

# Study Guide for Biomes, Symbiotic Relationships, and Levels and Organization

## Biomes

### Tropical Rainforest

Where would you find this biome?

What are some of the characteristics of a rainforest biome?

### Desert

Where would you find this biome?

What are some of the characteristics of a desert biome?

### Arctic Tundra

Where would you find this biome?

What are some of the characteristics of a tundra biome?

### Temperate Forest

Where would you find this biome?

What are some of the characteristics of a temperate (deciduous) forest biome?

### Taiga

Where would you find this biome?

What are some of the characteristics of a taiga (boreal) biome?

### Grassland

Where would you find this biome?

What are some of the characteristics of a grassland biome?

## Aquatic Biomes

Where would you find these biomes?

How many types are there?

What are some of the characteristics of these biomes?

## **Symbiotic Relationships**

- *Symbiosis:*
- *Mutualism:*
- *Predation:*
- Parasitism:
- Commensalism:
- *Competition:*

Species	Description of interaction	Type of symbiosis
Zooxanthellae/Coral	Zooxanthellae live in coral tissue. Zooxanthellae are algae that provide products of photosynthesis to coral. The coral provide a home and protection (since coral have stinging cells) for the algae.	
Clown fish/Sea anemone	Clown fish get protection from the anemone's stinging tentacles. The clownfish eats invertebrates that the anemone attracts.	
Cleaner shrimp/Fish	Cleaner shrimp groom a fish by removing parasites and dead tissue. The shrimp gets a meal and the fish has damaging parasites removed.	
Sponge crab/Sponges	Some crabs attach sponges to their carapaces. The sponges camouflage the crab and in turn receive access to more food than if they were stationary.	
Isopods/Fish	Some species of isopods (a type of invertebrate) attach to a fish and feed on its tissue.	
Coral polyps/Sea squirt	Corals and sea squirts are both sessile (live in one place). As they grow, they come into contact with each other, competing for the available space.	
Coral polyps/Flatworms	Flatworms feed on coral mucus and capture zooplankton.	

## Levels of Organization

### Components of an Ecosystem - Guide for Reading

- What components of an ecosystem do organisms respond to?
- What are the levels of organization within an ecosystem?

All the living and nonliving things that interact in a particular area make up an **ecosystem**. Organisms live in a specific place within an ecosystem. An organism obtains food,

water, shelter, and other things it needs to live, grow, and reproduce from its surroundings. The place where an organism lives and that provides the things the organism needs is called its **habitat. An organism interacts with both the living and nonliving things in its environment.** The living parts of an ecosystem are called **biotic factors.** The nonliving parts of an ecosystem are called **abiotic factors.** Abiotic factors include water, sunlight, oxygen, temperature, and soil.

All the members of one species in a particular area are referred to as a **population.** Some animal populations form highly structured groups called societies. A **society** is a closely related population of animals that work together for the benefit of the whole group. All the different populations that live together in an area make up a **community. The smallest unit of organization is a single organism, which belongs to a population of other members of its species. The population belongs to a community of different species. The community and abiotic factors together form an ecosystem.** The study of how living things interact with each other and with their environment is called **ecology.** Ecologists, scientists who study ecology, look at how all the biotic and abiotic factors in an ecosystem are related. They study how organisms react to changes in their environment. Living things constantly interact with their surroundings, responding to changes in the conditions around them.

What are the levels of organization starting with the cell and ending with the biosphere?

Define each level.