

## 5th Grade Ecosystems Resources

Next Generation Science Standards:

### **LS2.A: Interdependent Relationships in Ecosystems**

The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)

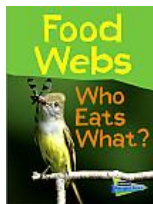
### **LS2.B: Cycles of Matter and Energy Transfer in Ecosystems**

Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)

## Books:

*Food Webs: Who Eats What* by Claire Llewellyn (2014)

Includes bibliographical references (page 31) and index. Food for life -- A chain of food -- Building a web -- It starts with a plant -- Feeding on plants -- Designed to hunt -- Competing for food -- Hunting together -- Beware the trap! -- Staying alive -- Safety in numbers -- Tricking the enemy -- Keeping a balance -- Glossary. Examines what food webs are, discussing how insects, plants and animals fit into the process.

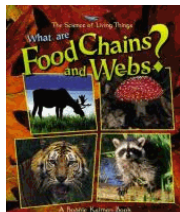


Guided Reading: S

32 Pages

*What Are Food Chains and Webs* by Bobbie Kalman (1998)

A simple introduction to food chains and webs, featuring both herbivores and carnivores and discussing energy, food production, and decomposition in various ecosystems.



Guided Reading: T

32 Pages

*What are Food Chains and Food Webs* by Louise Spilsbury (2014)

Includes bibliographical references (page 31) and index. All about food -- Producers -- Plant eaters -- Meat eaters -- Omnivores -- Scavengers -- Decomposers -- Forests -- Grasslands -- Oceans -- Deserts -- The Arctic -- All change. This book explains the transfer of energy between living things--known as the food chain--in a way that allows any reader to grasp the scientific principles behind food chains and food webs. The diets of herbivores, carnivores, and omnivores are explained, as well as other types of diets, and the flow of energy between these groups is made clear with arrowed diagrams and colorful pictures that show where different species derive their energy. Also examined are the effects different habitats have on the food chain, and how food chains in different environmental regions can be contrasted.



Guided Reading: W  
32 Pages

*Desert Food Webs in Action* by Paul Fleischer (2014)

Snakes, lizards, rabbits, mice, mountain lions, and hawks are some of the many animals that make up a desert food web. But do you know how desert animals depend on cactuses, grasses, and other plants to stay alive? Or why tiny insects, fungi, and bacteria may be among the most important living things in a desert?



Guided Reading: N  
40 Pages

*Forest Food Webs in Action* by Paul Fleischer (2014)

Includes bibliographical references (page 39) and index. Explains how the plants and animals of a forest form a food web in which energy is distributed throughout the entire environment. Beetles, toads, squirrels, owls, deer, and black bears are some of the many animals that make up a forest food web. But did you know that leaves, berries, mushrooms, and tiny bacteria are also important? Or that humans can affect the health of a forest?



Guided Reading: N  
40 Pages

*Grasslands Food Webs in Action* by Paul Fleischer (2014)

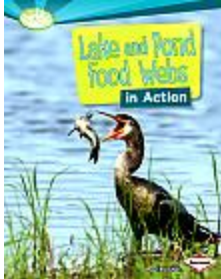
Includes bibliographical references (page 39) and index. Explains how the plants and animals of a grassland form a food web in which energy is distributed throughout the entire environment. Prairie dogs, vultures, grasshoppers, goldfinches, pocket gophers, and bison are some of the many animals that make up a grassland food web. But do you know how the many types of grasses in a grassland benefit these animals? Or how earthworms and other decomposers play an important role in the food web?



Guided Reading: O  
40 Pages

*Lake and Pond Food Webs in Action* by Paul Fleischer (2014)

Includes bibliographical references (page 39) and index. Explains how the plants and animals of a lake and pond environment form a food web in which energy is distributed throughout the entire environment. Frogs, minnows, snails, ducks, catfish, and muskrats are a few of the animals that make up a lake and pond food web. But do you know why mosquitoes, mold, water lilies, and bacteria are important too? Or how humans can change the health of a lake or a pond?



