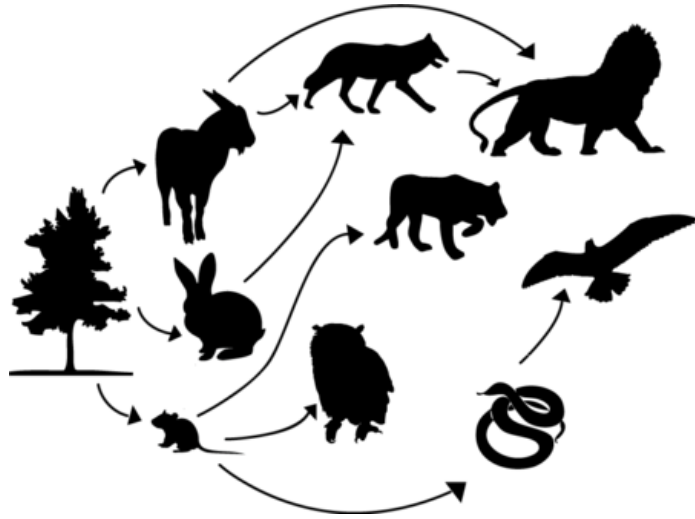


Objective 4: Organisms and Environment

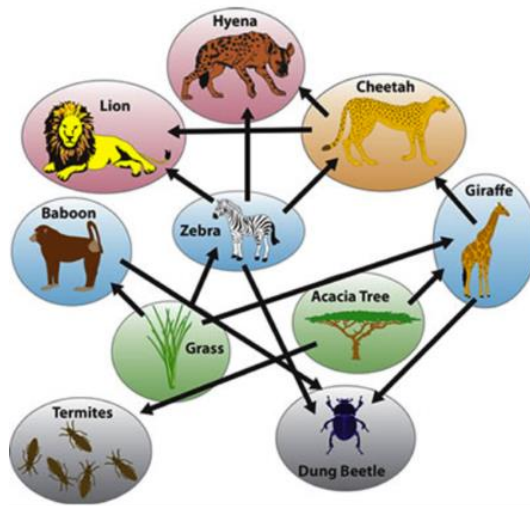
1. Which statement best describes the relationship between biodiversity and the sustainable nature of an ecosystem? (7.10B)
 - a. Data on biodiversity is important in field studies to appropriately represent an ecosystem.
 - b. Abiotic factors in an ecosystem influence biodiversity.
 - c. Increased biodiversity has a positive effect on ecosystem sustainability.
 - d. An ecosystem with low biodiversity is better able to recover from natural and manmade disasters.



2. Which statement best describes the role of succession in the garden microhabitat pictured above? (7.10C)
 - a. Seeds from grasses and weeds begin to change the biotic factors in the microhabitat.
 - b. Succession will end as soon as the field is planted again.
 - c. The weeds and grasses prohibit shrubs and trees from becoming established through succession.
 - d. The abiotic factors cause succession to take place.

