



3-Dimensional Learning

Scientific & Engineering Practices

- ◆ Asking questions (science) and defining problems (engineering)
- ◆ Developing and using models
- ◆ Planning and carrying out investigations
- ◆ Analyzing and interpreting data
- ◆ Using mathematics and computational thinking
- ◆ Constructing explanations (science) and designing solutions (engineering)
- ◆ Engaging in argument from evidence
- ◆ Obtaining, evaluating, and communicating information

Crosscutting Concepts

- ◇ Patterns
- ◇ Cause and effect: Mechanism and explanation
- ◇ Scale, proportion, and quantity
- ◇ Systems and system models
- ◇ Energy and matter: Flows, cycles, and conservation
- ◇ Structure and function
- ◇ Stability and change

Disciplinary Core Ideas

Physical Sciences:

- PS1: Matter and its interactions
- PS2: Motion and stability: Forces and interactions
- PS3: Energy
- PS4: Waves and their applications in technologies for information transfer

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

Engineering, Technology, and Applications of Science

- ETS1: Engineering design
- ETS2: Links among engineering, technology, science, and society



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