Guided Reading: N  
40 Pages

*Ocean Food Webs in Action* by Paul Fleischer (2014)

Includes bibliographical references (page 39) and index. Explains how the plants and animals of an ocean form a food web in which energy is distributed throughout the entire environment. Seals, otters, oysters, fish, pelicans, and sharks are a few of the animals that make up an ocean food web. But did you know that almost all ocean creatures depend on algae to live? Or that bacteria, crabs, and lobsters break down dead plants and animals into nutrients?



Guided Reading: P  
40 Pages

*Tundra Food Webs in Action* by Paul Fleischer (2014)

Includes bibliographical references (page 39) and index. The tundra -- Tundra plants -- Tundra plant eaters -- Tundra meat eaters -- Tundra decomposers -- People and the tundra. Explains how the plants and animals of a tundra form a food web in which energy is distributed throughout the entire environment. Moose, lemmings, owls, wolves, bumblebees, and grizzly bears are some of the many animals that make up a tundra food web. But did you know that worms, beetles, mushrooms, and bacteria break down dead plants and animals into nutrients? Or that tundra animals depend on berries, seeds, and other plants to stay alive?



Guided Reading: O

40 Pages

*How Ecosystems Work* by Julie Lundgren (2013)

This title explains what an ecosystem is and how the plants and animals within an ecosystem rely on and effect its existence. Different types of ecosystems are described, as well as the food webs within them. How some changes to an ecosystem can be good and how some harmful changes can destroy them. Teaches students what an important role they can play in keeping these intricate ecosystems alive. Supports Next Generation Science Standards.



Guided Reading: R

24 Pages

*The Ecosystem of a Fallen Tree* by Elaine Pascoe (2003)

Includes index. Describes the plant and animal life associated with a fallen tree, all of which create a miniature, co-dependent ecosystem.

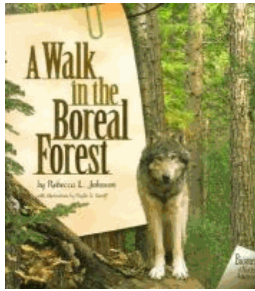


Guided Reading: S

32 Pages

*A Walk in the Boreal Forest* by Rebecca L. Johnson (2001)

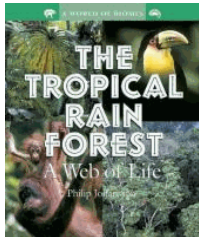
Describes the climate, seasons, plants, animals, and soil of the boreal forest, a biome or land zone, which stretches across the northern parts of North America, Europe, and Asia.



Guided Reading: T  
48 Pages

*The Tropical Rain Forest: A Web of Life* by Philip Johansson (2004)

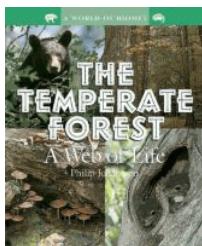
includes bibliographical references (p. 47) and index. The eating machines -- The tropical rain forest biome -- Tropical rain forest communities -- Tropical rain forest plants -- Tropical rain forest animals. Photographs and easy-to-follow text introduce readers to the complex web of life that exists inside the world's rain forests, describing the plants, animals, birds, and insects that rely on one another to survive in the rain forests.



Guided Reading: S  
48 Pages

*The Temperate Forest: A Web of Life* by Philip Johansson (2004)

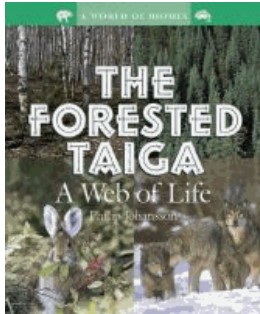
Includes bibliographical references (p. 47) and index. A forest for bears -- The temperate forest biome -- Forest communities -- Temperate forest plants -- Temperate forest animals. Provides a description of the temperate forest, discussing the weather, landscape, and plant and animal communities that live in the wooded biomes.



