KANSAS STATE DEPARTMENT OF EDUCATION

VISION FOR QUALITY INSTRUCTION

Science

Introduction

The Kansas State Department of Education (KSDE) believes that all Kansas students deserve consistent access to high-quality science instruction that empowers them to make sense of the world around them through inquiry, investigation, and evidence-based reasoning. Kansas students will engage in science experiences that are anchored in meaningful and relevant real-world phenomena and drive students to ask and investigate questions, think critically, and revise their thinking. Students will develop the skills and confidence to explain how and why the world works and to solve real-world problems.

To that end, Kansas' learners should have consistent access to strong science instruction and high-quality instructional materials aligned to the Kansas Science Standards.

All Kansas learners deserve science instruction characterized by:

- **Phenomena:** *Students* explore natural phenomena to note observations, ask questions, and make predictions about how the world works. They identify real-world problems and propose solutions. *Teachers* create opportunities for students to experience phenomena in a variety of ways (firsthand or through video, images, graphs, maps, etc.) and facilitate students' efforts to gather evidence to figure out how or why the phenomena occur.
- **Three-Dimensional Instruction:** *Students* engage with relevant science and engineering practices, disciplinary core ideas, and cross-cutting concepts needed to explain how or why a phenomenon occurs. *Teachers* intentionally and coherently integrate the science and engineering practices, disciplinary core ideas, and cross cutting concepts appropriate for the grade and subject, scaffolding students' understanding so they can make sense of rigorous content, big science ideas, and phenomena.
- **Sensemaking:** *Students* do the work of scientists, seeking to understand and explain how and why the world works the way it does. *Teachers* organize instruction in a way that allows students to ask and investigate question(s), develop knowledge through investigations (rather than simply being *given* knowledge), communicate evidence-based explanations, and develop solutions to authentic problems. Even when the teacher provides support and scaffolds, students still own the complex work of sensemaking.

- **Discourse and Collaboration:** *Students* share ideas, build on and critique one another's ideas, and revise their thinking as new evidence emerges or compelling ideas are shared related to the lesson's content, concepts or phenomenon. *Teachers* cultivate a community of learners in which students feel comfortable taking intellectual risks among their peers and engaging in productive struggle through the process and in service of scientific inquiry.
- **Local and Cultural Relevance:** *Students* have opportunities to apply scientific knowledge, skills, and problem-solving to real-world examples, making connections to their lives outside of the classroom. The cultural knowledge, languages, and ways of thinking students bring with them are valued and incorporated into learning experiences wherever possible. *Teachers* strategically adapt and supplement instructional materials to address students' and local needs

Sources:

- National Science Teaching Association. Sensemaking. https://www.nsta.org/sensemaking#tab
- Wisconsin Department of Public Instruction. A Vision for Science Education. https://dpi.wi.gov/science#:~:text=A%20Vision%20for%20Science%20Education,requiring%20that%20type%20of%20work

For more information, contact:

Stephanie Alderman-Oler
Science/STEM Program Manager
Career, Standards and Assessment Services
(785) 296-8108
stephanie.alderman-oler@ksde.gov

Kansas State Department of Education
900 S.W. Jackson Street, Suite 102
Topeka, Kansas 66612-1212

www.ksde.gov

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