ascd works

May 2006
Volume VIII, Issue 2

The Problem Log is published three times a year by PBLNet, an ASCD member network, to enable dialogue and the sharing of information, methods, and materials for Problem-Based Learning in K-16 classrooms.

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Publications of PBLNet do not necessarily reflect ASCD policy and are not official publications of the Illinois Mathematics and Science Academy®.
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Inside this Issue

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Network News

We hope you were able to attend the ASCD Annual Conference and Exhibit Show in Chicago in April. The theme was ***Constructing the Future, Challenging the Past: Excellence in Learning, Teaching, and Leadership.*** Please send us a brief summary of some of the sessions you attended so we may publish them in the *Problem Log*. Because the *Problem Log* is also on line, http://www2.imsa.edu/programs/pbln/, many readers will benefit from your comments and reflections. Thank you.

In this Issue...

A research article, **"Improving the Middle Years: Study of Innovative Processes and Structures in Schooling in the United States of America"** by David Renolds, is a short summary of a 26 page report for the Lindsay Thompson Fellowship. David was the coordinator of the cluster Middle Years Research and Development (MYRAD) project between 1999-2002 and investigated ground-breaking middle school processes and structures employed in U.S. schools.

John F. Belcaster and Veronica Leljedal Hetler reflected on their PBL experiences after attending a Harris Institute. They gave much thought to their teaching profession and the place PBL has in their classroom repertoire. They have seen the value of PBL as it facilitates understanding of content and they have seen the value of the application of this understanding in real life. They also saw the benefits from the collaboration and teamwork that the problem demands. Both John and Veronica agree that problem-based learning fosters a sense of ownership in their learners. Reflect on the PBL strategies you incorporate in your classroom in **Hot Topics!**

In the **Book Review** section, *Problem-Based Learning Case Studies, Experience and Practice* is evaluated. Teachers will find the discussions of everyday issues in PBL implementation both confirming and practical for their classroom situations.

Take a look at the **PBL Web Sites** and **Upcoming PBL Events**. If your web site and/or event are not listed, please email us, and we will include them in our next *Problem Log* issue.

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2006 ASCD Annual Conference and Exhibit Show Highlights

Books and All That Jazz was a special event that kicked off the 2006 ASCD conference Friday evening, March 31. It was hosted by the "Books Brothers" (think Belushi and Akroyd) who supplied the music, karaoke contests, and dancing. Participants had only to provide a new book for the Chicago Public Schools literacy programs as their ticket in the door. They in turn enjoyed the food, the fun, the music and the opportunity to visit their colleagues. It was also a showcase for the various Networks affiliated with ASCD, such as the PBL Network.

Research Article

Improving the Middle Years: A Study of Innovative Processes and Structures in Schooling in the United States of America

(a synopsis of a report for the 2002 Lindsay Thompson Fellowship)

Over the course of five weeks, I visited schools, conferences and institutions across America. The initial focus of the tour was on Problem-Based Learning.

For a study into the characteristics of delivery and particular benefits of PBL I searched for an institution that had experience in both classroom application and professional development. The Illinois Mathematics and Science Academy is one of only a few organizations with a specific brief to carry out these two roles. As an introduction to PBL, IMSA was the perfect starting point.

The most intensive professional development in PBL offered at IMSA operates during July and August. The Harris Institute covers processes of design and coaching. The Summer Sleuths Institute is a two-week course of study on design and coaching a group of middle school students. I was able to talk extensively with Debra Gerdes who is the Professional Development Coordinator for PBL at IMSA. She offered a wealth of PBL resources and assisted me immensely.

During this time I was able to sit in on classes to observe PBL and conduct interviews with teachers, both at IMSA and at three Chicago schools linked in partnership with IMSA. I was able to observe and speak to a number of teachers, including David Workman who is a science teacher who has used PBL problems in his courses. One such problem revolved around students working out the best design for retention ponds after severe flooding had occurred in the area.

