

- HS-LS2- 1. Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales. [Clarification Statement: Emphasis is on quantitative analysis and comparison of the relationships among interdependent factors including boundaries, resources, climate, and competition. Examples of mathematical comparisons could include graphs, charts, histograms, and population changes gathered from simulations or historical data sets.] [Assessment Boundary: Assessment does not include deriving mathematical equations to make comparisons.]

Engage

<https://thewonderofscience.com/videos/2017/12/10/ls2c-ecosystem-dynamics-functioning-and-resilience>

<https://thewonderofscience.com/phenomenon/2018/5/14/attack-of-the-killer-fungo>

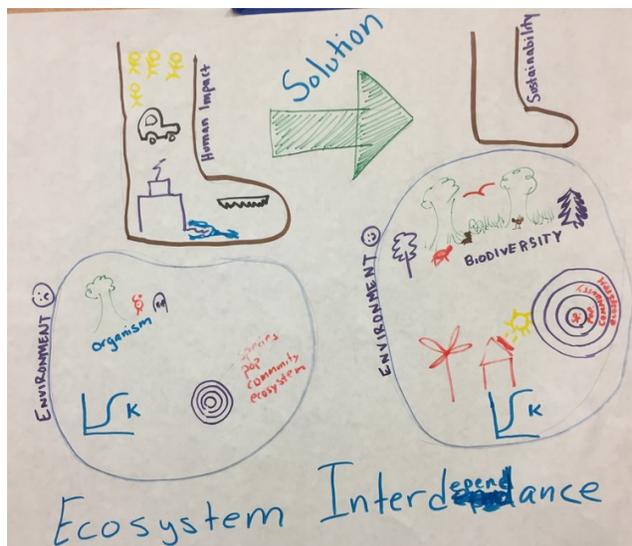
Exploration

https://learn.concord.org/eresources/658.run_resource_html?logging=true

In this activity, students will use a computer model to observe population explosions.

Explanation

Have students work together on collaboration charts. They are to draw and/or write anything that comes to mind when thinking about Ecosystem interdependence and sort the information on their chart.

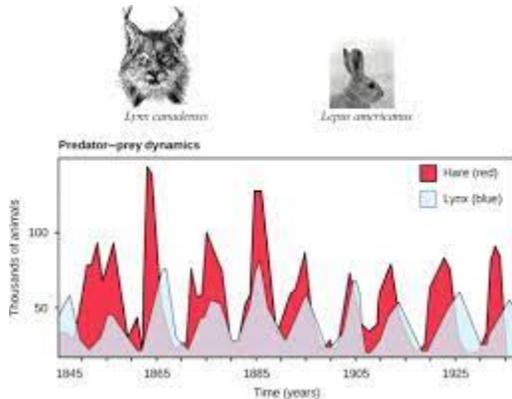


Elaboration

Students will practice looking at graphs and determining Ecosystem interdependence

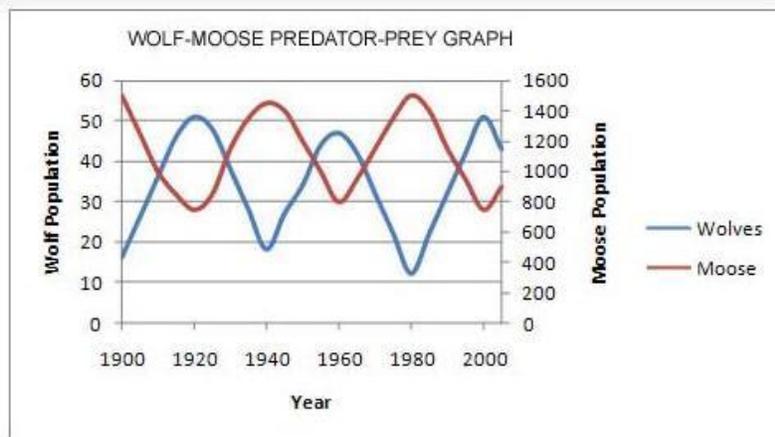
Scenario 1

The lynx is a predatory cat that depends on the snowshoe hare for food. Review the trend in the graph. What happens when the population of one species changes? What does this trend say about the interdependence of these two species?



Scenario 2

This predator-prey graph tracks the wolf and moose populations in a certain ecosystem over the past hundred years. What is most likely the carrying capacity for moose in this ecosystem?



Students can break up into groups and each group will pick a different environmental factor that is affecting Mammoth Cave (a local National Park). They will do some research on the impact of this environmental factor.

<https://www.nps.gov/mac/learn/nature/environmentalfactors.htm>

Evaluation

<https://drive.google.com/file/d/11a6XO604pq2UWcMmP-MNVQcyfhrf4Zzq/view?usp=sharing>

I found this evaluation on quizizz.

Art integration:

I would love to expand on the Explore part of the lesson plan. Once the students have researched the impacts of the environmental factors for Mammoth Cave, they could create an infographic on www.canva.com . The next step would be to send these infographics to the school newspaper, the local newspaper and to Mammoth Cave so that other students could be made aware of these issues. This could even be extended with some of the clubs at school to volunteer and help with these environmental factors.