



Activity - 3

Biodiversity Loss Musical Chairs

Subject or subjects	Science, Geography, Biology, Ecology
Age/Level	This activity is suited for students aged 9 – 12
Time required	Approximately 45 minutes/most of a class period
Learning goals	Students will simulate effects of deforestation, extreme weather events, urban expansion, etc. that lead to habitat loss for many species. They will reflect critically on how biodiversity loss negatively impacts the ecosystem and reflect on the role that any species has in the forest environment. At the end of this activity students will be able to: • Understand how human activities increase habitat loss for many species and disrupt ecosystem services. • Identify the consequences of biodiversity loss, especially for humans 21st-Century Skills Enhanced • Systems Thinking & Critical Analysis – recognizing interconnections and chain reactions.
Prior knowledge & skills	Basic knowledge of plants and animals, especially in forest environments, is necessary
Materials, resources & settings	• Classroom, single chairs (around 20-25) • Species role cards (see annex)
Community/Stakeholder Involvement (optional)	N/A

Activity description

This activity follows the same rules of the game *musical chairs*, based on participants walking around chairs while music plays and competing to sit down quickly when the music stops, with one chair removed each round.

The objective of this activity is to raise students' awareness of the loss of species' habitats and its impact on the natural environment, as well as on human livelihoods. The activity includes an annex of role-play cards (see attached) used to assign a specific species to each student, along with guidelines for teachers to facilitate discussion and encourage critical reflection.

Each card features an image and the name of the species on the front, and a brief description of its habitat and role within the ecosystem on the reverse side.

Step 1: Prior to the lesson, print the species role cards. Begin the session on environmental degradation (Module 1 – Unit 4). At the end of the lesson, provide a brief overview of the ecosystem services delivered by different species and their respective habitats (refer to the final slide of the unit presentation).

Step 2: Using the species cards, assign each student a species role. More than one student may share the same role; however, ensure an even distribution among species, particularly in smaller classes, and that all species are represented to simulate a forest ecosystem within the classroom. Depending on class size, each species role should be assigned to approximately 3–4 students.

The example provided refers to a forest environment.

The following roles can be assigned:

- 1. **Trees:** provide carbon sequestration, oxygen production, climate regulation, habitat provision, and soil stabilisation (i.e. oak, birch, cypress, pine)
- 2. **Shrubs and other plants:** support biodiversity, prevent soil erosion, and provide food and shelter for wildlife (i.e. hazelut, sagebrush, elderberry)
- 3. **Pollinators:** ensure plant reproduction and the maintenance of forest plant diversity (i.e. bees, butterflies, beetles, wasps, bats)
- 4. **Soil engineers and decomposers:** maintain soil fertility, nutrient cycling, and organic matter decomposition (i.e. fungi, earthworms, bacteria and microorganisms)
- 5. **Seed dispersers:** contribute to forest regeneration (i.e. squirrels, deer, wild boars, small birds)
- 6. **Predators:** contribute to population control, maintain ecosystem balance (i.e. wolves, foxes, large birds of prey)

Step 3: Arrange 20–25 individual chairs (one per student, depending on class size) in a circle in the centre of the classroom or in a larger available space. If weather conditions permit, the activity may also be conducted outdoors. The chairs represent the forest ecosystem as a whole. Ask students to sit on any chair of their choice; this represents a balanced and undisturbed ecosystem.

Step 4: If necessary, briefly explain the rules of the musical chairs game. Using a computer, mobile phone, or other audio device, play music for approximately 20–30 seconds while removing one chair. When the music stops, all students must try to sit down. The student who is unable to find a seat represents a species that has been eliminated from the ecosystem due to human activities or climate change. This student should briefly introduce the species they represent and explain its role within the ecosystem, then step out of the circle.

The game is repeated and each time one student leave the circle.

