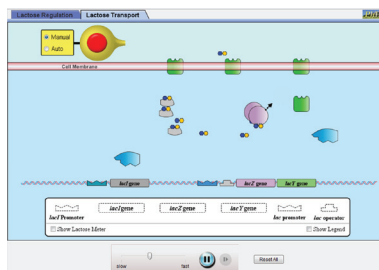




PhET's New Directions

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 at-

tending 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

Top 5 States	
(number of sessions per year)	
Texas	213,607
California	190,984
Colorado	173,755
Pennsylvania	165,725
New York	146,005

Over 10 million sims run from the website last year



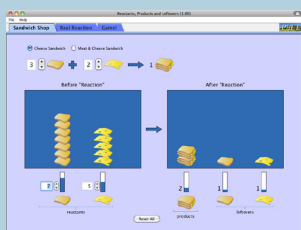
expand our efforts to help teachers of younger students meet national science standards. Also, I see us developing online workshops to help teachers who can't attend a workshop learn how best to use sims.

Want More 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.

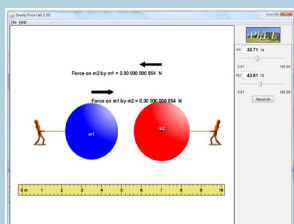
Contact Kathryn.Dessau@colorado.edu or click on [Donate Now](#) at our website.

Check Out Our New Simulations!



Gene Machine:

The Lac Operon
Reactants, Products, and Leftovers
Natural Selection
Gravity Force Lab
Radioactive Dating Game
Beta Decay
Calculus Grapher
Ramp II: Forces in 2D
Forces and Motion
Neuron
Improved CCK
Improved Moving Man



In Progress:

Coming Summer 2010:
Collision Lab
Acids and Bases
New Greenhouse

Coming Fall 2010:
Capacitors
Cell Membrane
Titration Lab

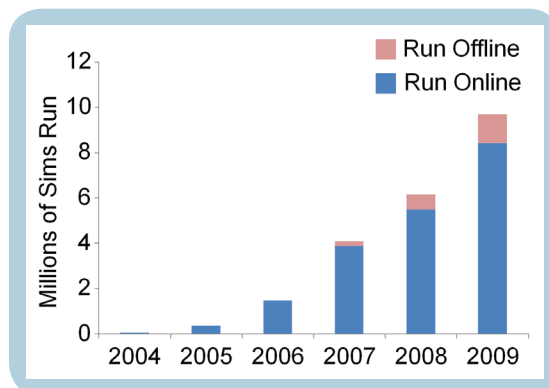
Coming 2011:
Density
Balancing Reactions
Electrostatic Force Lab
Gene Machine II:
The Gene Network
Molecules and Light
Periodic Table
Photosynthesis
and more...

Send your ideas to
phethelp@colorado.edu.

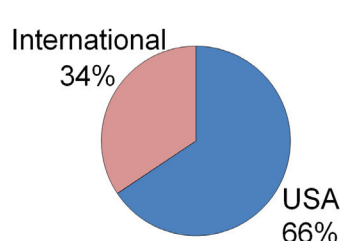


Did You Know???

PhET use is growing...



...and is international.



Top International Users

Canada
United Kingdom
Brazil
Germany
Australia
Netherlands

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.

New Frontiers at PhET

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.

(2) *Teaching Physics Using PhET Simulations* (C.E. Wieman, W.K. Adams, P. Loeblein, and K.K. Perkins) **The Physics Teacher**, April 2010

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.

What's New

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.