

## Predicting Environmental Change

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Which statement explains why ducklings follow their mother when swimming across a pond?
  - A. Survival behavior is acquired by interaction with the parent duck.
  - B. Survival behavior is learned by interacting with their environment.
  - C. Inherited behavior is genetically obtained through their environment.
  - D. Inherited behavior is genetically passed on from parents to offspring.
  
2. Which of these organisms are most helpful in preventing Earth from being covered with the bodies of dead organisms?
  - A. herbivores
  - B. producers
  - C. parasites and viruses
  - D. fungi and bacteria

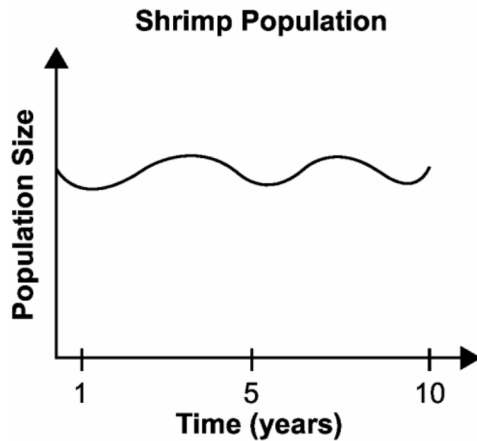
3. What role do fungi and bacteria play in an ecosystem?
  - A. Produce food
  - B. Remove dangerous pests
  - C. Maintain the temperature of the soil
  - D. Break down dead plants and animals
  
4. Liverworts are plants that live in moist conditions and reproduce asexually. An individual liverwort is introduced to an environment where there were no liverworts before. After several generations, the area contains a small population of liverworts that are genetically identical.

What is *most likely* to happen to this population over time?

  - A. The population will evolve rapidly by increasing its reproductive rate
  - B. The population will become extinct because it cannot reproduce sexually.
  - C. The population will thrive as long as environmental conditions remain similar.
  - D. The population will slowly decline and disappear because it lacks genetic diversity.

5. The graph shows changes in a population of shrimp over time.

Which conclusion is supported by this data?



- A. An invasive species lives in this ecosystem.
- B. Shrimp have a symbiotic relationship with another organism.
- C. The food source for this population changes seasonally.
- D. This population of organisms lives in a stable environment.
6. American alligators used to be an endangered species, but they are not endangered anymore. Which of the following is the *best* reason why there are more American alligators in Louisiana today than there were 50 years ago?
- A. American alligators have learned to live in new places.
- B. American alligators are bigger now than they were 50 years ago.
- C. American alligators are now protected from hunting by humans.
- D. American alligators have much more habitat than they did 50 years ago.

7. Which of the following organisms have the *greatest* effect on an ecosystem because of the changes they make to their environment?

- A. bees building a hive in a hollow tree
- B. wasps building a nest in a leafy bush
- C. beavers building a dam across a stream
- D. fish digging a burrow on a river bottom

8. The marsh willow herb is a plant native to the northeastern United States. It grows *best* in damp habitats.

Which of the following environmental changes would *most likely* cause a decrease in the marsh willow herb population in an area?

- A. a rainstorm lasting several weeks
- B. a drought lasting twelve months
- C. unusually low temperatures during the month of July
- D. unusually high temperatures during the month of January

9. Which of the following *best* explains why many species of birds in New England fly south for the winter months?

- A. to find a place to hibernate
- B. to move away from strong sunlight
- C. to find an environment with more food
- D. to move away from crowded environments

10. Two geese mate and raise their goslings (baby geese) each year. The table below shows the number of goslings that survive each year over a five-year period.

Year	Number of Goslings That Survive
1	6
2	2
3	4
4	6
5	5

Which of the following statements *best* explains why a different number of goslings survives each year?

- A. The goslings develop different adaptations each year.
  - B. Different environmental conditions affect the goslings each year.
  - C. Some goslings inherit more traits from one parent than from the other.
  - D. The environmental conditions affect the parent geese more than the goslings.
11. In an effort to preserve wildlife on his farm in Massachusetts, a farmer decides to stop using a 10-acre field. The farmer fences off the area, stops cutting the grass, and stops allowing livestock to graze on it.

After twenty years, the area would *most likely*

- A. be covered with moss and rocks.
- B. be a mature hardwood forest.
- C. be grown over with bushes and small trees.
- D. be barren due to lack of maintenance.

12. Fossilized coral reefs, fish, and other warm water marine creatures have been found in mountainous regions of New England. Which of the following *best* explains how this could have occurred?

- A. The climate and geology of this area have changed over time.
- B. These creatures were better adapted to cold climates at one time.
- C. The process of fossilization greatly changed the original material.
- D. Scavengers carried the remains of these creatures to higher regions.

13. A hurricane sweeps across a small Caribbean island, killing 50 percent of the herbivore species on the island. Which of the following is the most immediate result?

- A. a reduction in biodiversity
- B. an acceleration of the carbon cycle
- C. an increase in predator populations
- D. a decline in decomposer populations

14. There is a limit to how large any given population can grow. Which of the following statements *best* explains why a population must eventually stop growing?

- A. A low female-to-male ratio develops in the population as it grows.
- B. Old individuals outnumber juveniles in the population as it grows.
- C. The resources available are fully used by the population as it grows.
- D. Natural selection changes the gene pool of the population as it grows.

15. Black terns are a species of bird living in marshes, ponds, and marshy lakes. They feed on insects, fish, and crustaceans. They usually make their nests on loose, floating vegetation.

Which of the following environmental changes would *most likely* decrease the size of the black tern population?

- A. A competing bird population decreases in size.
- B. Fish species have a more successful breeding season than usual.
- C. A new plant species invades the environment and creates a dense cover of vegetation.
- D. Insect larvae experience lower than average rates of predation and survive to adulthood.

