

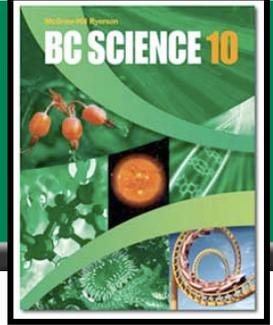
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- for students to copy in their own hand-writing
 - ◆ in order to complete their class notes
 - ◆ if student did not have enough time in class
 - ◆ if student was away and missed this section
- for assistants and tutors to follow progress of the concepts taught

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1.2 Ecosystems



- **By studying ecosystems now, and in the past, we can better understand what may happen in the future.**
 - ◆ **Historical ecology is the study of natural and written materials in an attempt to better understand the ecology of a certain area.**
 - ◆ **Many First Nation's sources are also utilized to better understand nature.**
- **An ecosystem is made up of many parts.**
 - ◆ **Abiotic factors include air, water, soil, nutrients and light.**
 - ◆ **Biotic factors include plants, animals and micro-organisms.**
 - ◆ **Ecosystems can take up many hectares of land, or can be the size of an old log.**
 - ◆ **A habitat is where an organism lives.**

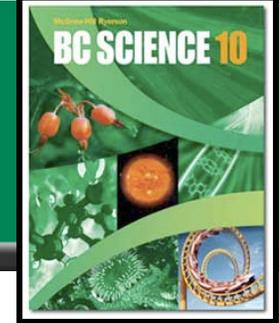
The habitat of the red fox often includes the edges of forests or marshlands



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Abiotic Interactions in Ecosystems

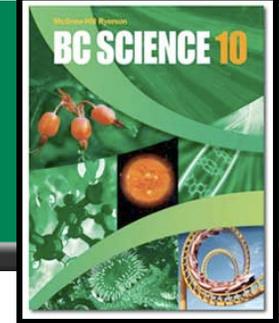


- **Although they are sometimes overlooked, the abiotic components are what allow the biotic components to survive in an ecosystem.**
 - ◆ **Abiotic factors include oxygen, water, nutrients, light and soil.**
 - **Oxygen is produced by the green plants and certain micro-organisms, and is used by animals and most other micro-organisms.**
 - **Water is necessary for all life.**
 - **Nutrients often enter the food chain with plants, and are very important for growth.**
 - **Light is required for photosynthesis, which is the process in plants that converts and stores the Sun's energy into starches and carbohydrates.**
 - **Soil not only contains water and nutrients, but also is home to many plants and animals.**



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Biotic Interactions in Ecosystems

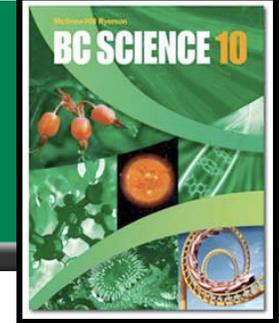


- **A community of organisms = all the organisms that interact within an ecosystem.**
 - ◆ A population of organisms refers to all of the members of a certain species within an ecosystem.
 - ◆ A species refers to all of the organisms within an ecosystem that have the same structure, and who can reproduce with each other.
- **Organisms can have many types of relationships in a population. These relationships are called symbiotic.**
 - ◆ Commensalism - one species benefits, one is not affected
 - For example, the barnacles on a whale
 - ◆ Mutualism - both species benefit
 - For example, a bee gathering nectar from a flower
 - ◆ Parasitism - one species benefits, the other is harmed
 - For example, hookworm living in dogs



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Niches, Competition and Predation

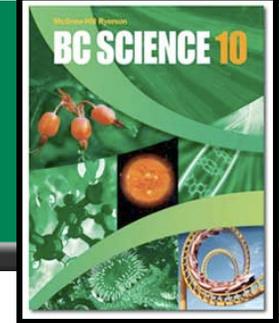


- **A niche refers to the role an organism has within an ecosystem.**
 - ◆ How an organism fits into its environment physically, chemically and biologically.
- **Competition occurs when a resource is desired by two or more individuals.**
 - ◆ Competition usually means resources are limited
 - ◆ This limits the size and health of that individual, and perhaps that population.
- **Predation is the relationship between the “eaters” and the “eaten”.**
 - ◆ Predators have adaptations to help them catch their prey.
 - ◆ Prey have adaptations to help avoid predators.
 - Examples include spines and shells, camouflage and mimicry.
 - ◆ The number of predators and prey influence each other.



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Biodiversity in Ecosystems



- **Biodiversity refers to the the variety and number of different individuals and species in an ecosystem.**
 - ◆ Healthy ecosystems generally have high biodiversity.
 - ◆ Most biodiversity losses occur from the loss of habitat.
- **Humans often have a negative impact on biodiversity.**
 - ◆ Many efforts are now made to lessen this impact in order to maintain biodiversity.
 - Ecological management programs try to balance human progress with maintaining biodiversity.



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[Take the Section 1.2 Quiz](#)