David commented about why PBL is a more effective approach to teaching and learning than traditional methods. He emphasized the capacity that PBL offers for the teacher to step back from direct transmission of information to a more reflective role. "It *(PBL)* had probably more impact on the kind of teacher I became and what I thought about teaching and learning situations than any other single thing I ever did. My belief is that people who work hard to make problem-based learning activities work for students think more directly and harder about the most critical learning issues than anybody else I know. When doing a PBL activity, students are way more on their own in a sense that they are more directors of what they're going to do and how they'll do it. And, therefore, in order to make things happen effectively you can't be directive and lay out prescribed things for them to do – you have to give them a certain amount of freedom. My belief is that that's what happens anyhow in other teaching and learning situations and many times it is clouded by what the teacher's doing up there, directing what is going on. But what is really going on in the student's head is more like the kind of unstructured stuff that is happening in PBL." Workman defended PBL as an approach that brings about a depth of learning that is retained long after the lesson is over. "My belief is that there are a reasonably limited number of effective big ideas that can be efficiently or effectively learned by a student in a certain period of time. If you try to give them too much they don't get anything. My belief is that PBL provides a situation where it is more likely that the learning that takes place takes place on a deep enough level so that it is actually integrated into the student's concept of the way the world works, rather than just being learned on a surface level. Teachers and everybody else will tell us – *How did you learn something really well?* Almost never was it taught to them by someone telling them what they needed to know. Almost always it was them trying to work out some kind of a problem that was important enough to them to get them to work at it, think at it and understand it in order to make it work. That's how we learn well and that's what PBL asks them to do."

While at IMSA I observed PBL being used in the classroom. John Thompson's ecology class was working a PBL unit titled *Gray Wolves in Yellowstone National Park*. The problem scenario presented to students is broad and ill-structured: *You are members of the committee on the Environment and Natural Resources who are charged with the review of Minnesota House Bill #1891 that lays out a gray wolf management plan for the state. Should the bill be passed? What are the consequences?* The questions posed by this scenario are multi-layered and interdisciplinary. Potentially, a range of problems such as social and economic issues could be examined, but John's focus is on the disturbance to natural systems.

It (PBL) had probably more impact on the kind of teacher I became and what I thought about teaching and learning situations than any other single thing I ever did.

John emphasized the amount of behind-the-scenes preparation required for a unit to develop with depth and rigor. A forensic science unit he designed focused on a house fire with a body found inside. The problem revolved around having to identify the fictitious victim. Through contacts in the fire department, John was able to locate the scene of a house fire and with permission, he took students to examine the site. He sought assistance from others to provide evidence that would create elements of reality in the problem: a dentist provided dental records of the fictitious victim; fire fighters spoke to the students. Students responded enthusiastically with a sense that they were involved in real-life investigation and problem solving.

I visited Ellen Jo Ljung's Comm-Tech class at Glenbard West High School. The class runs as a semester long elective for grade 10-12 students. Students solve school and community problems using PBL and then present their solutions for assessment in an exhibition format. Thanks

to a generous donation from a local IT company, the class was piloting the use of palm pilots to plan and organize.

Previously, Ellen's class had received praise for their work as consultants for the DuPont Corporation and a major Chicago law firm regarding the problem of adolescent trespass of two toxic landfills in Ohio. She provided me with materials that supported the success of this unit including letters of appreciation from the law firm and a newspaper article.

Without exceptions, the staff was adamant that their program was succeeding in providing an engaging and academically enriching education for its students.

In a workshop held at the Center for Problem-Based Learning, teachers were encouraged to keep resources about the problem for students to research and to ensure that students were reflecting regularly about their own learning. Students should be encouraged to look for the bias in what they read and to seek multiple perspectives. Teachers should model the kind of metacognition they are aiming for in students with questions such as: *What are we up to now? What have I/we learned?*

My questions at the workshops were about the capacity PBL offers to engage students in critical thinking. In requiring students to gather information from a range of sources, I believe teachers cannot assume that students have the skills necessary to assess the quality of that information without explicit teaching and modeling. The consensus within the workshop was that the teaching of information literacy skills in the form of structured activities must be threaded through the PBL approach as part of the coaching process.

