

ONE-COMPUTER CLASSROOMS

Technology Integration With Limited Resources

By Kavita Rao

How can classroom teachers with 1 or 2 computers and 20 or more students integrate technology and course content? This scenario poses real problems for teachers who would like to plan hands-on projects that give all students equal access to technology. With planning and some creativity, teachers can give students experiences that meet learning objectives even where there are few computers and many hands to share them.

By narrowly defining the purpose of each project, teachers can make strong pedagogical links between computer use and curricula. Whether the purpose is to learn basic computing skills, manipulate data, synthesize information, or make classroom presentations, objectives can be satisfied in ways that meet content standards. For more ideas on how to connect technology integration with standards-based learning objectives, refer to the National Educational Technology Standards guide available at cnets.iste.org.

Creatively grouping students is the key to technology use in a one- or two- computer classroom or in a lab where there are far fewer machines than students. Grouping students for computer-related projects is often a better instructional strategy than having one student on one computer. In groups, students communicate, collaborate, and support each other's learning experiences.

By turning one computer into a "learning station" that students can take turns using before and after class and during unstructured activity times, K-8 teachers can integrate technology use in content areas, even if all they have is one older computer. The examples that follow provide blueprints for simple activities that can be customized for different grade levels and units. For more suggestions, consult "finditonline" (page 22) for links to websites that offer classroom management strategies for one-computer classrooms.

Spreadsheets

Older computers often have "productivity packages" like ClarisWorks or Microsoft Office that include basic spreadsheet software. Students can take turns using the classroom computer learning station to access a shared spreadsheet, adding information on an ongoing basis.

One innovative approach for younger students is to use the spreadsheet to record information about books they have read. In addition to entering data, students can consult the spreadsheet to get ideas and learn what their classmates are reading. This simple activity gives students exposure to spreadsheet basics while developing writing skills and modeling ways in which information can be collected and shared. By teaching them to sort information or to add graphics, teachers can provide more complex assignments for older students.



Photo: Carole Asing

▷ In a one-computer classroom, these limited resources can be used as shared stations for classroom projects.

Digital Cameras

Another option is digital photography, which can be used to support a variety of content areas, including writing and reading literacy, and critical thinking. With one camera and some pre-planning, students can capture images, transfer them to a computer, and write about what they have photographed and why. Students can create their own books by scanning photos, sequencing them, and writing stories using PowerPoint, HyperStudio, or Microsoft Word. On newer computers, students can use movie-editing software (such as Apple's iMovie) to import digital pictures, sequence them, and record their narratives.

Digital photography can also support science learning. Photography is a powerful way of exploring the environment. Once the class has formulated "essential questions" surrounding themes studied in science, the students seek answers in the schoolyard or local community. Working in groups, students select their images and take turns using a classroom digital camera to record them. Once they download their photographs onto the computer and import them into a word processing or multimedia program, students can complete writing assignments that support science learning objectives. For more on the use of digital photography to promote science learning, consult the Picturing Science site at www.prel.org/picturingscience.

These are just a few of the ways in which teachers can use limited technology resources to support learning objectives. For more information on PREL workshops and courses that teach these and other strategies, contact Kavita Rao at raok@prel.org.

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