SCIENCE AND TECHNOLOGY CONFERENCE 2005

7:30 am – 3:30 pm Saturday, November 19, 2005

Chapman University Science Center
Orange, California

- Focus on **Inquiry- Assessment - Content Standards**
- Theme - "Teaching Standards Through Environmental Science"
- Workshops Aligned to the State Standards
- Hands-on Activities
- Classroom Materials
- Keynote Speaker
- Exhibitors of the Latest Science Supplies & Textbooks
- Lunch & Hospitality
- Door Prizes
- Free OCSEA Membership with Conference Registration

This one-day conference will emphasize Inquiry- Assessment - Content Standards. Workshops will cover Life Science, Earth Science, Physical Science, and Inquiry Methods. You will receive information and

instructional materials that you can use effectively in your classroom today.

Click Here to Register

Please check the OCSEA website for conference updates

www.ocscience.org

Cost: $35.00 General Registration
$40.00 Registration Day of Conference
$20.00 Student Teachers / Students

Please check with your school administration for information about Title 2 / SIP funds to support your attendance at the Conference.

Attendees will receive a certificate for six hours of California Professional Growth Hours.

Chapman University College is offering one professional development unit (one semester credit) to teachers who attend the conference and successfully complete the required follow-up assignments. The cost of this program is $40 in addition to the conference registration fee, and is payable on the day of the conference. More information will be available at registration on the day of the conference.

Sponsored by the Orange County Science Education Association and the
California Science Teachers Association

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Program Summary

Time	Activity
7:30 – 8:30	Registration Vendors Continental Breakfast

8:30 – 9:30	Workshop Session I
9:40 – 10:40	Workshop Session II
10:45 – 11:45	Plenary Irvine Lecture Hall
11:45 – Noon	Vendors
Noon – 1:00	Lunch Argyros Forum
1:00 – 2:00	Workshop Session III
2:05 – 3:05	Workshop Session IV
3:10 – 3:30	Wrap-up / Awards / Drawing Irvine Lecture Hall

Thank you to the vendors and non-profit organizations represented at this year's conference.

Acorn Naturalists
Algaita Marine Research Foundation
Aquarium of the Pacific
Back Bay Science Center
CDO Science
CREEC
Delta Education
Discovery Science Center
Environmental Nature Center

FSEA
Inside the Outdoors
Outdoor Education Center
Planetary Science Institute
Sea & Sage Audubon
Usborne Books
Wonders of Wildlife

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Plenary Session - Irvine Lecture Hall

"Snowball Earth"

Dr. Joseph Kirschvink, Nico and Marilyn Van Wingen Professor of Geobiology, California Institute of Technology

Science progresses by a process called hypothesis testing, which involves proposing an idea and then subjecting it to experimental tests. However, someone has to initially propose scientifically plausible hypotheses for this process to work. Prof. Kirschvink has originated several such ideas aimed at increasing our understanding of how biological evolution has influenced, and has been influenced by, major events on the surface of the Earth. The hypothesis he will discuss at the OCSEA Fall Conference is an idea that is generating much interest recently - that the entire Earth may have actually frozen over several times in Earth history, resembling a "Snowball", potentially causing some of the most severe crises in the history of life on Earth and perhaps stimulating evolution.

Joe Kirschvink was born and raised in the Southwest United States , which does not necessarily explain his infatuation with geology and biology, but it helps. Rather than attending an undergraduate university on the East Coast, where all of the rocks are covered with green goo, Joe chose to pursue his undergraduate education in Pasadena , California , where the atmosphere itself in the early 1970s was capable of cleaning the rock surfaces to show the beautiful geology underneath. He reluctantly agreed to serve

time in the East among the ivy leaves at Princeton for his Ph.D., but wound up spending 50% of his time in the field. Joe has a lot of fun creating "nutty" ideas like the “Snowball Earth.” He even pretends that animals can predict earthquakes, just to keep his seismological colleagues on their toes. His major claim to being a paleontologist is his prediction and discovery of magnetofossils, which are not very useful for biostratigraphy but are wonderful as a Martian biomarker and for increasing the NASA Astrobiology budget.