Once one species is completely eliminated from the game, the teacher make the students reflect on the repercussions of deforestation followign suggested questions provided in the annex guidelines. For example:

- *How does one species habitat loss affect other species in the ecosystem?*
- *What happens when all of the forest is removed? Where can these species go?*

Repeat the game, removing one chair each round so that one student exits the circle each time. When all individuals representing a specific species have been eliminated, guide a reflection on the consequences of habitat loss, using the suggested questions provided in the annex. For example:

- *How does the loss of one species' habitat affect other species within the ecosystem?*
- *What happens when the entire forest is removed? Where can these species relocate?*

These questions should first be addressed to students representing the eliminated species, and then opened to the wider class (inviting students to raise their hands and wait to be called upon) if further input is needed.

Step 5: During or at the end of the activity, facilitate a broader reflection on how deforestation affects ecosystem balance and human livelihoods. Suggested guiding questions include:

- *Without natural pest controllers, what happens to pest populations?*
- *When humans take over natural habitats, where do displaced species seek refuge?*
- *What are some of the environmental and human health impacts associated with deforestation (e.g. spread of diseases, loss of pollinators, increase in predators)?*
- *What are the interconnections between biodiversity loss and climate change?*



Accessibility & Inclusion	Teachers should ensure that all students are able to participate by clearly outlining the rules of the game both verbally and written on a white board (or similar). For students that have difficulties hearing, the teacher should make sure the reflection questions are written on the white board or a piece of paper. For students who have difficulty speaking, they should be given an opportunity to record their responses on a piece of paper. Students with limited disability can be assisted by the teacher or other students if they are able, or else they can remain seated permanently and be engaged by activating and stopping the music device. The teacher will establish clear rules that allow every student an opportunity to respond to the reflection questions by asking them to raise their hands and wait to be called upon before responding. The teacher must also ensure that students play the game fairly and are respectful of others, avoiding pushing, shoving and name calling.
References / Bibliography	N/A
Assessment	
Formative Assessment	Teachers will assess student's performance and ability to follow instructions throughout the activity. Teachers can focus their assessment on students' ability to: • Respect for rules of the game and not display disruptive behavior (pushing, shoving, name-calling, etc.) • Provide clarity and relevance to their reflection responses • Demonstrate a correct general understanding of the effects of deforestation and biodiversity loss, as well as human activities that contribute to these • Respect for other students and remaining silent until called upon to answer a reflection question
Summative Assessment (if applicable)	Using the compiled student responses to the reflection questions, teachers can briefly report on how well students understand the deforestation and biodiversity loss and their connection to climate change after teaching the lesson and conducting the activity.



Student Self-Assessment (optional)	<i>Students can give a quick self-rating on how they answered the reflection questions and how well they participated in the game ("What did I learn?, What will I improve?", etc.)</i>
Peer Feedback	N/A
Documentation, Evidence & Follow-Up	
Evidence to Collect	<i>Photos of students playing the game (with permissions) and answering reflection questions; compile student responses to reflection questions (can collect verbally and record responses on paper or whiteboard, or else students can send their responses via <u>Wooclap</u>, <u>Slido</u>, <u>Mentimeter</u>, or similar platforms).</i>
Impact Tracking	<i>Before beginning the lesson, teachers can ask students what they know about the topic. This can be assessed through open-ended questions, administered verbally and/or on paper. Then at the end of the lesson and activity, teachers can identify whether the students' knowledge of the topic has been improved by asking the reflection questions suggested and adaptations of the questions asked before beginning the lesson.</i>
Dissemination	<i>Teachers can share the outcomes of the activity through the school's social media, newsletter, and internal reports, as well as during meetings with parents and other teachers and school staff.</i>
Next Steps	<i>Ask students if they can think of a similar game or activity that they have done at home, in another class, or a previous year and describe it to the class. Then ask students if they have feedback or suggestions for improving the experiment/activity.</i>
Teacher Reflection	
<i>What worked well & why?</i> <i>What would I change next time?</i> <i>Evidence of learning (how well did students understand the topic based on the reflection questions?)</i> <i>Inclusion & wellbeing: who was (and was not) reached?</i>	