

Research-based Microworlds for Developing Multiplicative Concepts (TIMA: Toys) - John Olive

The development of computer environments in which children could enact their operations with number was a critical component of our 4-year research project on Children's Construction of the Rational Numbers of Arithmetic, funded by the National Science Foundation. These Tools for Interactive Mathematical Activity (TIMA) microworlds continue to evolve as we refine our models of the children's mathematical constructions. The microworlds are authored as "stand-alone" applications using Object Logo. Using Object Logo permitted us to make refinements in the microworlds in response to the children's actions on a weekly basis. In this presentation I shall demonstrate the latest version of TIMA: Toys, an environment in which children can work with dynamic discrete objects (toys) to create multiple levels of composite units, and use these to construct and operate with multiplicative structures. (TIMA is available from William K. Bradford Co.)

"The Joy of Calculators in the math classroom" - Gwen Roberts

Calculators have the potential to transform the way mathematics is taught. Here is one teacher's story of how she has accomplished just that.

"The Internet and Beyond" - Annie Fetter & David Weksler

We will look into our crystal ball and share some thoughts on how the Internet will change the lives of teachers in the next five to ten years, what this might look like, and what role the Math Forum will play in this transformation. We will also tell some stories about the history of hypertext, from Vannevar Bush's vision in 1945, to Ted Nelson (Swarthmore '59) actually coining the phrase in the 1970's, to its present form. And all this in under 15 minutes! Amazing!

Commentary on the State of Technology in San Diego: Reflections Before & After the Meeting. Part 1: Before - 10% is Not Enough!

When my preliminary program book for NCTM/San Diego finally arrived, I did the exercise that I have now done for several years. I counted the number of sessions that had some reference to technology (computers, calculators, or video) in the title of the session. This year there were 93 (out of 1013) or about 9%. This number is down from last year's 103 out of 1062 or about 10%. What's been interesting is how consistent this percentage has been over the years. I'm sure there are also many sessions which share technology-based classroom ideas that are not referred to in the title. (I suspect most data analysis sessions would use either calculators or software for the analysis.) But even with those added on I doubt if it would make the total much more than 10%. So, why is it consistently 10%? Is there a quota on these presentations due to the limitation of available equipment? Or is it that only 1 out 10 teachers is really enthused by the use of the technology? Another question that comes to mind is: could 10% also reflect the level of technology use in the typical math classroom? I wonder.

Since I believe that learning to use technology effectively in the classroom is a powerful catalyst for reform, I think NCTM should showcase technology much more than they do - particularly at the annual meeting where over 20,000 educators will be convening, many (if not most) of them new to technology. What a great opportunity to inspire them with the power of these amazing tools! But as I have mentioned in previous newsletters, a conference goer who has little or no experience with technology can easily avoid any contact with these tools because there is no significant attempt by NCTM to promote them. Granted there is agreement in the NCTM community that technology should be used as a tool that illuminates the mathematics rather than being in center stage. But downplaying technology only works if teachers are already familiar with its use, which unfortunately is still not the case. Hopefully, there will be more opportunity for learning about effective ways to teach with technology at the Minneapolis meeting next year. 10% is not enough.

Where is the Internet?

Calculators and computers have been around a while, so there is no real fire around them. But what about the Internet? Everyone is talking about it and thinking about how it might benefit in math instruction. So you would think that the San Diego meeting would be a good place to find out more about it. You can, but you really have to look. There are only 7 sessions (less than 1%) devoted to Internet (see below for the list of sessions). That's the same number that there were in Boston! I suppose that NCTM didn't think it warranted more than 7 sessions. I think that is a major mistake. Hopefully, there will be more in Minneapolis.

- NCTM FINALLY HAS A DECENT HOME PAGE ON THE INTERNET! (<http://www.nctm.org>)
- You can find a detailed meeting schedule* for San Diego at NCTM's website.
- The Math Forum has organized the sessions in San Diego around themes. Check out: <http://forum.swarthmore.edu/mathed/nctm96>
- The Standards documents are at: <http://www.enc.org/oldocs>.

Geometer's Sketchpad

User Meeting

(Friday, April 26th, 6:00-8:00, San Diego Marriot - Torrey Rooms 1-3)

Refreshments will be served. For more information contact Key Curriculum Press at (800) 995-MATH

- Teachers teaching with Technology (T³) is a national training group for the use of calculators in the classroom. They will have a booth in San Diego. You can also visit them at their website: <http://www.ti.com/calc/docs/t3.htm>