There exists a substantial body of qualitative research into the way that the brain functions that stands in defense of constructivist pedagogy such as PBL. Anecdotal data from the many experienced and qualified teachers at IMSA, added to the high levels of success experienced by its students, gives this organization confidence that inquiry-based education works.

Initial research into sites using PBL also led me to a school that has used it as a model for its entire curriculum. My visit to the Star Lane Center (SLC) in Casper, Wyoming, came at the end of my study tour and offered an insight into not just a different way of utilizing PBL but also the benefits derived from a small school organization. I was fortunate to have the support of Mardie Robinson, one of the founding SLC teachers. At SLC the PBL framework governs a fully integrated curriculum for the high school students it serves. Having drawn on PBL design training undertaken via the University of Southern Illinois, the curriculum at Star Lane follows very closely the pattern outlined in Torp and Sage's book *Problems as Possibilities*.

However, there are a number of adaptations that the teachers at SLC have made to evolve their version of PBL into a uniquely successful approach.

Designing units at SLC is a process that begins with an idea that is "timely, relevant and hopefully intriguing." The idea is broken down into the four subject areas to determine the challenges students will face in each discipline. Resources are then gathered, particularly those that can lend real-life authenticity to the problem. The experts often suggest the final product for the presentation that will be the culminating activity at the unit's end.

At this point the problem is written as a statement. The statement is open-ended and continuously generates questioning and investigation. An example is the unit on oil wells where the statement read: *The production of an existing oil well in Natrona County is not sufficient to warrant the installation of pumping equipment. Could hydraulic fracturing make this well more economically viable?* Other units have seen SLC students build links with local organizations and the community at large. They have been involved in activities such as gathering research on water quality in a local creek for the Bureau of Land Management and gathering data on mosquito infestation in Natrona County in collaboration with the Center for Disease Control. The teachers at SLC emphasize the need to design a problem that leads to deep investigation of the ideas embedded in it.

During the week I visited SLC the climate of the school struck me as friendly and respectful. Students listened to each other and to their teachers. On this morning one of the tutors, Crocker Hollis, read aloud a newspaper article and a discussion followed. Students broke up and moved to one of the rooms to join their tutor group. On the board, students up-dated charts outlining the *What We Know/ Need to Know* items about their problem. There were maps of regions and timelines of the periods being investigated posted on the walls. With help from their tutors, students reviewed their progress, reported information they had uncovered, and then reconsidered the overall problem in light of the new facts.

At the conclusion of my visit to Star Lane Center I asked staff where they thought the school should be developing. Margot: "I think our vision for the future is that we have to be really careful. We know that we aren't there yet, we know that we are constantly evolving, but I think we would die if we ever believed that we were there... if we ever believed that we had the answers and that we had it all figured out."

Crocker: "We need to create our own vast body of evidence that shows learning that is going on and that would allow us a few more steps removed from that traditional structure that binds us to the old beliefs."

Without exceptions, the staff was adamant that their program was succeeding in providing an engaging and academically enriching education for its students.

March 2006

This report presents the findings of a five-week study tour of educational institutions in America undertaken for the 2002 Lindsay Thompson Fellowship.
The key findings included:

- Engagement increases as students gain greater autonomy over their learning; when curriculum experiences are rich, relevant and involve active learning; and where there is an authentic purpose for learning.

- Student well being and learning are inseparable – There is a fundamental need for schools to foster "connectedness" between individual students and the school, teachers, their peers and the community at large.

