Name_____

ECOLOGY: ORGANISMS IN THEIR ENVIRONMENTS
from the series *Biology: The Science of Life*

Pre-Test

Directions: Answer each of the following either true or false.

1. Ecosystems are made up of both living and non-living things. True___ False____

2. Ecosystems can be very large or very small. True___ False____

3. Ecologists use food chains to keep animals from eating certain plants. True___ False____

4. Food webs are woven by spiders and caterpillars. True___ False____

5. Ecosystems are always improved when non-native species are introduced into them. True___ False____

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Post-Test

Directions: Circle the correct answer from among the following choices.

1. Within food chains, matter is _____ .
a) constantly increasing
b) constantly decreasing
c) always changing from one element to another
d) always recycled from one chemical form into another

2. Within food chains energy is _____.
a) always increasing
b) always being lost to the environment as heat
c) doesn't change in amount and is recycled
d) is continually being converted into matter

3. In a pyramid of numbers, you would not expect to find _____ .
a) a large number of food producers supporting a few second order consumers
b) decomposers feeding on living things
c) third-order consumers carrying out photosynthesis
d) first-order consumers eating food producers

4. Which of the following is true?
a) Each population of organisms contains many different species.
b) Every frog in an ecosystem belongs to the same population.
c) Each population of frogs in an ecosystem is made up of members of one species.
d) Every ecological community is based on one population of organisms.

5. The carbon cycle describes _____.
a) the movement of nitrogen through the environment
b) the movement of carbon in ecosystems
c) the events that happen when carbon is changed into nitrogen
d) the events that happen when energy is converted into carbon

6. Different species cannot _____.
a) be in the same food chain
b) be in the same food web
c) live in the same habitat
d) interbreed to produce fertile offspring

7. A niche is _____.
a) a small population of organisms
b) a place in which organisms live
c) a large collection of ecosystems
d) the role an organism plays in an ecosystem

8. Which is an abiotic factor of an ecosystem?
a) ferns
b) water
c) birds
d) fish

9. Ecosystems are not based on _____.
a) interrelationships
b) interactions
c) feeding patterns
d) one species

10. Food producers do not need _____ to make sugar.
a) carbon dioxide
b) nitrogen dioxide
c) water
d) light

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Video Quiz

Directions: Answer the following either true or false.

1. True or False? The living things in an ecosystem make up its abiotic factors.

2. True or False? Different populations are composed of different species of organisms.

3. True or False? A niche is the particular place in which an organism lives.

4. True or False? Food webs are made up of interconnected food chains.

5. True or False? In food chains, many third-order consumers are needed to support only a few food producers.

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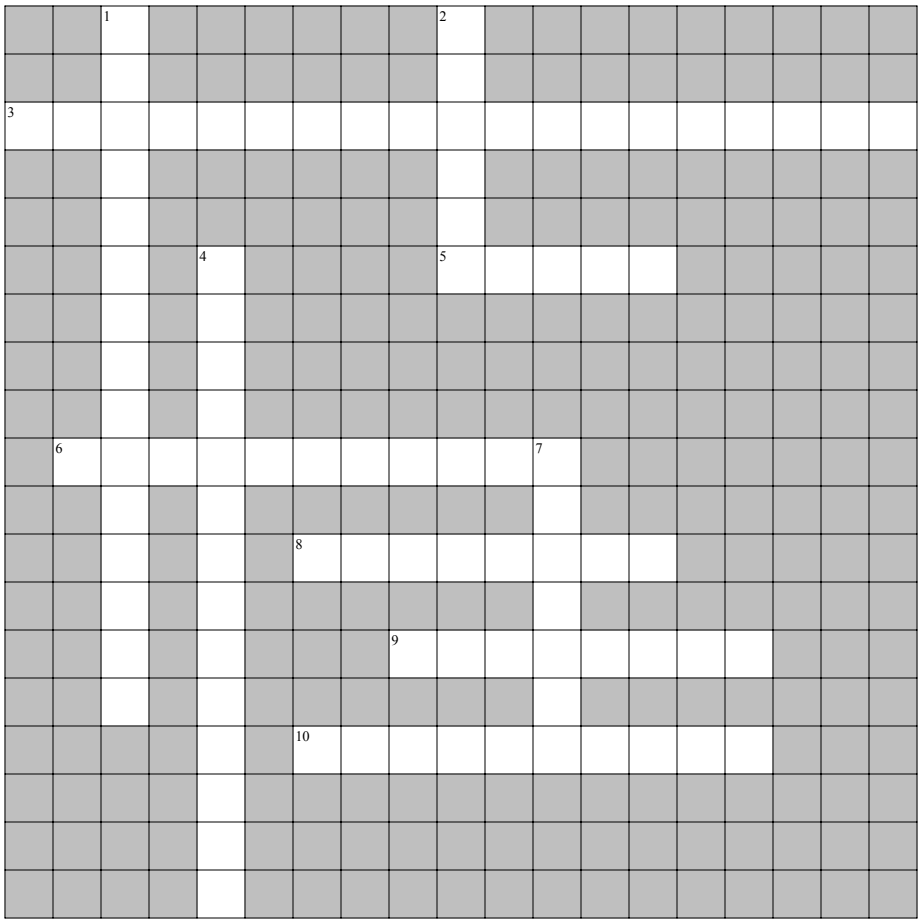
Crossword Puzzle



