

Design for Biodiversity

Estimated Time: 60-90 minutes

SUMMARY

Kids explore habitat fragmentation what happens the habitat for plants and animals gets broken up—a process called habitat fragmentation. They will investigate possible solutions of habitat fragmentation and then design and build models that connect habitats and increase survival rates of species.

WHAT YOU'LL LEARN

- How habitat fragmentation threatens animal species
- How we can design spaces for animals to live effectively near humans

Materials Used	Resources Used
<ul style="list-style-type: none"> • A piece of cardboard to serve as a base for the model. • Craft supplies (whatever you have is good, but toilet paper and paper towel rolls, colored paper, scissors, and glue are great starts) • Adding in special materials like grass or moss is fun. 	<ul style="list-style-type: none"> • Fragmentation and Edge Effects Video: https://www.youtube.com/watch?v=jPu9DbstlDw

WHAT TO DO

1. This activity explores how we can design and protect areas for animals effectively. The key factors to keep in mind, habitat fragmentation and edge effects, are covered in the [video](#) included in the resources section. The video isn't geared towards young children, so it may be helpful to review it yourself and cover these two topics:
 - a. **Habitat fragmentation** - The “cutting up” of intact forest or other habitats to provide access and/or extraction of resources.
 - b. **Edge Effects** - The boundary between two habitats (a forest next to a corn field, for example) and the effects on life near this boundary. Think of how different the first few steps into a forest are from being in the middle of a forest.
2. You are going to build a nature reserve—a protected area that is home to plants, animals, and/or important geological features that are managed by people for the purpose of conservation. Determine the type of ecosystem you would like to create with your nature reserve model. It may be helpful to think of the types of organisms your reserve will protect first. For example (it helps to write this down):
 - a. Will it be a forest, a prairie, a desert, or maybe a coral reef or estuary?
 - b. Where is it located? Is it somewhere in the tropics, in the Midwest of the U.S., in a colder, northern country or state in the Northern Hemisphere like Canada or Alaska?
 - c. What type of organisms live in this ecosystem and which organisms in your ecosystem are of particular concern?

3. Build a model of your wildlife preserve that is interrupted by a pasture and by a busy road (your fragmenters). If you are building a marine nature reserve, like a coral reef or estuary, your nature reserve can be interrupted by a fish farm and fishing boats that destroy the ocean floor like commercial trawling fishing vessels.
 - a. Use a large cardboard piece as the base for your model.
 - b. Refer back to your answers from Step 2 to make sure your model matches what you want it to be.
4. Add the following feature to your nature reserve:
 - a. Buffer zones against human activities and habitat degradation (reduce edge effects)
 - b. Wildlife corridors to link habitat islands (for animals to travel, making the habitats bigger by combining them)
5. Think about how your reserve works. How can you design your reserve to increase the ability for organisms to survive and reproduce? Ideally, the modeler should share their model and explain these points with someone that didn't participate.

TIPS

- When picking out supplies, you don't need to get all of them before starting. The process of identifying what they need and finding something that works is a great critical-thinking activity.
- Decide how big you want this model to be beforehand and cut the cardboard before starting. Children may want to start with an enormous base, but will then get discouraged or lose interest before finishing.
- This is an excellent cooperative activity, so having your kids work together, or helping yourself (as a teacher I made random demands like including a fountain with a statue of myself) is great to add in.