Guided Reading: U  
48 Pages

*The Forested Taiga: A Way of Life* by Philip Johansson (2004)

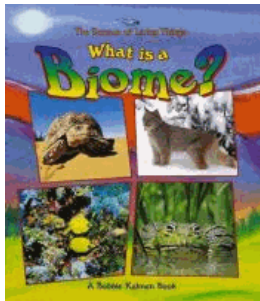
Includes bibliographical references (p. 47) and index. A wolf's dining room -- The taiga biome -- Biome communities -- Taiga plants -- Taiga animals. Provides a description of the forested taiga, discussing the weather, landscape, and plant and animal communities that live in the northern biome.



Guided Reading: R  
48 Pages

*What is a Biome* by Bobbie Kalman (1998)

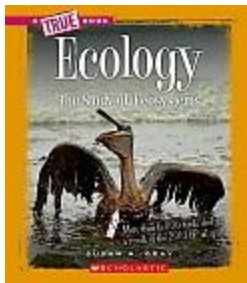
Introduces biomes, showing and describing the main kinds and discussing their location, climate, and plant and animal life, as well as those developed by humans.



Guided Reading: Q  
32 Pages

*Ecology: The Study of Ecosystems* by Susan Heinrichs Gray (2012)

Includes bibliographical references (p. 44-45) and index. Introduces ecology and what is studied, ecosystems, the history of ecology and how ecologists work today.



Guided Reading: S  
48 Pages

## Digital Resources

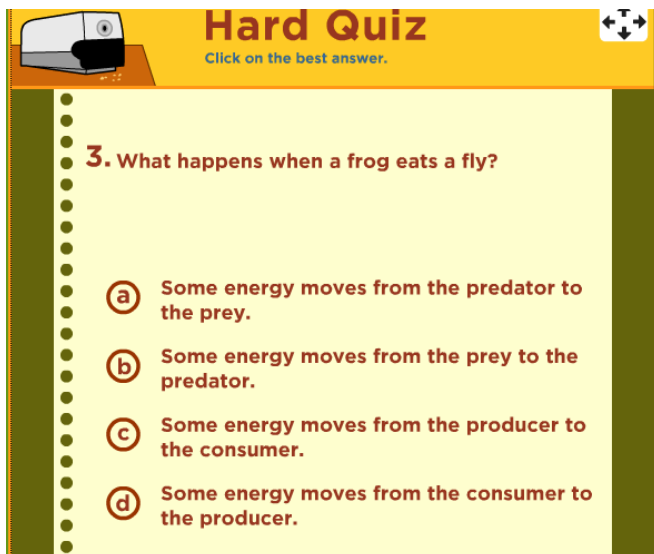
**Databases:** (To access these databases remotely, ask your librarian for your school's username and password.)

**Brainpop Jr.:** *Brainpop, Jr. is a database that provides a 3-6 minute video on informational topics followed by a comprehension quiz. The database includes activities and lesson plans as well. It is geared towards grades K-3, but can be used in 4th and 5th grades as well.*

