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Presentation: STEM Education and the Next Generation Science Standards

Abstract: Science and engineering permeate nearly every facet of modern life. Science, Technology, Engineering and Mathematics—STEM, and therefore, STEM education—are vital to our future. In the United States, the Next Generation Science Standards were developed to provide the vision for education in the sciences. A successful STEM education allows students to appreciate the beauty of science, have knowledge of science and engineering to engage in public discussions, be careful consumers of scientific and technological information related to everyday life, and have the skills to enter careers of their choice. This presentation will focus on those standards, which recommend that science education be built around three integrated dimensions; scientific and engineering practices, crosscutting concepts, and disciplinary core ideas. Examples of how these three dimensions can be integrated will be discussed. In addition, the connections to applications of science and connections to the nature of science will be addressed.

Workshop: Linking Science and Literacy for Improved Student Outcomes

Abstract: Literacy is a key component in developing student scientific and mathematical understanding. Inquiry is not just hands-on. Science should be done in the context of literacy, addressing content through inquiry activities and text. This supports the students' abilities to read, write, and discuss in the context of content-based learning. The use of secondary data, information, and text provides for "minds-on" reading. There are many reasons to integrate science, math, and literacy including: limits to learning solely from text or experience; learning in the context of a content area; literacy is an essential part of what scientists and mathematicians do; and science and literacy support each other and there are many ways in which the two overlap. Science, math, and reading should both be considered as inquiries. A variety of kinds of text should be used. These could include textbooks, newspaper articles, fact sheets, essays, science magazines, and Internet resources. The use of text supports and deepens student understanding of science and math. In addition, Linking science and literacy capitalizes on the synergies between the two. This session will explore strategies for linking science and literacy that support students' abilities to read, write, and discuss in the context of science and inquiry-based learning.