



## Next Generation Science Standards

Lesson: [Survival Game](#)

Activity: [Ruffe Musical Chairs](#)

### Prior Knowledge Should Include:

- Animals obtain food they need from plants or other animals. Plants need water and light.
- Organisms and populations are dependent on their environmental interactions both with other living things and with nonliving factors, any of which can limit their growth. Competitive, predatory and mutually beneficial interactions vary across ecosystems, but the patterns are shared.
- When the environment changes some organisms survive and reproduce, some move to new locations, some move into the transformed environment and some die.

### Performance Expectations:

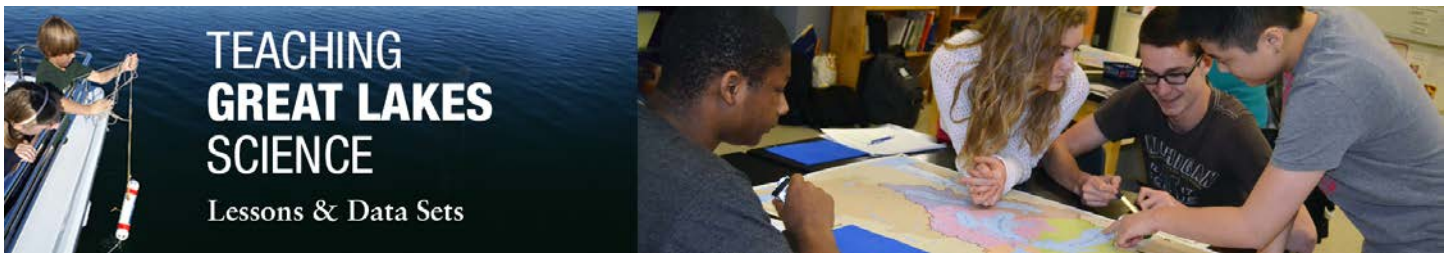
- MS-LS2-1 Ecosystems: Interactions, Energy and Dynamics: Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- MS-LS2-4 Ecosystems: Interactions, Energy and Dynamics: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

### Disciplinary Core Ideas:

- **LS2.A Interdependent Relationships in Ecosystems:** Organisms and populations of organism are dependent on their environmental interactions both with other living things and with nonliving factors. In any ecosystem, organisms and populations with similar requirements for food, water, oxygen and other resources may compete with each other for limited resources, access to which consequently constrains their growth and reproduction. Growth of organisms and population increases are limited by access to resources.
- **LS2.C Ecosystem Dynamics, Functioning and Resilience:** Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations.

### Practices:

- **Analyzing and Interpreting Data (4)** – Progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis.
- **Engaging in Argument from Evidence (7)** – Progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed worlds.



**Crosscutting Concepts:**

- **Cause and Effect** – Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.
- **Stability and Change** – For natural and built systems alike, conditions of stability and determinants of rates of change or evolution of a system are critical elements of study.

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