# Ecosystem Survivor [ME]

*Adapted from Smithsonian Institute Ocean Portal*

**Grades:** 3-5
**Time:** 45 minutes to 1 hour

**Goals:** To understand what living and non-living things organisms need to survive.

**Objectives:**
Students will be able to: differentiate between living and non-living things; understand what essentials are needed for survival; demonstrate interactions between organisms and their ecosystems; and explain what happens when resources for survival become limited.

**Key Words:**

| | | |
|---|---|---|
| Ecosystem | Habitat | Survival needs |
| Ecology | Ecologists | Limited resources |
| Population dynamics | Predator-prey relationships | |

**Background Information:**
*Adapted from Dialogue For Kids*
Just like our homes, species require a place to live. Some of our homes are as small as a loft or as large as a mansion; the same holds true for other species. Their homes, or habitats, can be as small as their den or burrow, or as large as a whole ocean. Within our habitats, we all require certain things to survive: food, water, oxygen, and a place to live or shelter.

Where we can go to a supermarket to purchase our food, other species have to hunt and gather their own, so a main requirement of their habitat would be an abundance of a food source. For herbivores, or primary consumers, their food source would most likely be found in an open meadow, a field, or a dense forest floor. In the marine ecosystem, their food source would be phytoplankton, algae, eelgrass, seaweed, or kelp. For omnivores, or secondary consumers, their habitat would be wherever their primary food source was located. This is a main reason for many secondary consumers migrating into and out of large habitats, to follow their food source.

Since all species have the same basic requirements, it is not uncommon to find many different species occupying the same habitats. All of these species will interact with each other, as food sources, potential mates, rivals for territory, or groups such as flocks, pods, or herds. Together, they create a community within their habitat.

When we look at species diversity, we are looking at the number of individuals within a species as well as the number of different species within one habitat. When we say that a habitat has high biodiversity, it means that there are a lot of different species and individuals occupying that one habitat. But, when a habitat exhibits low biodiversity, it could mean something is wrong within that habitat. Sometimes low biodiversity can be caused by habitat destruction from humans, decreasing the amount of space and food sources available to the species that occupy it.

When there is low biodiversity, we often will designate an area as a "critical habitat" that must be protected and conserved by law to prevent any further damage. Sometimes though, it is too late for species to survive in such low numbers and without proper food and shelter, and they go extinct. By surveying different habitats, we can understand how species interact with each other, how many individuals are located within the habitat, and whether the habitat needs to be protected from further human interference.

**Directions:** In the space provided below, design an imaginary species that must survive in an imaginary habitat. Include a full description of your habitat and the things your species needs to survive.