

# Environmental Science and Natural Resources

## State Standards

### Life Knowledge and Cluster Skills

- CS.07.04.02.a Handle chemicals and equipment in a safe and appropriate manner.
- fire extinguishers
  - biohazard waste/trash

### Environmental Service Systems

- ESS.02.01.01.a. Identify laws associated with environmental service systems.  
ESS.02.01.01.b. Identify the purposes of laws associated with environmental service systems.
- ESS.03.01.01.a. Identify components and structural layers of the earth's atmosphere.  
ESS.03.01.01.b. Differentiate the types of weather systems and weather patterns.
- ESS.03.01.02.a. Explain how meteorological conditions influence air quality.  
ESS.03.01.02.b. Illustrate the formation of acid precipitation and explain its impact on the environment.
- ESS.03.01.03.a. Explain climate change and recognize signs of climate change.
- ESS.03.01.04.a. Explain the earth's balance of energy.**
- ESS.03.02.01.a. Explain the process of soil formation through weathering.  
ESS.03.02.01.b. Differentiate rock types and relate the chemical composition of mineral matter in soils to the parent material.
- ESS.03.02.02.a. Describe the biodiversity found in soil and the contribution of biodiversity to the physical and chemical characteristics of soil.
- ESS.03.02.03.a. Explain how the physical qualities of the soil influence the infiltration and percolation of water.  
ESS.03.02.03.c. Conduct tests of soil to determine its use for environmental service systems.
- ESS.03.03.01.a. Describe the world's water supplies and discuss the many uses of water.  
ESS.03.03.01.b. Describe characteristics of water that influence the biosphere and sustain life.
- ESS.03.03.02.a. Demonstrate knowledge of hydrogeology by differentiating between groundwater and surface water.  
ESS.03.03.02.b. Describe interactions between groundwater and surface water.
- ESS.03.03.04.a. Identify environmental hazards associated with groundwater supplies.  
ESS.03.03.04.b. Describe precautions taken to prevent/reduce contamination of groundwater supplies.
- ESS.03.04.01.a. Describe the functions of wetlands and differentiate types of wetlands.  
ESS.03.04.01.b. Explain the criteria for classifying wetlands.
- ESS.03.04.02.a. Identify the major types of living organisms that inhabit wetlands.
- ESS.03.04.03.a. Explain the importance of wetland management, creation, enhancement and restoration programs.
- ESS.04.01.01.a. Identify types of pollution and distinguish between point source and nonpoint source pollution.  
ESS.04.01.01.b. Give examples of how industrial and nonindustrial pollution has damaged the environment.
- ESS.04.01.02.a. Describe ways in which pollution can be managed and prevented.

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- ESS.04.02.06.a. Explain the importance of recycling.
- ESS.04.02.01.a. Describe different types of solid waste.
- ESS.04.02.01.b. Evaluate environmental hazards created by different types of solid waste, solid waste accumulation and solid waste disposal.
- ESS.04.02.02.a. Discuss practical management options for treating solid waste.
- ESS.04.02.04.a. Define compost and composting.
- ESS.04.03.02.a. Define source water quality.
- ESS.05.01.01.a. Identify conventional energy sources and list conservation measures to reduce energy consumption.
- ESS.05.01.01.b. Identify advantages and disadvantages to conventional energy sources.
- ESS.05.01.01.c. Evaluate the impact the burning of fossil fuels has on the environment.
- ESS.05.01.02.a. Identify alternative energy sources.
- ESS.05.01.02.b. Identify advantages and disadvantages to alternative energy sources.
- ESS.05.01.02.c. Evaluate the impact of alternative energy sources on the environment.

