



performance and believe that schooling is relevant to them.

The second advance is our recent plunge into the Information Age. Simple factual knowledge is no longer enough to guarantee success in the working world. Now, in addition to the traditional 3 R's, our graduates are expected to be able to identify and solve problems, work well in small task-oriented groups, deal with large amounts of information, plan and carry out multiple tasks with limited supervision, assess the quality of their own work, and reflect on their experiences to improve the quality of future work. The PBL approach, when used properly, addresses the need to engage students in their learning and to provide opportunities for them to develop skills for a successful work life.

Teachers and students assume new roles when engaged in PBL. The teacher sometimes acts as a director, managing the logistics of a project such as arranging for a field trip or providing direct instruction in research skills. At other times, s/he becomes a facilitator,

helping students find resources or resolve problems that arise in group work. Students must be taught to work collaboratively, learning to take responsibility for task completion and engaging in the give-and-take required for effective group work. In addition, students must master 21st century skills such as literacy in technology, information, and media.

### How Does PBL Differ from Traditional Projects?

Good teachers have always encouraged their students to engage in projects that allow them to apply what they've learned. However, PBL classrooms place greater emphasis on projects and their place in daily instructional activities. In more traditional settings project assignments such as Science Fair or History Day are often viewed as fun add-ons—something students complete individually after their other work is done, often outside the school day. Or projects such as state reports and career notebooks are assigned using strict,



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predetermined guidelines. This leaves little or no room for student creativity in planning how they will approach the assignment or design their final project.

In a PBL activity, the project is a critical part of the instructional day, not something accomplished in the evening, on weekends, or during Friday afternoons. This does not mean that teachers abandon direct instruction. Most basic skills must be specifically taught before they can be applied in other settings. But it does mean that teachers intentionally identify those times when PBL activities can be used to help students apply the skills they've learned in a real-world context, and build them into the regular instructional day.

### Where Does Technology Fit In?

There are three potential roadblocks to successful design and implementation of PBL activities. First, the amount of work required is far greater than for lessons based solely on textbooks. Second, students must be able to work independently as they conduct in-depth

research, manage the information they have found, create products, and present their findings. Finally, PBL activities often include communicating with people off-site: other teachers and students, parents, community members, and area experts.

Various technologies address these challenges and make the process manageable for both teachers and students. Teachers may use application software and Web-based tools to design a project and deal with implementation logistics. The Internet provides access to a multitude of resources as well. Students use tools such as word processors, spreadsheets, databases, and multimedia presentation programs to work with information, while the Internet provides access to real-time data and a wealth of information. Finally, electronic communication via e-mail, videoconferencing, and online communities offers teachers and students opportunities to communicate with people outside the classroom. Here are some very helpful Web-based resources:

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# Today's Software

## Zoo Tycoon 2

**Publisher:** Microsoft Corp., 800-426-9400,

**www.microsoft.com**

**Emphasis:** business, ecology, animals, biology, science, logic, creativity

**Grades:** 2-12

**Format:** Windows (CD-ROM)

**Suggested price:** \$39.99



This powerful business/ecology simulation lets students build and manage their own zoos from the ground up. The new version features land-sculpting tools for making lakes and mountains, while other menus let kids choose from a variety of fences, buildings, and animals. The main improvement is the ability to zoom in for a first-person look at the zoo. Also new is the Zoo Guest mode that lets students walk around and enjoy the zoo from the perspective of a typical visitor. The controls are easier to use, and the entire look and feel of the zoo seems more real. Kids are in complete control of the zoo management and must care for animals, hire staff, and make sure customers are happy. There are still a few quirks in this version—a dromedary camel seemed perfectly happy to live underwater, for example. Usually, however, the most impressive aspects of Zoo Tycoon 2 are its realistic interactions between the animals and the environment. Still, there's no explicit violence to worry about—put a zebra in with a lion, you see a dust cloud and the zebra disappears. Zoo Tycoon 2 provides an excellent opportunity to have fun trying out management and ecosystems. Multiple zoo projects can be saved on the same computer, making this program classroom-friendly.