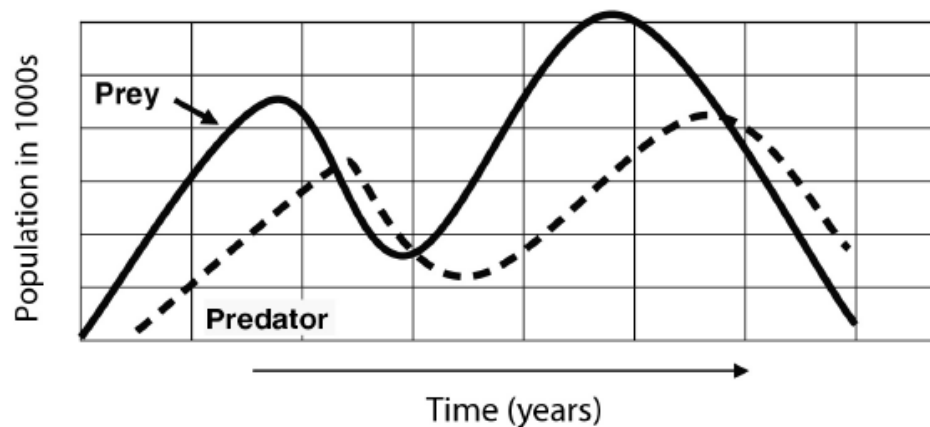


3. If the wolf population decreased within the food web, the result would be ____ (8.11A)
- The mouse population decreasing
 - The hawk population decreasing
 - The snake population decreasing
 - The producer population decreasing

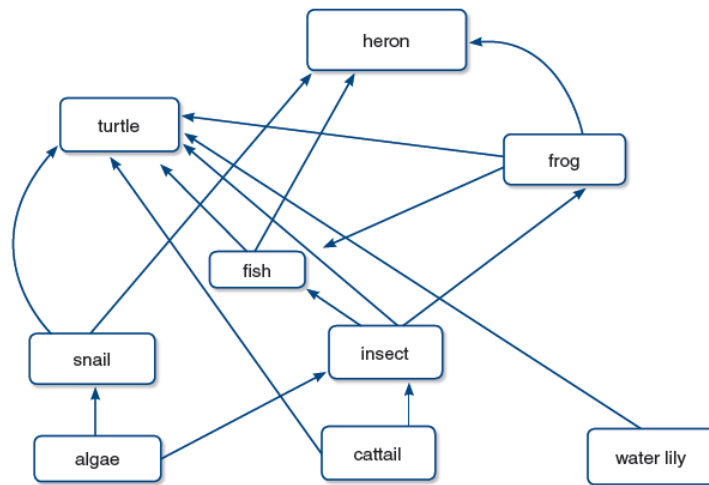


4. The termites attack the trunk of the tree, using the tree as a food source. The tree is being harmed in the process. This relationship between the termites and the tree is an example of – (8.11A)
- Commensalism
 - Mutualism
 - Parasitism
 - Predator-prey

Predator and Prey Populations



5. The graph shows the relationship between a predator and prey population over time. What trend can be observed about the relationship between the predator and prey populations? (8.11A)
- As the prey population increases, the predator population decreases
 - As the prey population increases, the predator population does not change
 - As the prey population decreases, the predator population decreases
 - As the prey population decreases, the predator population does not change
6. In a forest, two trees are growing next to each other. One is growing strong and tall. The other appears weak and small. Which of the following describes natural resources that both trees compete for here? (8.11B)
- Quantity of light and nutrients
 - Root length and strength
 - Genetic diversity
 - Presence of bird nests and roosting areas
7. Which population of organisms would be in the greatest danger of becoming extinct? (8.11C)
- A population of organisms having few variations living in a stable environment
 - A population of organisms having few variations living in an unstable environment
 - A population of organisms having many variations living in a stable environment
 - A population of organisms having many variations living in an unstable environment



8. For which of the biotic factors are the fish and frog competing? (8.11B)
- Water
 - Algae
 - Heron
 - Insect
9. Which of the following statements best describes the response of finches to a drought on the Galapagos Islands? (8.11C)
- During a drought, individual finches saw that large, hard seeds were the only available food. To crack these harder seeds, individual finches grew their beaks larger, resulting in an increased average beak depth.
 - During a drought, finches struggled to open harder seeds. All the scraping and pecking wore down their beaks, resulting in a reduced average beak depth.
 - During a drought, only finches with larger-than-average beaks were able to crack the hard seeds that were available. These finches survived while smaller-beaked finches died, resulting in an increased average beak depth in the population.
 - During a drought, finches with smaller beaks (and smaller bodies) had an advantage. With reduced food supplies, larger finches (with larger beaks) were more likely to starve. The result was a decrease in average beak depth.



