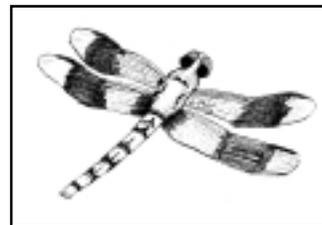


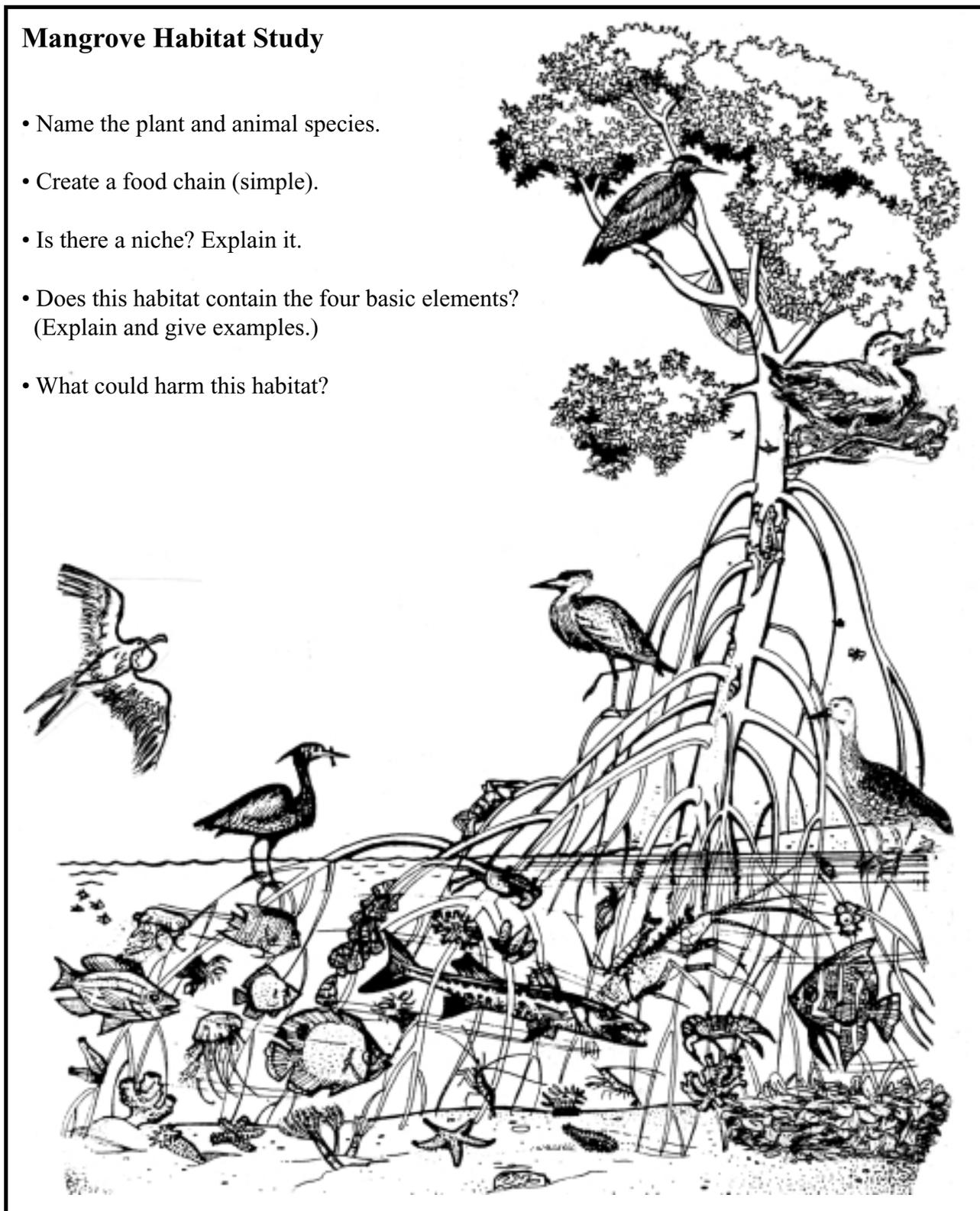
# MANGROVES AS HABITAT

---



## Mangrove Habitat Study

- Name the plant and animal species.
- Create a food chain (simple).
- Is there a niche? Explain it.
- Does this habitat contain the four basic elements? (Explain and give examples.)
- What could harm this habitat?





