962-C1-1440 **Robert Heal*** (`heal@math.usu.edu`), Department of Mathematics and Statistics, Utah State University, Logan, Utah 84322, **Larry Cannon** (`cannonl@math.usu.edu`), Department of Mathematics and Statistics, Utah State University, Logan, Utah 84322, and **Richard Wellman** (`r-wellma@wcslc.edu`), Department of Mathematics, Westminster College, 1840 South 1300 East, Salt Lake City, Utah. *Engaging Students: A National Library of Web-based Interactive Manipulatives for Learning Mathematics.* Preliminary report.

The authors are co-principal investigators for a three-year National Science Foundation project to create a web-based National Library of Virtual Manipulatives for learning mathematics. Our goal is the creation of computer-based applets (written in Java) in which the interactivity requires engagement from student users in their discovery and experience of mathematics.

Many applets are based on physical manipulatives commonly in use in the schools (i.e. geoboards, tangrams, pattern blocks, fraction bars, etc.); others are concept manipulatives especially designed to teach or reinforce basic mathematical concepts. Our emphasis is on interactivity, so the learner controls the variable aspects of the manipulative and is not only free, but encouraged, to explore and discover important mathematical principles and relationships. Prototypes of work-in-progress can be seen on the web at www.matti.usu.edu.

Interactive math applets are being used for primary content material in distance education courses originating at USU and taught entirely over the Internet with on line testing making use of our Java mathematics editor. With new image compression technology and communication software, it is now possible to deliver web-based instruction that not only provides two-way audio and video but also gives students access to interactive applets, even giving them mouse control over the instructor's computer. (Received October 12, 2000)