

NTI DAY #5
(weather-closed school day)

PACKET
FIVE ^{8th Gold}
Hanrahan
(Science)

General Directions:

Due to weather, Harrison County Schools are closed. In an effort to utilize this day on the school calendar, your child is assigned and should work on this "packet" of school work today. It will count as a grade for this subject. The work attached is specific to the subject listed above. Please contact your child's teacher of this subject at 234-7123 in the event you/your student have questions on this packet. Staff and teachers reported to HCMS today and are available should you have questions.

While this is DUE no later than the last school day before the 3rd nine-weeks ends, we *strongly encourage* students to turn it in to their teacher as soon as it's complete (soon after the NTI day) to avoid it being lost, eaten by the family pet, burned to keep warm, etc

Harrison County Schools
Non-Traditional Instruction
Snow Plan 2019-2020

Due to the large number of weather related days of school closures, the Kentucky Department of Education has granted permission to school districts across the state to implement “*Non-Traditional Instruction*” (NTI) days. The Harrison County Board of Education approved all Harrison County Schools the opportunity during the 2019-2020 school year.

WHAT IS NON-TRADITIONAL INSTRUCTION? (NTI)

Non-Traditional Instruction allows for learning at home when students miss regular instruction due to weather/extraordinary circumstances. Students will have the chance for skill review, remediation, and enrichment through technology or paper packets. The work that is assigned on a NTI day will be that of review or enrichment. Examples of work will be informational reading, math fact fluency, project based learning, college and career readiness, etc.

WHEN WILL A NTI DAY BE CALLED?

A NTI day will be used if it is determined that a large majority of the roads are safe to travel, but an extra day or two is needed for some of our ‘*hard to melt*’ roads. When a NTI day is called, students will work from home on their assigned lessons found in their NTI packet or online. Harrison County Schools may use up to 10 NTI days. The number of days missed due to weather will help determine how many NTI days are enacted.

HOW WILL I KNOW HARRISON COUNTY SCHOOLS ARE HAVING A NTI DAY?

A School Messenger one call will be made to all parents and staff announcing a NTI day. Lexington television stations, WCYN radio and the Cynthiana Democrat will also be alerted. Harrison County Schools will place this information on its website, as well as on Facebook and Twitter. You can always call your child’s school or the Harrison County Board Office to ask if the day missed is a regular snow day or a NTI day.

WHAT IS THE ACCOUNTABILITY OF MY STUDENT ON A NTI DAY?

Students will be required to complete all tasks assigned during a NTI day. Each day’s NTI assignments will be due TWO WEEKS from the day we return to school (**for example**, a NTI day is called for Feb. 4th, we return to school on Feb. 5th, that day’s NTI assignment would be due Feb. 19). ** Advanced Placement Courses/Dual Credit courses are exempted from this schedule, as their deadlines are determined by instructor, on a course by course basis.*

The completion of the NTI assignments counts for the student’s attendance that day. The completion of the NTI work means one less summer makeup day for students will have to be enacted.

WHEN WILL MY CHILD’S TEACHER BE AVAILABLE ON A NTI DAY?

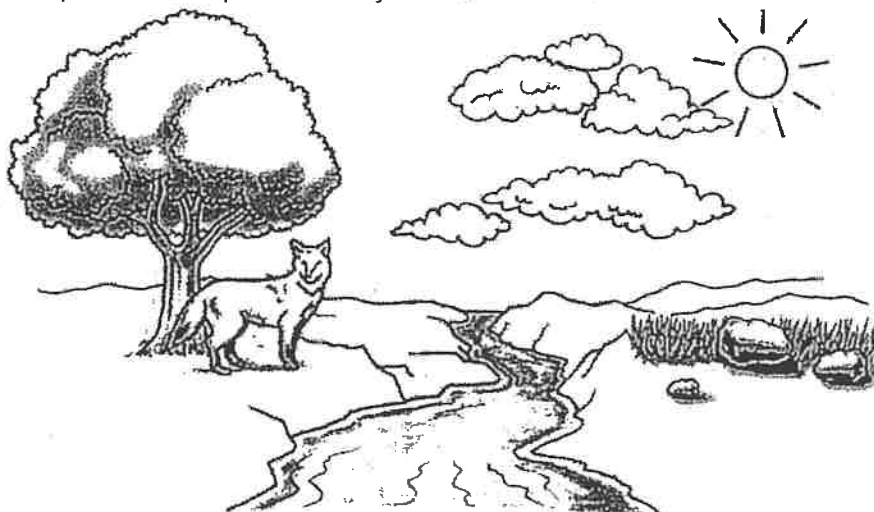
Staff will be available from 9:00 a.m. until 11:30 a.m. and from 12:30 p.m. until 3:00 p.m. Teachers will be available via e-mail or students can call their school and leave a message for their teacher to call them back. Other forms of communication may be used at the discretion of the teacher.

