



Queen's University Indigenous Land-Based Learning STEM Queen's University Biological Station

# Rich vs. Barren Habitat Activity

This activity has been adapted from RiverVenture.

### GOALS OF THIS ACTIVITY:

Through this activity, students will develop an understanding of the interconnectedness in food webs and see how one species directly affects other populations. This activity will be done twice: once with a **rich habitat** and once again with a **barren habitat**. At the end of both versions, students will leave with the understanding that an ecosystem with more diversity can withstand changes associated with invasive species, pollution, hunting, drought, or climate changes more effectively than an ecosystem with less biodiversity.

### MATERIALS YOU WILL NEED:

- Yarn
- Index cards (one for each student)
- Hole puncher
- Markers

#### INSTRUCTIONS:

- For the first run through of this activity, students will be using a set of index cards for a **rich ecosystem**. Write the names of a variety of plants and animals on index cards. This can be done beforehand or by students at the beginning of the activity. Use specific examples that students have observed, i.e., producers, consumers, and decomposers (bacteria and fungi). Be sure to include the sun.
- Punch a hole in the top of each card and thread a piece of string through the hole. Give each student a card with string and have them wear it around their neck.
- This activity relies on students practicing their ability to identify different energy and food sources. To begin this activity, have students gather in a circle and hand one student a ball of yarn (do not give the ball of yarn to a student with the sun).



Queen's University Indigenous Land-Based Learning STEM Queen's University Biological Station

• The first student will identify an energy/food source for the organism on their card, hold one end of the yarn, and then pass the rest of the ball to the student who they made a connection with. This second student will then find an energy/food source that is used by the organism written on their card and pass the ball of yarn to them.

This pattern will continue until the ball of yarn is passed to the sun. Each time the ball is passed to the sun, cut the yarn and take the remaining ball to start again with another student. **Note:** All plants should pass the ball of yarn to the sun.

- **Example:** A student whose index card is a rabbit could choose to pass the ball of yarn to another student who has grass on their index card. The student with grass would then pass the ball of yarn to a student who has the sun card and the yarn would be cut off.
- After running this activity for a set amount of time, discuss with students how this activity shows us that living things are dependent on one another.
- This activity will then be repeated again, but for this part of the activity, students will be given index cards that relate to a **barren ecosystem**.

## **DISCUSSION PROMPTS:**

- What would happen if just one species was removed from the web?
  - To help students experience the impact that this would have, choose one species and have that student pull on all the strings they have in their hand. Any student who feels their own yarn being pulled would be directly affected by that species.
- What would happen to the food web if a species became extinct?
  - To mimic this, choose certain organisms to drop their strings. How are other organisms affected when that species became extinct?
  - What populations would grow or decline?
- What did you notice between the two versions of the activity? Why is biodiversity important?