His irreverence, notwithstanding, Professor Kirschvink has received numerous honors for his research, and, more importantly, for his teaching. His research topics sound like the titles of lost novels by H. G. Wells: “True Polar Wander,” “Cambrian Explosion,” “Snowball Earth,” “Martian Panspermia.” And, to top it off, he received Caltech’s highly publicized Feynman Prize for Excellence in Teaching.

(See http://pr.caltech.edu/periodicals/CaltechNews/articles/v36/kirschvink.html)

Workshops – Hashinger Science Center

Workshop Session I (8:30 – 9:30 AM)

“Learning about the Periodic Table” 8:30 AM SC 306

Amy Edmundson
Centralia School (Centralia School District)

Target Grade Level: 5

Have students become familiar with the Periodic Table of the Elements by making element name tags and by completing a collaborative writing activity.

“Tree Cookies?” 8:30 AM SC 111

Barbara Finnell
California State University , Fullerton

Target Grade Level: 3, 4 & 5

Hands-on activites will be used to illustrate the structure of trees in a practical and motivating approach. Find out how to get free materials for you to use in your classroom to teach your students about environmental and historical changes using a cross section of a tree. Also find out more about Project Learning Tree training and the Forestry Institute for Teachers.

CA Standards: Life Science 3rd grade 2a, 4th grade 2e, 5th grade 6a

“If it isn't grown, it has to be mined! Rocks and Minerals as Natural Resources” 8:30 AM SC 109

Maureen Angle
Segerstrom High School (SAUSD)

Target Grade Level: 6 & 9

Participants will engage in hands on activites and receive information related to our daily use of rock and mineral products.

CA Standards: Gr 6 Resources, 6b,c & gr 9-12 Cal Geology 9a

“Use of the Microscope in the Classroom” 8:30 AM SC 319

Robert Ferazzi
University of California , Irvine

Target Grade Level: 6 to 12

The care and use of microscopes in the classroom will be discussed. Several microscope activites will be carried out

CA Standards: sixth grade investigation and experimentation 9-12 parts of the cell

“Assessment through Concept Mapping” 8:30 AM SC 203

Brian Dayton
California High School (WUHSD)

Target Grade Level: 9 to 12

What are the benefits of this alternative form of assessment? See examples of how to use concept mapping in your classroom to support the learning of science standards.

CA Standards:

“Magic Science” 8:30 AM SC 327

Linda Galloway
Kaiser Elementary School

Target Grade Level: K to 12 (4 to 12)

Most "Magic" works BECAUSE of Science (and Math)! Learn fun and easy ways to wow your students while introducing concepts and helping to further their enjoyment of learning.

CA Standards:

“Physics of Foams and Sand” 8:30 AM SC 127

Michael Dennin
UC Irvine

Target Grade Level: K to 3

All kids are familiar with soap bubbles and sand. This workshop will present how these wonderful materials both help us understands states of matter and that mysteries remain to be discovered.

CA Standards: states of matter, changes in states of matter

Workshop Session II (9:40 – 10:40 AM)

"Electromagnets" 9:40 AM SC 303

Shelley Arnold
MacArthur Elementary (LBUSD)

Target Grade Level: 4 & 5

Build and test an electromagnet. Learn about the electromagnets we use everyday. There will be project ideas for your students.

CA Standards: Grade 4: 1b, 1c, 1d

"Service Learning - Applying Standards in Real Life Applications Through Service Learning" 9:40 AM SC 306

Dennis Mitchell
Evergreen Middle School

Target Grade Level: 4 to 12

Participants will be given an overview of Service Learning and how this pedagogy can be applied in a classroom setting that enhances the students understanding of California State content standards. Each participant will receive a Project Learning GreenWorks! manual and an overview of how the Project Learning Tree (A national environmental curriculum that uses forest related topics as a focus for their curriculum.)program supports Service Learning with grants to certified PLT teachers. Information on how to become a PLT certified teacher will be shared.

