

Cross-Cutting Concepts (CCC)

How students are ***THINKING?***
What is their ***LENS?***
TOOLS for making sense!

- Patterns**
 - In shapes, structures, events, relationships, and data
 - Can lead to questions and explanations about a phenomenon
 - Engineer look for patterns to aid in designing solutions
- Cause & Effect**
 - Leads to causal models, predictions, and explanations
 - Understanding cause and effect relationships to help design solutions to problems
 - Leads to argumentation of what is the cause based on evidence
- Scale, Proportion, & Quantity**
 - Comparisons made of size, time, space, energy of a phenomena or system
 - Units are used to describe and measure
 - Ratios of speed or density
- Systems & System Models**
 - Helps to explain and understand complex things
 - Consider parts, function, and flows of matter, energy, or information through the system
 - Models can be made to make predictions
- Energy and Matter**
 - Connected to systems as energy and matter may move through a system
 - Critical in designing solutions
 - How they move and effect each other
- Structure & Function**
 - The shape and structure of natural and designed objects are related to their function
 - Structures can be designed to serve a function
 - The structures of a system can be analyzed to determine how it functions
- Stability & Change**
 - Rate at which things change
 - Refers to equilibrium/stability of systems
 - How changes affect the stability of a system

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