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PBL Web sites:

http://pbl.cqu.edu.au

This website from Central Queensland University, Australia, includes a regular e-newsletter with tips and tricks as well as the latest news at CQU and abroad. It also maintains an e-board where questions and discussions related to PBL activities are posted as well as a separate FAQ section where more common questions about PBL are addressed. The online resources link has PBL examples, literature, and role playing simulations.

http://discovery.rp.edu.sg

The Center for Educational Development at Republic Polytechnic, Singapore, maintains a PBL web site for students, facilitators, and developers of PBL. The site contains research and links to PBL-related literature, general education sites, and discipline-specific issues as well as their newsletter "Reflections." They also link to their CED staff papers presented at international conferences and/or published in educational journals and books.

http://www.chemeng.mcmaster.ca/pbl/pbl.htm

McMaster University in Canada has been a world leader in the development and use of problem-based learning. The link "Problem-based Learning, Especially in the Context of Large Classes" offers suggestions for small group, self-directed PBL. Recommended books to help both students and teachers are listed and extensively reviewed.

Upcoming Event in Constructivism

Constructivist Theory for All Learners
The Association for Constructivist Teaching
Hilton Lisle/Naperville, Illinois
October 20 & 21, 2006
http://www.odu.edu/educ/act/conf.html

PBL Essay

Reflection on the PBL Experience

Education should equip students with both the skills and the mindset needed to recognize that the process of learning is thrilling, it is important, it is liberating, and, above all, it is life-long. To attain this overarching educational goal, an instructor must present educational content in a particular manner so that the content speaks, with special resonance, to the student's interests, concerns, and world. Problem-based learning, without question, achieves such an auspicious goal.

Problem-based learning, for example, allows student interest and, to some extent, student choice to inform classroom methods of instruction. Problem-based learning would allow a class, or working groups within a class, to conjure a "problem" from the social sciences that needs attention (*e.g.*, public safety from terror events or electoral voting or energy dependency) and then work towards creating a solution to the problem. Why not allow

Problem-based learning impels students to care about their education; problem-based learning fosters among our students a sense of ownership in their education.

students, as part of a cooperative working group, (a) to sluice-out the evidence to solve the problem; (b) to ask, and then re-ask, the proper questions to muster the solution's evidence; (c) to frame and agree upon a work plan, and then divide the plan's labor; and (d) to sharpen critical thinking skills?

The problem-based learning experience strives to enliven subject matter, entice student initiative, and, perhaps above all, motivate students as self-learners. The experience's methods of instruction forge connections to each student's own life as well as to the wide world in which we all live. Indeed, problem-based learning's participatory context underscores that it is possible to erase the great divide that too often separates (a) learning in school from learning for life and (b) learning in one discipline from learning in another.

Problem-based learning, for example, would allow students in an economics course both to study economic theory and then *apply* economic theory. After visiting small businesses in the community and hearing from folks who have created a business, students, as a means of truly authentic learning and assessment, could participate in a problem-based business incubator – brainstorming business ideas, writing a business plan, and "pitching" the plan to actual equity firms. And problem-based learning would also allow students to wear the hat of another discipline. Thus, problem-based learning allows social science students to borrow the tools, say, of mathematics, and conduct a mathematical analysis of disease in Africa, or a mathematical analysis of the Fourth Amendment, or a

mathematical analysis of "power."

In short, problem-based learning enables teachers to stand with students as fellow learners, albeit more experienced fellow travelers, on the road of learning. And a key goal of problem-based learning is to open a path of learning that entices students to learn how to learn; to blossom into independent, free, self-sufficient individuals who can think and live in our larger world. I have always believed that students are inherently curious and eager to learn; they are by nature interested, capable, and bright. I also believe that the classroom should be an open, cooperative, and, in some sense, democratic environment that fosters uninhibited thinking and participation. As John Holt, a great hero of mine, reminds us:

> children are by nature smart, energetic, curious, eager to learn, and good at learning; they do not need to be bribed and bullied to learn; they learn best when they are happy, active, involved, and interested in what they are doing; they learn least, or not at all, when they are bored, threatened, humiliated, frightened. (Knight, 1998, p. 104).

