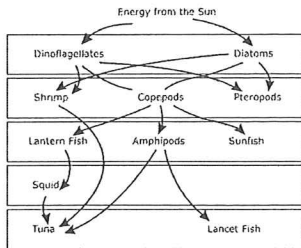


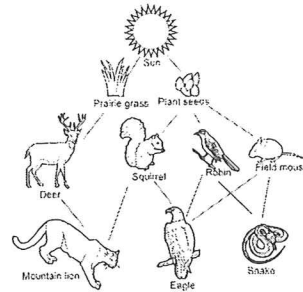
Ecology 16-20 Flow of Energy in Ecosystems

- 1 A food web diagram is provided. Which of the following organisms depend only on producers for energy?



- A Diatoms
 B Shrimp
 C Amphipods
 D Squid
- 2 Matter is passed from the living part of an ecosystem to the non-living part when which of the following takes place?
- A Plants absorb gases
 B Plants decompose
 C Animals eat plants
 D Animals drink water
- 3 The energy organisms need to live and grow first enters the ecosystem when—
- A plants take in light energy from the sun.
 B decomposers break down dead organisms.
 C primary consumers eat plants for food.
 D secondary consumers eat primary consumers.

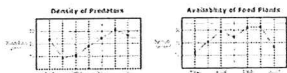
- 4 A food web diagram is provided. Based on the diagram, it is reasonable to conclude that matter could follow which of the following paths as it cycles through this ecosystem?



- A Sun → grass → robin
 B Plant seeds → field mouse → robin
 C Eagle → deer → plant seeds
 D Grass → deer → mountain lion
- 5 Which of the following observations would support the claim that as plants absorb sunlight to make food, they release oxygen into the environment?
- A Oxygen concentration in the atmosphere was much higher millions of years ago when different plants existed.
 B When plants are kept in a sealed environment, the concentration of carbon dioxide steadily goes down.
 C Plants that are kept under conditions of total darkness fail to grow normally and eventually will die.
 D The oxygen concentration in a pond with many plants increases during the day and decreases at night and on cloudy days.

Ecology 11-15 Relationships in Ecosystems

- 1 These graphs show how two factors changed over time: the # of mice predators and # of plants of the type that the mice eat. Based on the data, in which of the following years would the population of mice have been the highest?



- A 1996
 - B 1998
 - C 2000
 - D 2002
- 2 The table shows the population density of Mayflies, a kind of insect, in a certain area over a few years. Based on the data, which year provides evidence that there was a significant increase in the population of birds that prey on Mayflies?

Year	Estimated Population Density of Mayflies (1000 organisms / km ²)
2005	2.9
2006	3.7
2007	3.8
2008	1.5

- 3 An example of a predator and a prey species for four separate ecosystems is provided. Which of the following would demonstrate an appropriate prediction for the changes to one of the populations of organisms due to a predator/prey interaction?

Ecosystem	Predator Species	Prey Species
1	Dragonfly	Mayflylarva
2	Shark	Small fish
3	Mountain Lion	Deer
4	Snake	Mouse

- A When the population of sharks decreases because of fishing, the population of small fish will decrease.
 - B After a period of heavy rainfall and warmer temperatures, the population of small fish will increase.
 - C During hunting season, when many deer are killed by hunters, the mountain lion population will decline.
 - D When abundant resources allow the population of mice to increase, the population of snakes will decrease.
- 4 Certain bacteria live and grow on the roots of some plants and produce chemicals that are beneficial to the plants. Which of the following observations best supports the claim that this relationship is beneficial to the plants?

- A When the bacteria are removed from the plant roots and are grown in a laboratory setting, they fail to survive.
 - B The population size of the bacteria varies greatly depending on the chemistry of the soil and the type of the plant.
 - C Plants with a higher density of the bacteria on their roots have increased rates of survival and reproduction.
 - D The chemical produced by the bacteria can be created by humans and added to the soil where it reaches the roots of the plant.
- 5 Which of the following describes a symbiotic relationship?