Name:
Biology

Date:
Period:

Biotic vs. Abiotic Factors

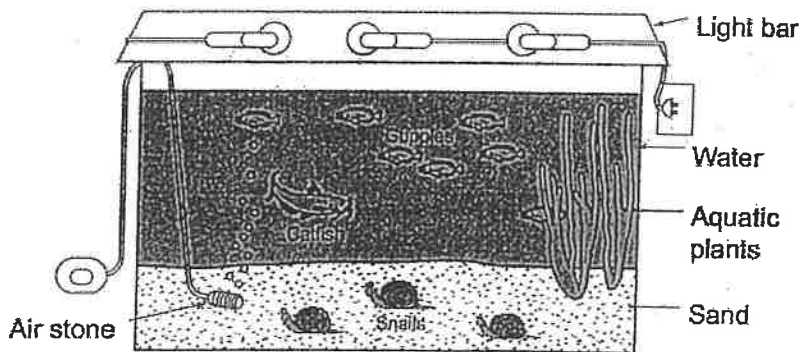
1. The diagram below represents a pond ecosystem.



In the table below, list three biotic factors and three abiotic factors shown in the diagram.

Biotic Factors	Abiotic Factors
1)	1)
2)	2)
3)	3)

2. The diagram below represents an aquarium.



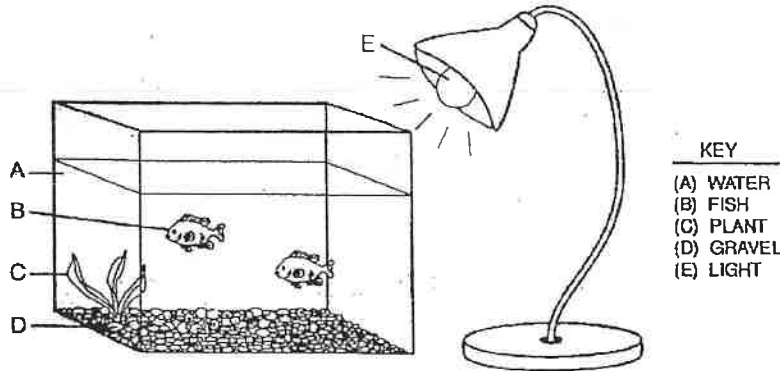
In the table below, list four biotic factors and four abiotic factors shown in the diagram.

Biotic Factors	Abiotic Factors
1)	1)
2)	2)
3)	3)
4)	4)

3. How do light, temperature, and soil composition influence most land ecosystem?
 - (1) They cause the ecosystem to become extinct.
 - (2) They determine the types of plants and animals in the ecosystem.
 - (3) They cause water in the ecosystem to become polluted.

4. What abiotic factors affect the growth and survival of seaweed, small fish, and sharks?
 - (1) sunlight, temperature, and minerals
 - (2) sunlight, pH, and type of seaweed
 - (3) number of decomposers, carbon dioxide, and nitrogen
 - (4) number of herbivores, carbon, and food

5. In the diagram of an aquarium setup below, which letters indicate abiotic factors?



- (1) A, B, and C, only
 - (2) A, B, D, and E, only
 - (3) A, D, and E, only
 - (4) A, B, C, D, and E
-
6. Competition for biotic resources can be illustrated by organisms fighting for a limited amount of
 - (1) air to breathe
 - (2) water to drink
 - (3) mates for breeding
 - (4) space for nesting

