
SCIENCE

A

Science as Inquiry and Process

A student should understand and be able to apply the processes and applications of scientific inquiry.

A student who meets the content standard should:

- 1) develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments;
- 2) develop an understanding that the processes of science require integrity, logical reasoning, skepticism, openness, communication, and peer review; and
- 3) develop an understanding that culture, local knowledge, history, and interaction with the environment contribute to the development of scientific knowledge, and local applications provide opportunity for understanding scientific concepts and global issues.

B

Concepts of Physical Science

A student should understand and be able to apply the concepts, models, theories, universal principles, and facts that explain the physical world.

A student who meets the content standard should:

- 1) develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior;
- 2) develop an understanding that energy appears in different forms, can be transformed from one form to another, can be transferred or moved from one place or system to another, may be unavailable for use, and is ultimately conserved;
- 3) develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems; and
- 4) develop an understanding of motions, forces, their characteristics and relationships, and natural forces and their effects.

C

Concepts of Life Science

A student should understand and be able to apply the concepts, models, theories, facts, evidence, systems, and processes of life science.

A student who meets the content standard should:

- 1) develop an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection, and biological evolution;
- 2) develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms; and
- 3) develop an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy.

D**Concepts of Earth Science**

A student should understand and be able to apply the concepts, processes, theories, models, evidence, and systems of earth and space sciences.

A student who meets the content standard should:

- 1) develop an understanding of Earth's geochemical cycles;
- 2) develop an understanding of the origins, ongoing processes, and forces that shape the structure, composition, and physical history of the Earth;
- 3) develop an understanding of the cyclical changes controlled by energy from the sun and by Earth's position and motion in our solar system; and
- 4) develop an understanding of the theories regarding the origin and evolution of the universe.

E**Science and Technology**

A student should understand the relationships among science, technology, and society.

A student who meets the content standard should:

- 1) develop an understanding of how scientific knowledge and technology are used in making decisions about issues, innovations, and responses to problems and everyday events;
- 2) develop an understanding that solving problems involves different ways of thinking, perspectives, and curiosity that lead to the exploration of multiple paths that are analyzed using scientific, technological, and social merits; and
- 3) develop an understanding of how scientific discoveries and technological innovations affect and are affected by our lives and cultures

F**Cultural, Social, Personal Perspectives and Science**

A student should understand the dynamic relationships among scientific, cultural, social, and personal perspectives.

A student who meets the content standard should:

- 1) develop an understanding of the interrelationships among individuals, cultures, societies, science, and technology;
- 2) develop an understanding that some individuals, cultures, and societies use other beliefs and methods in addition to scientific methods to describe and understand the world; and
- 3) develop an understanding of the importance of recording and validating cultural knowledge.

G**History and Nature of Science**

A student should understand the history and nature of science.

A student who meets the content standard should:

- 1) develop an understanding that historical perspectives of scientific explanations demonstrate that scientific knowledge changes over time, building on prior knowledge;
- 2) develop an understanding that the advancement of scientific knowledge embraces innovation and requires empirical evidence, repeatable investigations, logical arguments, and critical review in striving for the best possible explanations of the natural world;
- 3) develop an understanding that scientific knowledge is ongoing and subject to change as new evidence becomes available through experimental and/or observational confirmation(s); and
- 4) develop an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base.