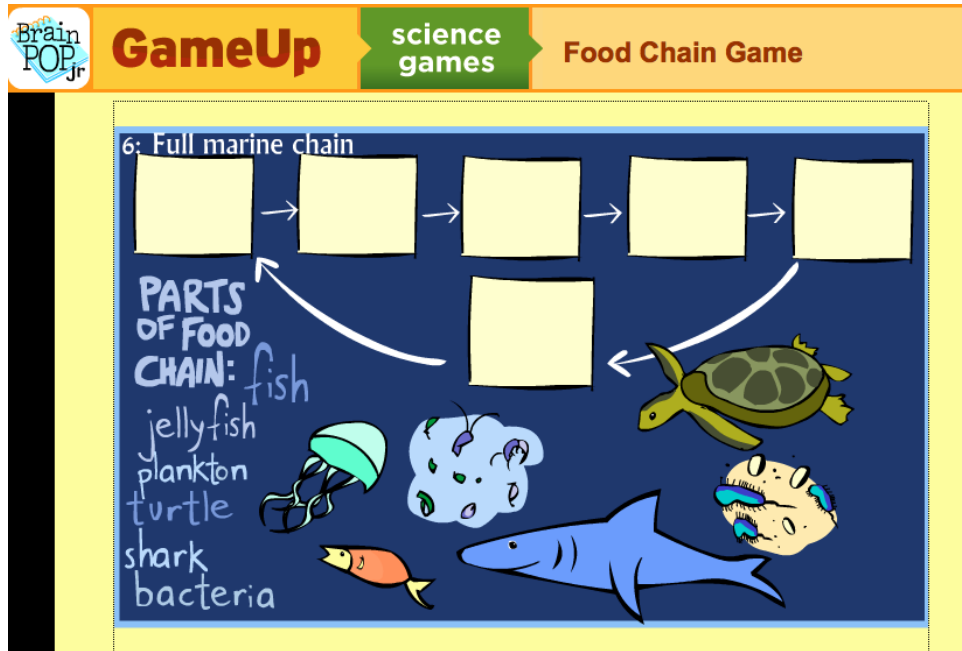
This video on the food chain offered by Brainpop Jr. that supports the Next Generation Science Standards on Ecosystems for 5th Grade.



Two different online quizzes are offered after each video to check for understanding. They are entitled “Easy” and “Hard” with 5 questions each.



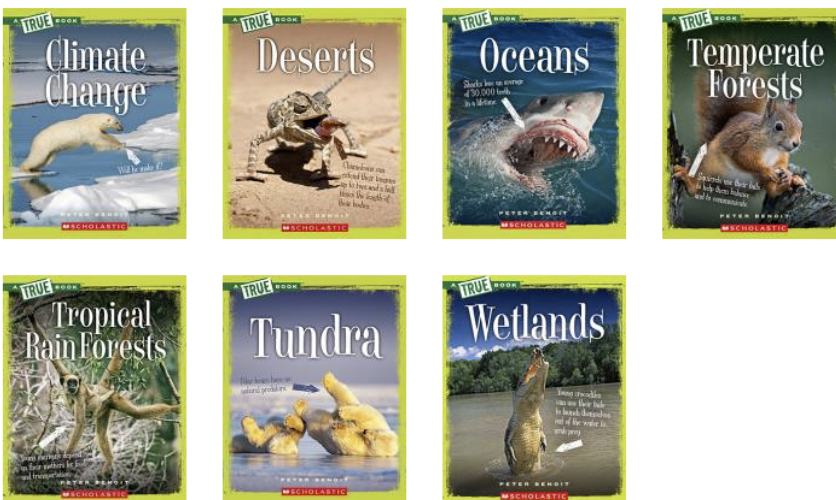
Brainpop Jr. also offers a game in their “Game Up” section under science games called “Food Chain Game.” The game gives an assortment of plants animals that would exist in an ecosystem, and they have to be dragged into their correct order in the food chain. The chains become progressively more difficult as you play.



**TrueFlix:** Trueflix is a database that includes non-fiction electronic books. Within each selected book you will find a 3-6 minute informational video on the subject, and a list of recommended websites.

Trueflix contains these seven e-books that support the Next Generation Science Standards on Ecosystems for 5th Grade. Each book is 48 pages long, and includes a “Read-Along” button which highlights each word as it is read aloud.

### Ecosystems





Here is an example of the layout and contents of one of the books. This title is Tundra:



Each subject in *Trueflix* has a part called “Show What You Know.” This is a ten question quiz that can be used to check understanding from the text.

