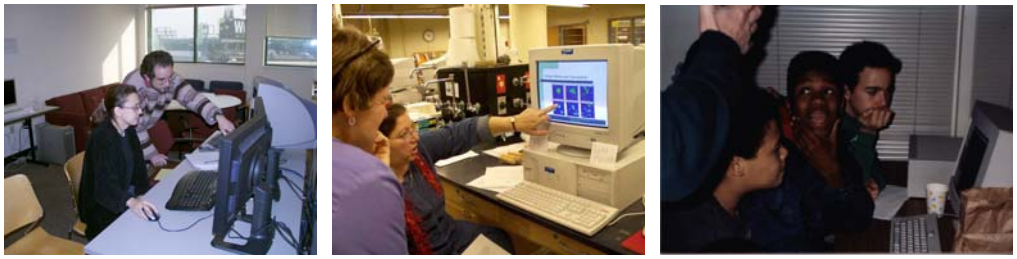
CELEST NUGGET FOR NSF

CELEST IS CREATING A NEW EDUCATIONAL CURRICULUM

CELEST is creating new curricula, based on recent advances in modeling how the brain learns to control behavior. Such curricula can excite and motivate students to learn about themselves, and begin to redress the imbalance between teaching physical sciences versus the teaching the science of biological intelligence. An understanding of how our brains work has been left out of current national science standards (such as the AAAS Benchmarks for Science Literacy) and state standards (such as the Massachusetts Curriculum Frameworks) have followed the national trend. The curriculum is designed with two goals in mind. First, develop curriculum materials that can be directly used to satisfy present curriculum requirements, but employ exciting new examples derived from models and data about mind and brain. Second, develop curriculum materials that can be used to excite students to study many areas in the present curriculum that may seem dry or unmotivated without them. We call the latter materials "stealth modules." Such modules may take only 10 - 20 minutes to be presented as part of a more traditional lesson plan. Or they may be presented in larger curriculum units, encompassing one or more classes, depending upon the curriculum material that is being augmented. Both sorts of modules can inspire students to learn more mathematics and science, and to enter previously unconsidered careers, including careers in teaching. In addition, many courses in CELEST departments are being revised or created to include new material about learning. Currently, five CELEST graduate courses are being used as curriculum incubators wherein all students participate in class projects to create modules with possible future connections to CELEST public curriculum offerings. Educational modules are developed in a layered manner, with the first layers requiring no previous background, while later layers introduce increasingly advanced materials in a self-contained way. CELEST hopes that its educational materials will be useful to many different people including the general public as well as middle school, high school, undergraduate, graduate and professional levels. In all cases, the curriculum modules are aligned with CELEST research thrusts; for example, four of the modules under development with CELEST graduate students are: 1) *Vision: The Pathway to the Mind / Brightness Contrast Module,* (2) *Watch Where You're Going! / Obstacle Avoidance Module,* (3) *Make Your Memory Stronger! / Sequence Learning Module,* (4) *How do we know what we know? / Recognition Module.* Standard documentation for printed curriculum includes Teacher Instructions, Background and Theory, Curriculum and Software User's Guide, and a Class Presentation.



CELEST curriculum activities: from development, through teachers, to students.