

## Connections with mathematics and Programming Through Modeling, Maria Droujkova and Blacke Stacey

[http://www.scienceonline2010.com/index.php/wiki/Connections\\_with\\_mathematics\\_and\\_programming\\_through\\_modeling/](http://www.scienceonline2010.com/index.php/wiki/Connections_with_mathematics_and_programming_through_modeling/)

Wordpress Plugin for equations. LaTeX.

Word Equation Editor.

Greg Egan: Light Mill Applet <http://gregegan.customer.netspace.net.a/SCIENCE/LightMill/> ??? How a radiometer works. (Put a radiometer in a refrigerator and it spins the opposite way) Kinetic Theory of Gases, Einstein, Brownian Motion, 1905, Example is two-dimensions and simulated by a computer because it's easier,

Six people in the room.

Stacey: Weekly modeling problems on a computer. Moon going around the Earth to scale, built in 15 minutes in VPython. On edge. 43 Lines of code.

Can this program be replicated in Processing?

Droujkova: sense of power over code given to students is more appealing than flashy graphics,

VPython: Visual Python, plus framework for 3-D constructions,

Is the Python demo exportable? Do users need to install anything to run the simulation? Python Interpreter must be installed.

"Python is the new Basic."

Wikipedia Math help, Sandbox. Get PNG files of equations. URL can program image.

Replacemath.js – embedding math with replacemath.js, using LaTeX (Lay-Tech) code, puts equation in alt tag, which allows searching and text-to-speech.

<http://mathcache.appspot.com/static/docs.html>

sitmo: LaTeX equations editor, add to your website, nice visual tool, embeddable so others can use it.

Map: Theory of Change: How a network of people interested in mathematics in local areas can affect big change. Mind42.com

1. Executable mathematics: mathematics you interact with, an abacus, logarithmic ruler, rubics cube, mathematical objects become social objects that people can play with and interact with, Google Analytics, (other examples: Audio analyzer, Data Infering Program), GraphJam,
2. Psychology of mathematics: math anxieties, values of mathematical sophistication (precision, logical arguments), meta-cognitive skills (problem solving),

3. Mathematical Authoring: science fairs, competitions, there is nothing for students to demonstrate mathematics until graduate school, give kids an opportunity to build their own math objects
4. Humanistic Mathematics: make mathematics a spectator sport, demonstrate the beauty of mathematics in art, music, spectator sport, stories, youtube, illusions
5. Community Mathematics: compared to science mathematics has no online coverage, math 2.0, networks, social objects, (Android Math Games – social and a game, the Mathemagician)

[Mathefuture.wikispaces.com](http://Mathefuture.wikispaces.com)

Lifelong Kindergarten Group at MIT