Advancing STEM
3D Teaching

Dimension 1	Description
Science and Engineering Practices	This dimension focuses on students emulating the behaviors of scientists and engineers. The focus isn't just on skills, but on the incorporation of knowledge. These practices include building models and developing theories about the natural world.

Dimension 2	Description
Cross-Cutting Concepts	This dimension incorporates knowledge that spans science and engineering fields, linking ideas from one area of science to another. The focus of this dimension is on explicitly teaching the concepts of: Patterns, similarity, and diversity; Cause and effect; Scale, proportion and quantity; Systems and system models; Energy and matter; Structure and function; Stability and change

Dimension 3	Description
Disciplinary Core Ideas	The disciplinary core ideas are grouped into four domains: life sciences; physical sciences; earth and space sciences; and engineering, technology and applications of science. To be considered core, ideas should meet at least 2 of the following criteria: ● Have broad importance across multiple sciences or engineering disciplines or be a key organizing concept of a single discipline; ● Provide a key tool for understanding or investigating more complex ideas and solving problems; ● Relate to the interests and life experiences of students or be connected to societal or personal concerns that require scientific or technological knowledge; ● Be teachable and learnable over multiple grades at increasing levels of depth and sophistication.