## Show What You Know


**7. What do scientists call the giant animals that roamed the Arctic tundra during the last Ice Age?**



- TRUE**
- gigabyte
  - megafauna
  - jumbopets
  - microspecies

**NEXT** ➔

Trueflix also offers word match activity that can be done online. Word match gives a clue that can then be matched with a keyword from the text. As you can see from the toolbar on the left, there are project ideas for the classroom, a list of other non-fiction resources on the same topic in “Explore More,” related websites that have been tested and recommended, and a 3-6 minute video in “Watch the Video.”



**Start**

Watch the Video

Read the Book

Explore More

Project Idea

Activity Center

- Show What You Know
- Word Match

Explore the Web

More Space

## Word Match

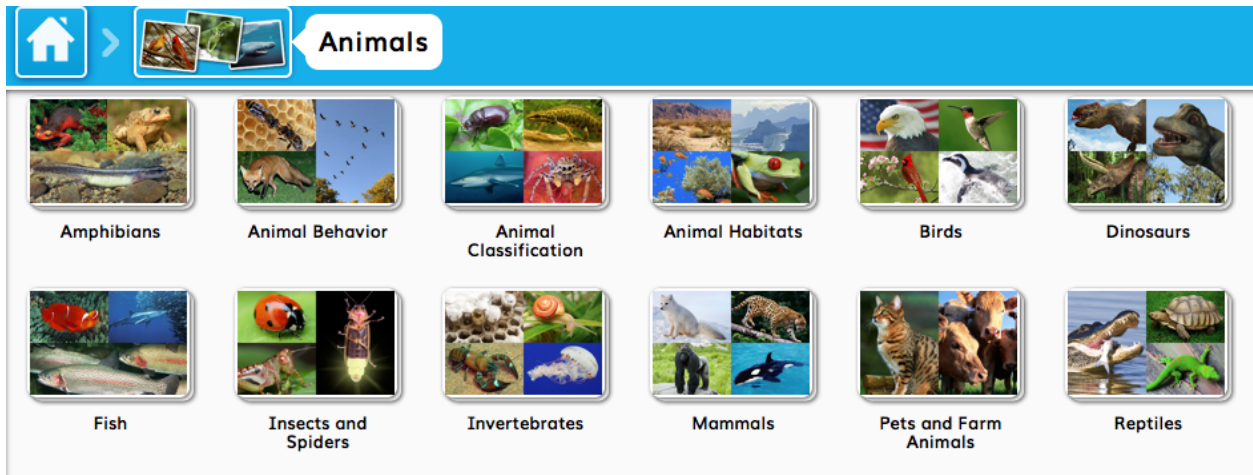
Read the clue below. Click on the word it matches.  
Match all the words to uncover a picture.

**CLUE:** frozen soil beneath the surface of tundra

sedges	latitude	predators
peninsula	active layer	ecosystem
prey		permafrost

**Pebble Go!** *Pebble Go is a database that includes non-fiction books, videos and activities. The target audience for Pebble Go is Kindergarten through 3rd grade, however Pebble Go can be a great way to pique interest in a topic for 4th and 5th graders. Each book is 5 pages long and includes a read-aloud button that highlights each word as it reads aloud. There are often one or two very short videos on the topic embedded within each book.*



Pebble Go has many, many books that align with Next Generation Science Standards for 5th Grade on Ecosystems . In the “Animals” section, as pictured below, you will find all sorts of animals to choose from. Each short book includes a page on that animal’s habitat and diet. These can be used to make observations of plants and animals to compare the diversity of life in different habitats.




Pebble Go’s Earth and Space includes a section on Ecosystems. Within each Ecosystem book there is a page about animals in that ecosystem, and a page about plants in that ecosystem.




Here are examples of the inside of two books on Ecosystems from Pebble Go:

[Back](#)   **Tropical Rain Forests**



[What Are They?](#) [Where Are They?](#) [Rain Forest Layers](#) [Rain Forest Animals](#) [Rain Forest Plants](#)

 [Video 1](#) [Video 2](#)


Millions of animals live in the rain forest. Birds perch on the top branches of tall trees. Monkeys live in the canopy with ants, beetles, and other bugs. Giant snakes crawl along the rain forest floor.




