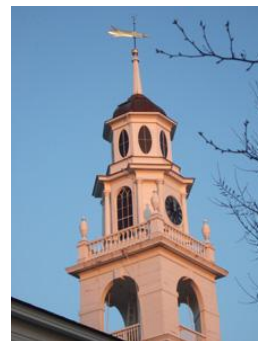


Chemistry Modeling Workshop

July 30 - August 10

First Parish UU Church, Kennebunk, ME 04043



Workshop Features

- Complete first semester high school chemistry curriculum.
- Intensive 80-hour, two-week course*.
- Workshop fees include home-style lunches.

Workshop leaders: Thomas Pfeiffer nine years modeling instruction experience in Physics and five years in Chemistry at Bellows Free Academy. Mike Waters, seven years modeling instruction in three subjects at Messalonskee High School. Director: Jamie Vesenka, Professor of Physics, UNE, 12 years modeling instruction experience.

Workshop Details

The Modeling approach to chemistry instruction develops the model of the atom from Democritus's model through Rutherford's. This workshop covers content from the first semester of high school chemistry. A detailed listing of workshop content is included in the workshop description at the end of this flyer. All sessions are M-F 8-5 p.m. Lodging is available for modest rates at local motels or for free with FPUU church members. Non-refundable checks made out to "FPUU Kennebunk" of \$1250 for the two-week workshop. *First week only option also available for \$650, enrollment is limited to 6. Application form and remittance information at:

<http://www.uukennebunk.org/featureStory-modelingworkshop2012.php>

Contact Information:

FPUU Kennebunk

P.O. Box 235

Kennebunk, Maine 04043

Electronic application submission: kbkuu@gwi.net

Please write "Chemistry Modeling Workshop" on the memo line. Graduate course credit from the University of Maine extra - please note out of state tuition is an additional premium. The school of each participant is strongly encouraged to set aside adequate No Child Left Behind (Title II) funds to support attendance, or laboratory equipment, instructional materials, and/or technology to be purchased at the discretion of the participant to implement the modeling instruction. For more information contact:

James Vesenka: jvesenka@gmail.com (cell: 207-749-7913)

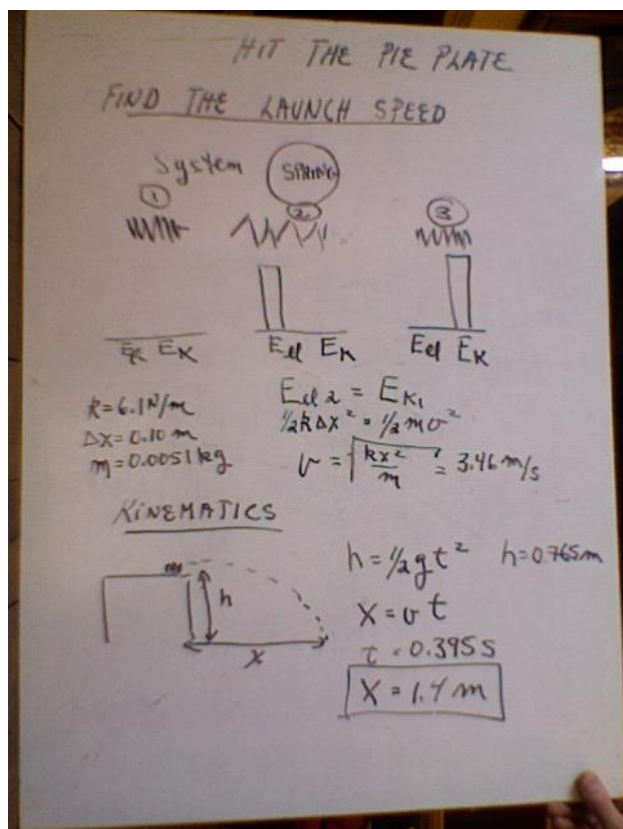
Goals

1. To train teachers in the use of a student-centered constructivist method of teaching based on basic scientific models, while simultaneously improving their content knowledge in chemistry.
2. To provide continued professional development for experienced instructors as well as mentoring of new instructors.
3. To integrate computer courseware effectively into the chemistry curriculum.
4. To establish electronic support and a learning community among participants.
5. To help participants to make better use of national resources for chemistry education.
6. To strengthen local institutional support for participants as school leaders in disseminating standards-based reform in science education.

