

California's Environmental Principles and Concepts

Principle I - People Depend on Natural Systems

The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services.

Concept A. The goods produced by natural systems are essential to human life and to the functioning of our economies and cultures.

Concept B. The ecosystem services provided by natural systems are essential to human life and to the functioning of our economies and cultures.

Concept C. That the quality, quantity, and reliability of the goods and ecosystem services provided by natural systems are directly affected by the health of those systems.

Principle II - People Influence Natural Systems

The long-term functioning and health of terrestrial, freshwater, coastal, and marine ecosystems are influenced by their relationships with human societies.

Concept A. Direct and indirect changes to natural systems due to the growth of human populations and their consumption rates influence the geographic extent, composition, biological diversity, and viability of natural systems.

Concept B. Methods used to extract, harvest, transport, and consume natural resources influence the geographic extent, composition, biological diversity, and viability of natural systems.

Concept C. The expansion and operation of human communities influences the geographic extent, composition, biological diversity, and viability of natural systems.

Concept D. The legal, economic, and political systems that govern the use and management of natural systems directly influence the geographic extent, composition, biological diversity, and viability of natural systems.

Principle III - Natural Systems Change in Ways that People Benefit from and can Influence

Natural systems proceed through cycles that humans depend upon, benefit from, and can alter.

Concept A. Natural systems proceed through cycles and processes that are required for their functioning.

Concept B. Human practices depend upon and benefit from the cycles and processes that operate within natural systems.

Concept C. Human practices can alter the cycles and processes that operate within natural systems.

Principle IV - There are no Permanent or Impermeable Boundaries that Prevent Matter from Flowing Between Systems

The exchange of matter between natural systems and human societies affects the long-term functioning of both.

Concept A. The effects of human activities on natural systems are directly related to the quantities of resources consumed and to the quantity and characteristics of the resulting byproducts.

Concept B. The byproducts of human activity are not readily prevented from entering natural systems and may be beneficial, neutral, or detrimental in their effect.

Concept C. The capacity of natural systems to adjust to human-caused alterations depends on the nature of the system as well as the scope, scale, and duration of the activity and the nature of its byproducts.

Principle V - Decisions Affecting Resources and Natural Systems are Complex and Involve Many Factors

Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes.

Concept A. The spectrum of what is considered in making decisions about resources and natural systems and how those factors influence decisions.

Concept B. The process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time.

From the California Science Framework:

Broadly defined, the “environment” is the context in which we live our lives. It includes high mountain meadows and cool clear streams, the air we breathe, the water we drink, and the soils in which we grow the food we eat. The environment also encompasses the communities in which we live and all of the seen and unseen phenomena that comprise the natural systems on which we rely. In this sense, the environment is fundamental to every student’s experience and provides a uniquely engaging and authentic context in which to approach science learning.

For many decades, California has been a national leader in educating students about the environment, and now more than ever, the state recognizes that environmental literacy is crucial to sustaining the economic and environmental well-being of all Californians. This is embodied in the *California Education Code* and reflected in the educational mandates of many state agencies. Environmental literacy means more than knowing environmental content; it also encompasses civic engagement and community involvement in diverse settings. Going beyond the walls of the classroom, environmental literacy can be developed through investigations on campus, in the local community, at nature centers and outdoor schools, as well as in the rich and diverse natural landscapes found throughout California.

Environmental literacy is championed by the California Department of Education, the California Environmental Protection Agency, and the California Natural Resources Agency. It is also fully embraced in a 2015 report prepared by a task force of the State

Superintendent of Public Instruction, *A Blueprint for Environmental Literacy: Educating Every Student in, about, and for the Environment*. Strongly reinforcing the goal of environmental literacy for all kindergarten through twelfth grade students, the blueprint also advocates that all teachers have the opportunity to use the environment as a relevant and engaging context for teaching their core subjects, especially in science and history-social science.

To help fulfill this goal, the State Board of Education approved framework guidelines call for the Environmental Principles and Concepts (EP&Cs) to be incorporated into relevant subject matter frameworks, including science. California developed the EP&Cs in 2004 to reflect the fact that people, as well as their cultures and societies, depend on Earth's natural systems. The underlying goal of this work was to help students understand the connections between people and the natural world so that they can better assess the consequences of human activity. Every Californian needs to be ready to address the environmental challenges of today and the future, take steps to reduce the impacts of natural and anthropogenic (human-made) hazards, and act in a responsible and sustainable manner. As a result, the EP&Cs have become an important piece of the curricular expectations for all California students in science and other subject matters.