## Natural Resource Systems

- NRS.01.01.01.a. Identify natural resources.
- NRS.01.01.01.b. Differentiate between renewable and nonrenewable natural resources.
- NRS.01.01.01.c. Research and debate one or more current issues related to the conservation or preservation of natural resources.
- NRS.01.01.02.a. Define ecosystem and related terms.
- NRS.01.01.02.b. Describe the interdependence of organisms within an ecosystem.
- NRS.01.02.01.a. Describe morphological characteristics used to identify trees and other woody plants.
- NRS.01.02.01.b. Identify trees and other woody plants.
- NRS.01.02.02.a. Describe morphological characteristics used to identify herbaceous plants.
- NRS.01.02.03.a. Describe morphological characteristics used to identify wildlife species.
- NRS.01.02.04.a. Describe morphological characteristics used to identify aquatic species.
- NRS.01.02.05.a. Demonstrate techniques used to identify rock, mineral and soil types.
- NRS.01.02.05.b. Identify rock, mineral and soil types.
- NRS.02.01.01.a. Identify hazards associated with the outdoor environment.
- NRS.02.01.01.b. Demonstrate safety practices when working in an outdoor environment.
- NRS.02.01.02.a. Recognize biohazards associated with natural resources.
- NRS.02.04.01.a. Identify the different kinds of streams.
- NRS.02.04.01.b. Identify indicators of the biological health of a stream.
- NRS.02.04.02.a. Identify characteristics of a healthy forest.
- NRS.02.04.03.a. Identify characteristics of a healthy wildlife habitat.
- NRS.02.04.03.b. Identify methods of wildlife habitat improvement.

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- NRS.02.04.04.a. Identify characteristics of healthy rangeland.
- NRS.02.04.04.b. Identify methods of rangeland improvement.
  
- NRS.02.04.05.a. Identify natural resource characteristics desirable for recreational purposes.
- NRS.02.04.05.b. Identify natural resource management techniques for improving recreation opportunities.
  
- NRS.02.05.01.a. Identify laws associated with natural resource systems.
- NRS.02.05.01.b. Identify the purposes of laws associated with natural resource systems.
  
- NRS.02.05.02.a. Define mitigation.
- NRS.02.05.02.b. Identify issues involving mitigation of natural resources.
  
- NRS.02.06.01.a. Identify biogeochemical cycles.
- NRS.02.06.01.b. Diagram biogeochemical cycles and explain the processes.
  
- NRS.02.06.02.a. Describe properties of watersheds and identify the boundaries of local watersheds.
- NRS.02.06.02.b. Relate the function of watersheds to natural resources.
  
- NRS.02.06.04.a. Define riparian zones and riparian buffers, and explain their functions.
  
- NRS.02.06.05.a. Describe the processes associated with ecological succession.
- NRS.02.06.05.b. Give examples of primary succession and secondary succession species in a community of organisms.
  
- NRS.02.06.06.a. Explain population ecology, population density and population dispersion.
  
- NRS.02.06.07.a. Define invasive species.
  
- NRS.02.06.08.a. Describe sources of pollution and delineate between point and nonpoint source pollution.
- NRS.02.06.08.b. Describe the impact of pollution on natural resources.
  
- NRS.03.01.01.a. Describe forest harvesting methods.
  
- NRS.03.01.03.a. Identify wildlife species that can be sustainably harvested.
  
- NRS.03.01.04.a. Identify products obtained from wildlife species.
  
- NRS.03.01.05.a. Describe the value of minerals and ores to the economy.
  
- NRS.03.01.06.a. Describe the value of fossil fuels to the economy.
  
- NRS.03.01.07.a. Describe the benefits of hydroelectric generation.
  
- NRS.03.01.08.a. Identify recreational uses of natural resources.
  
- NRS.04.01.01.a. Differentiate between desirable and undesirable fires and prepare a report on the role fire plays in a healthy ecosystem.
  
- NRS.04.02.01.a. Identify causes of diseases in plants.
  
- NRS.04.02.02.a. Identify causes of diseases in wildlife.
  
- NRS.04.03.01.a. Identify harmful and beneficial insects and signs of insect damage to natural resources.