As I re-read Holt's words, and reflect upon my four-day immersion into problem-based learning, I can't help recall one of the great aphorisms of all time, one attributed to Lawrence Summers, the recent president of Harvard University. Summers reminds us that in the entire history of the world, nobody has ever washed a rental car. Why not? Because if you don't own it, why care for it? Problem-based learning impels students to care about their education; problem-based learning fosters among our students a sense of ownership in their education. And for that reason alone, problem-based learning ought to be incorporated into every teacher's repertoire.

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Another view from a Northside College Preparatory High School '*Harris Institute*' participant:

My initial introduction to problem-based learning, or PBL, occurred about a year ago when Tim Devine, Golden Apple Winner and Social Science Department Chair at Northside College Preparatory, visited my social science methods class at Northwestern. In this seminar, Tim divided the class into groups of four and introduced us to a scenario. We were advisors to Abraham Lincoln who just heard that hostile Southern forces had surrounded Fort Sumter. As advisors, we needed to decide how best to get supplies to Union troops and if force was necessary. In small groups, we developed charts of what we knew and what we needed to know to make a recommendation to the President. After our activity, Tim discussed the application and successes of PBL as observed at his school.

If we as teachers attending a summer workshop could forget our roles and become excited about the problem, we saw tremendous potential for our future students.

Now, as I look back on this class, I realize how much of a positive impact this initial experience and introduction to PBL had on me. First, as I began my job search, Northside was on my list of 'dream schools' and when they approached me about an available position I was thrilled as I went through the interview process and was later offered a chance to begin my teaching career at the school. Second, upon accepting the position, I was determined to learn more about problem-based learning so I could employ it within my classroom. At Tim's recommendation, I decided to register and attend the Harris Institute. I should therefore stress that my motivations to attend Harris were two-fold: to learn a method of instruction that would meet the learning needs of a unique population of gifted and talented students as well as to contribute to my own professional development. With these motivations in mind, I would like to reflect upon my Harris experience and how I hope to employ this experience in my future classrooms.

My first introduction to PBL in my methods class would certainly be considered a taste when compared to the feast of information and interaction with PBL provided at the Harris Institute. I believe that the first day's introduction to PBL as a student could not have been more effective. I was fortunate to have been able to attend Harris with a future colleague because, in addition to our written reflections at the end of the day, we were also able to reflect and discuss the day's activities on our drive back to the city each afternoon.

On the first day in particular, we continually stressed how engaged and engrossed we both became within the PBL to explore the future energy needs of Illinois. In discussing this, we realized how powerful and effective this method of teaching could be with our students. If we as teachers

attending a summer workshop could forget our roles and become excited about the problem, we saw tremendous potential for our future students. We also agreed that to understand the effectiveness of the method you have to have experienced it as a student first. Once one has assumed the role of a student, one is hooked and primed to learn how to develop a PBL unit and assume the role of a coach in a student-centered classroom versus the role we often play in a teacher-centered classroom.

The following days again were well-structured as we spent time developing "ill-structured" problems through a balance of personal reflection, group discussions, collective brainstorming and coached instruction. This time was certainly well-spent in terms of the potential gains my future students will have as a result.

Throughout the Harris Institute, I became amazed at the potential benefits students would receive when exposed to problem-based learning. First, as I consider the unique nature of students I encounter at Northside, I think that PBL will be a critically important pedagogy for gifted/talented students that will stretch them outside of their comfort zones with traditional teaching methods and challenge them to think independently and creatively. These are students who in many ways have mastered the rigors of a traditional classroom. They do their daily readings, memorize the requisite material and generally have an understanding of how to successfully perform on standard forms of assessment. PBL will help these students challenge their previous knowledge and look for increased understanding. PBL will also remove these students from the mistaken belief that there is always a 'right answer' and that the 'right answer' resides within the teacher, a textbook or an answer key.