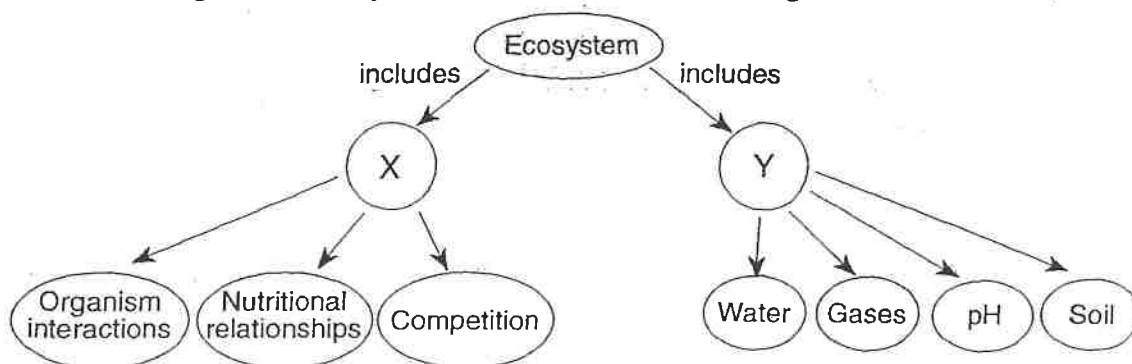
 7. Abiotic factors that affect the growth of grass in a lawn include
 - (1) bacteria and soil
 - (2) earthworms and nutrients
 - (3) moisture and minerals
 - (4) fertilizer and decomposers

 8. Abiotic factors that could affect the stability of an ecosystem could include
 - (1) hurricanes, packs of wolves, and temperature
 - (2) blizzards, heat waves, and swarms of grasshoppers
 - (3) droughts, floods, and heat waves
 - (4) species of fish, number of decomposers, and supply of algae

 9. One biotic factor that affects consumers in an ocean ecosystem is
 - (1) number of autotrophs
 - (2) temperature variation
 - (3) salt content
 - (4) pH of water

 10. One biotic factor that limits the carrying capacity of any habitat is the
 - (1) availability of water
 - (2) level of atmospheric oxygen
 - (3) activity of decomposers
 - (4) amount of soil erosion

11. An abiotic factor affecting the behavior and survival of such organisms as robins and violets is the
- (1) population of rabbits
 - (2) length of daylight
 - (3) presence of harmful bacteria
 - (4) number of herbivores
12. A student measured some abiotic factors present in an aquarium in a biology laboratory. Which data did the student most likely record?
- (1) the weight and color of each type of scavenger
 - (2) the number of each type of green plant and each type of snail
 - (3) the size and number of each species of fish
 - (4) the temperature and oxygen content of the water
13. Which is an example of a changing biotic factor in an ecosystem?
- (1) seasonal changes in temperature
 - (2) an increase in sunlight during the summer
 - (3) seasonal migration of birds
 - (4) an increase in the usual amount of winter snowfall
14. Which is a biotic factor in the environment of a fresh-water fish?
- (1) the amount of light penetrating the water
 - (2) the temperature of the water
 - (3) the mud on the pond bottom
 - (4) the algae growing in the water
15. Information relating to an ecosystem is contained in the diagram shown below.



Which information belongs in areas X and Y?

- (1) X—biotic factors; Y—abiotic factors
 - (2) X—ecological relationships; Y—biotic relationships
 - (3) X—abiotic factors; Y—interacting populations
 - (4) X—energy flow; Y—biotic factors
16. Plants are green because they contain the protein chlorophyll. A bucket was left on the lawn for one week. When the bucket was removed, the grass under the bucket had turned from green to a yellowish white color. This change is due to the interaction between the grass and
- (1) decomposer organisms in the soil, an abiotic factor
 - (2) the amount of sunlight, an abiotic factor
 - (3) increased moisture under the bucket, a biotic factor
 - (4) the metal composition of the bucket, a biotic factor

17. Corals are marine animals that often live in tropical seas. Many types of corals have unicellular algae living in their tissues. The algae provide up to 98% of the corals' food. The corals provide protection and inorganic nutrients for the algae. Algae leave the coral when the water is too warm. What kind of factor is temperature on this relationship?