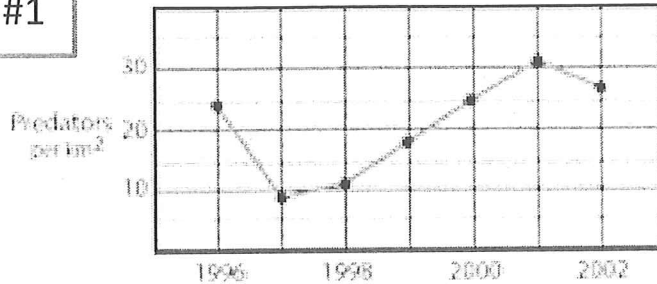
- A Owl and field mouse
- B Oak tree and pine tree
- C Spider and fly
- D Shark and remora fish

Ecology Relationships in Ecosystems 11-15

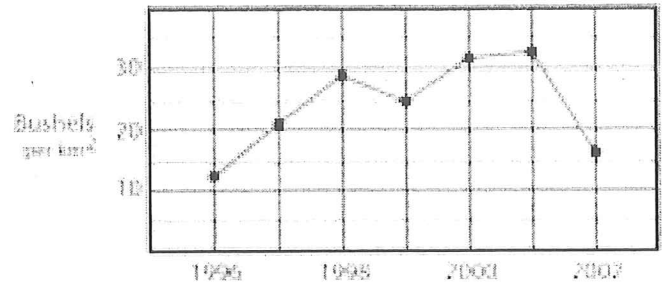
GRAPHS

#1

Density of Predators



Availability of Food Plants



#2

Year	Estimated Population Density of Mayflies (1000 organisms /km ²)
2005	2.9
2006	3.7
2007	3.6
2008	1.6

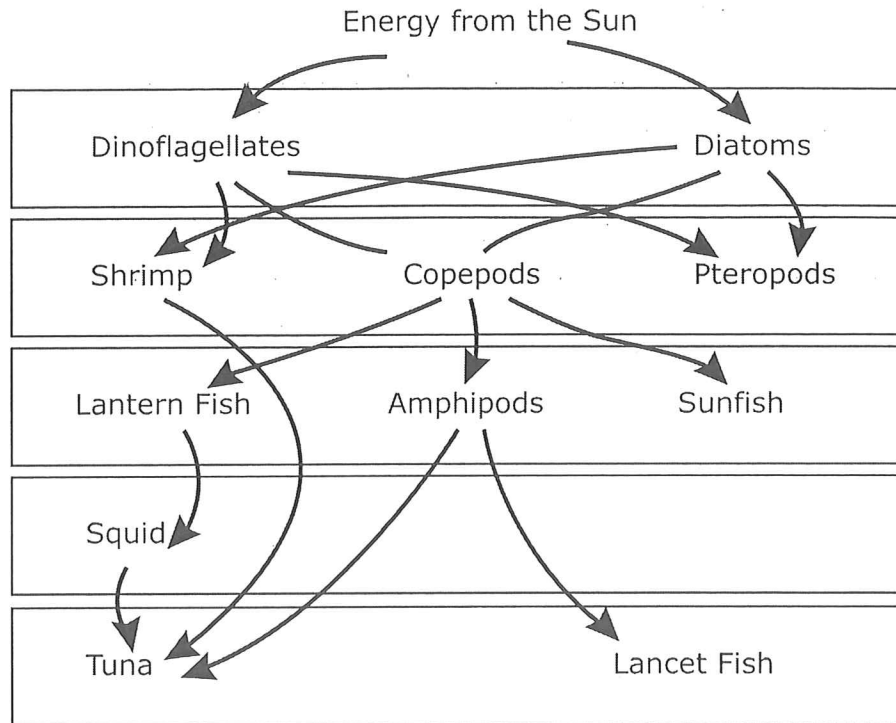
#3

Ecosystem	Predator Species	Prey Species
1	Dragonfly	Mosquito
2	Shark	Small fish
3	Mountain Lion	Deer
4	Snake	Mouse

Ecology 16-20 Flow of Energy in Ecosystems

GRAPHS

#1



#4