Plants; Webs and Connections

## Activity 2-C: Mangrove Story Board

**Summary** This activity focuses on the mangrove's importance to juvenile fish and other animals by having students participate in creating a felt story board while listening to a story about Sphyaena, the Great Barracuda.

### **Learning Objectives**

Students will be able to:

- (a) describe the different relationships that occur in a mangrove ecosystem—water cycle, food chains;
- (b) define the words **habitat**, **mangroves**, **salinity**, **detritus**; and
- (c) list the basic requirements all living things need to survive.

**Age Levels** 4–11

**Subject Areas** Science, language arts, art

**Time** 30–60 minutes

**Materials** A felt board divided as follows, from the top down:

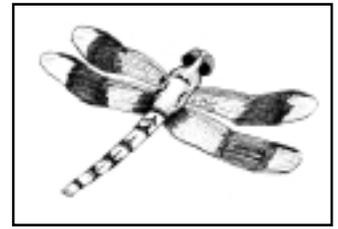
- blue sky in the upper section
- an area of high land (bluff), coloured grey or black
- an area of savanna, coloured green
- soil, coloured brown
- shallow water, coloured light tan
- shallower ocean, coloured blue-green
- deeper ocean, coloured darker blue

Cut-outs in felt, **or** drawings (use enlarged copies of illustrations in unit handouts or field guide) that have been laminated, with Velcro attached to the back, **or** cut-outs of coloured construction paper with tape attached to the back. Have students prepare these as they would for a class mural. Cut-outs should include:

- a sun (to represent energy source)
- a cloud or two (for discussing the water cycle)
- mangrove trees—red, black, white, and buttonwood
- saltwort and sea grass
- animals that fly and live in the trees—boobies, frigatebirds, Yellow-throated Warblers, herons, pelicans, Ospreys (merlin or fish-hawk)
- reptiles that live in the trees—anole lizards and frogs
- spiders and insects— such as mosquitoes, dragonflies, and bees—that live in the trees and fly in the air
- animals that live in the mud and dead mangrove leaves, such as clams, oys-

# MANGROVES AS HABITAT

---



ters, sponges, sea squirts, snails, crabs (fiddler and mangrove), worms, amphipods, and water striders

- animals that live in the water (young, getting older towards the deeper water) such as turtles, barracuda, snapper, flounder, shrimp, upside-down jellyfish; birds such as West Indian Whistling-Ducks, herons, stilts, snipes, and other shorebirds

*Note: If felt is unavailable for cut-outs, use coloured construction paper or colour part of each section to indicate its composition. A poster depicting a typical mangrove ecosystem is just as effective if a felt board cannot be obtained.*

**Background** The mangrove wetland is a unique setting that provides habitat, or home, for a variety of animals that are all completely dependent on the mangroves for the food, water, and shelter that they provide. You can also include the following concepts during your presentation, leading into further discussions on life cycles, food chains, and predator-prey relationships.

**productivity**—The flow of energy that starts with the sun and is captured by photosynthesis, which enables plants to grow and thus the rest of the ecosystem to develop. With plenty of sunshine, water, and mineral resources, the mangroves are among the most productive ecosystems in the world.

**abiotic**—Non-living elements that are present in the mangroves—water, clouds, mud, sun, and climate—that determine what will live here.