16. An invasive species of green algae has become established along the coasts of the Mediterranean Sea. Which of the following statements *best* explains why this species of algae has been so successful in the Mediterranean Sea?

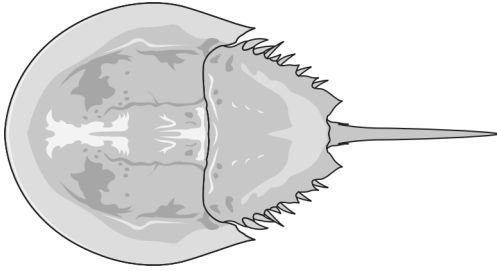
- A. It is not a good competitor.
- B. It is not eaten by many animals.
- C. It reproduces slowly in warm waters.
- D. It requires more nutrients than most other algae.

17. Sea otters are small marine mammals that prey on fish, clams, crabs, and sea urchins. Sea otters' natural predators include bears, sharks, and killer whales, but humans have also threatened sea otter populations. Hunting of sea otters for their fur severely reduced sea otter populations in the 18th and 19th centuries. After laws and programs were put into place to protect sea otters, their populations started increasing.

Some sea otter populations in Alaska are now decreasing again. Which of the following is the *most likely* cause of these decreases?

- A. greater numbers of killer whales
- B. larger populations of sea urchins
- C. less competition from other marine mammals
- D. limited immigration of sea otters from California

18. A picture of a horseshoe crab is below. Horseshoe crabs are arthropods, related to crustaceans, insects, and spiders.



In the 1990s, the harvesting of horseshoe crabs for fishing bait and biomedical use led to a significant decrease in the size of horseshoe crab populations on the Mid-Atlantic coast of the United States. Recovery efforts for the horseshoe crab populations are *most* challenged by which of the following?

- A. Horseshoe crabs are most active at night.
- B. Horseshoe crabs have to shed their exoskeletons as they grow.
- C. Horseshoe crabs can live on the Atlantic coast from Maine to Mexico.
- D. Horseshoe crabs take nine to twelve years to reach maturity and reproduce.

19. Continuing development of land in the southeastern United States has resulted in large sections of forest being broken into smaller, isolated fragments. Scientists studying these forest fragments have found that the smaller the forest fragment, the closer together birds build their nests.

As a result of the nests being close together, which of the following will *most likely* happen to the birds in a particular forest fragment?

- A. Finding food will become easier for the birds.
- B. Most of the birds will lay eggs later in the year.
- C. Fewer birds will migrate out of the region for the winter.
- D. Viral diseases will spread among the birds more quickly.

20. When taken to a new habitat, non-native plants often threaten native plants of the new habitat.

Why do non-native plants threaten native plants?

- A. Non-native plants are able to mutate rapidly.
- B. Non-native plants cause native animals to relocate.
- C. Non-native plants are able to be used for medicine.
- D. Non-native plants compete with native plants for resources.

21. Use the information and the table below to answer the following question(s).

A scientist studied iguanas on the Galapagos Islands. He discovered two species of iguanas that live in different habitats and display very different behaviors. His observations are listed in the table below.

OBSERVATIONS OF TWO SPECIES OF IGUANAS

Marine Iguana	Land Iguana
<ul style="list-style-type: none"><li>• spends most of its time in the ocean</li><li>• is never found more than 10 yards from the shore</li><li>• eats mainly marine algae</li></ul>	<ul style="list-style-type: none"><li>• spends most of its time on land</li><li>• is found far inland</li><li>• eats cacti and other land plants</li></ul>

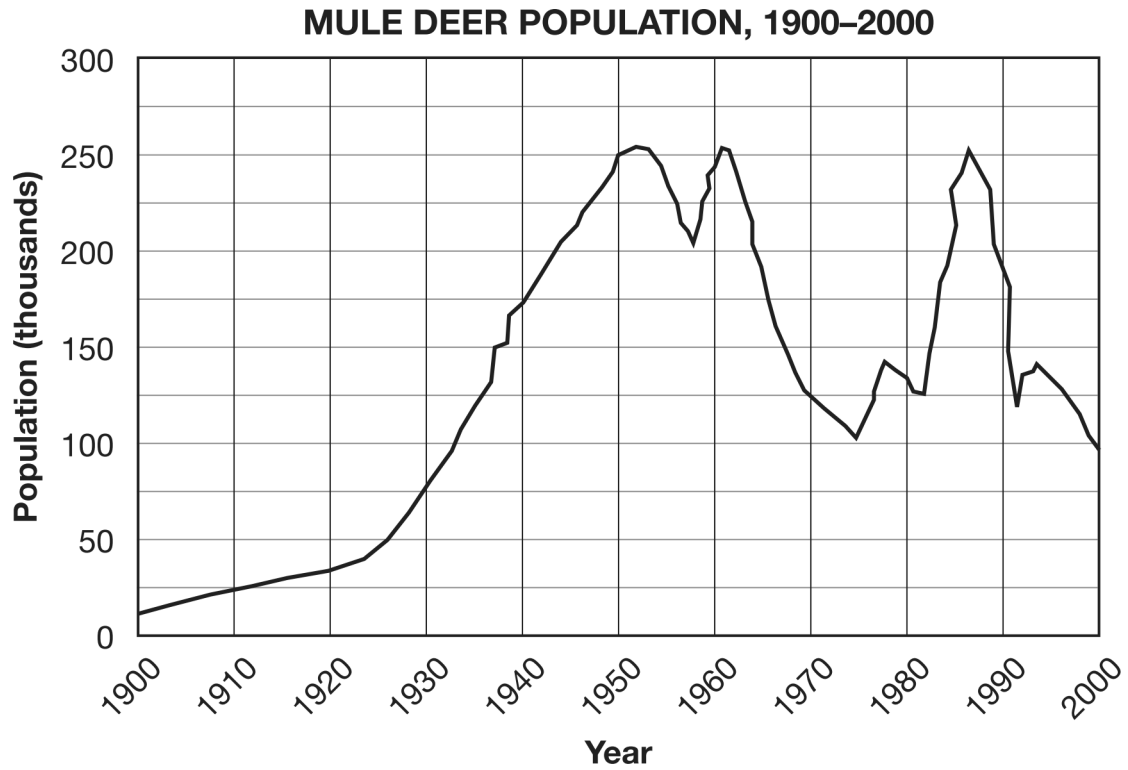
The Galapagos Islands were formed by undersea volcanoes. At first, they had no living organisms. Many years later, a wide variety of plant and animal species inhabited the islands. Which of these identifies the process by which different species colonize and replace other species?

