MSOE Center for BioMolecular Modeling

The MSOE Center for BioMolecular Modeling is an instructional materials development laboratory focused on the molecular biosciences. We develop materials to bridge the gap between the research laboratory and the educational classroom. Working with researchers to develop molecular stories and with educators to create active learning tools, we invite students to join us in an exploration of the molecular world.

CREST: Connecting Researchers, Educators and Students

The CREST Program engages undergraduates in a meaningful relationship with researchers and educators. Students create a physical model of a protein being investigated in the lab and then create classroom instructional tools that tell the story of the protein.

http://cbm.msoe.edu/stupro/crest/

SMART Teams: Students Modeling a Research Topic

SMART Teams introduce students to the scientific community through an exploration of current research topics. Teams of high school students and their teacher work closely with a research lab to model a protein that is under investigation.

http://cbm.msoe.edu/stupro/smart/

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/stupro/so/

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/teachRes/library/
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Teachers FIRST: From Interesting Research to Scientific Teaching
Through our Teachers FIRST program, educators explore molecular stories based on current interesting research using active learning tools. As scientific teachers, educators will measure the impact of these materials on their teaching practice.

Teachers FIRST: 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 or to coach a Science Olympiad Protein modeling team.

http://cbm.msoe.edu/profDev/mmw1/

Teachers FIRST: Genes, Genomes and Personalized Medicine

This two-week summer workshop provides high school teachers with the background to go beyond the Central Dogma of Molecular Biology (DNA → RNA → protein) in their teaching to engage their students in meaningful discussions of genomic science and its implications for personalized health care. Teachers will also be exposed to the principles of scientific teaching, as they document the impact of the project’s instructional tools on their students’ learning.

http://cbm.msoe.edu/FIRST

Teachers FIRST: 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. The student-centered instructional materials are focused on the basic molecular mechanisms of neuronal signaling as well as physical models of the proteins that are targets of common prescription drugs and drugs of abuse.

http://cbm.msoe.edu/drugs