[Print This](#)

[Back](#)   **Grasslands**

[What Are They?](#) [Where Are They?](#) [Grassland Layers](#) [Grassland Plants](#) [Grassland Animals](#)

 [Video 1](#) [Video 2](#)

Grasslands are home to many grasses. Corn and wheat are grasses. Most of the world's food is grown on farmed grasslands. Rye, oats, and barley grow well in rich grassland soil.



[Print This](#)

## World Book Web:

The World Book Web is a suite of online research tools that includes encyclopedia articles, primary source collections, educator tools, student activities, pictures, audio, and video, complemented by current periodicals and related Web sites. Most all of these World Book Web research tools include options where text can be read aloud to the user. All Ithaca elementary school libraries currently subscribe to **World Book Kids**, **World Book Student**, **World Book Discover**, **World Book Timelines** and **World Book Classroom: Early World of Learning**. For specific training in how to use these amazing tools consult Worldbook's training website or ask your school's librarian. <http://www.worldbookonline.com/training/>

World Book Student has an article called "ecology" which aligns with Next Generation Science Standards for 5th Grade. You can use this link to access the article on day and night: <http://www.worldbookonline.com/student/article?id=ar173240> OR you can simply type "ecology" in World Book Student and choose the first article.

- + [Introduction](#)
- + [Populations](#)
- + [Communities](#)
- [Ecosystems](#)
  - [Ecosystem](#)
    - [Energy flow](#)
    - [Collecting samples from a stream](#)
    - [Ecological pyramids](#)
    - [Cycling of materials](#)
    - [Changes in ecosystems](#)
  - [Applied ecology](#)

MAIN SECTIONS

Lexile<sup>®</sup> Measure: 1020L

- [Introduction](#)
  - [Biotic and Abiotic Components](#)
- [Populations](#)
  - [Factors that control populations](#)
  - [Factors that change populations](#)
  - [Effects of acid rain on a sculpture](#)
- [Communities](#)
  - [The role of a species](#)
  - [Changes in communities](#)
- [Ecosystems](#)
  - [Ecosystem](#)
    - [Energy flow](#)
    - [Collecting samples from a stream](#)
    - [Ecological pyramids](#)
    - [Cycling of materials](#)
    - [Changes in ecosystems](#)
  - [Applied ecology](#)
- [Citation Information](#)

**Tools**

- [Print full article](#)
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- [Double-click a word to define it.](#)
- [View article by section](#)
- [Save to My Research](#)
- [Translate this text](#)
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- [Hear text read aloud](#)


**tor: ecology**

- [Encyclopedia Articles](#)
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- [Web Sites](#)
- [Magazine Articles](#)

**Content Standards**

This World Book article aligns with New York Learning Standards

[View Learning Standards](#)


**Ecology**,  «EE KOL uh jee», is the branch of science that deals with the relationships living things have to each other and to their environment. Scientists who study these relationships are called *ecologists*.

The world includes a tremendous variety of living things, from complex plants and animals to simpler organisms, such as fungi, amebas, and bacteria. But whether large or small, simple or complex, no organism lives alone. Each depends in some way upon other living and nonliving things in its surroundings. For example, a moose must have certain plants for food. If the plants in its environment were destroyed, the moose would have to move to another area or starve to death. In turn, plants depend upon such animals as moose for the *nutrients* (nourishing substances) they need to live. Animal wastes and the decay of dead animals and plants provide many of the nutrients plants need.

The study of ecology is important because our survival and well-being depend on ecological relationships around the world. Even changes in distant parts of the world and its atmosphere affect us and our own environment.

