STEM teaching tools

STEMTeachingTools.org

Science and Engineering Practices

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Disciplinary Core Ideas

Life Sciences

LS1: From Molecules to Organisms: Structures and Processes
LS2: Ecosystems: Interactions, Energy, and Dynamics
LS3: Heredity: Inheritance and Variation of Traits
LS4: Biological Evolution: Unity and Diversity

Earth and Space Science

ESS1: Earth's Place in the Universe
ESS2: Earth's Systems
ESS3: Earth and Human Activity

Physical Science

PS1: Matter and Its Interactions
PS2: Motion and Stability: Forces and Interactions
PS3: Energy
PS4: Waves and Their Applications in Technologies for Information Transfer

Engineering, Technology and the Application of Science

ETS1: Engineering Design
ETS2: Links Among Engineering, Technology, Science, and Society

Crosscutting Concepts

1. Patterns.
2. Cause and effect:
3. Scale, proportion, and quantity
4. Systems and system models
5. Energy and matter
6. Structure and function.
7. Stability and change

Key Definitions

Grade Level: The grade level(s) of the Performance Expectation
DCI: Disciplinary Core Idea
Title of the Standard: Heading on the top of the page of the standard
PE: Performance Expectation
AB: Assessment Boundary
CS: Clarification Statement
SEP: Science and Engineering Pracitce
CC: Crosscutting Concept
CCSS: Common Core State Standards

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Practical tools for science educators