- A. variation                      B. succession  
C. reproduction                D. recombination

22. An ecosystem contains organisms interacting with each other and their physical environment. Which of these is the *best* indicator of a healthy ecosystem?

- A. There are few decomposers.  
B. There are many different species.  
C. There are few herbivores.  
D. There is a large population of only one species.

23. The number of organisms an environment can support depends on the availability of environmental resources. Changes in the mule deer population in Nevada from 1900–2000 are shown in the graph below.



During which years did the mule deer population *most likely* experience the greatest decrease of environmental resources?

- A. 1930–1950      B. 1956–1960      C. 1960–1970      D. 1976–1980

24. A dead tree falls in the forest. What is the *next* step in the life cycle of the ecosystem?
- A. Bacteria break down the wood.
  - B. New plants grow in the spot where the tree decomposed.
  - C. Birds have a new place to build their nests.
  - D. The number of mice increases.

25. The table below shows the rise and fall of the deer population in Arizona between 1905 and 1935.

Year	Number of Deer per 1000 Acres
1905	5.7
1915	35.7
1920	142.9
1925	85.7
1935	25.7

What *most likely* caused the deer population to change between 1915 and 1920?

- A. very little rainfall
  - B. many deer starving
  - C. removal of predators
  - D. more deer being hunted
26. Beavers cut down some trees in a forest and build dams in streams to make ponds. What is the *greatest* change for other plants and animals when beavers make dams?
- A. More ferns grow next to the beaver ponds.
  - B. Deer do not find food where the trees were.
  - C. Woodpeckers have more homes in trees that are cut down.
  - D. Trees die from flooding where the ponds form.



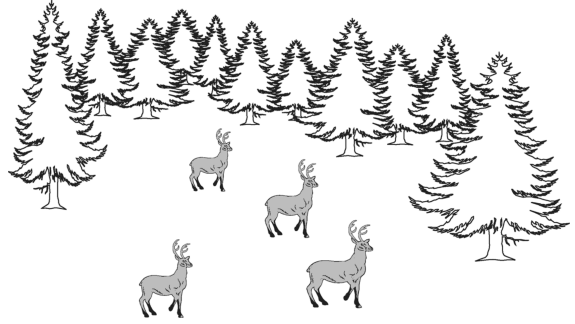
27. Jamie noticed an increase in the number of swallows on her property. Which statement would *not* be a reasonable explanation for this increase?

- A. A nearby wooded nesting site has been clear-cut.
- B. A nearby farmer put birdhouses on many of his fence posts.
- C. Jamie recently had her white house painted red.
- D. A neighbor built a small pond, increasing the number of insects.

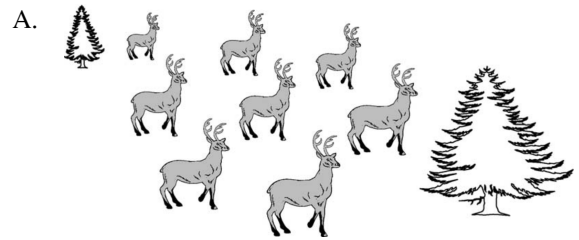
28. How would building a shopping mall in a wetland area impact the environment?

- A. The shopping mall would decrease the available habitat for wetland organisms.
- B. The shopping mall would increase acid rain production in the wetland area.
- C. The shopping mall would contribute to ozone depletion.
- D. The shopping mall would accelerate global warming.

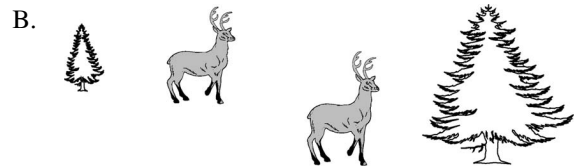
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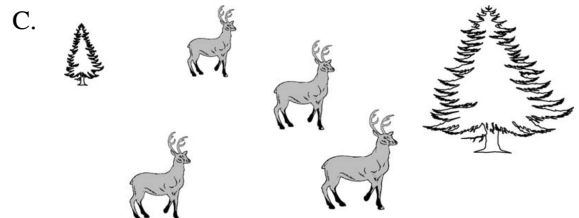
What happens to the number of deer when the trees are cut down?



There are more deer.



There are fewer deer.



There is the same number of deer.

30. A new species of snake was introduced to a tropical region. Scientists then noticed a steady decline in the presence of field mice and an increase in the number of snakes. Which of these is the *most likely* explanation about why the population size of each animal changed?
- A. The snakes introduced to the region dominated the habitat, forcing the mice to find another place to live.
  - B. The mice became prey to the introduced snakes, allowing the snake population to increase but decreasing the mice population.
  - C. The snakes introduced to the region competed with the mice for food, allowing the snake population to increase but decreasing the mice population.
  - D. The people in the surrounding area set traps that killed the mice, allowing the snakes to live without any predators and therefore to increase in number.