Second, a well-developed and ill-structured problem will have embedded relevance and strike a chord with students. An effective problem will spark previous knowledge yet maintain a balance of unknowns and potential paths of discovery and inquiry. By embedding this relevance within the problem, students will not only have a vested interest in solving the problem, but the motivation to solve the problem will also be intrinsic.

A third benefit to students will be the Know/Need-to-Know, KNK, process and the research process. These two particular steps will help students develop their skills of inquiry and help them move from a novice to an expert in terms of their familiarity with the problem and associated content. This move from a novice to an expert is done as they immerse themselves in new information and increasingly know which follow-up questions to ask.

Students will also benefit from the collaboration and teamwork embedded and required for successful completion of a PBL. Students can divide up research tasks as well as have a focused audience that they can use to bounce off ideas. Finally, engaging in various forms of both oral and written communication throughout the PBL will help students refine these skills that have wide applications in their future educational and occupational endeavors.

While there are certainly many benefits for students who engage in PBL, there are also benefits to teachers who elect to incorporate PBL into their classrooms. First, I feel that various elements of the PBL approach will have wider implications in my teaching everyday. One example is certainly in the questioning necessary to effectively generate a KNK chart in the PBL. I especially enjoyed a breakout session on questioning that helped outline the various types of questions a teacher can ask while coaching students through the process.

The various types of questions are cognitive, metacognitive and epistemic. Cognitive questions deal with the understanding of knowledge while metacognitive questions deal with the process of acquiring that knowledge. Epistemic questions focus more on evaluating the nature of truth in the knowledge and the truth according to whom. By considering the follow-up questions in this way, I have multiple tools I can use to garner additional information from students as well as to encourage them to demonstrate their thinking and understanding verbally.

A second benefit for me as a teacher relates also to the questioning as I assume the role of a coach versus a judge. For example, by responding to students with follow-up questions they will realize that they can constantly build on their understanding of a subject. I would especially like to avoid the overused responses of "good," "great" or "exactly right." While these responses may be good for a student's self-esteem in these situations, it could have the opposite effect when the teacher responds with "hmmm" or simply calls on another student to respond. More specifically, positive or negative responses signify that the teacher is looking for a specific and "right" answer and that once that answer is shared, the thinking stops.

I as a teacher have benefited from the Harris Institute as I have the initial experience and many tools to begin developing PBL units in my classes. I am excited about assuming the role of a coach and letting my students take the driver's seat in their learning.

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Hot Topic

Each issue of ***The Problem Log*** features questions or topics of interest to PBL educators. We want to hear from you! Please respond to the following question in 75 words or less:

How do you incorporate PBL strategies into your everyday teaching repertoire?

Send your response and identifying information (name, email, grade level) to dgerdes@imsa.edu.
Readers' responses will be published in upcoming ***Problem Logs.***

Book Review

Schwartz, P., Mennin,S., & Webb,G.,Eds. (2001). *Problem-Based Learning Case Studies, Experience and Practice.* London: Kogan Page, Limited.

This book will be of value to educators whether they have been implementing PBL or are just intrigued by the philosophy and methods inherent in PBL. Case studies included in the book address many of the important issues that arise while discussing PBL. The concerns are organized into three areas: those related to administration, those related to teaching, and those related to students. The case studies are written by teachers from around the world and from a wide range of backgrounds and disciplines: medicine, dentistry, biomedical and natural sciences, architecture, engineering, and optometry. Their stories are honest, real, and typical.

Each case indicates the main issue being highlighted, short background information and questions for the reader to consider before he learns what actually happened in the account. The reader is asked to take on the role of the writer and decide not only what he thinks should be done in the particular circumstance but also predict what actually did happen. After reading what did happen, he is then asked to reflect on the solution and the implications it had on the original issue.

