes

into a product, as well as the materials used in each production, assembly and shipping process,” says Jay Bolus, executive vice president of benchmarking and certification for MBDC.

Since few manufacturers are vertically integrated, tracking down the materials in every

“Environmental sustainability is more than a corporate responsibility. It inspires innovation and offers a unique opportunity to redefine quality.”

last nut and bolt of a complex product means researching multiple outside suppliers of raw materials and OEM parts.

In the case of Steelcase's Answer C2C furniture, that meant researching more than fifty different materials from twenty different suppliers. The job took five months to complete. “It's a huge undertaking and one of the most challenging aspects of materials assessment and the C2C certification process,” says Nahikian. “You have to be very committed to understanding the supply chain and production process for each material, and you also have to be prepared to address the issues you uncover.”

One of the biggest hurdles to achieving C2C certification comes from a seemingly innocuous material known as polyvinyl chloride, or PVC. Globally, more than 30 million tons of PVC are produced each year, with over 50% used in building construction. In the contract furniture industry, PVC coats wires in panel electrical systems, forms the edge band on laminate work surfaces, and is used in a broad range of other applications. It's lightweight, easily shaped, and relatively inexpensive. In recent years, though, PVC has become a source of global environmental

concern. As PVC production and use have grown, so too has a body of scientific evidence that points to the potential long-term human and environmental health dangers of the material. In response to the research, MBDC has determined that no PVC can be used in any C2C certified products.

Engineers at Steelcase found a non-PVC-coated wire for the Answer C2C workstation, and replaced PVC-banded laminate worksurfaces with wood worksurfaces. The switch to wood increases the price of the workstation slightly. But in addition to its sustainable properties, wood offers users both aesthetic and performance benefits.

Sustainable by Design, or by Legislation?

The growth in sustainable product design, and green product specification is, in part, being driven by legislation. "Many state and local governments are creating new requirements. The state of Massachusetts now asks for sustainability information in their purchasing process," says Bolus.

"It's happening in different ways around the country," says Bonda. "Cities and counties are starting to incorporate requirements for green buildings through the permitting process and in zoning requirements, or offering incentives such as property tax and sales tax rebates. It's certainly the trend to require and reward sustainable design and business practices."

But many designers aren't waiting for legislation. According to the 2006 Design Giants Survey by Interior Design magazine, specification of sustainable products is up 47% from just three years ago. Of the firms surveyed, 100% expect to specify even more green products in the coming year.

Yet before they can specify products, designers need to understand sustainability,

and that takes time and usually a do-it-yourself approach. "You have to wade through what's green-wash and what's the truth," says Brandstedt at Gensler. "You have to be educated, attend U.S. Green Building Council events, ask for white papers, independent studies, and third party certifications."

By adding criteria related to water stewardship, energy and social responsibility in the production process, C2C gives designers assurance that in addition to getting a sustainable product, they are getting it from an environmentally responsible company.

Holistic View of Sustainability

Newly designed sustainability standards help designers sort out sustainability claims and concerns. The LEED Green Building Rating System™ is perhaps the best known. Accepted as the green standard for the built environment, LEED is having a significant impact on design and real estate communities in North America, and increasingly, around the world.

C2C certification is an ideal complement to LEED. As LEED emphasizes the broader building process and the building itself, C2C emphasizes the material characteristics of products that compose the building, or occupy it.

"We pursue Cradle to Cradle certification of our products because it's a rigorous, holistic approach. It also best mirrors our environmental aspirations and business

philosophy," says Nahikian. Accordingly, Steelcase plans to have C2C solutions for all of its major systems products by the end of 2007. "Environmental sustainability is more than a corporate responsibility. It inspires innovation and offers a unique opportunity to redefine quality. We believe that's how design professionals look at it, too."

Difference Makers

“I think most designers consider their work to be a social contract with the user," says James Ludwig, director of design at Steelcase. "We'd all prefer to use sustainable products. But materials are the hard part. What's available? How do I know it's really a green product? And what are the materials that go into it?"

C2C is one certification process that helps designers understand the makeup of the products they specify, but Ludwig sees it as more. "It's a philosophical approach, a way of solving design problems. Regardless of the certification, it's about sustainable behavior, and that's the way we should approach things as designers."

