

Model ChemLab

An interactive lab simulation
for Windows® and the Mac® OS



Model Science Software™

Simulations for the Classroom, Lab and Internet

www.modelscience.com

"Model ChemLab is a visually enticing program that we use to give our students the opportunity to 'handle' objects and chemicals found in a chemistry lab. This saves us the large expense of sending out glassware and allows us to do lab activities with chemicals that are not able to be sent to the students. The students respond very well to the ease of use of the program, and they are very excited by the graphic interface."

— Jennifer Whiting, Chemistry Instructor
Florida Virtual School

"I would like to congratulate you for the very nice piece of work you have done. I am sure that this software will be a 'citation classic,' as we say, for very good scientific papers."

— Clement Lemaignan
Research Director, CEA France

"I love this program! Just amazing. I had the sensation that I was back in the lab. I also liked the use of text... one section for theory, one for procedures and another for observations... excellent!"

— Daniel Barboza Vieira,
First-year chemistry student
University of Sao Paulo

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Overview:

Whether your challenge is to introduce new computer technology to your curriculum, or bring the lab experience to on-line students or a need for an alternative to dangerous, expensive or environmentally hazardous labs, then Model ChemLab is the classroom proven solution for you.

Model ChemLab originated from academic work in computer simulation and software design at McMaster University. It has continued to be developed with extensive input from educators interested in the possible application of computer simulations for classroom and distance learning.

Model ChemLab is a unique product incorporating both an interactive simulation and a lab notebook workspace with separate areas for theory, procedures and student observations. Commonly used lab equipment and procedures are used to simulate the steps involved in performing an experiment. Users step-through the actual lab procedure while interacting with animated equipment in a way that is similar to the real lab experience.

Model ChemLab comes with a range of pre-designed lab experiments for general chemistry at the high school and college level. Users can expand upon the original lab set using ChemLab's Lab Wizard development tools, thus allowing for curriculum specific lab simulation development by educators. These user designed simulations combine both text based instructions and the simulation into a single distributable file.

Technical Requirements:

Windows® Technical Requirements:

- Windows® 95/98 (ME and SE included)/2000/NT/XP.

Mac® OS Users Technical Requirements:

- Mac® OS 9.0, OS X and above.

Distance Education:

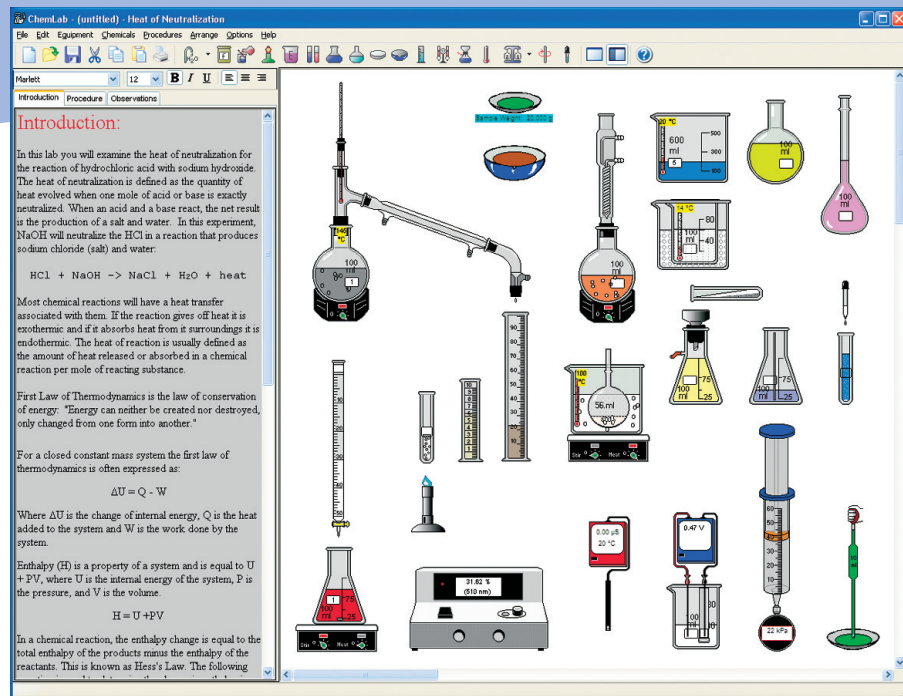
Model ChemLab is the leading choice of chemistry educators needing a lab component for their online courses. Using ChemLab a student can perform a lab simulation, saving their results and data in the ChemLab Lab file or author a lab report using any word processor. The ChemLab Lab file or lab report can then be sent to the instructor by e-mail or by submitting the file to the course web site.

Key features include:

- Small downloadable install file; Broadband installs usually take less than a minute.
- Compatible with e-learning systems; including BlackBoard® and WebCT®.
- Wide range of existing lab simulations.
- Lab Wizard tool to allow educators to create their own custom lab simulations.
- Technical Support from Model Science for new simulation development.
- Marketing support for courses developed using ChemLab; including listing on the Model Science Distance Education web page.
- Flexible licensing and distribution arrangements; including:
 - Online purchase of ChemLab by students from Model Science's Web store.
 - College bookstore resale of ChemLab CD to students.
 - School site license arrangements; with install file distributed through course Web site.

Model Science Web site:

- Support and product information.
- Download updates and new lab simulations.
- Post simulations at the Model Science Web site for sharing.
- Web store for secure online purchase of ChemLab software.
- Other online chemistry resources available.
- www.modelscience.com



Model ChemLab with student notebook area and animated lab graphics.

