

# Conversations about Science Standards Series

## Insights about Research on Science Learning and Teaching

**TUESDAY, APRIL 4, 2023 ALL TIMES ET**

### Purpose

- Discuss key areas of science teaching and learning that do not receive explicit attention in the Framework and NGSS.
- Consider implications for curriculum and instruction in the short term and future standards.
- Consider steps that can be addressed now and think ahead to the future.

### Guiding Questions for Panelists

- What are some new insights?
- Given these insights, what are the implications for how we currently implement standards and curriculum? What are the implications for looking ahead?

**Session Overviews:** Presenters will each have 15 minutes followed by Q&A.

**10:00–10:10      Welcome and Meeting Goals**

Heidi Schweingruber, *Director, Board on Science Education*

**Overview:** Heidi will provide a little background and framing for the meeting.

**10:10–11:25      Panel 1: Cross Disciplinary Connections (Interdisciplinary)**

**Presenter:**

- David Weintrop, *University of Maryland*
- Gillian Roehrig, *University of Minnesota*

**10:40      Q&A**

**11:25–12:00      Break**

Stretch. Grab some breakfast/lunch.

**12:00–1:15      Panel 2: Science and Society: Ethics, Justice, and Sustainability**

**Presenters:**

- Noah Weeth Feinstein, *University of Wisconsin-Madison*
- Kristin Gunckel, *University of Arizona*

**12:30      Q&A**

**1:15–1:30      Short Break**

Stretch. Grab some breakfast/lunch.

**1:30–2:45      Panel 3: Nature of Science**

**Presenters:**

- Douglas Allchin, *University of Minnesota*
- Judith Lederman, *Illinois Institute of Technology*

**2:00      Q&A**

**2:45–3:15      Consider Possible Next Steps**

**Session Overview:** Attendees share reflections from across panels and discuss implications for next steps

**MEETING ADJOURS**

## BIOGRAPHIES

**DOUGLAS ALLCHIN** is an internationally recognized scholar both in history and philosophy of science and in science education. He taught high school biology in Washington, DC, before receiving his MS in Evolutionary Biology and PhD in the Conceptual Foundations of Science from the University of Chicago. He is author of *Teaching the Nature of Science: Perspectives and Resources* and *Sacred Bovines: The Ironies of Misplaced Assumptions in Biology*, based on his column in *American Biology Teacher*. He recently received the Hazen Prize in education from the History of Science Society.

**NOAH WEETH FEINSTEIN** is Professor of Curriculum & Instruction and Community & Environmental Sociology, as well Director of the Holtz Center for Science & Technology Studies (STS), at the University of Wisconsin-Madison. His research focuses on how people make sense of science in their personal, social, and political lives, and how educational platform such as schools and museums can help. He also teaches and writes about environmental and sustainability education, public knowledge, and educational responses to the “post-truth era,” and has become increasingly interested in the role of education in climate change adaptation, resilience, and transformation. Usually classified under headings like “informal science education” and “public engagement with science,” his work applies theories and findings from STS to problems of learning, education, and social change.

**KRISTIN L. GUNCKEL** (She/They) is a professor of science education at the University of Arizona, USA. Kristin's research focuses on environmental science literacy and elementary teacher education for teaching science. These two foci converge toward educating and preparing students and teachers to understand how the natural and human dimensions of socioecological systems and to respond in equitable and just ways to the grand challenges facing our world, including climate change, threats to freshwater supplies, sea level rise, flooding, and droughts.

**JUDITH SWEENEY LEDERMAN** is an Emeritus Professor in the Department of Mathematics and Science Education at Illinois Institute of Technology, Chicago IL. She has been the Curator of Education at the Museum of Natural History and Planetarium in Providence, Rhode Island, and Science Director of K-8 science education for 10 Rhode Island school districts. She is internationally known for her work on the teaching and learning about Scientific Inquiry and Nature of Science in both formal and informal settings. She has taught middle and secondary level physics and biology, as well as bilingual elementary science. Dr. Lederman was awarded the 2018 Svend Pederson Award for Research in Science Education, from Stockholm University, and was the recipient of the 2019 NSTA Fellow Award for her contributions to science education.

**GILLIAN ROEHRIG** is a professor of STEM Education in the Department of Curriculum and Instruction at the University of Minnesota. Her research explores issues of professional development for K-12 science teachers, with a focus on implementation of integrated STEM learning environments. Her work in integrated STEM explores teachers' conceptions and implementation of STEM, curriculum development, and student learning in small groups during STEM lessons. She has received over \$50 million in federal and state grants and published over 120 peer-reviewed journal articles and book chapters. She is a former president of the Association for Science Teacher Education and currently serves as president of NARST.

**DAVID WEINTROP** is an Assistant Professor in the Department of Teaching & Learning, Policy & Leadership in the College of Education with a joint appointment in the College of Information Studies at the University of Maryland. His research focuses on the design, implementation, and evaluation of effective, engaging, and equitable computational learning experiences. His work lies at the intersection of design, computer science education, and the learning sciences. In support of his work, David received a National Academy of Education/Spencer postdoctoral fellowship and an NSF CAREER award. David has a Ph.D. in the Learning Sciences from Northwestern University and a B.S. in Computer Science from the University of Michigan.