SCIENCE EDUCATION IN ALTERNATIVE PROGRAMS: BUILDING BRIDGES WITH TECHNOLOGY
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Science educators, using technology, can build bridges across the digital divide by helping alternative education students graduate and break the cycle of poverty. Alternative students often miss various segments of content. The results are poor grades and low scores on standardized tests. These students need resources for self-paced acquisition of knowledge, comprehension, and application levels of missing content. They also need resources for individualized drill and practice, as well as stimulation of higher level thinking skills. The Digital Bridge, URL http://typhoon.coedu.usf.edu/~bmoore/bridge.htm, is an on-line learning resource designed to address individual differences in student learning style and ability. The site offers short, self-paced units of content. It features objectives, key terms, tutorials of several types, links to related information, flashcards, and timed quizzes. The Digital Bridge helps students learn and allows teachers to focus on individual students or community-based class projects.

MINING THE INTERNET: INTEGRATING REAL-WORLD DATA AND INTERACTIVITY IN THE ONLINE CLASSROOM
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The internet does three things extremely well that can promote interactivity in the online classroom: communications, immediacy of data, and the internet's ability to archive data sets. These three taken together can produce opportunities for true interactivity between students and scientific theory and mathematics.

THE APPLICATION OF MAPLE V IN LEARNING ACTIVITIES FOR COURSES IN TRANSPORT PHENOMENA
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Courses on Transport Phenomena (Fluid Flow, Heat Transfer and Mass Transfer) are taught at the junior level in the engineering curricula. These courses require the use of mathematical-oriented skills, in particular the application of methods for solving differential equations, in the context of an applied problem. To aid in the learning process, we are developing a series of activities based on the Maple V R4 software package — a language for symbolic mathematical calculation. Each activity is based on a Maple V R4 worksheet, accompanied by a handout. The worksheet must be completed by the students as an extra-class activity. The handout is divided in two parts: i) a brief description of the problem, where the objective of the exercise is clearly defined; and ii) instructions on how to complete the worksheet, followed by questions that can only be answered after the worksheet has been successfully completed.

FLEXIBLE GENERATION OF ANIMATIONS USING ANIMAL
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ANIMAL is a tool for generating animations suitable for integration in lectures. Animations can be generated by visual editing using drag and drop, scripting using the built-in scripting language and generation by function calls in the ANIMAL API. ANIMAL offers the primitives point, polyline / polygon, text, arc and list element. All elements are adaptable to subtypes such as square, ellipse or circle segment. Animations consist of separate steps containing an arbitrary number of effects each. Current effects include show/hide, move, rotate and change color and can be given both offset and duration, measured in milliseconds or internal time units. Both scripting and API support inclusion of source/pseudo code with indentation, element and code highlighting, arrays including index pointers and relative object placement. Automating animation generation is easily accomplished. The resulting animation files seldom exceed 10kB. ANIMAL is implemented in Java and available at http://www.informatik.uni-siegen.de/~inf/Software/Animal/.