31. The Great Barrier Reef has a number of endangered species that live only in that ecosystem. What would *most likely* happen if pollution killed most of the coral that made up the reef?
- A. The endangered species would become extinct.
  - B. The animals on the reef would find a new habitat.
  - C. The population size of the endangered species would increase.
  - D. The endangered species would take the place of the dead coral.

32. In one study, scientists found that the number of raccoons increased where people built homes in their habitats. Which of the following is *most likely* the reason why the number of raccoons increased?

- A. Raccoons no longer lived in wild areas.
- B. Raccoons found more food living near humans.
- C. More predators of raccoons live near people's homes.
- D. People destroyed raccoon habitats when they built homes.

33. The Mississippi Department of Wildlife and Fisheries is making an artificial reef in the Gulf of Mexico. How will this *most likely* affect the fish population?

- A. The fish population will have more diseases.
- B. The fish population will increase in numbers.
- C. The fish population will become endangered.
- D. The fish population will be unaffected by reefs.

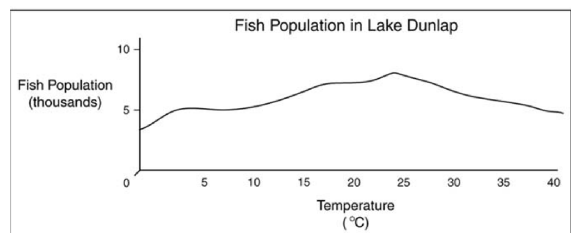
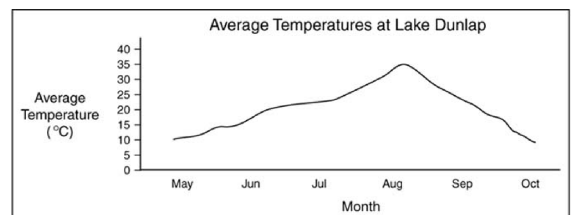
34. Scott and Anita enjoyed watching bees drink the nectar from flowers in their yard. They wanted to know if the bees would still come to their yard if the petals of the flowers were removed. Why would fewer bees come to the plant if the petals of the flowers were removed?
- A. There would not be any nectar in the flowers.
  - B. The bees would not be attracted to the flowers.
  - C. The bees would not have a spot to rest on the flowers.
  - D. The bees would not be able to leave their scent on the flowers.

35. Which is the *best* example of a natural cause of population decline in an ecosystem?
- A. Air pollution
  - B. Strip mining
  - C. Pesticides
  - D. Disease

36. A grassland biome does not naturally support trees because there is a—
- A. lack of humus in the soil.
  - B. lack of adequate precipitation.
  - C. layer of permafrost which prevents trees from establishing roots.
  - D. large number of predatory insects which destroy young trees.

37. Highly social species of organisms benefit from cooperative behavior in all of the following ways *except* by improving—
- A. chances of surviving environmental disasters.
  - B. opportunities for finding and obtaining food.
  - C. modifications to the environment.
  - D. defensive tactics against predators.

38.



According to the graph shown above, during which month would the bear population have the most fish available to eat?

- A. May
- B. July
- C. August
- D. October

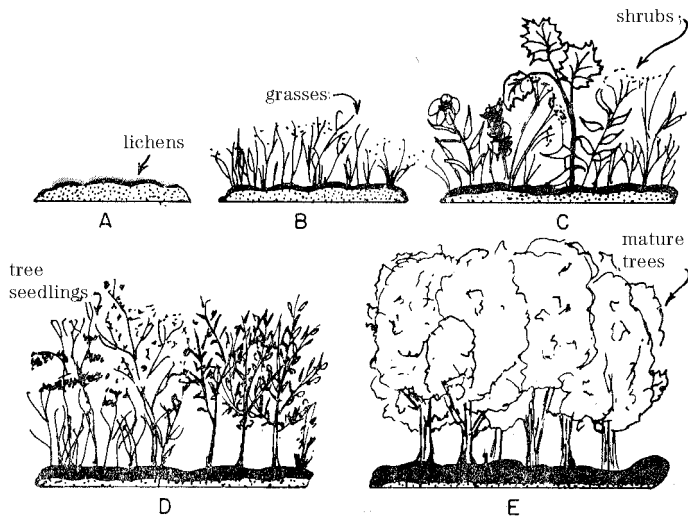
39. Why do ecosystems rarely contain more than a few trophic levels?

- A. Energy transfer efficiency is high.
- B. Energy transfer efficiency is low.
- C. Energy amounts remain constant.
- D. Energy cannot flow through levels.

40. Which example shows a relationship between a living thing and a nonliving thing?

- A. An insect is food for a salmon.
- B. Water carries a rock downstream.
- C. A tree removes a gas from the air.
- D. A flower makes food for a butterfly.

41. The sequence *A* through *E* represents stages of ecological succession in a given area.



Which diagram shows the greatest number of pioneer organisms?

- A. *A*
- B. *E*
- C. *C*
- D. *D*

42. In this sequence, which diagram represents a climax stage?

- A. *E*
- B. *B*
- C. *C*
- D. *D*

43. What caused succession to occur in stages *A* through *E*?

- A. importation of organisms that have no natural enemies
- B. each community modifying the environment
- C. urban development disrupting natural habitats
- D. technological oversights leading to air pollution

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44. In an ecological succession leading to the establishment of a pond community, which of the following organisms would be among the first to establish themselves?