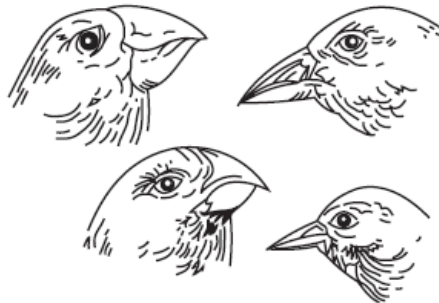
10. How will clear-cut logging, a short-term environmental change, affect organisms living in the area? (8.11C)
- Organisms will contribute to the environmental change
 - Organisms will genetically adapt as the trees are felled
 - Organisms will not be affected by the change
 - Organisms will die or migrate to another area

Arachnid Observations			
#	Body	Tail	Legs
1	Segmented	Present with no stinger	Shorter than body
2	Not segmented	Not Present	Longer than body
3	Segmented	Present with stinger	Shorter than body

1. a) Abdomen segmented.....go to 2
b) Abdomen not segmentedgo to 4
2. a) Abdomen with tail.....go to 3
b) Abdomen without tail.....go to 5
3. a) Tail with stinger.....Scorpion
b) Tail without stinger..... Whipscorpion
4. a) Legs longer than body.....Daddy long legs
b) Legs not longer than body...Wind scorpion
5. a) Covered with spinesMite
b) Few spines.....Tick

11. Based on the observation data and dichotomous key above, what is the correct identification for the three arachnids? (7.11A)
- a. Scorpion, whipscorpion, and wind scorpion
 - b. Scorpion, whipscorpion, and daddy long legs
 - c. Scorpion, daddy long legs, and tick
 - d. Whipscorpion, wind scorpion, and daddy long legs

12. The diagram below shows four species of birds that evolved from an ancestral species that had a small, pointed beak. Today, all four species inhabit the same island.



- Which statement best explains the variation in the beaks of these four species? (7.11C)
- a. Over time, an abundance of seeds for food led to increased similarities between the species
 - b. Over time, an abundance of seeds for food led to increased differences between the species
 - c. Competition for limited food resources led to selection for similar traits
 - d. Competition for limited food resources led to selection for different traits

13. Which of the following statements is not true about the cell theory? (7.12F)
- All living organisms are composed of one or more cells
 - Cells originate from pre-existing cells
 - Cells are the basic unit of structure and organization of all living organisms
 - Unicellular organisms can live on their own
14. Asexual reproduction has been observed in organisms composed of prokaryotic and eukaryotic cells. What do the offspring of these asexually reproducing organisms have in common? (7.14B)
- They are genetically uniform to their parent
 - They were all created by binary fission
 - Their cells have a nucleus
 - They contain different sets of genes from other offspring of the same parent
15. Which data table correctly identifies the body systems to their corresponding function and organs? (7.12B)

1			3		
Body System	Function of Body System	Organs of Body System	Body System	Function of Body System	Organs of Body System
Excretory	provides movement and posture	muscles, ligaments, tendons	Respiratory	provides movement and posture	muscles, ligaments, tendons
Respiratory	supplies oxygen to the blood	larynx, trachea, lungs	Muscular	supplies oxygen to the blood	larynx, trachea, lungs
Muscular	filters excess fluids and wastes	kidneys, bladder	Circulatory	filters excess fluids and wastes	kidneys, bladder
Circulatory	delivers oxygen through blood	heart, arteries, veins	Excretory	delivers oxygen through blood	heart, arteries, veins

2			4		
Body System	Function of Body System	Organs of Body System	Body System	Function of Body System	Organs of Body System
Muscular	provides movement and posture	muscles, ligaments, tendons	Circulatory	provides movement and posture	muscles, ligaments, tendons
Respiratory	supplies oxygen to the blood	larynx, trachea, lungs	Respiratory	supplies oxygen to the blood	larynx, trachea, lungs
Excretory	filters excess fluids and wastes	kidneys, bladder	Excretory	filters excess fluids and wastes	kidneys, bladder
Circulatory	delivers oxygen through blood	heart, arteries, veins	Muscular	delivers oxygen through blood	heart, arteries, veins