- (1) biotic (2) abiotic (3) parasitic (4) commensalistic

18. In the fall, the leaves of many plants change color. Which of the following abiotic factors is primarily responsible for causing this change?

- (1) increased pH (2) increased water (3) decreased acidity (4) decreased light

19. Which abiotic factor limits the elevation at which plants can grow?

- (1) the presence of a parasite
 (2) the temperature of the area
 (3) the presence of herbivorous animals
 (4) the concentration of microbes in the soil

20. The chart below lists four groups of factors relating to an ecosystem.

Group A	Group B	Group C	Group D
Sunlight Green plants Rainfall Consumers Oxygen	Sunlight Climate Rainfall Minerals Gases	Sunlight Green plants Rainfall Producers Carbon dioxide	Sunlight Rainfall Consumers Producers Water

Which group contains only abiotic factors?

- (1) A (2) B (3) C (4) D

21. A student set up a small freshwater fish tank. The tank included water, fish, gravel, a snail, and plants, as represented below.



Which statement best describes an activity performed by a student investigating an abiotic factor using this setup?

- (1) He records the temperature of the water.
 (2) He feeds the fish 0.5 gram of fish food twice a day.
 (3) He measures the growth of the plants with a metric ruler.
 (4) He observes the snail scrape algae off the gravel.

Name:
Living Environment

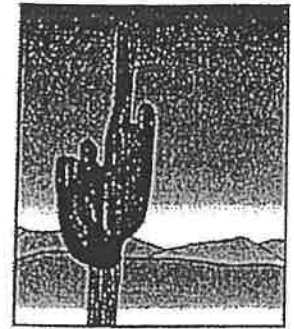
Date:
Period:

Symbiosis

- In which symbiotic relationship do two different species benefit from their association with one another?
(1) saprophytism (3) mutualism
(2) commensalism (4) parasitism
- A heterotroph that benefits at the expense of its living host is known as a
(1) decomposer (2) saprophyte (3) parasite (4) scavenger
- A symbiotic relationship exists between two organisms of different species. If only one organism benefits from the relationship and the other is not harmed, the relationship is known as
(1) commensalism (3) parasitism
(2) mutualism (4) saprophytism
- An organism that feeds on the blood of a live rabbit is known as
(1) a parasite (2) a producer (3) an herbivore (4) a saprophyte
- Clownfish are tiny, omnivorous fish that find shelter from predators in the poisonous tentacles of sea anemones. The sea anemones sting their prey to capture food, but the clownfish are not hurt by the stinging tentacles. The clownfish clean the tentacles of the sea anemone and scare off butterfly fish, which consume sea anemones. The relationship between the sea anemone and clownfish is best described as
(1) competitive (3) predatory
(2) mutualistic (4) parasitic
- Acacia trees provide food for a species of ant that lives on them. The ants defend the acacia tree from grasshoppers and beetles. This relationship between the ant and acacia tree is best described as
(1) commensalism (2) mutualism (3) parasitism (4) saprophytism
- A protozoan lives inside a rat and takes nourishment from the rat's body. Because the protozoan damages the rat's brain, the rat loses its fear of cats. A cat attacks an infected rat; the protozoan enters the cat's body and completes its life cycle. Which of these describes the relationship between the protozoan and the rat?
(1) commensalism (2) parasite-host (3) mutualism (4) predator-prey
- The crab *Lybia tessellate* carries a pair of sea anemones on its claws. The crab uses the sea anemone's stinging tentacles as protection and the sea anemone obtains small food particles released by the crab as it feeds. Which type of symbiotic relationship does this best illustrate?
(1) commensalism (2) mutualism (3) parasitism (4) predation
- The presence of parasites in an animal will usually result in
(1) an increase in meiotic activity within structures of the host
(2) the inability of the host to maintain homeostasis
(3) the death of the host organism within twenty four hours
(4) an increase in genetic mutation rate in the host organism



16. Desert plants and animals have specialized characteristics that help them survive the harsh environment. An example is the Saguaro cactus. The Saguaro has a shallow root system with a main taproot and other roots that radiate out and collect surface water. The trunk of the Saguaro has the ability to expand while storing water. The sweet-nectar flowers of the Saguaro attracted white-winged doves, bats, and other animals. These animals feed on the nectar. They are necessary for cross-pollination. Cross-pollination occurs when the pollen of a flower is carried to a flower on another plant. The illustration below shows the Saguaro cactus.