- A. grasses
- B. algae
- C. minnows
- D. deciduous trees

45. Which is the usual sequence for ecological succession starting on the surface of bare rock?

- A. shrubs, lichens, conifers, deciduous trees, grass
- B. grass, shrubs, lichens, deciduous trees, conifers
- C. conifers, grass, lichens, shrubs, deciduous trees
- D. lichens, grass, shrubs, conifers, deciduous trees

46. In a certain low-elevation environment in New York state, lichens and mosses are the predominant forms of life. This community most probably represents

- A. a terrestrial climax condition
- B. the early stages of succession
- C. reforestation practices
- D. an aquatic biome

47. In a given location, the replacement of one community by another until a climax stage is reached is referred to as

- A. ecological succession
- B. modern evolution
- C. energy cycling
- D. a food pyramid

48. A farmer abandons one of his fields, and over the years he notices that one community is replaced by another community. This replacement represents part of

- A. a food chain
- B. an abiotic community
- C. a pyramid of energy
- D. an ecological succession

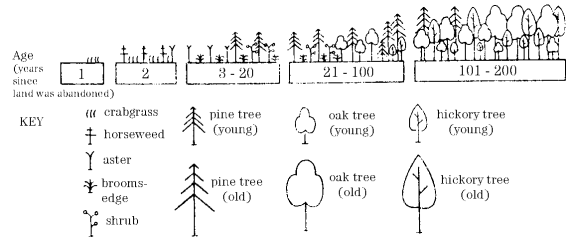
49. Which represents a natural climax community in New York State?

- A. a beech-maple forest
- B. an apple orchard
- C. a vegetable garden
- D. a cow pasture

50. The continuation of the climax community in a region is dependent upon

- A. mutagenic agents
- B. evolution of a new species
- C. reproduction of the species
- D. development of hermaphrodites

51. The diagram shows the types of plants which grew in a farm field in the 200 years after it was abandoned. Different types of plants appeared and disappeared during this time.



Which principle is illustrated by the diagrams?

- A. vegetative propagation
- B. ecological succession
- C. overcropping
- D. exploitation

52. How many years after the field was abandoned did pioneer organisms begin to grow on this farmland?

- A. 1
- B. 21
- C. 3
- D. 101

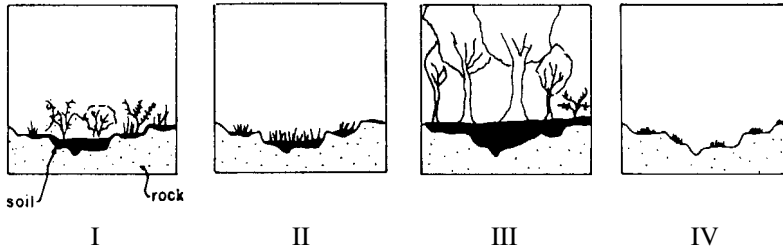
53. Which species of plants grew on the farmland 3 through 20 years after it was abandoned?

- A. crabgrass and shrub
- B. aster and hickory tree
- C. broomsedge and pine tree
- D. horseweed and oak tree

54. In the last diagram, the oak and hickory trees form a relatively stable forest in which the representative species are in a state of equilibrium. This final stage is known as

- A. an abiotic environment
- B. an anaerobic environment
- C. a pioneer community
- D. a climax community

55. The diagrams shown of four stages of succession and on your knowledge of biology. [The diagrams do not represent stages in their proper order.]



Which community would be predominantly pioneer organisms?

- A. I
- B. II
- C. III
- D. IV

56. Years after the lava from an erupting volcano destroyed an area, lichens started to grow in that area. These were gradually replaced by grasses, shrubs, conifers, and finally by a deciduous forest.

The process described is known as

- A. photosynthesis
- B. species preservation
- C. ecological succession
- D. conservation

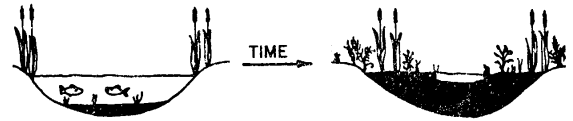
57. In this sequence of events, the lichens functioned as

- A. primary consumers
- B. climax organisms
- C. abiotic factors
- D. pioneer organisms

58. If the deciduous forest remains unchanged, it will be referred to as

- A. a pioneer community
- B. a climax community
- C. a food chain
- D. the biosphere

59. Which process is represented by the diagrams shown?



- A. water cycle destruction
- B. nitrogen fixation
- C. biological control
- D. ecological succession

60. Which succession sequence would most probably lead to the establishment of forests on barren rock areas?

- A. mosses → grass → lichens → woody shrubs
- B. lichens → mosses → grass → woody shrubs
- C. woody shrubs → grass → mosses → lichens
- D. grass → mosses → woody shrubs → lichens

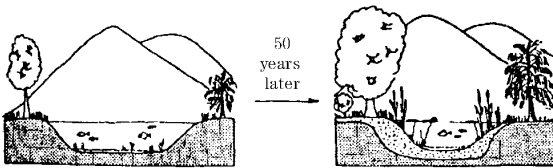
61. The type of climax vegetation that becomes established in an area depends upon the

- A. rate of photosynthesis in autotrophs
- B. number of carnivore present
- C. climatic conditions present
- D. concentration of nitrogen in the air



62. Which statement best describes a climax community?
- A. It contains only plant populations.
  - B. Major climate changes will not alter it.
  - C. It changes rapidly.
  - D. It persists until an environmental change occurs.