Model ChemLab design:

- Easy to use lab interface modeled on common lab procedures.
- Student lab notebook workspace area.
- Real-time animated interactive simulation engine.
- Lab Wizard tools for easy user created custom lab simulations.
- Support for plug-in lab simulation extensions.
- Integration with RasMol molecular viewer.
- Integrated Periodic Table application with Quiz.
- Available in English, Spanish and French.

Lab equipment:

- Beakers, Erlenmeyer and Florence flasks, test tubes, graduated cylinders, burets, eye dropper, pipets, watch glasses, filtering flask with buchner funnel, bunsen burner, hot plate and magnetic stirrer, stirring rods, evaporation dish, calorimeter, conductivity meter, potentiometer, spectrophotometer and others...
- Balances: centigram, electronic and high sensitivity balance.
- Distillation equipment setup: distillation flask with heating mantel, distillation head, condenser and distillation take-off.

Common lab procedures:

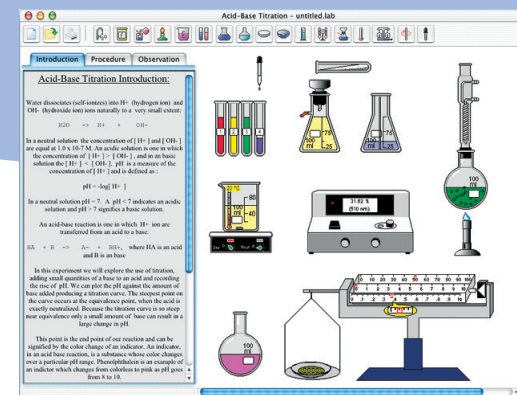
- Titration, decanting/pouring.
- Heating and hot/cold water baths.
- Temperature, weight, pH, conductivity, voltage, light absorbance, pressure and volume measurements.
- Plot titration curves and collect experimental data.

Large selection of pre-defined labs simulations:

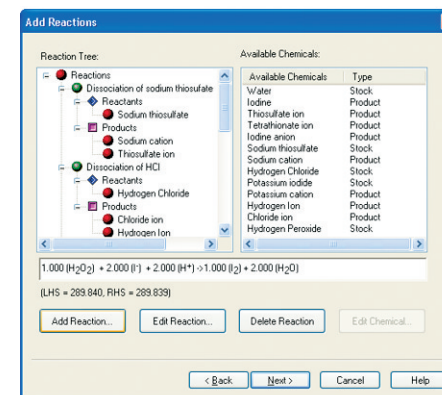
- Acid-base reactions, bond lab, cations reactions, electrochemistry, equilibrium, flame lab, fractional crystallization, fractional distillation, gas laws, gravimetric analysis, kinetics, organic chemistry, nuclear chemistry, redox reactions, stoichiometry, thermal chemistry, volumetric analysis, water quality, weak acid titration and many more..
- Additional simulations developed by third parties available from Model Science Web site.

Wide range of applications:

- Ideal for distance learning, demonstrations, lab run-throughs, pre-lab work, dangerous and environmentally hazardous, expensive, or lengthy labs.



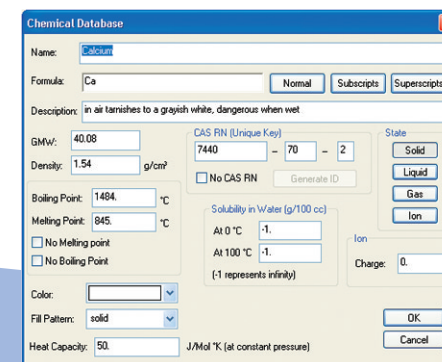
Model ChemLab for Mac OS X.



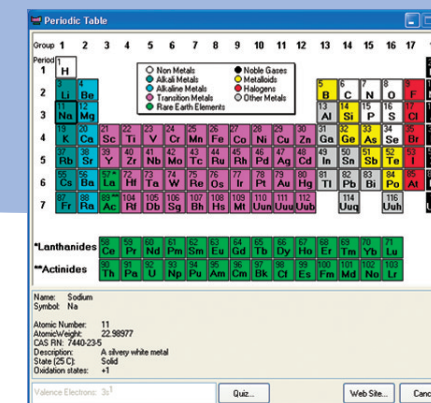
Lab Wizard allows users to create their own simulations.

Lab Wizards:

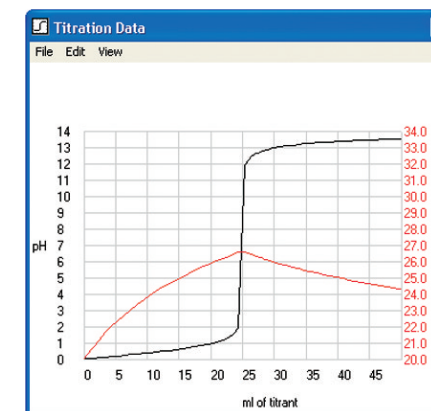
- Allow users to create customized lab simulations.
- Steps users through process of new lab creation
- Single distributable file.
- Expandable chemical database allows users to add new chemicals to ChemLab.



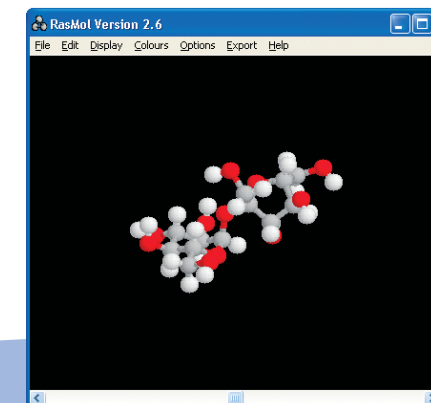
Lab Wizard allows users to add new chemicals to database.



Periodic Table with interactive quiz.



Titration curve with pH and temperature.



RasMol molecular viewer launched from ChemLab.