

Best of the Internet

John LaMaster, IMI Staff, Fort Wayne

Participants will become aware of the wealth of free Internet resources available to them to engage students who are part of the “wired” generation. They will find resources which can be used for online or offline use. Through the Internet teachers can gain support by accessing lesson plans, virtual manipulatives, software tools, engaging applets, ISTEP resources, and opportunities to connect with other teachers.

We began our tour at the IMI Home Page, so participants could see that all links were provided at the Resources section at <http://www.indiana.edu/~iucme/resources/> should they wish to revisit them at a later time. Links to particular demonstrations were posted as “breadcrumbs” (akin to Hansel and Gretel) so that participants could easily find topics specifically addressed in the session. Then we visited each of the following websites:

- Indiana Department of Education: We briefly showed how to use the pull down menus at the Resources Page (<http://www.indianastandardsresources.org/>) to find *Curriculum Framework Classroom Activities* and *MarcoPolo Lesson Plans* to align classroom instruction with the standards for any grade levels K-12 and most subjects.
- NCTM Web Site (www.nctm.org, <http://my.nctm.org/eresources/>, and <http://standards.nctm.org/document/eexamples/>):
 - Understanding Distance, Speed, and Time Activity (grades 3-5)
Using this activity, we showed how the runners could be moving toward each other or have them chase each other, as well as how to modify the step size and the starting position. We set up two different scenarios and discussed such questions as: What is the pattern? Why does it work? Continuing the pattern, what scenario would lead to a “photo finish” where they meet at position 100? [One runner at 0, the other at 50]. This leads to the algebraic equation $2t = t + b$, where $b = 10, 20, 30, 34$, etc. Naturally, one might be curious what would happen if the ratio were 3:1, 4:1, 3:2, etc.
 - Other E-Examples

After showing the *Distance-Speed-Time* activity, the site containing the remaining 22 e-Examples was shown which are tied to the Principles and Standards document.

- Illuminations Web Site (<http://illuminations.nctm.org/>): Now with 95 online interactive activities for preK through Grade 12 plus 525 lesson plans, this site has something for everyone. Using the *Geometric Solids* activity, we colored the faces of a three-dimensional object and rotated it, as well as made it transparent. Using the *Chairs* activity, we showed how to tie a literature connection to mathematics, citing Marilyn Burns' *Spaghetti and Meatballs for All*. Again, this applet offered opportunities for pattern building, conjecturing, problem solving, and learner-centered discussion.
- ON-Math (http://my.nctm.org/eresources/toc_onmath.asp?journal_id=6): Aware that constraints prevent us from taking more time to see how teachers have used online interactive resources such as the ones shown in this session, participants were shown ON-Math, the Online Journal of School Mathematics to find articles by grade level. Membership in the NCTM permits even deeper web browsing in the NCTM archives.
- National Library of Virtual Manipulatives (<http://nlvm.usu.edu/en/nav/vlibrary.html>): Could it get any better? Indeed! The National Library of Virtual Manipulatives (NLVM) provides a wealth of “interactive, web-based virtual manipulatives or concept tutorials for K-12 addressing these content strands: numbers & operations, geometry, algebra, measurement, data analysis and probability.” The correspondence between the lattice method for multiplying numbers, an area representation, and the partial sums algorithm was demonstrated, which can help students understand why the algorithm works as well as the meaning of place value.
- The e-NLVM Site (<http://enlvm.usu.edu/ma/nav/doc/intro.jsp>): Spanning a wide number of topics, this companion site to NLVM provides lesson plans with the interactive tools. Participants played *Transformation Golf* which addressed the question of how points change their position when reflected or translated. Similarly, there is a billiards game on the Illuminations Site to help students explore patterns and functions.
- The Shodor Site (www.shodor.org): Used to show the law of large numbers.
- Wolfram Research Site (<http://demonstrations.wolfram.com/>): Used to slice a cone to make the conic sections.
- Math Forum (<http://mathforum.org/>): Used to show teacher resources and converse with teachers
- The IMI Forum (<http://www.indiana.edu/~iucme/elementary/login/>): Used to help teachers continue the conversations virtually.

Each participant received a handout that included an annotated list of the websites mentioned in the presentation.