

# Environmental Science and Natural Resources (2014)

Adopted 2014

## Environmental Safety and Regulations

**a.** Handle chemicals and equipment in a safe and appropriate manner. **CS.07.04.02.A**

**a.** Identify laws associated with environmental service systems. **ESS.02.01.01.A**

**b.** Identify the purposes of laws associated with environmental service systems. **ESS.02.01.01.B**

**a.** Identify hazards associated with the outdoor environment. **NRS.02.01.01.A**

**a.** Recognize biohazards associated with natural resources. **NRS.02.01.02.A**

**a.** Identify laws associated with natural resource systems. **NRS.02.05.01.A**

**b.** Identify the purposes of laws associated with natural resource systems. **NRS.02.05.01.B**

**a.** Define mitigation. **NRS.02.05.02.A**

**b.** Identify issues involving mitigation of natural resources. **NRS.02.05.02.B**

## Environmental Resource Management

**a.** Describe different types of solid waste. **ESS.04.02.01.A**

**b.** Evaluate environmental hazards created by different types of solid waste, solid waste accumulation and solid waste disposal. **ESS.04.02.01.B**

**a.** Discuss practical management options for treating solid waste. **ESS.04.02.02.A**

**a.** Define compost and composting. **ESS.04.02.04.A**

**a.** Explain the importance of recycling. **ESS.04.02.06.A**

**a.** Identify natural resources. **NRS.01.01.01.A**

**b.** Differentiate between renewable and nonrenewable natural resources. **NRS.01.01.01.B**

**a.** Define ecosystem and related terms. **NRS.01.01.02.A**

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**b. Describe the interdependence of organisms within an ecosystem.** [NRS.01.01.02.B](#)

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## Energy Conservation

**a. Identify conventional energy sources and list conservation measures to reduce energy consumption.** [ESS.05.01.01.A](#)

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**b. Identify advantages and disadvantages to conventional energy sources.** [ESS.05.01.01.B](#)

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**c. Evaluate the impact the burning of fossil fuels has on the environment.** [ESS.05.01.01.C](#)

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**a. Identify alternative energy sources.** [ESS.05.01.02.A](#)

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**b. Identify advantages and disadvantages to alternative energy sources.** [ESS.05.01.02.B](#)

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**c. Evaluate the impact of alternative energy sources on the environment.** [ESS.05.01.02.C](#)

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**a. Describe the value of minerals and ores to the economy.** [NRS.03.01.05.A](#)

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**a. Describe the value of fossil fuels to the economy.** [NRS.03.01.06.A](#)

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**a. Describe the benefits of hydroelectric generation.** [NRS.03.01.07.A](#)

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## Soil Conservation and Management

**a. Explain the process of soil formation through weathering.** [ESS.03.02.01.A](#)

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**b. Differentiate rock types and relate the chemical composition of mineral matter in soils to the parent material.** [ESS.03.02.01.B](#)

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**a. Describe the biodiversity found in soil and the contribution of biodiversity to the physical and chemical characteristics of soil.** [ESS.03.02.02.A](#)

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**a. Explain how the physical qualities of the soil influence the infiltration and percolation of water.** [ESS.03.02.03.A](#)

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**c. Conduct tests of soil to determine its use for environmental service systems.** [ESS.03.02.03.C](#)

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## Wetland Management

**a. Describe the functions of wetlands and differentiate types of wetlands.** [ESS.03.04.01.A](#)

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**b. Explain the criteria for classifying wetlands.** [ESS.03.04.01.B](#)

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**a. Identify the major types of living organisms that inhabit wetlands.** [ESS.03.04.02.A](#)

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**a. Explain the importance of wetland management, creation, enhancement and restoration programs.** [ESS.03.04.03.A](#)

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## Pasture and Rangeland Management

- a. Describe morphological characteristics used to identify herbaceous plants. [NRS.01.02.02.A](#)

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- a. Identify characteristics of healthy rangeland. [NRS.02.04.04.A](#)

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- b. Identify methods of rangeland improvement. [NRS.02.04.04.B](#)

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- a. Define invasive species. [NRS.02.06.07.A](#)

## Forest Ecology

- a. Describe morphological characteristics used to identify trees and other woody plants. [NRS.01.02.01.A](#)

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- b. Identify trees and other woody plants. [NRS.01.02.01.B](#)

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- a. Identify characteristics of a healthy forest. [NRS.02.04.02.A](#)