63. Which change is best illustrated by the diagrams shown?



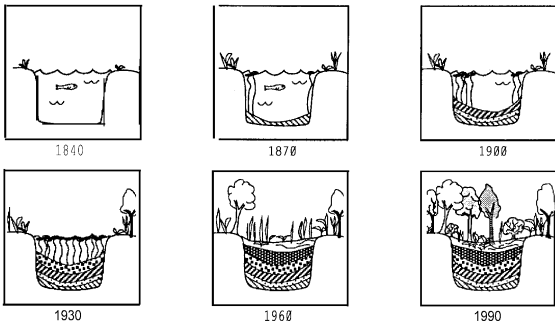
- A. succession
  - B. evolution
  - C. decomposition
  - D. predation
64. A climax community is generally established most directly as a result of a
- A. catastrophic climatic change
  - B. series of successive ecological stages
  - C. long period of evolutionary change
  - D. change in the dominant fauna

65. In an abandoned field, the gradual replacement of grasses by shrubs and then by trees is known as
- A. predation
  - B. saprophytism
  - C. ecological succession
  - D. transfer of energy

66. In the process of ecological succession, one community replaces another until
- A. all animal populations are replaced by plants
  - B. heterotrophs become the dominant organisms
  - C. all the biotic factors are of one species
  - D. a climax community is established

67. Over a period of time, biotic communities sequentially replace one another on abandoned farmland in the process known as
- A. gradualism
  - B. geographic isolation
  - C. ecological succession
  - D. replication

68. Answer the following question(s) based on the sequence of diagrams shown and on your knowledge of biology.



This sequence of diagrams best illustrates

- A. ecological succession
- B. organic evolution
- C. the effects of acid rain
- D. a food chain

69. If no human intervention or natural disaster occurs, by the year 2050 this area will most likely be a

- A. lake
- B. swamp
- C. desert
- D. forest

70. The natural increase in the amount of vegetation from 1840 to 1930 is related to the

- A. decreasing water depth
- B. increasing amount of sunlight
- C. presence of bottom-feeding fish
- D. use of the pond for fishing

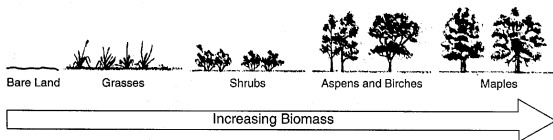
71. A pond in a temperate deciduous forest fills in with dead leaves and silt and eventually dries up, leading to terrestrial succession. Which sequence of plant communities would inhabit the area during the stages of this succession?

- A. shrubs → grasses → coniferous trees
- B. shrubs → coniferous trees → grasses
- C. grasses → deciduous trees → shrubs
- D. grasses → shrubs → deciduous trees

72. Mangrove trees grow in the water on the edge of a subtropical island. In time, grass-like plants will grow on the same spot. Still later, palm trees will grow there. Given enough time (and no natural disasters), all these plants will be gone, and a stable pine forest will stand where the mangroves once grew. These changes best describe steps involved in

- A. the heterotroph hypothesis
- B. ecological succession
- C. energy cycles
- D. the water cycle

73. The diagram represents succession in a temperate deciduous biome. Which statement best describes what would happen if a fire destroyed all the organisms in the climax stage?



- A. Drought-resistant shrubs and succulent plants would replace the climax stage.
- B. The shrub stage would become extinct.
- C. Succession would begin again, leading to another climax stage.
- D. Grasses would become dominant plants in a new climax stage.

74. The diagram represents succession in a temperate deciduous biome. Which factor would most likely have the greatest influence on the type of plants in each stage of succession?

- A. fertility of the soil
- B. species of earthworms in the area
- C. percentage of oxygen in the atmosphere
- D. number of predators in the area

75. The diagram represents succession in a temperate deciduous biome. Which statement best explains the replacement of the shrub community by the aspen and birch community?

- A. The amount of energy in an ecosystem is greatest at the producer level.
- B. Each community modifies the environment, often making it unfavorable for itself.
- C. Autotrophs are organisms that synthesize their own nutrients.
- D. Populations tend to increase in size until a disease limits their number.

76. The stable stage that is established in an area as a result of the process of ecological succession is known as the

- A. heterotroph community
- B. pioneer stage
- C. biotic stage
- D. climax community

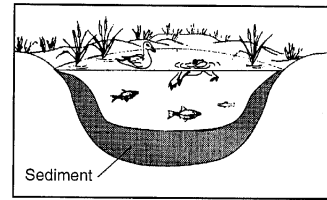
77. Which statement best describes the pioneer organisms involved in ecological succession?

- A. They do not require sunlight.
- B. They are the last organisms to appear.
- C. They modify the environment.
- D. They are restricted to desert biomes.

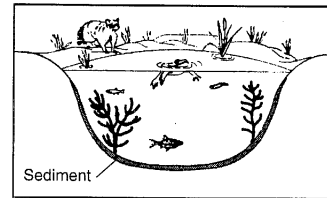
78. Over a period of time, an abandoned field develops into a forest by a series of events known as

- A. symbiosis
- B. exploitation
- C. ecological succession
- D. the carbon-hydrogen-oxygen cycle

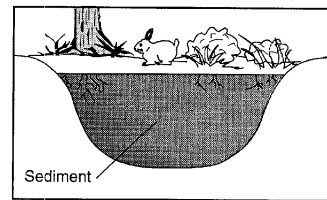
79. The diagrams represent events that occurred during succession in a pond.



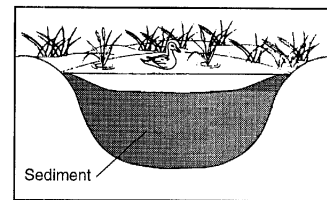
A



B



C



D

What is the correct sequence of the stages of succession in this pond?

- A. B → A → D → C
- B. A → B → C → D
- C. C → A → D → B
- D. B → D → A → C

80. Which organism is one of the first autotrophs to appear in this succession?

- A. frog
- B. aquatic plant
- C. tree
- D. fish

81. The major factor determining the final stage in this succession is the

- A. presence of heterotrophs in the area
- B. number of autotrophs in the pond
- C. lack of decomposers in the pond
- D. climate of the area

82. Starting on bare rock what is the usual ecological succession of organisms?

- A. grasses → shrubs → lichens → trees
- B. lichens → shrubs → grasses → trees
- C. grasses → shrubs → lichens → trees
- D. lichens → grasses → shrubs → trees

83. Which statement concerning the climax stage of an ecological succession is correct?

- A. It changes rapidly.
- B. It persists until the environment changes.
- C. It is the first community to inhabit an area.
- D. It consists entirely of plants.