CA Standards: California State Science Standards (Life Science) and Calif. State

“Educating high-school students about energy use, air pollution, and climate problems” 9:40 AM SC 111

Sergey Nizkorodov
University of California at Irvine

Target Grade Level: 9 to 12

The workshop will address the following topics: i) energy balance in the earth system; ii) fossil fuel use and Earth climate; iii) fossil fuel use and air pollution. These topics have direct relevance for the Science Content Standards (Earth Sciences; 9-12th grades).

CA Standards: Earth Sciences: Structure and composition of the atmosphere

“Our Wetlands, Our World” 9:40 AM SC 127

Matthew Yurko
California Coastal Commission

Target Grade Level: 9 to 12

Through this workshop, we will introduce the California Coastal Commission's new high school curriculum, "Our Wetlands, Our World", which uses the Upper Newport Bay as an educational tool for teaching high school students about wetlands ecology, human impacts in watersheds and environmental stewardship. Activities address California State Science Standards and copies of the curriculum will be distributed at the workshop.

CA Standards:

“Brain Compatible Learning: Understanding and Implementing Effective Instruction” 9:40 AM SC 203

Helen de la Maza
Inside the Outdoors, O.C. Dept. of Ed.

Target Grade Level: K to 12

Participate in this interactive session to learn about the biology of learning, including aspects such as attention, comprehension, and memory. You'll take home strategies you can implement immediately.

CA Standards: N/A

"LiteraSEA" 9:40 AM SC 319

Linda Blanchard
Ocean Institute

Target Grade Level: K to 3

This workshop will examine how to develop hands on science activities relating to literature.

CA Standards: Life Science

"Writing in Science" 9:40 AM SC 109

Margaret Benzie
Orange Unified School District

Target Grade Level: K to 6

Writing in science through the use of a science notebook helps increase test scores not only in Science but also in Language Arts and Math. The session addresses what students write and rubric to assess.

CA Standards: Investigation & Experimentation Strand

Plenary Session (10:45 – 11:45 AM)

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“Snowball Earth” Irvine Lecture Hall
Dr. Joseph Kirschvink, Nico and Marilyn Van Wingen Professor of Geobiology, California Institute of Technology

Workshop Session III (1:00 – 2:00 PM)

“Elements, Minerals, Rocks-Crystals, Crystals Everywhere”
1:00 PM SC 203
Debra Mauzy-Melitz
University of California at Irvine

Target Grade Level: 4

Explore how minerals are made of elements arranged in one of six crystal systems. Participants will be different elements and will “bond” to make different minerals. Each participant will make an example from one of the six crystal systems and receive the templates to make an example from the others. Rocks are made from minerals but the “recipe is not as exact.

CA Standards: The properties of rocks and minerals reflect the processes that formed them.

“Solids, Liquids, and Gases! Oh, my!” 1:00 PM SC 319
Maggie Ostler
Delta Education

Target Grade Level: 1 & 3

Participants are given the opportunity to investigate the properties of solids, liquids, and gases though hands-on experiences, reading, math extensions, and notebooking.

CA Standards: 1st Grade PS 1a. and 3rd Grade PS 1e

“Make a Class Sized Inflatable Whale” 1:00 PM SC 127

Sandra Kaszynski
Wilson Elementary School (NMUSD)

Target Grade Level: 2 & 4

Sit inside a life sized model of a whale and teach the wonders of this marine mammal to your class!

CA Standards:

“Waves, Wind and Water” 1:00 PM SC 111

Janet Yamaguchi
Discovery Science Center

Target Grade Level: 4 & 5

Participate in hands-on activities that focus on how wind, waves, and water shape the Earth’s surface. Role-play and use models that demonstrate the water cycle, cloud formation, and how weather patterns change

CA Standards: Fourth Grade Earth Science 5 A, B, C; Fifth Grade Earth Science 3 A, B, C, 4 A, B, E

“Nanotechnology - Science of the Future” 1:00 PM SC 306

Philip Collins
University of California , Irvine

Target Grade Level: 5 to 12

Nanotechnology is suddenly one of science's hot topics, and everyone from Newt Gingrich to Cody Banks wants to be involved. But what exactly is nanotechnology, and is it really just around the corner? This talk will address these questions.

