



ENHANCING THE QUALITY OF HIGH SCHOOL SCIENCE EDUCATION IN WISCONSIN

Climate Science Concepts Fit Your Classroom

The Wisconsin Initiative for Science Literacy is pleased to announce another series of workshops for high school science teachers. WISL aims to enrich excellence in classroom activities and is offering two workshops on Climate Science in the Fall of 2018. Other topics will be addressed in future workshops.

We invite you to [apply right away](#) as space is limited. We encourage sharing this announcement and application form with fellow teachers.

WHEN:

Workshop A

Friday-Saturday, September 21-22, 2018

Friday Schedule: Begins at 8:30 a.m., will include evening activities.

Saturday Schedule: 8:30 a.m. to 4 p.m.

All participants will be housed on campus.

Workshop B

Friday-Saturday, October 26-27, 2018

Friday Schedule: Begins at 8:30 a.m., will include evening activities.

Saturday Schedule: 8:30 a.m. to 4 p.m.

All participants will be housed on campus.

WHERE:

Department of Chemistry, University of Wisconsin-Madison

LODGING & MEALS:

Complimentary on-campus rooms will be provided for your overnight stay, as well as five meals (breakfast, lunch, and dinner on Friday, breakfast and lunch on Saturday).

INSTRUCTORS:

Dr. Bassam Shakhshiri, Dr. Jerry Bell, Mr. Michael Boll and other WISL staff

ELIGIBILITY:

Wisconsin high school science teachers at public and private schools

ENROLLMENT:

15 teachers in each workshop

DEADLINE:

All applications are due to scifun@chem.wisc.edu

by Noon on Thursday, August 23, 2018

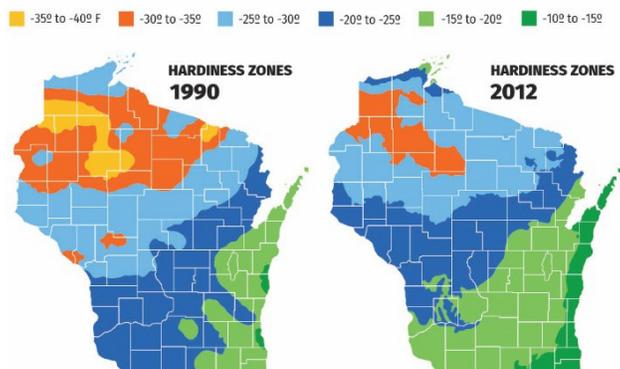
[\(DOWNLOAD APPLICATION FORM HERE\)](#)

NOTIFICATION:

Thursday, August 30, 2018

REIMBURSEMENT OF TRANSPORTATION COST AVAILABLE UPON REQUEST

PLANT HARDINESS ZONES



Climate Science Concepts Fit Your Classroom

Hands-on workshops for high school science teachers

Workshop A: Friday-Saturday, September 21-22, 2018

Workshop B: Friday-Saturday, October 26-27, 2018

The Earth's climate is changing, and we are responsible.

It is important for all citizens to understand the changes—how our activities cause them, and the responsibility each of us has to consider ways we might act to help lessen the disruption. This understanding can start with your students, in your classroom. You can use climate science concepts as a context for the topics already in your curriculum. You can use the concepts in your curriculum as a context for climate science topics. It is a win-win proposition, and the foundation for these workshops.

All change, including climate change, involves energy. Energy is conserved—the direction and extent of spontaneous change are determined by the redistribution (or spread) of energy resulting from this change. Entropy is a measure of the spread of energy among the parts of a system; entropy increases in spontaneous change. The two Workshops break down roughly along these lines with an emphasis on energy in Workshop A and on entropy in Workshop B. Although relatively independent of one another, the Workshops are complementary and reinforcing.

The concepts we explore through the activities in Workshop A include different forms of energy, the energy in light (electromagnetic radiation), the effects of different sources and wavelengths of light in regulating Earth's climate, molecular structure and the atmospheric greenhouse effect (possible misunderstandings), thermal energy (atomic-molecular motion), heat capacity, rates of change, isotopes in paleoclimatology, and atmospheric stoichiometry.

In Workshop B we introduce an atomic-molecular level model for entropy that is more intuitive and visual than the traditional approach, and likely more understandable than what may be in your textbooks. Entropy is used to understand the direction of change, including energy transfer, colligative properties (osmosis and phase change), solubilities, and acids and bases (especially aqueous carbon dioxide solutions, including the oceans).

The concepts are developed by analysis of hands-on activities (and a few demonstrations) and/or analysis of data (especially graphical data) from NASA, NOAA, and peer-reviewed journal articles. Most of these activities can be adopted or adapted for your classrooms, while a few are designed to help deepen and expand your own knowledge of the concepts underpinning climate science and climate change.

All the written materials and slide presentations will be provided in electronic form for you to use. Throughout the Workshops, we will discuss ways these might be incorporated in familiar curricula, perhaps with a climate science twist. We will also engage in discussion that goes beyond course content to explore why incorporating these concepts in your classroom and to community outreach is so important, and your vital role as an exemplar empowered by understanding.

Questions and all correspondence should be directed to scifun@chem.wisc.edu