**producers**—Plants that harvest energy from the sun in the process known as photosynthesis.

**primary consumers**—Organisms that eat plants, such as grazing animals, birds, and insects.

**secondary and tertiary consumers**—Predators that eat animals.

**decomposers**—Micro-organisms responsible for decay.

**detritus**—The term used to describe dead and decaying plants and animals.

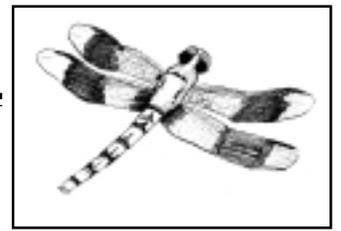
**Procedure** When all the materials have been assembled, have students place appropriate items on the board as you lead a discussion on what can be found in the mangroves. They may come up and select items from an assortment at the front of the class, or provide ones they have made. You might want to cover what lives where in the mangroves so students will focus on what to look for and where. On visits to mangroves, students and teachers are often amazed at what they find in the mud, so this is a good part to emphasize in your discussion.

## **Discussion/Reflection**

Tell the following story, using the felt board and cut-outs to illustrate what you are saying. Involve the students by encouraging them to answer your questions. (Correct answers, along with suggestions to the teacher, are in italic type, in square brackets.)

# MANGROVES AS HABITAT

---



DOES ANYONE KNOW what mangroves are? Mangroves are amazing plants—they're trees, really—that grow in salt water on the edge of the ocean. In a few moments we will see how important the mangroves are as habitat.

Sphyraena Barracuda, the Great Barracuda, was born from an egg tucked away safely behind a cluster of Red Mangrove roots. As he grows, before he moves to the reef where he will establish his territory and spend the rest of his life, he lives among those same mangrove roots. What a strange world to grow up in, but what an exciting place to explore! And there's so much to eat—hundreds of pinfish and mojarras in silvery schools. Still and silent, Sphyraena Barracuda waits in more open water for a small fish to stray from the school; then, suddenly, he snaps it up for a tasty meal.

But Sphyraena Barracuda is only six inches long, and there are others who would like to make a meal of him. From the surface of the water, he catches a glimpse of a slow-moving shadow. What do you think it is? *[A great blue heron.]* Where would be a good place to hide? *[Among the roots of the Red Mangrove. Briefly describe life in the mangrove roots and why it is so productive.]* What other animals might we see here that would use the shelter of the Red Mangrove roots? *[Ghost shrimp, mangrove crabs, fiddler crabs, young lobsters, amphipods, and isopods.]*

“Hmmm . . . looks like there are some interesting things to eat here,” says Sphyraena Barracuda, as he spies a tasty ghost shrimp. The amphipod and the ghost shrimp use the mangrove roots for shelter, but they also find lots of food to eat in the muddy layer of ooze underneath the dead mangrove leaves, called **detritus**.

Where did this rich stuff come from? It is made up of dead and decaying plants and animal material that have fallen from the mangrove trees and flowed down from the land when it rained. There is a good supply of invertebrates here in this rich habitat, and the barracuda's survival depends on this healthy aquatic habitat.

Let's review what the young barracuda needs in order to survive.

- *Food*—The barracuda eats tiny fish, fry, and some aquatic insects like isopods and amphipods.
- *Shelter*—The Red Mangrove roots give the barracuda a place to hide and find food, and also shelter the food the barracuda needs.
- *Water*—All animals need a good supply of water. In the years when there is drought, barracuda sometimes find it hard to make it back into the mangroves to lay their eggs. Also, the water flow into the mangroves carries much of the rich sediment we call detritus, which is necessary for a healthy ecosystem.
- *Space*—The barracuda needs adequate space. If a species is overcrowded, there is too much competition for food, and the animals become stressed.

All these factors make up habitat.

Later, when we explore the mangroves, you'll meet some of these animals and look at some of their adaptations—like how they move, breathe, and feed in this ever-changing environment called the mangrove swamp.