

Physical Science - Crosscutting Concepts

Patterns CCC.1

A Macroscopic patterns are related to the nature of microscopic and atomic-level structure. CCC.1-1

B Graphs, charts and images can be used to identify patterns in data. CCC.1-2

Cause and effect CCC.2

A Cause and effect relationships may be used to predict phenomena in natural or designed systems. CCC.2-1

Scale, proportion and quantity CCC.3

A Time, space and energy phenomena can be observed at various scales using models to study systems that are too large or too small. CCC.3-1

B Proportional relationships (e.g. speed as the ratio of distance traveled to time taken) among different types of quantities provide information about the magnitude of properties and processes. CCC.3-2

Systems and system models CCC.4

A Models can be used to represent systems and their interactions - such as inputs, processes and outputs - and energy and matter flows within systems. CCC.4-1

Energy and matter in systems CCC.5

A Matter is conserved because atoms are conserved in physical and chemical processes. CCC.5-1

B The transfer of energy can be tracked as energy flows through a designed or natural system. CCC.5-2

C Energy may take different forms (e.g. energy in fields, thermal energy, energy of motion). CCC.5-3

Structure and function CCC.6

A Structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used. CCC.6-1

B Structures can be designed to serve particular functions. CCC.6-2

Stability and change of systems CCC.7

A Explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and forces at different scales. CCC.7-1