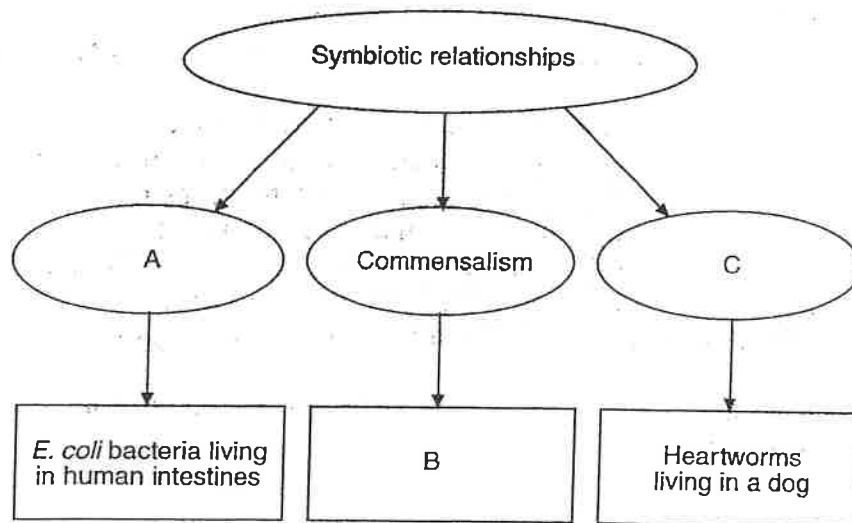
Which of these best describes the relationship between white-winged doves and the Saguaro cactus?

- (1) commensalism (2) parasite-host (3) mutualism (4) predator-prey

17. A small fish, called a cleaner fish, picks bits of food from a shark's teeth. What can best be concluded about this behavior?

- (1) It takes needed nutrition away from the shark.
 (2) It helps both the cleaner fish and the shark.
 (3) It removes food from the inside of the shark's body.
 (4) It helps the shark blend in with its surroundings.

Base your answers to questions 18 through 20 on the diagram below and on your knowledge of biology.



18. Organisms that are always part of the relationship indicated by letter C may be classified as
 (1) bryophytes (2) parasites (3) scavengers (4) carnivores

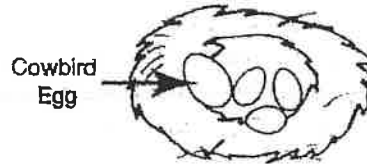
19. Which phrase belongs in area B?
 (1) protozoa within termites
 (2) athlete's foot fungus on humans
 (3) nitrogen-fixing bacteria within legume nodules
 (4) orchids on tropical trees

20. Which term belongs in area A?
 (1) mutualism (3) saprophytism
 (2) prey (4) host

21. Brown-headed cowbirds are small birds found throughout North American grasslands and along edges of forests. When a female brown-headed cowbird sees eggs in the nest of another bird, she lays her own egg in the nest. She usually chooses nests with eggs that are smaller than hers, such as that of a yellow warbler. The yellow warbler will feed the brown-headed cowbird hatchling. The brown-headed cowbird hatchling grows quickly and is larger than the other hatchlings in the nest.



Female Brown-headed Cowbird



Yellow Warbler Nest

Which term best describes the relationship between the brown-headed cowbird and the yellow warbler?

- (1) mutualism (2) commensalism (3) predator-prey (4) parasite-host

22. The yucca moth of the Arizona desert lays its eggs inside the flower of the yucca plant. When the eggs hatch, the moth larvae eat some of the plant seeds. When the moth flies away from the plant, it takes pollen from the yucca flower with it. How does the yucca moth help the yucca plant?

