PhET’s New Directions

While we’re continuing to advance our core programs in designing and researching physics simulations and activities, we’re also expanding into new disciplines, lower grade levels and new collaborations. We are actively developing sims in chemistry, and piloting programs in math, geology and biology. This fall we’ll begin a new effort focused on middle schoolers, including research, simulation development and activity design specifically for younger learners. Finally, we’re ramping up our collaboration efforts to reach more students and teachers. PhET is now listed in multiple teacher resource databases and used in several textbooks and online programs.

Words From Our Team....

Patricia Loeblein
Interview by Nina Zabolotnaya

The following is an interview with Patricia Loeblein, a teacher at Evergreen High School. Patricia works on our sims development teams, and among other roles, writes lessons for sims and attends conferences where she runs our teacher workshops. She’s been involved with PhET since summer 2004 and recently won the Amgen Award for Science and Teaching Excellence.

NZ: What got you involved in the first place?

PL: I heard Carl Wieman speak at an ACS workshop and then I saw an opportunity to get involved with the STEM group at CU by attending a STEM workshop in July of 2004.

NZ: How has PhET helped you in your teaching?

PL: PhET has enabled more discussion on the underlying models. PhET takes content from the text and relates it to students’ lives, so they are more engaged in their own learning. Students demonstrate a higher level of understanding through their writings, lab designs, and evaluations.

NZ: What’s the best thing PhET has to offer teachers and educators?

PL: I think the best things are the free well-written simulations that are based on ideas that have been identified to support learning goals for which teachers need better materials—as well as their example lessons.

NZ: What’s the best thing PhET has to offer students?

PL: Probably the best thing for students is that they can explore freely without worrying about breaking equipment, have open-ended activities that allow them to drive their own learning, experiment with fewer changing variables, and see things that they couldn’t see in regular labs or texts.

NZ: What direction do you see PhET moving in?

PL: I think PhET will grow into biology, chemistry, and earth science—and we will expand our efforts to help teachers of younger students meet national science standards. Also, I see us developing online workshops to help teachers who can’t attend a workshop learn how best to use sims.

Gifts as small as $10, $20, or $50 help develop, maintain and support our sims. We welcome partnering with schools and companies who believe in improving learning.

Contact Kathryn.Dessau@colorado.edu or click on Donate Now at our website.
PhET use is growing...

![Graph showing the growth of PhET use from 2004 to 2009]

...and is international.

**Top International Users**
- Canada
- United Kingdom
- Brazil
- Germany
- Australia
- Netherlands

**International 34%**

**USA 66%**

PhET’s Website Improvements:
- Easier and faster to use: more categories, better search tools.
- More teacher resources:
  - Teacher tips, learning goals, and over 450 editable teacher-contributed activities.
- **Coming soon**: entire website will be translatable.

Did You Know???

**Recent Research Publications:**

(1) *Factors promoting engaged exploration with computer simulations* (N.S. Podolefsky, K.K. Perkins, and W.K. Adams) submitted to *Physical Review Special Topics - Physics Education Research*

This paper focuses on qualitative data gathered by interviewing students while they use the Wave Interference simulation. We use this case study to explain how the sims can support student engagement and exploration similar to the way scientists explore phenomena.


Written for teachers by teachers, this article provides an overview of the different ways we’ve incorporated PhET sims into our courses, including lecture, individual or small group inquiry activities, homework, and lab. We highlight a few key ideas, including how to design activities which promote student questioning, encourage scientist-like exploration, and take advantage of the simulations’ unique learning environment.

**New Frontiers at PhET**

**Upcoming Workshops:**
- PhET Simulations - Fun Tools to Help Your Students
  - AAPT
  - July 18, 2010
- Chemistry Modeling using PhET Free Simulations
  - 21st Biennial Conference on Chemical Education
  - August 4, 2010
- Virtual School Symposium
  - November 2010
- NSTA Annual Conference
  - March 2011

**Conferences Attended:**
- NSTA Regional
  - Minneapolis, MN Oct. 2009
- Virtual Schools Symposium
  - Austin, TX Nov. 2009
- Colorado Science Conference
  - Denver, CO Nov. 2009
- NSTA Regional
  - Ft Lauderdale, FL Nov. 2009
- NSTA Regional
  - Phoenix, AZ Dec. 2009

**Do you want to give a PhET workshop locally?**

Check out materials on the Workshop page: [http://phet.colorado.edu/teacher_ideas/workshops.php](http://phet.colorado.edu/teacher_ideas/workshops.php)

**In Progress:**

*Coming Summer 2010:*
- Collision Lab
- Acids and Bases
- New Greenhouse

*Coming Fall 2010:*
- Capacitors
- Cell Membrane
- Titration Lab

*Coming 2011:*
- Density
- Balancing Reactions
- Electrostatic Force Lab
- Gene Machine II: The Gene Network
- Molecules and Light
- Periodic Table
- Photosynthesis
- and more...

Send your ideas to phethelp@colorado.edu.