Housing is provided for free in local church members homes. Alternatively participants can arrange their own housing at local inns and motels by going to the following link:

<http://www.visitthekennebunks.com/>

N.B.: Free housing deadline is June 1. Contact Gwen Vesenska at gvesenka@yahoo.com



Above: Typical summer day in Kennebunk - projectile motion activity.

Left: Typical whiteboard describing energy conservation activity.

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The Modeling Workshop:

The workshop on chemistry teaching thoroughly address all aspects of middle & high school teaching, including the integration of teaching methods with course content for chemistry classrooms. Special emphasis will be placed on modeling conceptual development and integrating technology appropriate for the middle and high school.

Participants will be introduced to the *Modeling Method* as a systematic approach to the design of curriculum and instruction. Participants will be instructed on computer hardware and software selection, techniques for laboratory data collection and analysis, and internet use to help them become experts on the best uses of technology in education.

Participants will be given techniques to deliver in-service training and help in strengthening local teacher alliances.

Workshop Description

Content from first semester high school chemistry or introductory middle school physical science is organized around seven basic models to simplify structural coherence:

1. Physical properties of Matter
2. Energy and States of Matter I: Particles in Motion
3. Energy and States of Matter II: Sticky Particles
4. Describing Substances
5. Counting Particles Too Small to See
6. Particles With Internal Structure
7. Chemical Equations
8. Stoichiometry

New modelers are supplied with course materials and will work through activities alternately in the roles of student or teacher.

How to find us and what to bring?

Directions to the workshop are at: www.uukennebunk.org/howtofindus.html . You are strongly encouraged to bring laptop computers to the workshop to familiarize yourself with the use of the technology, including Vernier sensors. White boards play an important role in helping students to communicate ideas and are used extensively.

There are several good local restaurants within walking distance from the workshop. August is warm and humid on coastal southern Maine. It rains periodically too, so have a raincoat or umbrella handy. Though we put in 8 hour days, evenings are long so there is still beach time, and less crowded too. Kennebunk beach is four miles away and an easy bike ride. Bikes can be rented locally at a number of locations.

The Modeling Cycle

Participant activities are organized into modeling cycles that engage participants systematically in all aspects of modeling. Each cycle has two phases.

(1) Model development

A cycle begins with a demonstration and a discussion to establish a common contextual understanding of terminology and goals. The leader is sensitive to participant's initial knowledge state and builds on it, instead of treating their minds as empty vessels.

In groups of three, participants design and perform their own experiments and prepare whiteboards for presentation of results and conclusion. Participant's reports articulate and evaluate a model for making sense of experimental results, and submit to questions and critique from all other participants.

(2) Model deployment

Participants are given a variety of problems and situation to analyze using the model. They prepare to present and defend their arguments and conclusions. Leader guides participants unobtrusively through each modeling cycle, with an eye to improving the quality of student discourse by insisting on accurate use of scientific terms, on clarity and cogency of expressed ideas and arguments.

PROVISO: Experience shows that a 3-week minimum is needed by most high school science teachers to transform their teaching to modeling instruction. Participants with prior modeling training find the workshop reinvigorates their teaching. Those without modeling training will recognize this is a first step in long-term professional development.

FPUU Modeling Workshop Application (word document, if possible please type in information and send electronically using the form supplied on the website.)

Name: _____ Address: _____

School Name: _____ Address: _____

Home Phone: _____ e-mail: _____

School Phone: _____ e-mail: _____

If you would like a letter of support to be mailed to your professional development supervisor (department chair, principal, etc.) please provide contact information:

Demographic information (optional)

School setting (rural, urban, etc.) _____

Number of students (total): _____ Science: _____

Student demographics (%female, minority, etc.): _____

Years teaching (total): _____ Teaching Science: _____

Levels of science taught (college prep, AP, etc.): _____

Last 5 years of science professional development (year, hours, topic, location):