- (1) lays eggs (2) eats seeds (3) hatches larvae (4) spreads pollen

23. After the Aswan High Dam was built on the Nile River, the rate of parasitic blood-fluke infection doubled in the human population near the dam. As a result of building the dam, the flow of the Nile changed. This changed the habitat, which resulted in an increase in its population of a certain aquatic snail. The snails, which were infected, released larvae of the fluke. These larvae then infected humans. The role of the snail may be described as a

- (1) host (2) parasite (3) producer (4) decomposer

24. Reef-building coral are marine animals with single-celled algae living in their tissues. The coral provide protection for the algae and the algae provides food for the coral. Which of these statements best explains what would happen to the coral if the algae die?

- (1) The coral would grow well because it does not have a competitor.
 (2) The coral would die because it needs the food produced by the algae.
 (3) The coral would grow well because it does not have a parasite.
 (4) The coral would die because it cannot produce food for the algae.

25. The relationship between fleas and a dog is most similar to the relationship between

- (1) honeybees and a flower
 (2) orchids and a tree
 (3) nitrogen-fixing bacteria and a legume
 (4) athlete's foot fungus and a human

26. Even before a flower bud opens, certain plant chemicals have colored the flower in patterns particularly attractive to specific insects. At the same time, these chemicals protect the plant's reproductive structures by killing or inhibiting pathogens and insects that may feed on the plant. Which statement about the plant and the other organisms mentioned is correct?

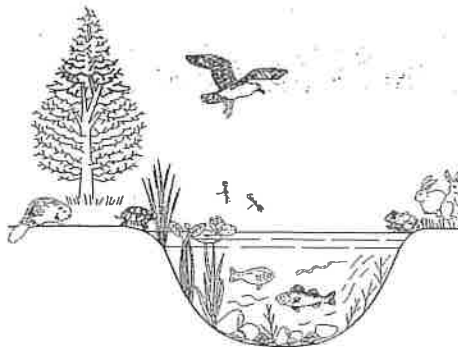
- (1) Chemicals affect plants but not animals.
 (2) Organisms of every niche may be preyed on by herbivores.
 (3) Any chemical produced in a plant can protect against insects.
 (4) Organisms may interact with other organisms in both positive and negative ways.

Name:
Biology

Date:
Period:

Ecological Organization

- The study of the interactions between organisms and their interrelationships with the physical environment is known as
 - (1) ecology
 - (2) cytology
 - (3) embryology
 - (4) physiology
- A fundamental concept of ecology is that living organisms
 - (1) are independent and do not interact with each other or with the physical environment.
 - (2) do not interact with other living organisms, but do interact with the physical environment
 - (3) interact with each other, but do not interact with the physical environment
 - (4) interact with other living organisms and interact with the physical environment
- The portion of Earth in which all life exists is known as
 - (1) the climax stage
 - (2) the biosphere
 - (3) a population
 - (4) a biotic community
- The organisms in a pond and the physical factors influencing them best describe
 - (1) a population
 - (2) an ecosystem
 - (3) a biosphere
 - (4) a food chain
- Many different species of organisms interacting in a particular environment are an example of a
 - (1) population
 - (2) biosphere
 - (3) community
 - (4) biome
- What do scientists mean when they refer to a population?
 - (1) all the organisms in an ecosystem
 - (2) all the species that share similar features
 - (3) all the animals that acquire resources through similar methods
 - (4) all the interbreeding members of a certain species in an ecosystem
- The diagram below represents many species of plants and animals and their surroundings.



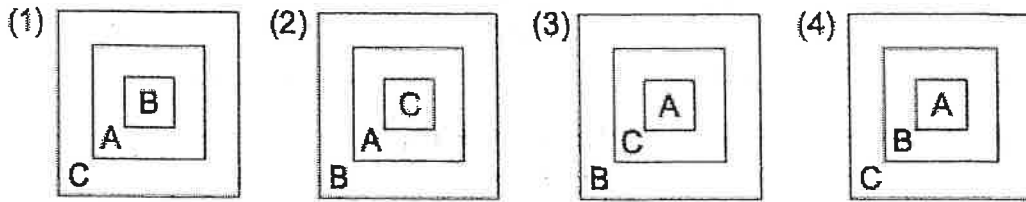
What does the diagram best represent?