Individuals drive change, of course. Bonda recalls a situation when her daughter repainted her home's interiors a few years ago. She told her daughter, "I want you to use low-VOC paint, to protect your lungs and the lungs of my grandkids." The house painter, however, argued that low-VOC paints were harder to work with and didn't cover as well as other paints. "That was debatable then, and it's certainly not true anymore," says Bonda. "But at the time I said, 'let's just say your painter's right. What's important here: your painter's happiness or your children's health?'"

From the paint on the living room walls to the interior furnishings of a multi-story building, individuals making sustainable choices can make a huge difference.

(continued on page 10)

How do you know if the product you selected is an environmentally sustainable one?

Staying up on Sustainability

“Green design is a discipline that needs to be learned like any other,” says Penny Bonda, editor of GreenZone on interiordesign.com. “Almost everyone who’s practicing sustainable design today is a self-learner.” James Ludwig, Steelcase’s director of design, agrees. “You have to be engaged, and keep learning.” Bonda and Ludwig gave us their recommendations for where to begin – or continue – learning about sustainability:

- **Environmental Building News** (“So much to recommend it; they don’t accept advertising so what they write isn’t influenced by advertisers.” -PB) www.buildinggreen.com
- **Greenpeace** (“You can disagree with politics and methods, but there is a wealth of information to form your own point of view.” -JL) www.greenpeace.org
- **GreenSpec Directory** (“An excellent resource.” -PB) www.buildinggreen.com
- **GreenSource: The Magazine of Sustainable Design** (“One of the benefits of USGBC membership.” -PB) www.usgbc.org
- **MBDC** (“Engage them in a project or talk materials with Jay Bolus over drinks.” -JL) www.mbdc.com
- **Penny Bonda’s “Green Zone” column** (“Great mix of discussing the issues responsibly, Q & A, and finding sustainable options.” -JL) www.interiordesign.net
- **Sierra Club** (“Seriously engages the issues in a critical, but constructive tone.” -JL) www.sierraclub.org

Also of note, Bonda published a new book just last month: *Sustainable Commercial Interiors*, by Penny Bonda and Katie Sosnowchik (Wiley). It offers guidance, case studies, lessons learned, and environmental insights, as well as a global view of sustainability.

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Waldner’s is a leader in office furniture and office space design and is a Steelcase partner in the northeast. www.waldners.com

ATTENTION TEACHERS AND STUDENTS:

JOIN US for a **CELF Learning with Leaders presentation on Product Life Cycle Analysis and Material Science**
From Steelcase and MBDC, with co-sponsor Waldner’s Business Environments

Where: **Allen-Stevenson School**
132 East 78th Street
New York, NY

When: **March 5, 2008**
6:30 – 8:00pm, pizza to follow

Space is limited and pre-registration is required
For up-to-date program information, visit www.celfoundation.org/CELFScheduleofEvents
To pre-register, contact patti@celfoundation.org

Visit the Steelcase product life cycle booth at the
CELF STUDENTS FOR A SUSTAINABLE FUTURE EXPO – APRIL 30, 2008

Co-Sponsored by Steelcase and Waldner’s Business Environments

Middle School Students Forge Partnerships with Corporate America

BY SCOTT BEALL

When I first began teaching middle school my friends thought I was crazy. Everyone knows middle school students are driven more by hormones than intellect. They're wild, rebellious, and working in a low accountability environment, waiting to "get serious" in high school--right? All arguably true, however over the years I have found gold in that roughness. In many areas the wild turbulence of nature can yield riches if creative thinking is applied. (Generating electrical energy from the ocean waves and tides comes to mind...).

Indeed, we are products of our habits of thinking. And of course, the longer one remains addicted to a habit, the more difficult it is to break. While this applies to many people's thinking regarding middle school students, it has even greater implications for our efforts to move society toward sustainable behaviors and actions.

I pursued the notion of tapping the creativity, energy and rebelliousness of middle school youth with the creation of DoRight Enterprises, a sustainability curriculum that empowers students as "expert sustainability consultants" to audit local businesses, schools, homes and faith based institutions. After successful audits of over 35 local businesses in Brewster, New York by 14-year-old students, I was convinced. However, a larger question loomed. Why stop at local mom and pop shops? Why not larger corporations?