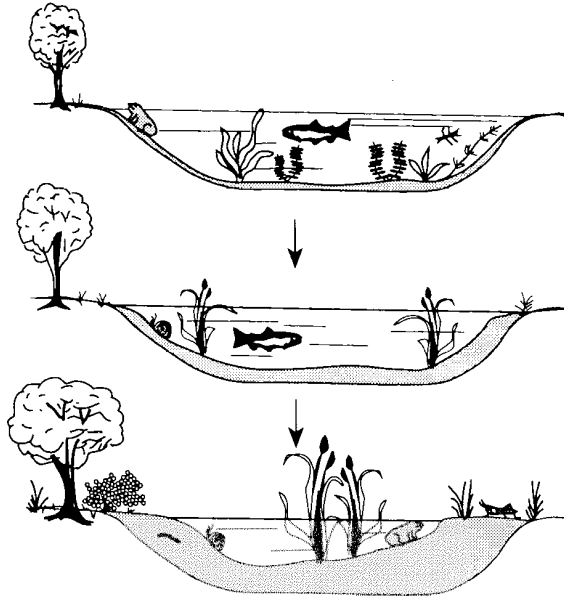
84. In a pond, which change would most likely lead to terrestrial succession?

- A. a decrease in the number of suspended particles in the pond water
- B. an increase in current velocity of the pond water
- C. a decrease in the number of diverse organisms in the shallow water of the pond
- D. an increase in sediment, fallen leaves, and tree limbs accumulating on the bottom of the pond

85. Several years after a building had been torn down and the ground cleared, grasses began to grow in that area. After 10 years, small bushes replaced the grasses. This pattern of plant growth is known as

- A. biological control
- B. ecological succession
- C. land-use management
- D. cover cropping

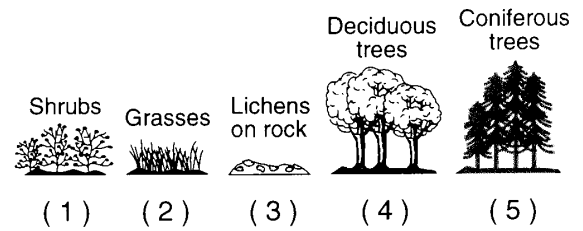
86. The diagram represents an ecological process.



Which statement is most closely related to the process shown in the diagram?

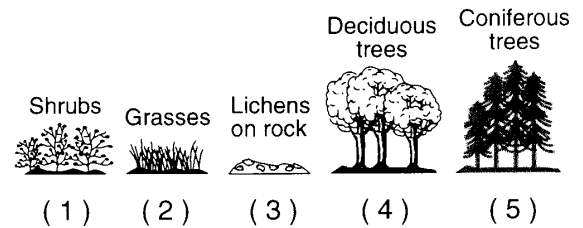
- A. Climax communities do not develop in aquatic habitats.
- B. Ecosystems tend to change with time until a stable system is formed.
- C. Humans have modified the environment through the use of technology and pollution.
- D. Succession involves changes in plant species only.

87. Which sequence represents a correct order of succession that would involve these stages?



- A. 2 → 3 → 1 → 4 → 5
- B. 2 → 1 → 3 → 5 → 4
- C. 3 → 1 → 2 → 4 → 5
- D. 3 → 2 → 1 → 5 → 4

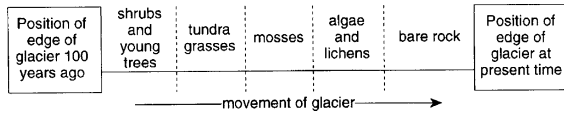
88.



In which stage would minerals be added during the formation of soil by a community composed primarily of pioneer organisms?

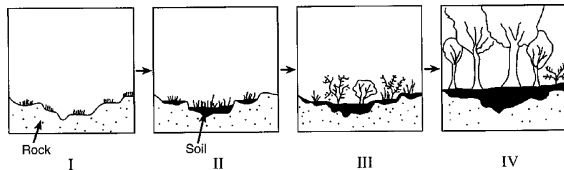
- A. 1
- B. 2
- C. 3
- D. 5

89. The diagram represents a map showing different zones in an area once covered by a glacier



This map best represents

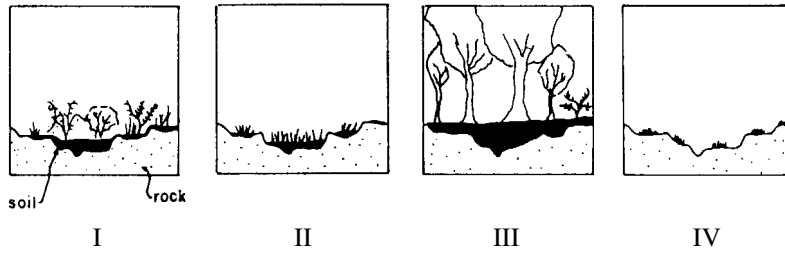
- A. a food chain  
 B. ecological succession  
 C. a pyramid of energy  
 D. nutritional relationships
90. Base your answer(s) to the following question(s) on the diagrams below of four stages of a biological process and on your knowledge of biology.



What is a major limiting biotic factor for animal succession in each stage?