- (1) a population
- (2) a community
- (3) an ecosystem
- (4) the biosphere

8. The chart below shows three ecological terms used to describe levels of organization on Earth.

A	ecosystem
B	population
C	biosphere

Which diagram best represents the relationship of these ecological terms?



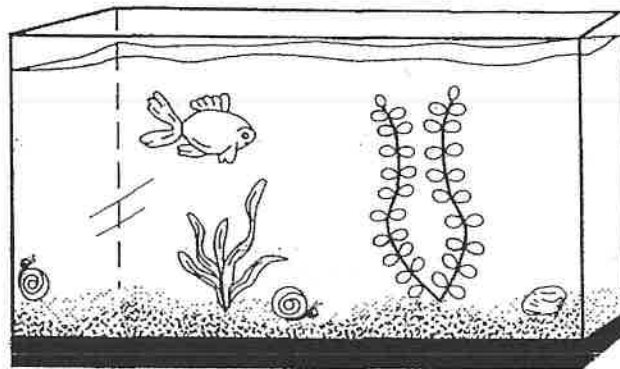
9. Which statement best illustrates the concept of the interrelationship of living things with the physical environment, as found in the definition of ecology?

- (1) Hawks and eagles often compete with each other.
- (2) White-tailed deer shed their antlers.
- (3) Algae release oxygen and absorb carbon dioxide from pond water.
- (4) Frogs produce many eggs in a single reproductive cycle.

10. In ecology, a population is defined as all the

- (1) members of a single species in the biosphere
- (2) members of a given genus inhabiting a given area
- (3) members of a single species inhabiting a given area
- (4) abiotic and biotic factors in a given location

11. An aquarium ecosystem is shown below.



A community in this aquarium consists of the

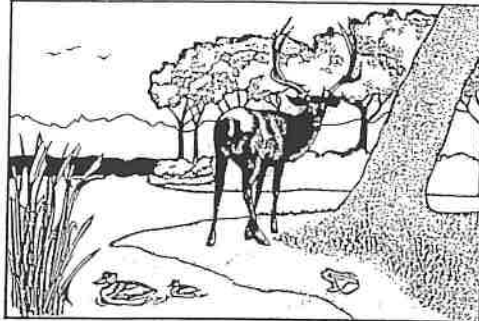
- (1) plants and gravel
- (2) fish, water, and snails
- (3) fish, plants, and snails
- (4) water and gravel

12. A stable ecosystem is characterized by having

- (1) predators that outnumber their prey
- (2) a continual input of energy
- (3) limited autotrophic nutrition
- (4) no competition between species

13. An earthworm lives and reproduces in the soil. It aerates the soil and adds organic material to it. The earthworm is a source of food for other organisms. All of these statements together best describe
- (1) a habitat
 - (2) autotrophic nutrition
 - (3) an ecological niche
 - (4) competition

14. Which ecological term includes everything represented in the illustration below?



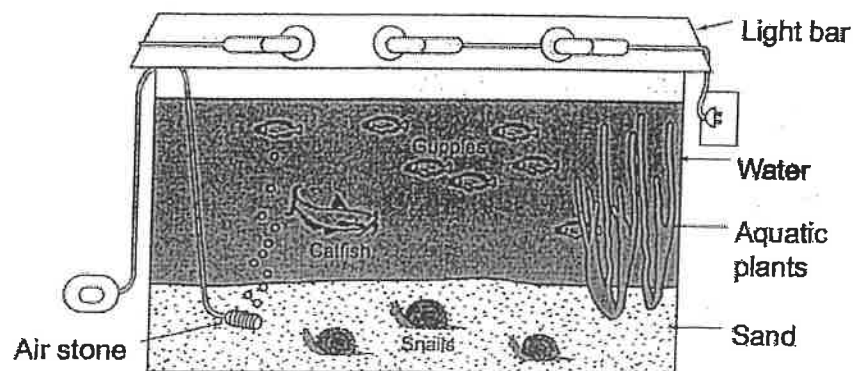
- (1) community
- (2) ecosystem
- (3) population
- (4) species