In September 2007, I took this idea to Joe Laur, steward of the Society for Organizational Learning (SoL) Sustainability Consortium, (www.solsustainability.org). In short order, Madeline Skaller, 14, a ninth grader at Brewster High School, and I found ourselves delivering a plenary address to 50 corporate members at the SoL Sustainability Consortium members meeting at the 7th Generation headquarters in Burlington Vermont. Companies represented included Ford, Nissan, Coca Cola, Nike, Harley Davidson, and many more.

Initially, these adult corporate leaders may have thought that 14-year olds adding value to "serious" matters was "cute." Throughout our presentation and subsequent hour-long discussion, the cute factor evaporated and the room began to resonate with inspiration, curiosity, possibility, and ultimately, amazement. Peter Senge, MIT pioneer in systems thinking and founder of SoL, pushed the discussion further with pointed questions, and all left with new perspectives and a shift in their thinking. On reflection of the event, it was reported with excitement that the companies "really get it now--that the voice of youth is vital to their sustainability discussions." Corporate America has often sought out connections with young people to establish early brand loyalty and to further their understanding of youth markets. If this event is any indicator, the role for youth may be on the verge of expanding substantially.

To pursue this idea, I forged the concept of DoRight Corporate Advisory Teams (CATs), talented youth composed of groups of students who have completed the DoRight Enterprises curricular program. CATs focus on a creative, systems-based orientation that uniquely reflects their generation's sensibilities toward positive social and environmental change. This orientation makes them attractive resources for businesses and corporations. CATs seek to provide fresh energy and new perspectives to catalyze innovation and maximize creativity within R&D and management teams. Certainly, as critics may argue, 14-year olds do not have the knowledge depth and experience to compete with adult staffers, but their presence could change the chemistry of a working group. They offer something that adult staffers may lack, something that the great Zen master Suzuki Roshi refers to as "beginner's mind." Roshi said, "In the mind of the beginner there are many possibilities,

while in the mind of the expert there are few." After all, who is better positioned to break our addictions to old paradigms of thinking and the unsustainable behaviors they bring, than those who are less addicted to them?

The first pilot DoRight CAT is emerging with a group of 9th graders in Brewster, New York who have completed the DoRight Enterprises curriculum. To learn more about this program and DoRight Enterprises, please see Scott Beall's article online at www.celfoundation.org or visit www.dorightenterprises.org.

WHAT CAN INDIVIDUALS DO TO MAKE A DIFFERENCE?



Igniting Creative Energy Challenge

encourages teachers across North America to ask their students this question. Open to K-12 students, the Challenge is an educational competition designed to encourage students to learn more about energy and the environment.

FOR MORE INFORMATION VISIT:
www.ignitingcreativeenergy.org/

My CELF: A two-time CELF Summer Institute graduate shares her perspective *(continued from page 6)*

tive parts of the Institute were the presenters, the guest speakers, the activities and the opportunity to work with colleagues to design a plan for bringing Sustainability Education to our schools and our classrooms.

Participating in the CELF Institutes provided me with the vocabulary and greater understanding of SE such that I could communicate on the topic more effectively with my colleagues. My overall awareness, attitude and actions have changed as a result of my experiences with these programs. Sustainability may start with recycling and conserving the Earth's natural resources, but it is so much bigger. I learn how it includes Systems Thinking, how our every action has a direct effect on someone or something else and to achieve "sustainability," our actions must impact each other in a positive ways for everyone to thrive.

Some examples I am exploring or have already helped implement in the schools include:

- Waste-Free Snacks and Lunches — students use reusable containers and tin foil (which is recyclable), rather than plastic bags and wraps.
- The concept of there is NO "Away"—When you throw something "away" it goes somewhere, how long will it stay there? Is it bio-degradable, recyclable, reusable? Or will it last forever? How will it affect our land, water and air?
- The idea of "The Commons,"—water, air, land are resources we depend on and share and must preserve as a global community. (The Lorax, by Dr. Seuss is a good read aloud for introduction to and discussion about this concept)
- Character Education and Systems Thinking—Our actions and habits have

a direct effect on others and a direct impact on our community (whether it's the classroom, school, town, state or world) "We Are All Connected!"