Further questions from the case reporter are raised to encourage additional discussion. Questions such as "How well was the situation handled?" "What lessons did the case reporter learn from the experience?" and "What lessons are there for others to learn?" are suggested. The authors want the readers to internalize the problem and interpret the solutions for their own particular circumstances. The final section to each case study is the case reporter's reflections and a brief listing of relevant references.

The book is organized, comprehensive, and practical. If an educator is a practitioner of PBL, this book will not only advance his understanding of PBL but also help him navigate some 'bumps in the road.' If a teacher is planning a PBL unit for the first time, this book will help him anticipate some of the problems and provide him with a cache of proven solutions to overcome the difficulties.

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Upcoming Review

In the next issue of the *Problem Log* we will be appraising Art Costa and Bena Kallick's *Habits of Mind: A Development Series*, an Association for Supervision and Curriculum Development publication.

Call For Articles

- "Problem Starters"
- Letters to the Editor
- Articles about
  - classroom experience
  - program profiles
  - PBL research

Send submissions and identifying information (name, address, phone, grade level, and context) to dgerdes@imsa.edu.

Problem Starters

These scenarios for PBL units might spark some ideas for your own classroom use.

Kindergarten: The students and teacher overhear another teacher remark that their classroom doesn't have many books. With their teacher they analyze the problem and offer solutions for book collection, organizing, and care. (Students will explore classification, graphing, alphabetizing, library and group skills.)

*For **4th grade social studies**: The Superintendent has asked the students for input on how the rapid population growth of their town will impact their schools, their neighborhoods and their community. (Students will explore class sizes, district budgets, infrastructures, environmental and business issues.)*

For **6th grade mathematics**: The students are asked by the president of a dairy company to design a new milk carton that is both appealing to the consumer and practical for shipping and displays. (The students will explore volume, surface area, perimeter, and circumference.)

*For **9th grade science**: The students are investigators from the Environmental Protection Agency asked to investigate the conditions that may be responsible for the high cancer rates in Livingston County Illinois. (Students will explore sources of carcinogens, geological and environmental aspects of the county, and the nature of cancer.)*

For **12th grade biology:** Due to the low population density of the area, a nearby community has been selected for a federal government P4 containment lab. Some of the citizens want advice from the students because they are concerned about what would happen if the germs somehow got out of the lab. When asked, the authorities would not say exactly what the lab would hold but indicated at one time it could hold any one of the following pathogens: anthrax, clostridium botulinum, or other pathogens selected by the teacher as per the curriculum needs.

Send your problem scenario and identifying information (name, phone, grade level, and school) to dgerdes@imsa.edu for publication in upcoming ***Problem Logs.***

The Problem Log

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Upcoming Events in PBL

PBL Seminar: PBL Colloquium
Illinois Mathematics and Science Academy
Aurora, Illinois
June 19, 2006
www.imsa.edu/programs/pbln/

Advanced PBL Design Institute
Illinois Mathematics and Science Academy
Aurora, Illinois
June 20-23, 2006
www.imsa.edu/programs/pbln/

PBL Design Institute
Illinois Mathematics and Science Academy
Aurora, Illinois
July 10-13, 2006
www.imsa.edu/programs/pbln/

PBL Coaching Institute
Illinois Mathematics and Science Academy
Aurora, Illinois
July 10-21, 2006
www.imsa.edu/programs/pbln/

International Conference PBL 2006 ABP
"Connecting Learning to the Real World"
Pontificia Catholic University of Peru
Lima, Peru
July 17-21, 2006.
http://www.pucp.edu.pe/eventos/congresos/pbl2006abp/i00intro.htm

2007 ASCD Annual Conference and Exhibit Show
"Valuing the Whole Child: Embracing the Global Vision"
Anaheim, CA
March 17-19, 2007
www.ascd.org