

UNIT 9

Grade	10
Unit of Study	Populations & Nutrient Cycles
Length of Unit	3 weeks
Sample Essential Questions	Sample Corresponding Big Ideas
What influences the growth of a population?	Density-dependent and density-independent limiting factors determine the growth of a population.
What ways can populations grow?	Two patterns of population growth can occur: exponential & logistic. Logistic is influenced by limiting factors & the carrying capacity of an ecosystem.
How do nutrients cycle through the environment?	Nutrients move through the biosphere, geosphere, atmosphere, and hydrosphere.
How do human actions affect the growth of populations?	Human actions affect the availability of nutrients for populations, and can stop the cycles altogether.

Missouri Learning Standards	
<u>Biology Power Standards</u>	Supporting Standards
Power Standard 4: I can investigate ecosystems and interactions of organisms with each other and their environments and compare and contrast the diversity among different organisms.	LS2.A.1, LS2.B.2, LS2.B.3, LS2.C2

Unit 9 Sequence			
MLS	Topic(s)	Learning Targets	Academic Vocabulary
LS2.A.1	Limiting Factors	I can explain how the density of population can influence what factors limit growth in a population.	Limiting Factors Density-dependent Density-independent Carrying Capacity

LS2.B.2	Nutrient Cycles	I can explain how molecules are conserved as they move through ecosystems. I can describe how cycles are disrupted by human activity.	Decomposition Fixation Percolation Denitrification Transpiration
LS2.B.3	Carbon Cycle	I can explain how photosynthesis, cellular respiration, and human activities impact the amounts of Carbon on Earth.	Combustion Fossil Fuel Organic
LS2.C.2	Human Impact on the Environment	I can give specific examples of how human actions affect populations and biodiversity on Earth.	Biodiversity Fragmentation Deforestation Overexploitation Poaching Global Warming

MLS	Learning Activities	
LS2.A.1	Otter Game	Must Do ▾
LS2.B.2	Nutrient Cycling in the Pacific Ocean	Must Do ▾
LS2.B.3	Gecko Global Warming	Must Do ▾
LS2.C.2	Human Impact Slides	Must Do ▾

Assessments		
MLS	Description or Location	Rubric/Location
LS2.A.1 LS2.B.2 LS2.B.3 LS2.C.2	Unit 9 Test	Pear Assessment

Additional Resources	
Quizizz.com , Blooket.com , Quizlet.com , Openstax.org	