- A. plant species                      B. sunlight  
 C. soil minerals                      D. moisture
91. Which sequence best represents the stages of succession that would most likely occur in New York State?
- A. bare rock → beech-maple forest → moss → lichens  
 B. grassland → pine forest → beech-maple forest → marsh → lake  
 C. lake → marsh → grassland → shrubs → beech-maple forest  
 D. pine forest → grassland → shrubs → lichens
92. Why does each successive feeding level in a pyramid of energy have less biomass?
- A. Carnivore biomass is less than producer biomass as a result of energy being lost as it flows from producers to carnivores.  
 B. The primary consumer level contains more stored energy than the producer level.  
 C. Consumers have more biomass than autotrophs because they must absorb all of the light energy in an ecosystem.  
 D. Biomass differences in an ecosystem result from competition between producers.
93. A climax community is able to exist in a certain geographic region for a long period of time because it
- A. provides a habitat for parasites  
 B. alters the climate of the geographic region  
 C. attracts many pioneer organisms  
 D. remains in equilibrium with the environment

94. The diagrams shown of four stages of succession and on your knowledge of biology. [The diagrams do not represent stages in their proper order.]



Which represents a typical sequence of successional stages in New York State?

- A. II, I, IV, III      B. II, III, IV, I      C. IV, II, I, III      D. IV, I, II, III
- 
95. A sequence of lichens, grasses, shrubs, and trees that replace each other is an example of

- A. succession in a bare rock area  
B. succession in a desert area  
C. a food web in a forest area  
D. a food web in a pond area



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- |         |   |         |   |
|---------|---|---------|---|
| 1.      |   | 15.     |   |
| Answer: | D | Answer: | C |
| Points: | 1 | Points: | 1 |
| 2.      |   | 16.     |   |
| Answer: | D | Answer: | B |
| Points: | 1 | Points: | 1 |
| 3.      |   | 17.     |   |
| Answer: | D | Answer: | A |
| Points: | 1 | Points: | 1 |
| 4.      |   | 18.     |   |
| Answer: | C | Answer: | D |
| Points: | 1 | Points: | 1 |
| 5.      |   | 19.     |   |
| Answer: | D | Answer: | D |
| Points: | 1 | Points: | 1 |
| 6.      |   | 20.     |   |
| Answer: | C | Answer: | D |
| Points: | 1 | Points: | 1 |
| 7.      |   | 21.     |   |
| Answer: | C | Answer: | B |
| Points: | 1 | Points: | 1 |
| 8.      |   | 22.     |   |
| Answer: | B | Answer: | B |
| Points: | 1 | Points: | 1 |
| 9.      |   | 23.     |   |
| Answer: | C | Answer: | C |
| Points: | 1 | Points: | 1 |
| 10.     |   | 24.     |   |
| Answer: | B | Answer: | A |
| Points: | 1 | Points: | 1 |
| 11.     |   | 25.     |   |
| Answer: | C | Answer: | C |
| Points: | 1 | Points: | 1 |
| 12.     |   | 26.     |   |
| Answer: | A | Answer: | D |
| Points: | 1 | Points: | 1 |
| 13.     |   | 27.     |   |
| Answer: | A | Answer: | C |
| Points: | 1 | Points: | 1 |
| 14.     |   | 28.     |   |
| Answer: | C | Answer: | A |
| Points: | 1 | Points: | 1 |
|         |   | 29.     |   |
|         |   | Answer: | B |
|         |   | Points: | 1 |

30.  
Answer: B  
Points: 1

31.  
Answer: A  
Points: 1

32.  
Answer: B  
Points: 1

33.  
Answer: B  
Points: 1

34.  
Answer: B  
Points: 1

35.  
Answer: D  
Points: 1

36.  
Answer: B  
Points: 1

37.  
Answer: A  
Points: 1

38.  
Answer: B  
Points: 1

39.  
Answer: B  
Points: 1

40.  
Answer: C  
Points: 1

41.  
Answer: A  
Points: 1

42.  
Answer: A  
Points: 1

43.  
Answer: B  
Points: 1

44.  
Answer: B  
Points: 1

45.  
Answer: D  
Points: 1

46.  
Answer: B  
Points: 1

47.  
Answer: A  
Points: 1

48.  
Answer: D  
Points: 1

49.  
Answer: A  
Points: 1

50.  
Answer: C  
Points: 1

51.  
Answer: B  
Points: 1

52.  
Answer: A  
Points: 1

53.  
Answer: C  
Points: 1

54.  
Answer: D  
Points: 1

55.  
Answer: D  
Points: 1

56.  
Answer: C  
Points: 1

57.  
Answer: D  
Points: 1

58.  
Answer: B  
Points: 1

59.  
Answer: D  
Points: 1

60.  
Answer: B  
Points: 1

61.  
Answer: C  
Points: 1

62.  
Answer: D  
Points: 1

63.  
Answer: A  
Points: 1

64.  
Answer: B  
Points: 1

65.  
Answer: C  
Points: 1

66.  
Answer: D  
Points: 1

67.  
Answer: C  
Points: 1

68.  
Answer: A  
Points: 1

69.  
Answer: D  
Points: 1

70.  
Answer: A  
Points: 1

71.  
Answer: D  
Points: 1

72.  
Answer: B  
Points: 1

73.  
Answer: C  
Points: 1

74.  
Answer: A  
Points: 1

75.  
Answer: B  
Points: 1

76.  
Answer: D  
Points: 1

77.  
Answer: C  
Points: 1

78.  
Answer: C  
Points: 1

79.  
Answer: A  
Points: 1

80.  
Answer: B  
Points: 1

81.  
Answer: D  
Points: 1

82.  
Answer: D  
Points: 1

83.  
Answer: B  
Points: 1

84.  
Answer: D  
Points: 1

85.  
Answer: B  
Points: 1

86.  
Answer: B  
Points: 1

87.  
Answer: D  
Points: 1

88.  
Answer: C  
Points: 1

89.  
Answer: B  
Points: 1

90.  
Answer: A  
Points: 1

91.  
Answer: C  
Points: 1

92.  
Answer: A  
Points: 1

93.  
Answer: D  
Points: 1

94.  
Answer: C  
Points: 1

95.  
Answer: A  
Points: 1