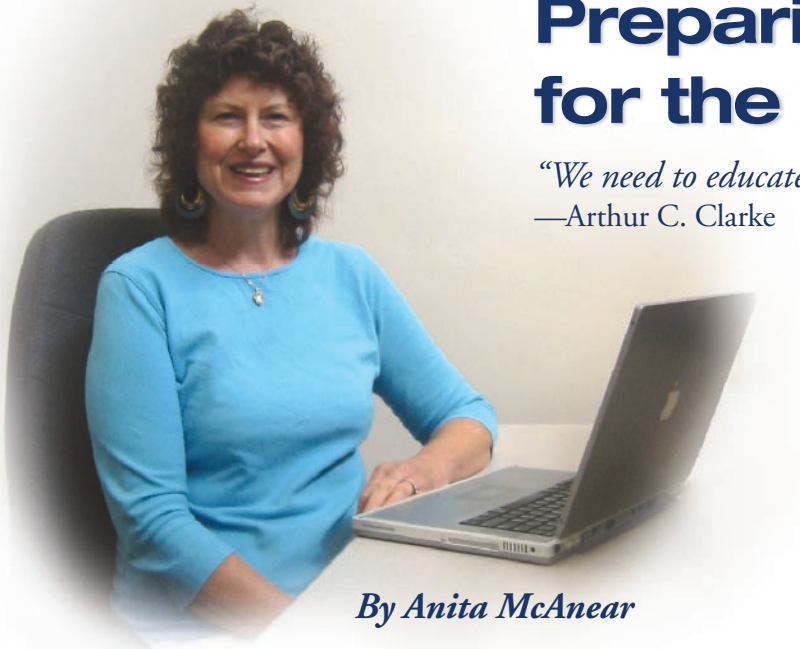


Preparing Students for the 21st Century

“We need to educate our children for their future, not our past.”
—Arthur C. Clarke



By Anita McAnear

Welcome to Volume 31 of *Learning & Leading with Technology (L&L)*.

Preparing students for their future was the goal of NCREL and the Metiri Group in their enGauge 21st Century Skills Project. This project, as described by lead researcher Cheryl Lemke (p. 6), proposes an impressive list of skills clustered in four areas:

- Digital-Age Literacy
- Effective Communication
- Inventive Thinking
- High Productivity

What is the relationship of NETS to the enGauge 21st Century Skills? The NETS encompass technology literacy, which is one of the literacies under Digital-Age Literacy. The NETS also emphasize the role of technology in productivity, communication, and problem solving, and thus connect to the other cluster areas.

Another look at implementing modern day skills for students is a fairly new partnership called Partnership for 21st Century Skills. This public-private organization, of which ISTE is a strategic partner, was formed in

2002 to “create a successful model of learning for this millennium that incorporates 21st century skills into our system of education.” (For more information about the partnership, visit www.21stcenturyskills.org.)

Meeting these 21st century skills will certainly require the use of technology in powerful ways, beyond word processing and accessing information on the Internet and even putting it all together in a PowerPoint presentation.

Lemke also identifies four research-backed pedagogical strategies to use in developing these skills in students:

- authenticity matters
- learning with understanding sticks
- prior knowledge counts
- active learning works

Modern Skills for Your Students

How does this issue rate in terms of ideas, strategies, and curricula for meeting the goal of helping students develop modern-day skills in technology use, communications, critical thinking, decision making, and problem solving?

Diane McGrath provides resources for curricula that have the potential to develop a number of these skills (p. 36). This month’s Project-Based Learning (PBL) article builds on two of the four pedagogical strategies: authenticity matters and active learning works. The telecomputing projects described have the potential to address all of the 21st century skills, a particular bonus for science teachers and those looking for interdisciplinary connections.

NASA also has many resources and learning opportunities to offer science teachers. Ruth Petersen, Bob Starr, and Susan Anderson discuss projects that use videoconferencing and Webcasts to develop and enhance scientific literacy (p. 14). Many of their offerings are PBL activities and also help students practice teaming and collaboration.

