



Grade 3 Teacher Resource- Ecosystem Balance Activity

This Booklet

Curricular Outcome: Science 3 “Living things are diverse, can be grouped, and interact in their ecosystems.”

Core Concepts:

Ecosystems are made up of many interconnected living things.

Plants and animals depend on one another for food, shelter, and survival.

Changes to one element of an ecosystem can affect many living things.

Beringia was host to a diverse community of plants and animals that connected to each other.

Big Questions:

How are living things connected in an ecosystem?

What happens when one plant or animal disappear from an ecosystem?

Why is every living thing important for a balanced ecosystem?

Learning Outcomes:

Students will:

Identify herbivores, carnivores, and omnivores within Beringia.

Describe the survival relationships between living things.

Demonstrate how energy moves through a simple food web.

Explain how one change in an ecosystem can impact the rest of it.

Recognize that healthy ecosystems rely on biodiversity and balance.

Introduction:

Materials Needed:

Ball of yarn or string

Species cards (Attached file)

Open space for students to stand in a circle

Students will stand in a circle with groups of 2-3 representing different plants and mammals. With their species cards, students will explain their role. Using yarn, students will connect themselves with each other to show the interconnectedness of the ecosystem.

Start by introducing the concept of an ecosystem. Ask students if they know what an ecosystem is, brainstorming ideas on a whiteboard.

This video does a good job introducing the concept of an ecosystem, although the abiotic/biotic distinction is not entirely necessary for this exercise:

<https://www.youtube.com/watch?v=sKJoXdrOT70>

Following the video, resume the brainstorm. Now students should have a more definitive understanding of what an ecosystem is and what it contains. Now ask students: do animals live separately or do they depend on each other? This should be fairly easy for students to answer following the video.

Main Activity:

Now, divide students into eight equal groups. Each group will receive a species card containing information about their species. Students need to identify whether their species is a producer, herbivore, omnivore, or carnivore, and what other species they interact with.

Now, groups will stand in a circle. One group will begin holding the ball of yarn. They will briefly explain their species before passing the yarn to a group they interact with directly (there can be more than one group that they pass it to). *If a species is connected to more than one other species, they may need to pass the yarn back and forth (e.g. scimitar cats eat both caribou and bison, so they will pass the yarn to the “caribou”, back to the scimitar, and then to the bison). Eventually, everyone will be holding a piece of the yarn. Ask students: what does the yarn represent? What does it mean that everyone is connected? Are some species connected to more than one other species? Why?

The next step is triggering an ecosystem disruption ex. “a drought causes grasses to disappear” or “Humans overhunt x species.” The affected species will drop their yarn. Now, the students affected directly will drop their yarn and explain why they can no longer survive. Ex. If grass disappears, caribou no longer have anything to eat, leaving an apex predator with nothing to eat.

After this is completed, it can be done again with the species cards redistributed so students can complete the exercise from a different perspective.

At the conclusion of the activity, engage in a class discussion. Here are some ideas to discuss:

1. What happened when one species disappeared?
2. Why are plants so important to animals, even for carnivores who don't eat plants?
3. Why do changes to one species affect so many others?
4. How can humans protect ecosystems?