

CP Environmental Science

Reporting Standards

CP-ES-9.1	Analyze data to support explanations that biotic and abiotic factors determine ecosystem characteristics
CP-ES-9.2	Use a mathematical model to describe the transfer of energy from one trophic level to another.
CP-ES-9.3	Analyze effects of natural and human activities on biodiversity and ecosystem health and evaluate solutions.
CP-ES-9.4	Explain the structure and function of the four major macromolecules
CP-ES-9.5	Provide evidence that homeostasis maintains stability through cellular processes
CP-ES-9.6	Use a model that illustrates the roles of photosynthesis, cellular respiration, decomposition, and combustion to explain the cycling of carbon and the transfer of energy in ecosystems.

Learning Targets

CP-ES-9.1. Analyze data to support explanations that biotic and abiotic factors determine ecosystem characteristics				
	Limited	Developing	Proficient	Exemplary
CP-ES-9.1.1	I can define abiotic and biotic factors most of the time.	I can identify abiotic and biotic factors in an ecosystem.	I can explain how abiotic and biotic factors impact an ecosystem.	I can accurately predict how changing an abiotic or biotic factor would impact an ecosystem.
CP-ES-9.1.2	I can define some of the types of symbiotic relationships.	I can identify the different types of symbiotic relationships.	I can compare and contrast symbiotic relationships.	I can identify the symbiotic relationships in a real world ecosystem and explain their role in ecosystem stability.
CP-ES-9.1.3	I can define carrying capacity.	I can recognize factors that impact carrying capacity.	I can investigate and understand mathematical representations of the factors that impact carrying capacity	I can accurately predict how changing an abiotic or biotic factor would impact carrying capacity in an ecosystem.

CP-ES-9.2. Use a mathematical model to describe the transfer of energy from one trophic level to another.				
	Limited	Developing	Proficient	Exemplary
CP-ES-9.2.1	I can identify trophic levels in a food chain.	I can identify and define the different trophic levels.	I can describe the transfer of energy from one trophic level to another.	I can make predictions about how changes to biotic and abiotic factors can affect all levels of the trophic pyramid.
CP-ES-9.2.2	I can define the 10%	I can apply the 10%	I can apply the 10%	I can make predictions

	rule.	rule to the different trophic levels that are already labeled.	rule to the different trophic levels within a given ecosystem and explain why trophic levels are drawn as pyramids.	about how changes to biotic and abiotic factors can affect all levels of the trophic pyramid in respect to the 10% rule.
CP-ES-9.2.3	I define food webs and chains.	I can combine two food chains into a food web.	I can develop a food web for a given ecosystem.	I can accurately predict population changes within a food web given the removal or addition of a species.

CP-ES-9.3. Analyze effects of natural and human activities on biodiversity and ecosystem health and evaluate solutions.

	Limited	Developing	Proficient	Exemplary
CP-ES-9.3.1	I can define biodiversity	I can identify the natural events that impact biodiversity	I can analyze the effects of natural events on biodiversity	I can predict the impacts of a natural event on biodiversity
CP-ES-9.3.2	I can define biodiversity	I can identify the effects of human activities on biodiversity	I can predict the impact of human activity on an ecosystem.	I can predict the impacts of human activity on biodiversity
CP-ES-9.3.3	I can define a keystone species	I can identify an example of a keystone species	I can analyze the impact of keystone species on the ecosystem	I can predict the impact of the removal of a keystone species from an ecosystem

CP-ES-9.4. Explain the structure and function of the four major macromolecules

	Limited	Developing	Proficient	Exemplary
CP-ES-9.4.1	I can define the four macromolecules (lipids, proteins, carbs, nucleic acids).	I can identify the function of the four macromolecules (lipids, proteins, carbs, nucleic acids)	I can explain and describe the function and structure of the four macromolecules (lipids, proteins, carbs, nucleic acids)	I can apply knowledge of macromolecules to real life applications.
CP-ES-9.4.2	I can identify the correct order of an enzyme assisted chemical reaction.	I can summarize the steps of an enzyme-assisted chemical reaction	I can construct a model which describes the steps of an enzyme-assisted chemical reaction	I can apply the steps of an enzyme assisted chemical reaction to a real life scenario.
CP-ES-9.4.3	I can describe 1 environmental effect on an enzyme- assisted reaction.	I can describe the environmental effects of an enzyme assisted reaction	I can analyze data to summarize the effects of the environment on a chemical reaction	I can apply the concept of enzyme denaturation to real life applications.

CP-ES-9.5. Provide evidence that homeostasis maintains stability through cellular processes				
	Limited	Developing	Proficient	Exemplary
CP-ES-9.5.1	I can identify one type of transport.	I can define active and passive transport.	I can compare and contrast passive and active transport.	I can identify and describe examples of active or passive transport in real life.
CP-ES-9.5.2	I can identify the lysosomes or cell membrane in a cell.	I can list some functions of lysosomes and cell membranes.	I can explain and describe the functions of lysosomes and the cell membrane.	I can analyze the structure and function of the cell membrane and lysosomes in regards to homeostasis.
CP-ES-9.5.3	I can define homeostasis.	I can identify an example of homeostasis.	I can explain how cellular processes can contribute to homeostasis.	I can predict the outcome of homeostatic imbalances when applied to cellular processes.

CP-ES-9.6 I can use a model that illustrates the roles of photosynthesis, cellular respiration, decomposition, and combustion to explain the cycling of carbon and the transfer of energy in ecosystems.				
	Limited	Developing	Proficient	Exemplary
CP-ES-9.6.1	I can identify the carbon cycle.	I can identify the major events associated with the carbon cycle.	I can explain the cycling of carbon in its various forms.	I can apply concepts of the carbon cycle to real life applications (eg climate change).
CP-ES-9.6.2	I can identify terms associated with photosynthesis and cellular respiration.	I can identify the inputs and outputs of photosynthesis and cellular respiration.	I can explain how the inputs and outputs of photosynthesis and cellular respiration are related.	I can model the relationship between photosynthesis and cellular respiration.
CP-ES-9.6.3	I can identify major terms involved in aerobic and anaerobic respiration.	I can describe the difference between aerobic and anaerobic respiration.	I can compare and contrast the function and applications of aerobic and anaerobic respiration.	I can model aerobic and anaerobic respiration in real life applications.