- School Gardens—teaching children to plant, care for and harvest food, herbs and flowers to be used throughout the school, as decoration and cooking opportunities (Salad Day, Soup Festival, cooking classes, flowers/greens on the cafeteria tables).
- Science, Geography, Economic, Social Studies, Literacy, and Government are all areas I am looking to develop with a lens on Sustainability.

Children are very excited about the topic of sustainability and they can learn the vocabulary that goes with it. In their minds, they just want to make good choices to help the Earth and the future of their community and the planet as a whole. We as educators must teach them to think through the lens of sustainability.

Personally, on a small scale, I have started shopping with a reusable canvas bag when I go to the grocery store, and I buy in bulk to reduce the waste of individually packages products. I have discovered amazing local farm markets and orchards where I buy all my produce, which is incredibly fresh, supports local farmers and eliminates the impact on the environment of transportation and fuel consumption from the products sold in the grocery store. I have also changed many of my household light bulbs to Compact Florescent Lights (I'd suggest buying lower wattages for a softer light; the CFLs are much brighter than the old bulbs).

We all have busy lives and we live in a society where everything is disposable and convenient. Of course, it's a good habit to turn off the water while brushing your teeth, or flip off the light switch when you leave the room. What is difficult is to recognize and

change our habits of buying fruit from South America in the winter, or supplying our kids with pre-packaged lunches and individually wrapped snack packs as we hurry through our morning routines. The hardest part is for us as adults to learn as much as we can to model behaviors that will teach children to make choices that will have positive effects on their own health and that of the community, and will conserve the "Commons" and all of the Earth's precious resources.

There is still a long way to go, but I am proud of the efforts being made by individuals, organizations (such as CELF), and the educators who are bringing Sustainability Education to the most important resource any of us have—OUR CHILDREN!

The Children's Environmental Literacy Foundation (CELf) CALENDAR OF EVENTS—CELf PROGRAMS

LEARNING WITH LEADERS PROGRAM Third annual speaker series for students to explore a variety of topics with experts from across industry and government; FREE of charge and OPEN REGISTRATION to high school students and teachers; locations vary throughout the series to encourage participation from across the Tri-State region. Reservations are required to guarantee a space. For up-to-date scheduling information with locations and program descriptions please visit: www.celfoundation.org/CELFScheduleofEvents

Presenters and topics scheduled for the 2007-2008 school year include:

- **Dr. Riva Krut, Vice-President and Manager of NY Operations, Cameron-Cole**
November 4, 2007, Chappaqua Library, Chappaqua
Topic: *Green Companies: Cool Ideas for a Cool Planet*
- **ENERGY SYMPOSIUM**
February 6, 2008, Scarsdale High School – 7:00 pm
Jon Koch, Founder and Managing Director, US Renewables Group
Topic: *Investment in our Future: the Case for Renewable Energy*
Rosie Kerr, JUICE Inc.
Topic: *Alternative Energy 101*
Moderator: Robert Preston, Portfolio Manager, Merrill Lynch Global Private Client Group and Board, Northeast Sustainable Energy Association
- **Steelcase and Waldner's Business Solutions**
March 5, 2008 – 6:30 -8:00pm – Allen-Stevenson School, 132 East 78th St, NYC
Melissa Desota, Developer of Environmental Strategy and Programs
Topic: *Product Life Cycle Analysis and Material Sciences*
- **Green Building Tour** - location Jacob Burns Center new Media and Education Center (date TBA)
- **Pace Environmental Law School**
Topic: *Legally Speaking: Perspectives in Environmental Law*

CTAUN Teach UN Conference February 1, 2008, United Nations , New York

STUDENTS FOR A SUSTAINABLE FUTURE EXPO April 30, 2008 at Pace University, Pleasantville Campus

SUMMER INSTITUTE FOR SUSTAINABILITY EDUCATION Scarsdale Teachers Institute, July 21-25, 2008

“DESIGNED BY NATURE” PROFESSIONAL DEVELOPMENT WORKSHOP Manhattanville College, July 10-11, 2008

SUMMER INSTITUTE FOR SUSTAINABILITY EDUCATION Manhattanville College, July 14-18, 2008

For an up-to-date and complete listing of CELf programs and events, please visit www.celfoundation.org/CELFScheduleofEvents