- Table 1
- Table 2
- Table 3
- Table 4

16. Plant and animal cells contain organelles that are responsible for the cells survival. Which set of characteristics is correct? (7.12D)

- Group 1
- Group 2
- Group 3
- Group 4

Group	Plant Organelles	Animal Organelles
1	Chloroplasts	Cell Membrane
	Cell Wall	Cytoplasm
2	Multiple Small Vacuoles	Nucleus
	Cell Membrane	Mitochondrion
3	Cell Membrane	Single Large Vacuole
	Cytoplasm	Nucleus
4	Chloroplasts	Cell Wall
	Single Large Vacuole	Cytoplasm



17. If two different breeds of dogs reproduced sexually, combining DNA, then their offspring would demonstrate _____ (7.14B)

- Identical appearance to only one parent
- Uniform genotype
- A unique combination of recessive and dominant traits
- Prokaryotic cells

18. Which of the following best describes the purpose of chromosomes in the nucleus of a cell? (7.14C)

- To store the genetic instructions needed to specify traits
- To release energy by breaking down food molecules
- To store materials inside the cell
- To control what enters and exits the cells

19. Which statement is not accurate about the cell theory? (7.12F)

- New cells form from pre-existing cells
- All cells carry out their own life activities
- All organisms are made up of more than one cell
- Cells vary in size and shape

20. Which of the following statements is not correct based on the cell theory? (7.12F)

- A single water droplet from a hot spring can give rise to an amoeba
- An amoeba cell can divide to form two new daughter cells
- An amoeba can be considered living because it is a unicellular organism
- An amoeba cell contains genetic material in its nucleus and responds to its environment

21. Ladybugs live around plants and eat aphids, a type of soft-bodied insect. How ladybugs obtain food, a characteristic that classifies them in the Kingdom Animalia, is referred to as — (6.12D)

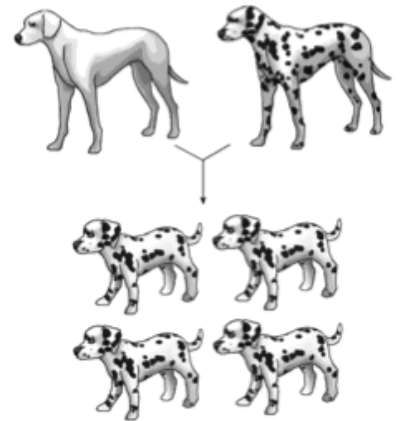
- a. Autotrophy
- b. Heterotrophy
- c. Herbivory
- d. Eukaryotic

22. How can commercial fishing modify ocean systems? (8.11D)

- a. Fish can be overharvested, creating an imbalance in ocean food webs
- b. Fishing can affect ocean currents and shipping routes
- c. Ocean pH can become acidic, causing coral bleaching
- d. Commercially harvested fish can dramatically increase in numbers and diversity

23. Which gene combination for the parents shown in the diagram? (7.14C)

- a. SS x SS
- b. ss x ss
- c. Ss x Ss
- d. None of these



KEY
SPOTS (S): dominant
NO SPOTS (s): recessive

24. A classification guide notes that a type of fungus is a member of the plant Kingdom. Why is this classification incorrect? (6.12D)

- a. Fungi make their own food
- b. Fungi rely on other organisms as food sources
- c. Fungi are multicellular
- d. Fungi are eukaryotes



25. Sewer drains along city streets are a common sight. Especially when it rains, the flow of water to the drains carries trash and toxins with it. What does this demonstrate about how human activities can affect ocean systems? (8.11D)

- a. Excess atmospheric carbon dioxide can lead to ocean acidification
- b. Organic farms help curb agricultural runoff
- c. Urban runoff can damage beaches and ocean habitats
- d. Introduced species cause a decline in ocean biodiversity