15. Forests, mountains, rivers, and marshes are examples of the wide variety of ecosystems in New York State. The diversity of these ecosystems is most likely the result of
- (1) the variety of abiotic conditions in these regions
 - (2) interactions between producers and decomposers
 - (3) increased efforts to protect endangered species
 - (4) a lack of competition between the heterotrophs living there

16. Which group can best be described as a population?
- (1) all the honeybees in an orchard
 - (2) all the plants and animals in a forest
 - (3) the living and nonliving factors in a meadow
 - (4) the life in Earth's atmosphere

17. Which sequence shows increasing complexity of levels of ecological organization?
- (1) biosphere, ecosystem, community
 - (2) biosphere, community, ecosystem
 - (3) community, ecosystem, biosphere
 - (4) ecosystem, biosphere, community

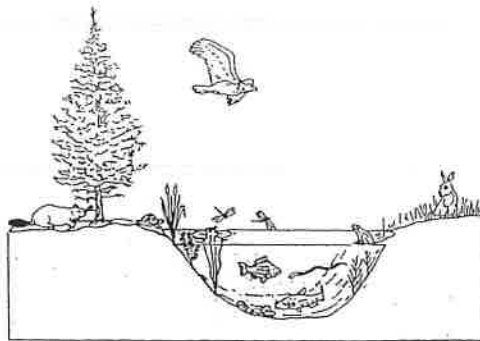
18. Which statement regarding the ecosystem shown in the diagram below is correct?



- (1) The community within this ecosystem consists of seven guppies and one catfish.
- (2) The energy source for this ecosystem is the gas from the air stone.
- (3) A population within this ecosystem is the three snails.
- (4) Cycling of materials is not necessary in this self-sustaining ecosystem.

19. All the red foxes inhabiting a given forest constitute a
 (1) population (2) community (3) biome (4) biosphere

20. The diagram below shows organisms in and around a pond.



Which ecological term refers to all the organisms shown in the diagram?

- (1) heterotroph (2) community (3) population (4) producer

21. A moss-covered log is overturned by a hungry bear looking for insects to eat. The bear disturbs an ant colony, and some chipmunks leave the hollow log to search for another home in the forest.

Which relationship do these organisms have with each other?

- (1) They are all of the same species.
 (2) They all require the same type of food.
 (3) They are part of a community.
 (4) They are abiotic factors in a forest.

22. A student wrote several observations in a field notebook.

- Two grey wolves
- Five moose
- Several species of conifer trees
- Large granite rock
- Shallow pond

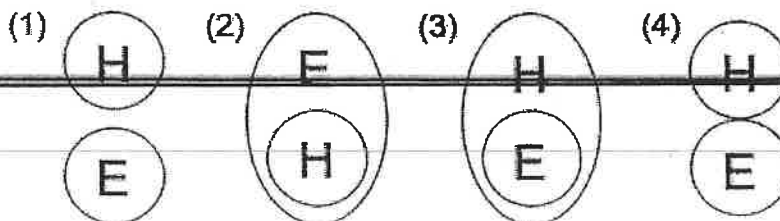
Which term best classifies all of the student's observations?

- (1) population (2) food chain (3) ecosystem (4) community

23. Which sequence shows increasing ecological levels of organization?

- (1) organism, population, community, ecosystem
 (2) ecosystem, population, organism, community
 (3) community, ecosystem, population, organism
 (4) population, organism, ecosystem, community

24. Which diagram best illustrates the relationship between humans (H) and ecosystems (E)?



GRAPH INSTRUCTIONS (10 points)

Pick up a half sheet of graph paper and graph the information on the data table. Be sure to follow the directions!

Time (minutes)	Temperature (degrees C)
0	10
1	30
2	50
3	70
4	90

DIRECTIONS:

1. Put time on the X axis and temperature on the Y axis (1)
2. Label the axes with what you are measuring and a unit (2)
3. Create an appropriate scale that uses most of the graph paper (2)
4. Plot the 5 points and connect with a line (3)
5. Give the graph an appropriate title (2)

PUT YOUR NAME ON YOUR GRAPH AND STAPLE TO THE ANSWER SHEET YOU ARE TURNING IN.

⊗ graph must be completed. It is not part of the extra credit section.

