

Name _____

Date _____

APES Topic 4: Ecology – Ecosystems (structure, function, interactions)

Mr. Romano

Aim: How do organisms interact in an ecosystem?

1. MUTUALISM

a relationship between two organisms in which both species benefit

clownfish and sea anemone

The anemone provides a home/protection as the clownfish is immune to its sting. The clownfish drops food particles that the anemones can use as nutrition.

crocodile and plover

The plover eats the leeches that get caught in the crocodile's teeth. The crocodile is then relieved of those parasites.

2. COMMENSALISM

a relationship between two organisms in which one species benefits and the other is unaffected

cattle and egret

The egret will eat insects that have been disturbed when the cattle are moving through the grass searching for food.

3. PARASITISM

a relationship between two organisms in which one species benefits and the other is harmed

human and tapeworm

The tapeworm derives food (and shelter) from the human host and the human is denied the nutrition that is consumed by the tapeworm.

SYMBIOSIS

a close physical relationship between two organisms

4. PREDATION

A predator is an organism that eats another organism. The prey is the organism which the predator eats.

Some examples of predator and prey are lion and zebra, bear and fish, and fox and rabbit. The words "predator" and "prey" are almost always used to mean only animals that eat animals, but the same concept (although untraditional) can also apply to plants: bear and berry, rabbit and lettuce, grasshopper and leaf.

5. COMPETITION

the fight for a resource (food, territory, mating rights)

intraspecific competition – between members of the same species

interspecific competition – between members of different species

interference competition – when an organism prevents or blocks use of a resource by another organism

exploitation competition – when an organism uses up a resource more quickly than others can

resource partitioning – sharing of resources

lions and leopards – lions eat bigger prey, leopards eat smaller
 hawks and owls – hawks hunt during day, owls hunt at night
 different species of birds – use different parts of the same tree

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**A Quick Review of Some Ecology
Strategically Placed as a Fill-in Page**

1. Almost all of the Earth's weather occurs in the:
(A) exosphere
(B) stratosphere
(C) mesosphere
(D) thermosphere
(E) troposphere
2. Approximately what percentage of the solar energy that strikes the Earth is used for photosynthesis by plants?
(A) 1.2% (B) 10% (C) 21% (D) 71% (E) 78%
3. The third trophic level of a typical biomass pyramid consists of
(A) producers
(B) primary consumers
(C) secondary consumers
(D) herbivores
(E) detritivores
4. Which of the following spheres of the Earth has the smallest distance range?
(A) lithosphere
(B) hydrosphere
(C) atmosphere
(D) biosphere
(E) ecosphere
5. Which term (or terms) can be used to describe a city rat?
(A) omnivore
(B) saprophyte
(C) heterotroph
(D) A and C, only
(E) A, B, and C
6. How much energy is lost as it is transferred to each successive trophic level?
(A) 1% (B) 10% (C) 20% (D) 50% **(E) 90%**
7. Which of the following reasons account for the decrease in energy passed on to each successive trophic level?
(A) metabolic heat loss
(B) not all biomass is consumed at each level
(C) the increased number organisms at high levels use up the excess energy
(D) A and B, only
(E) A, B, and C
8. Which of the following is not considered an abiotic resource?
(A) water
(B) temperature
(C) dissolved oxygen
(D) nutrients
(E) sunlight