Glen Bull, Gina Bull, and Sara Kajder write about a fairly new Web tool for classroom use, Weblogs or blogs, which teachers—especially writing teachers—can use as a journaling tool (p. 32). The medium certainly encourages active learning and au-

thenticity and shows great promise as an environment for developing 21st century skills.

John Brown uses the data projector and word processing software to provide an authentic learning experience for students who need to grasp the notion of audience in their writing (p. 28). The immediacy provided by the projection system allows student writers to see their writing through the eyes of their readers. John's complete writing curriculum and setting creates an active learning environment where learning with understanding, a third research-backed pedagogical theory, can happen.

What can you do with one or two classroom computers to help students develop modern skills? One method makes use of the data projector or even better, an electronic whiteboard. Cindy Wilson, Susan Jones, and John Hail describe how with the use of one computer connected to a projection device, teachers can take advantage of teachable moments, model modern skills, and promote active learning (p. 42). Look for further ideas for the one-computer classroom in parts two and three of this series.

Denise Johnson provides resources to classroom teachers working on basic literacy, a skill still very much needed for the 21st century and necessary to all other learning (p. 22). For students to have high levels of reading comprehension and the ability to analyze and apply the information, they have to read—a lot. These Web sites will help teachers identify their students' reading levels and locate appropriate reading materials.

Educational software provides important tools for students to use in developing and practicing 21st century skills. Gail Lovely reviews software tools for students to create and pub-

lish materials beyond the basics of the word processor and incorporating digital images (p. 58). Students can minimally develop and practice their basic, visual, and technological literacy using these tools.

The Student Voices column always captures students as they are developing and practicing modern skills. Lauren Bigalow is no exception as she describes learning programs for developing Web pages, teaching other students her skills, and collaborating with her teachers and fellow student developers (p. 54).

Modern Skills for You

What are the modern skills for technology leaders? One set are the skills to be chief information officers (CIOs) for their districts or educational agencies. Don Hall starts a three-part series on practical management tools necessary for tech coordinators to manage the vision, performance, and operations of their departments in more strategic and effective ways (p. 46). Don has taken on the role of column editor of For Tech Leaders on behalf of ISTE's Special Interest Group for Technology Coordinators (SIGTC). We are pleased that he will also be one of our authors for the column. SIGTC members should look for the opportunity to discuss Don's articles. (For more information, visit <http://www.iste.org/sigtcl/>.)

Connections with Your Colleagues

It is such a pleasure to work with educators and students who are doing wonderful work with educational technology and making tremendous learning gains as professionals and as students. I get to vicariously experience their "aha" moments. When the budget forecasts and the political situation for education (and otherwise) gets me down, I can turn to my work to lighten my mood and give me hope for the future. I can read about Kimberley Ketterer, the ISTE member profiled in our new department (p. 62). For Kimberley, the budget cuts may mean her job, but all she can think about are the educational technology projects she has going with her teachers and students in the 4J School District in Eugene, Oregon.

NECC also provides a wonderful opportunity for me and other *L&L* staff to connect with ISTE members. We hope you will enjoy the photo essay on *L&L* at NECC on p. 10.

I would like to thank all the ISTE members at NECC who took time from their busy conference schedules to share their stories with *L&L*. I would also like to thank the staff—Jeff Bolkan, Kate Conley, Tamara Kidd, Jennifer Roland, and Elizabeth Scandalios—for bringing those stories and photographs to print.

I look forward to another great volume of *L&L*, and I hope you do also.

Correction

In M. D. Roblyer's article "Getting Our NETS Worth" (May 2003), two books were incorrectly attributed to the NETS Project. Larry Hannah is the correct editor of *NETS•S Curriculum Series—Multidisciplinary Units for Grades 3–5*. Susan O'Hara and Maureen McMahon are the correct editors of *NETS•S Curriculum Series—Multidisciplinary Units for Grades 6–8*. We apologize for the errors and any confusion they may have caused.