



SPICE

Science Projects Integrating
Computing and Engineering

Promoting Equity Brief

SRI Education



Promoting Equity

Why is promoting equity in science learning important?

The Framework for K-12 Science Education (NRC, 2012) and Next Generation Science Standards (NGSS) (NGSS Lead States, 2013) emphasize the need to ensure that science learning opportunities are equitable for non-dominant groups - economically disadvantaged students, ethnically diverse students, students with cognitive and physical disabilities, English language learners (ELL), gifted students, and girls and young women (NGSS, Appendix D).

The NGSS and Framework describe **equity** as providing *access* to the same opportunities through resources and supports for learning at a comparable level to mainstream groups. These supports acknowledge sociocultural influences on how students learn and engage with curriculum materials.

All students come to science classrooms with a range of background knowledge, cultural and linguistic experiences, and abilities developed from their everyday experiences at home and their communities. This curriculum was designed to reach students from non-dominant groups by promoting equitable learning opportunities to achieve science proficiency.

How does SPICE promote equitable learning opportunities?

Research indicates that equitable learning opportunities in science requires:

- 1) valuing and using students' background, including cultural and linguistic experiences, as resources
- 2) connecting students' background knowledge and experiences to STEM
- 3) providing instructional supports to address the needs of diverse students

To promote equity, the SPICE unit aims to *foster engagement* and *provide language supports*. These principles are interwoven throughout the curriculum and its activities to reduce barriers that may impede students and encourage participation in their science learning.

- ***Fostering engagement:*** Recruiting and sustaining students' from non-dominant groups is important to NGSS-aligned curricula, because valuing learners' culture, language, and interests supports sustained learning and the development of an identity as a competent learner of science. SPICE fosters engagement by framing the investigation around contexts that are familiar, relevant, meaningful, and authentic.
- ***Providing appropriate language supports.*** Supports for science language features (e.g., science specific vocabulary, science talk, and scientific texts) that are required for many students to learn and engage in science. SPICE supports language by decreasing emphasis on scientific jargon, providing a wide range of ways for students to express their ideas, and ensuring that reading materials is grade-level appropriate.