Although ecology usually is considered a branch of biology, ecologists must employ such disciplines as chemistry, physics, and computer science. They also rely on such fields as geology, meteorology, and oceanography to study air, land, and water environments and their interactions. This multidisciplinary approach helps ecologists understand how physical environments affect living things. It also helps them assess the impact of environmental problems, such as acid rain or the greenhouse effect (see [Acid rain](#); [Greenhouse effect](#)).

Ecologists study the organization of the natural world on three main levels: (1) populations, (2) communities, and (3) ecosystems. They analyze the structures, activities, and changes that take place within and among these levels. Ecologists normally work out of doors, studying the operations of the natural world. They often conduct field work in isolated areas, such as islands, where the relationships among the plants and animals may be simpler and easier to understand. For example, the ecology of Isle Royale, an island in Lake Superior, has been studied extensively. Many ecological studies focus on solving practical problems. For example, ecologists search for

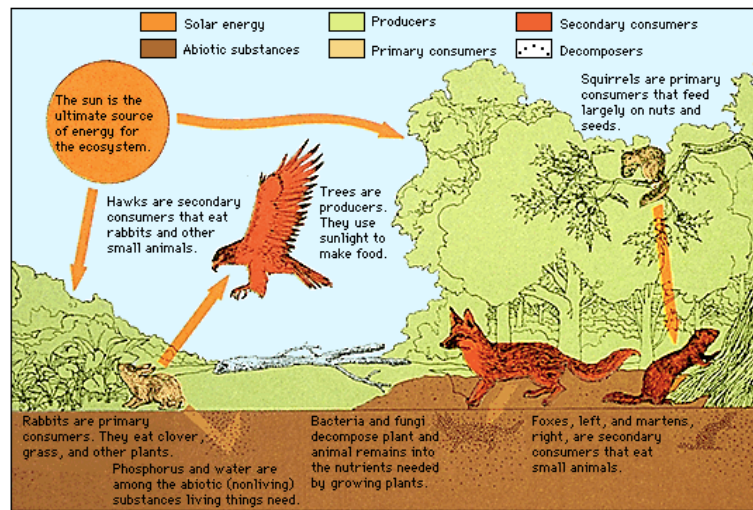


**Video**

[Biotic and Abiotic Components](#)

This picture from the Ecology article helps illustrate an ecosystem and how it works.

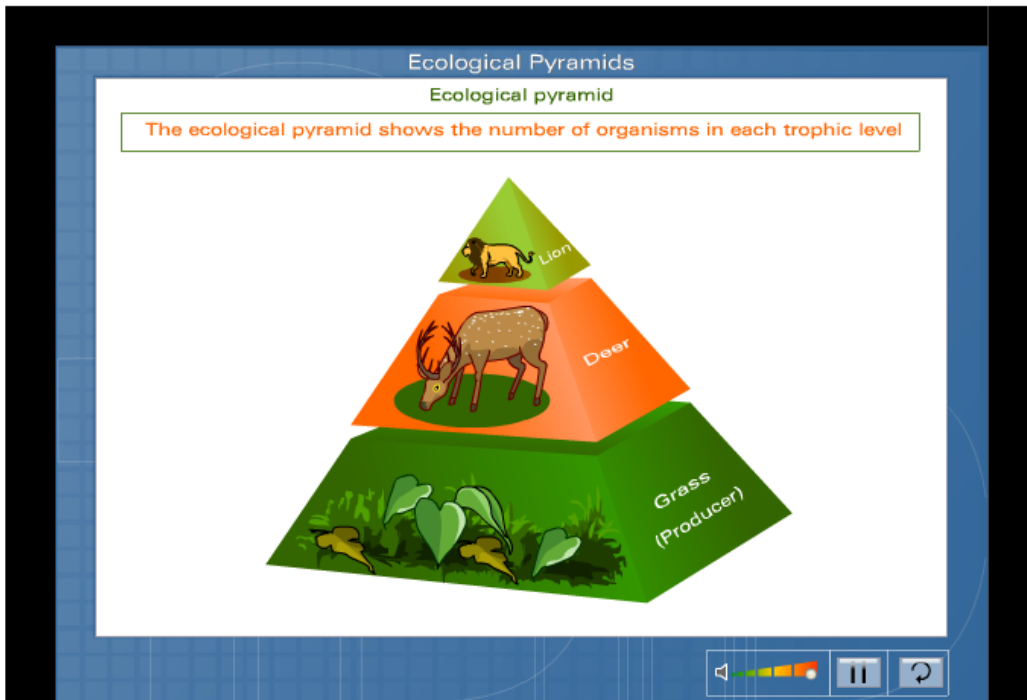
🖼️ Picture: **Ecosystem**  
(Home Article: [Ecology](#))