**CIRCLE 63 ON FREE INFORMATION CARD**

## Learn to Play Chess With Fritz & Chesster Part 2

**Publisher:** Viva Media, 877-848-6520,

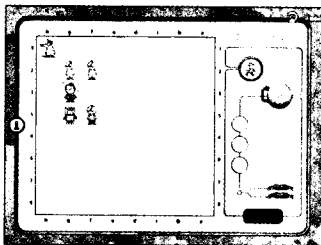
**www.viva-media.com**

**Emphasis:** chess, logic, math, deductive reasoning

**Grades:** 3-12

**Format:** Windows (CD-ROM)

**Suggested price:** \$29.99



In this follow-up program to the playful chess adventure/tutorial, Fritz and Bianca must once again outwit King Black to save the day. The King has kidnapped chess champ Chesster, so the kids must take on a series of chess challenges in order to gain his freedom. Play begins with a clever review of the chess pieces and moves, and is followed by a series of games designed to strengthen logical thinking skills and chess strategy. One game has players learning ways to get out of check, another coaches players on best opening moves. Middle-game tactics and end-game strategies are also explored. The format is engaging, and there is much content expanding on the first episode. The watercolor graphics are pleasant and nicely toned-down compared to the usual over-the-top

- *edutopia* ([www.glef.org](http://www.glef.org)): Less-experienced teachers may want to learn more about PBL before attempting to design a project on their own. This George Lucas Foundation website offers a free professional development module that explains the basics through readings, a PowerPoint presentation, and video clips. More experienced teachers may want to visit this site to review the project-based learning topic area for ideas and examples.

- *PBLnet.org* ([www.pblnet.org](http://www.pblnet.org)): Want to find ideas for projects and Web-based resources to use with students? This WestEd site is a good place to start. The primary focus is upper elementary and middle school, but teachers of other grade levels will also find helpful information here. Exemplary Projects spotlights several examples of PBL activities. The Design Challenge Database can be used to find ideas for projects by grade level, theme, activity format, project duration, and other criteria. The Design Resource Database offers access to online resources for PBL by resource type and grade level.

- *Sharing Best Practices & Strategies in School Reform* ([www.bobpearlman.org/BestPractices/PBL.htm](http://www.bobpearlman.org/BestPractices/PBL.htm)): Bob Pearlman, experienced educator and consultant has assembled a list of links to exemplary projects on this

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website. Be sure to check out the student work samples as well.

- *Project-Based Learning* (<http://pblchecklist.4teachers.org>): Concerned about managing and tracking activities? Visit this site, sponsored by the High Plains Regional Technology in Education Consortium, to review their free, Web-based PBL tools for teachers and students. Teachers can use Assign-A-Day, a Web-based calendar to create and monitor schedules. TrakStar allows teachers and students to organize annotated lists of online resources. ThinkTank is a research organizer for students in grades 3-8 and can be used in conjunction with NoteStar to keep research notes organized. CasaNotes offers templates for letters and forms teachers may need to create to send home. Use RubiStar, QuizStar, and PBL Checklists to create assessment tools. Web Worksheet Wizard makes it easy for teachers to create Web pages for classroom use. Student may use Project Poster for the same purpose.

Start small and expand your ideas as your comfort level increases. Many PBL activities originate in social studies or science and incorporate other content areas as appropriate. A good rule of thumb is to remember that the purpose of the activity is to cover a topic in depth, not to spread yourself and your stu-

dents too thin. Give PBL a try! You and your students will reap many benefits. ♦



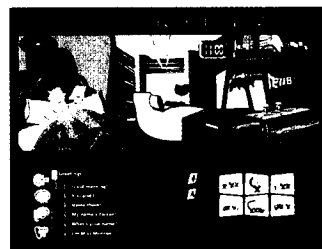
*A former Catholic-school teacher, Susan Brooks-Young spent 23 years as a teacher and administrator. She now works as a professional*

bells-and-whistles fare. Our one complaint? Sometimes the characters talk too much. This is the best children's chess program on the market.

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### EazySpeak Spanish

**Publisher:** Kutoka Interactive, 877-858-8652,  
[www.kutoka.com](http://www.kutoka.com)  
**Emphasis:** Spanish  
**Grades:** 6-12  
**Format:** Windows, Macintosh (CD-ROM)  
**Suggested price:** \$24.99



This clever immersion-style program teaches 800 Spanish vocabulary words and basic conversation skills. The action takes place in Doki, an edgy cartoon world that students must explore. In each location—such as a hospital, bar, supermarket, travel agency, etc.—there are activities to complete that require listening and speaking. In the hospital, students restore a body to its pre-skeletal state by correctly identifying requested body parts. In the bar, they'll practice ordering drinks (including wine); and at the supermarket, they'll do a little shopping. The format is engaging and non-linear. The latter quality means that it's easy to miss some things, but it's nice to be able to explore the program freely. Because of the all-Spanish immersion approach and some nonintuitive icons, navigation can be tricky, especially when working with the voice-recording feature. A tutorial video and help panel are available when kids get stuck. One big drawback is that there are no record-keeping or sign-in features. Still, this is a very well-done program, with a variety of interesting activities—even teens will want to play. A French version is also available.

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*consultant and author. Her latest book, 101 Best Web Sites for Principals—Second Edition (ISTE, 2005) was recently published. Susan invites your comments at [SJBrooks@aol.com](mailto:SJBrooks@aol.com).*