"If it isn't grown, it has to be mined! Rocks and Minerals as Natural Resources" 1:00 PM SC 109

Maureen Angle
Segerstrom High School (SAUSD)

Target Grade Level: 6 & 9

Participants will engage in hands on activites and receive information related to our daily use of rock and mineral products.

CA Standards: Gr 6 Resources, 6b,c & gr 9-12 Cal Geology 9a

"Mysteries of Water" 1:00 PM SC 303

Kenneth Janda
University of California

Target Grade Level: 9 to 12

Several demonstrations will be presented which demonstrate the unusual properties of water. An unusual form of "ice" called a hydrate-clathrate will be introduced and explained.

CA Standards: 9-12 physical science

Workshop Session IV (2:05 – 3:05 PM)

"Student Self-Assessment of Process Skills" 2:05 PM SC

109
Pat Keig
California State University , Fullerton

Target Grade Level: 4 & 5

When children do investigations with a consistent process skills rubric at hand, they have a clear target. Self-assessment guides them to learn, "what's a top notch graph?" and "what's wrong with that classification?" Experience this (from the child's point of view) and learn to guide students in the use of science self-assessments.

CA Standards: 5.6.a,d,e,g and 4.6.e,f

“Service Learning - Applying Standards in Real Life Applications Through Service Learning” 2:05 PM SC 306

Dennis Mitchell
Evergreen Middle School

Target Grade Level: 4 to 12

Participants will be given an overview of Service Learning and how this pedagogy can be applied in a classroom setting that enhances the students understanding of California State content standards. Each participant will receive a Project Learning GreenWorks! manual and an overview of how the Project Learning Tree (A national environmental curriculum that uses forest related topics as a focus for their curriculum.)program supports Service Learning with grants to certified PLT teachers. Information on how to become a PLT certified teacher will be shared.

CA Standards: California State Science Standards (Life Science) and Calif. State

“Use of the Microscope in the Classroom” 2:05 PM SC 319

Robert Ferazzi
University of California , Irvine

Target Grade Level: 6 to 12

The care and use of microscopes in the classroom will be discussed. Several microscope activites will be carried out

CA Standards: sixth grade investigation and experimentation 9-12 parts of the cell

“Our Place in the Universe” 2:05 PM SC 127

Elizabeth Barton
University of California , Irvine

Target Grade Level: 9 to 12

Learn about our environment in the broadest sense. With special emphasis on modern techniques in astronomy, this talk will describe the Earth's place in the solar system, the solar system's place in the Galaxy, and our Galaxy's place in the universe.

CA Standards: High School Earth Sciences 1e,2abg

“Education and the Environment Initiative” 2:05 PM SC 203

Helen de la Maza
Inside the Outdoors, O.C. Dept. of Ed.

Target Grade Level: K to 12

This workshop will provide an overview of the landmark legislation - AB 1548, the Education and the Environment Initiative(EEI) and discuss its current status. Of particular note are the new environmental principles, criteria for textbook adoption, and Model Curriculum plan, all of which will have significant bearing on the way environment-based education is taught in the K-12 classroom. See how your program can benefit from this new legislation!

“Magic Science” 2:05 PM SC 327

Linda Galloway
Kaiser Elementary School

Target Grade Level: K to 12 (4 to 12)

Most "Magic" works BECAUSE of Science (and Math)! Learn fun and easy ways to wow your students while introducing concepts and helping to further their enjoyment of learning.

“Cloudy With A Chance of Meatballs” 2:05 PM SC 111

Janet Yamaguchi
Discovery Science Center

Target Grade Level: K to 3

Become familiar with Judi Barrett’s story, Cloudy With a Chance of Meatballs. Lessons include an investigation of the water cycle and general weather principles. Through the use of simple weather tools, collect and analyze data, then present the data in graphical and pictorial forms, appropriate for the primary school student.

CA Standards: Kindergarten, Physical Science 1 B, C, Earth Science 3 B, C; First Grade Physical Science 1 A, B, Earth Science 3 A, B, C; Second Grade Earth Science 3 E; Third Grade Physical Science 1 E, F; Earth Science 4 E

All activities will take place at the Hashinger Science Center unless indicated otherwise.

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