Student Programs / Teaching Resources

From the MSOE Center for BioMolecular Modeling

The MSOE Center for BioMolecular Modeling is an instructional materials development laboratory focused on the molecular biosciences. We develop student programs and teaching resources that bridge the gap between the research laboratory and the classroom.

SMART Teams - Students Modeling A Research Topic

SMART Teams are small groups of students and teachers that work closely with a local investigator mentor to develop an understanding of the mentor's research. They then explore the structure-function relationship of a protein important to that work and design and build a physical model of the protein that helps them explain the implications of the research. Teams present their models and work at local, regional or even national conferences.

http://cbm.msoe.edu/smartTeams

MAPS Teams - Modeling A Protein Story

In the MAPS program, small teams of students and teachers work together to explore a protein as they research, design and build a physical model that helps them tell their molecular story. A new featured protein is chosen each year for the teams to explore, covering protein structure-function through modeling activities.

http://cbm.msoe.edu/smartTeams/mapsTeams.php

Science Olympiad Protein Modeling Event

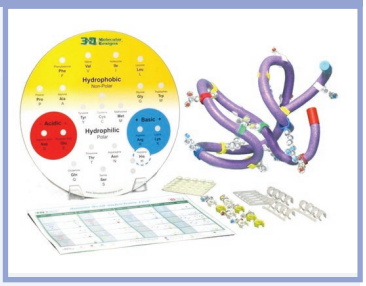
In the Science Olympiad Protein Modeling Event, students use computer visualization and online resources to guide them in constructing physical models of proteins and in understanding how the structure of the protein determines the function.

http://cbm.msoe.edu/scienceOlympiad

MSOE Model Lending Library

Borrow from our extensive collection of models for use in your classroom. All models are available for two weeks (including return shipping time) and include suggested classroom activities. You only pay for return shipping.

http://cbm.msoe.edu/lendingLibrary



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Professional Development Programs

From the MSOE Center for BioMolecular Modeling

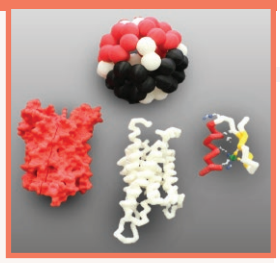
Our professional development programs connect the big ideas of chemistry and biology with molecular stories of current research – using physical models of proteins and other molecular structures to capture your students' interest.

Modeling the Molecular World

Modeling the Molecular World is a one-week professional development opportunity in which teachers explore the invisible molecular world using a variety of physical models and supporting digital resources. The workshop emphasizes the important role of modeling as both an authentic practice of science and as an active learning strategy for students. This workshop also prepares teachers to lead a SMART Team, a MAPS Team or to coach a Science Olympiad Protein Modeling Event.

http://cbm.msoe.edu/teacherWorkshops/mmw.php

3D Printing for the Bioscience Classroom



Advances in 3D Printing technology have made these amazing machines affordable for educators. But how do you get started? And what types of educational activities benefit the most from access to 3D printing technology?

These questions are covered in our intensive 3-day workshop, designed to get your students building unique and personalized physical models of proteins and molecular structures.

http://cbm.msoe.edu/teacherWorkshops/3d.php

The Science and Ethics of Genome Editing

The CBM is pleased to announce a new 2-year professional development experience (1 week per year) for high school science teachers focused on the Science and Ethics of Genome Editing.

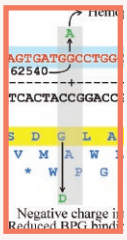
The first year's workshop will be hosted at the Milwaukee School of Engineering, where we will focus on basic concepts of classical Mendelian genetics and how this field of study has evolved into the field of molecular genetics.

The second year's workshop will be hosted at either UC Berkeley or MIT, where teachers will have the opportunity to interact with researchers actively involved in the development of this new gene editing technology.

http://cbm.msoe.edu/teacherWorkshops/ge.php

Additional Professional Development Workshops

The workshops listed below are not currently being offered, but check our website each fall for their return!



Genes, Genomes and Personalized Medicine

This one-week workshop goes beyond the Central Dogma of Molecular Biology (DNA→RNA→protein) to discuss genomic science and its implications for personalized health care.

http://cbm.msoe.edu/teacherWorkshops/ggpm.php

Drugs, Drug Targets and You

This one-week summer workshop will introduce high school teachers to a variety of new instructional tools addressing the molecular basis of drug action and the science of addiction.

http://cbm.msoe.edu/teacherWorkshops/ddty.php