Across

3. In food chains these organisms eat the food producers.
5. This is the special role of an organism in a certain environment.
6. These organisms break down material into nutrients for food producers.
8. These complex feeding relationships are formed from overlapping and interconnected food chains.
9. These are the special places in which an organism lives.
10. Ecologists study these interactions between organisms and their physical environment that occur within a certain area.

Down

1. These diagrams are used to show how energy flows in a food chain.
2. All life is based on this chemical element.
4. Food producers can carry out this special light dependent chemical process.
7. Organisms that belong to these groups can interbreed and produce fertile offspring.

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Vocabulary List

The following are important words and names pertaining to ***Ecology: Organisms in Their Environments***. Listen for these terms while viewing the program; pay close attention so you can include them in your writing assignments.

abiotic factors- the non-living things in an ecosystem.

atom- a tiny particle of matter.

biotic factors- the living things in an ecosystem.

carbohydrates- chemical compounds containing carbon, hydrogen, and oxygen. Sugar is a carbohydrate. Carbohydrates store energy in their chemical bonds.

carbon cycle- the movement of carbon atoms through an ecosystem between living organisms as well as the non-living part of the environment.

carbon dioxide- a chemical compound made from one atom of the element carbon and two atoms of the element oxygen. The chemical formula for carbon dioxide is CO_2.

cellular respiration- the process of releasing energy stored in carbohydrates. Respiration produces carbon dioxide and water. Respiration usually requires oxygen.

chemical compound- a molecule composed of atoms of two or more different elements.

combustion- the process of burning such things as wood or fossil fuels. Combustion releases carbon dioxide and water, as well as stored energy.

community- the living part of an ecosystem.

decomposers- organisms such as fungi and bacteria that break down the complex chemical compounds made by living things into simple nutrients that are used by food producers.

element of matter- a basic type of matter such as the elements carbon, sulfur, iron, and oxygen. Every element has a different atomic structure.

ecology- the study of the relationships and interactions of living things with one another and with their physical environment.

ecosystem- all the interactions and relationships of organisms with one another and with their physical environment within a certain area.

energy- the ability to do work. Such things as light and heat are examples of energy. Energy has no mass (weight) and occupies no space.

extinction- the complete destruction of an entire species of organism.

fertile offspring- offspring that will mature and be able to reproduce.

first-order consumers- organisms that eat food producers.

food chains- energy links between different organisms in an ecosystem based on feeding habits.

food producers- organisms such as plants and algae, which through the process of photosynthesis create energy-rich food.

food web- interconnected food chains in an ecosystem.

habitat- the place in which an organism lives.

interbreeding- breeding that occurs only with its species and that produces fertile offspring.

matter- the material of the universe: those things that occupy space and have weight.

niche- the special role of an organism in its community or environment.

nutrient- a simple chemical compound used to nourish living things: the useable part of food.

photosynthesis- a chemical reaction in which carbon dioxide and water are combined in the presence of chlorophyll and sunlight to form energy-rich sugar.

population- a group of organisms of the same species living in the same ecosystem.

protists- one-celled animal and plantlike organisms that possess a nucleus. Members of the Kingdom Protista.

pyramid of energy- a pyramid-shaped diagram of energy flow in a food chain.

pyramid of numbers- a pyramid-shaped diagram like a pyramid of energy that lists the number of organisms (or the mass of the organisms) at every level of a food chain.

second-order consumer- organisms that eat first-order consumers.

species- very similar organisms that can interbreed and produce fertile offspring.

third-order consumer- organisms that eat second-order consumers.

West Nile virus- a virus from Africa that causes death or serious sickness among birds and humans.

zebra mussel- a species of small mussel not native to North America that is currently disrupting the ecosystem of the Great Lakes due to its rapidly expanding population.

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Vocabulary Activity

Directions: From the vocabulary list select the correct word to fill in the blanks.

1. In a food chain organisms that eat food producers are called _____.

2. A _____is a group of organisms in an ecosystem that are all members of the same species.

3. Carbon dioxide is produced by both the processes of _____and _____.

4. _____ is the ability to perform work.

5. All the living things in an ecosystem are called the _____ factors.