This diagram shows a highly simplified ecosystem. *Ecosystem* is a scientific term for all the living and nonliving things in a given area and the relationships among them. In any ecosystem, the most important relationships involve the movement of food and energy through the system, starting with the sun and involving the other main parts of the ecosystem. In the diagram, each of the six main parts of the ecosystem is color-coded as indicated by the key.

There is a video on ecological pyramids is found in the ecology article as well:

🎥 Video: **Ecological pyramids**  
(Home Article: [Ecology](#))



## **Websites:**

### ***Eco-Kids Chain Reaction***

[http://www.ecokids.ca/pub/eco\\_info/topics/frogs/chain\\_reaction/play\\_chainreaction.cfm](http://www.ecokids.ca/pub/eco_info/topics/frogs/chain_reaction/play_chainreaction.cfm)

This is an interactive site that shows how a food chain operates. At the end you can take out one component of the food chain and then see the results.

### ***Food Chain Game***

<http://www.sheppardsoftware.com/content/animals/kidscorner/games/foodchaingame.swf>

Play the food chain game and drag the parts of the chain into the right place. When the chain is complete it will come to life and you can watch the action.

### ***Food Chain lesson plan and activity***

<http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=381>

In this ecosystem consisting of hawks, snakes, rabbits and grass, the population of each species can be studied as part of a food chain. Disease can be introduced for any species, and the number of animals can be increased or decreased at any time, just like in the real world.

### ***Forest Ecosystem lesson plan and activity***

<http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=639>

Observe and manipulate the populations of four creatures (trees, deer, bears, and mushrooms) in a forest. Investigate the feeding relationships (food web) in the forest. Determine which creatures are producers, consumers, and decomposers. Pictographs and line graphs show changes in populations over time.

### ***Plants and Snails lesson plan and activity***

<http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=641>

Study the production and use of gases by plants and animals. Measure the oxygen and carbon dioxide levels in a test tube containing snails and elodea (a type of plant) in both light and dark conditions. Learn about the interdependence of plants and animals.

### ***Prairie Ecosystem lesson plan and activity***

<http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=647>

Observe the populations of grass, prairie dogs, ferrets and foxes in a prairie ecosystem. Investigate feeding relationships and determine the food chain. Bar graphs and line graphs show changes in populations over time.

**iPad apps:**

***Ecosystems HD - by Sprout Labs, LLC***

**Cost: \$2.99**

Covers why plants and animals have specific adaptations. Includes ecosystems matching game to learn or reinforce learning about the various ecosystems and their inhabitants.

***easyLearn Adaptations in Plants - by Life Science HD***

**Cost: \$2.99**

Teaches about adaptations of plants in different habitats. There are three modes: Learn Mode, Practice Mode, and Quiz Mode.

***easyLearn Adaptations in Animals - by Life Science HD***

**Cost: \$2.99**

Teaches about the physical and behavioral adaptations of animals in different habitats. There are three modes: Learn Mode, Practice Mode, and Quiz Mode.

***Food Web - by University of Western Australia***

**Cost: Free**

This food webs app lets you play with feeding relationships between unique plants and animals found in Western Australia.