

2018 Atlanta National Conference
March 15–18, 2018

THEME: Science on My Mind

Strands:

Focusing On Evidence of 3D Learning
Imagining Science as the Foundation for STEM
Reflecting On Access for All Students
Comprehending the Role of Literacy in Science

Strand One

Focusing On Evidence of 3D Learning

States continue to develop and adopt standards that build on a three-dimensional approach, which calls on students to use disciplinary core ideas, science and engineering practices, and crosscutting concepts to explain real-world phenomena and solve authentic problems. Three-dimensional learning allows students to connect science to their everyday lives and helps prepare them for future careers. This approach is fully realized only when instruction leads to tangible evidence of 3D learning through authentic student products. This strand will help teachers, whether they are 3D novices or experts, expand their understanding of three-dimensional teaching, learning, and assessment. Sessions in this strand will target participants with a beginning, intermediate, or advanced level of familiarity with three-dimensional learning.

GOAL: Provide workshops and presentations focused on one or more of the following:

- Highlighting lessons or units that integrate the three dimensions across learning activities and assessments.
- Demonstrating processes for developing or adapting instructional materials to support and provide evidence of 3D learning through student work.
- Exploring how teachers can support access to three-dimensional learning for students from diverse backgrounds.
- Demonstrating the role of phenomena and design problems in supporting three-dimensional learning.
- Exploring advanced three-dimensional approaches, such as storylines.
- Sharing exemplars and processes for developing three-dimensional formative and summative classroom assessments.

CRITERIA: Proposals will be evaluated on the extent to which they:

- Align with one or more strand goals.
- Support specifically identified goals from the NRC *Framework*, *NGSS*, or state standards.
- Are based on current and available research.
- Involve participants through activities or discussion.
- Indicate within the description whether the session is targeted at participants with a beginning, intermediate, or advanced level of familiarity with three-dimensional learning.

Strand Two

Imagining Science as the Foundation for STEM

STEM education has become a priority for many states as we seek to provide today's students with the real-world, innovative skills that they will need to be successful in tomorrow's world. STEM instruction that builds on the foundation of core science ideas provides students with opportunities that equip them to make sense of the world in which they live, hone their critical-thinking skills, and spark their sense of innovation. Sessions in this strand will allow participants to develop their understanding of how to plan and teach collaboratively within these integrated learning environments.

GOAL: Provide workshops and presentations focused on one or more of the following:

- Illustrating the application of STEM to career, technical, and agricultural education and career-related experiences.
- Demonstrating how creativity drives scientific discovery and innovation.
- Highlighting lessons or units that integrate technology, engineering, and or math practices to deepen understanding of core science concepts.
- Encouraging access to STEM experiences for all students.
- Exploring how STEM experiences can help students develop critical-thinking skills, encourage innovative thinking, and foster perseverance.

CRITERIA: Proposals will be evaluated on the extent to which they:

- Align with one or more strand goals.
- Support specifically identified goals from the NRC *Framework*, NGSS, or state standards.
- Are based on current and available research.
- Involve participants through activities or discussion.

Strand Three

Reflecting On Access for All Students

Just as science encompasses diverse fields of learning from astronomy to zoology, science educators are called upon to equitably meet the needs of and engage ALL learners. Research has identified the unique challenges of a number of underserved groups, including students from urban areas, rural areas, English language learners, students with low socioeconomic status, those with special needs, gifted and talented students, and students from diverse cultural backgrounds. Cultivating a culture of equity and inclusion for all students not only aligns with the NSTA mission statement and the vision put forth by *A Framework for K–12 Science Education* but also prepares students for future career opportunities in a global society. This strand increases participants' understanding of the unique needs of various types of learners and helps them reduce barriers to full participation in science.

GOAL: Provide workshops and presentations focused on one or more of the following:

- Identifying, selecting, and adapting effective research-based strategies, tools, and resources to meet the needs of all learners.
- Highlighting lessons inspired by the research, careers, and accomplishments of diverse role models in the field of science.
- Encouraging access to three-dimensional STEM experiences that engage ALL students.
- Reducing barriers based on gender, ethnicity, socioeconomic status, linguistics, or geography to maximize student achievement in science.

CRITERIA: Proposals will be evaluated on the extent to which they:

- Align with one or more strand goals.
- Support specifically identified goals from the NRC *Framework*, NGSS, or state standards.
- Are based on current and available research.
- Involve participants through activities or discussion.

Strand Four

Comprehending the Role of Literacy in Science

A great number of personal and societal issues require citizens to draw upon a foundation of scientific knowledge, technological understanding of problem solving, and the ability to design scientific solutions to obtain, evaluate, and communicate information in order to make informed decisions. Engaging ALL students in science, beginning in the early years, is the way to develop students' skills in thinking creatively, expressing themselves, and investigating their world. As college- and career-ready students investigate natural phenomena, they should be able to communicate their argument-driven claims based on data-driven evidences. Science core ideas can be developed by using current technology and media to create, refine, and collaborate through reading, writing, listening, and speaking. This strand will allow educators to become advocates of literacy in preK–12 science and engineering, to see the connections between science and literacy, and to learn literacy strategies that encompass active student engagement.

GOAL: Provide workshops and presentations focused on one or more of the following:

- Demonstrating the role of literacy in the application of science and engineering practices.
- Highlighting lessons or units of instruction that emphasize literacy within active engagement in the practices of science and engineering.
- Providing exemplary lessons in which students engage in scientific argumentation and discourse.
- Illustrating effective methods to support students' ability to read, interpret, and produce scientific and technical texts.

CRITERIA: Proposals will be evaluated on the extent to which they:

- Align with one or more strand goals.
- Support specifically identified goals from the NRC *Framework*, NGSS, or state standards.
- Are based on current and available research.
- Involve participants through activities or discussion.