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- a. Define invasive species. [NRS.02.06.07.A](#)

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- a. Describe forest harvesting methods. [NRS.03.01.01.A](#)

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- a. Differentiate between desirable and undesirable fires and prepare a report on the role fire plays in a healthy ecosystem. [NRS.04.01.01.A](#)

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- a. Identify causes of diseases in plants. [NRS.04.02.01.A](#)

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- a. Identify harmful and beneficial insects and signs of insect damage to natural resources. [NRS.04.03.01.A](#)

## Wildlife Ecology

- a. Describe morphological characteristics used to identify wildlife species. [NRS.01.02.03.A](#)

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- a. Identify characteristics of a healthy wildlife habitat. [NRS.02.04.03.A](#)

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- b. Identify methods of wildlife habitat improvement. [NRS.02.04.03.B](#)

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- a. Explain population ecology, population density and population dispersion. [NRS.02.06.06.A](#)

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- a. Define invasive species. [NRS.02.06.07.A](#)

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- a. Identify wildlife species that can be sustainably harvested. [NRS.03.01.03.A](#)

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- a. Identify products obtained from wildlife species. [NRS.03.01.04.A](#)

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- a. Identify causes of diseases in wildlife. [NRS.04.02.02.A](#)

## Hydrologic Principles

- a. Describe the world's water supplies and discuss the many uses of water. [ESS.03.03.01.A](#)

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- b. Describe characteristics of water that influence the biosphere and sustain life.** [ESS.03.03.01.B](#)
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- a. Demonstrate knowledge of hydrogeology by differentiating between groundwater and surface water.** [ESS.03.03.02.A](#)
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- b. Describe interactions between groundwater and surface water.** [ESS.03.03.02.B](#)
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- a. Identify environmental hazards associated with groundwater supplies.** [ESS.03.03.04.A](#)
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- b. Describe precautions taken to prevent/reduce contamination of groundwater supplies.** [ESS.03.03.04.B](#)
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- a. Identify types of pollution and distinguish between point source and nonpoint source pollution.** [ESS.04.01.01.A](#)
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- b. Give examples of how industrial and nonindustrial pollution has damaged the environment.** [ESS.04.01.01.B](#)
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- a. Describe ways in which pollution can be managed and prevented.** [ESS.04.01.02.A](#)
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- a. Identify biogeochemical cycles.** [NRS.02.06.01.A](#)
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- b. Diagram biogeochemical cycles and explain the processes.** [NRS.02.06.01.B](#)
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- a. Describe properties of watersheds and identify the boundaries of local watersheds.** [NRS.02.06.02.A](#)
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- b. Relate the function of watersheds to natural resources.** [NRS.02.06.02.B](#)
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- a. Define riparian zones and riparian buffers, and explain their functions.** [NRS.02.06.04.A](#)
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- a. Describe sources of pollution and delineate between point and nonpoint source pollution.** [NRS.02.06.08.A](#)
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- b. Describe the impact of pollution on natural resources.** [NRS.02.06.08.B](#)
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## Aquatic Ecology

- a. Describe morphological characteristics used to identify aquatic species.** [NRS.01.02.04.A](#)
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- a. Identify the different kinds of streams.** [NRS.02.04.01.A](#)
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- b. Identify indicators of the biological health of a stream.** [NRS.02.04.01.B](#)
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- a. Define invasive species.** [NRS.02.06.07.A](#)
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- a. Define source water quality.** [ESS.04.03.02.A](#)
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## Air Pollution Management

- a. Identify components and structural layers of the earth's atmosphere.** ESS.03.01.01.A

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- b. Differentiate the types of weather systems and weather patterns.** ESS.03.01.01.B

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- a. Explain how meteorological conditions influence air quality.** ESS.03.01.02.A

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- b. Illustrate the formation of acid precipitation and explain its impact on the environment.** ESS.03.01.02.B

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- a. Explain climate change and recognize signs of climate change.** ESS.03.01.03.A

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- a. Describe ways in which pollution can be managed and prevented.** ESS.04.01.02.A

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## Recreational Resources

- a. Identify natural resource characteristics desirable for recreational purposes.** NRS.02.04.05.A

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- b. Identify natural resource management techniques for improving recreation opportunities.** NRS.02.04.05.B

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- a. Describe the processes associated with ecological succession.** NRS.02.06.05.A

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- a. Identify recreational uses of natural resources.** NRS.03.01.08.A