Name: Corrections MCAS Review 2015

1. Most of the bacteria in a forest ecosystem are **best** classified as which of the following types of organisms?

A. consumers
B. decomposers
C. predators
D. producers

2. Comparing the skeletons of which of the following fish would **best** show the evolution of a fish species?

A. a male fish and a female fish that could produce offspring
B. the same fish just before it received a cut and after it healed
C. a fish that lived recently and a fish that lived a long time ago
D. the same fish just after it hatched and when it was full-grown

3. How is a skin cell from a mouse similar to an amoeba?

A. Both need energy.
B. Both have cell walls.
C. Both move with pseudopodia.
D. Both consume carbon dioxide.

4. The cows in a rancher's herd of cattle have been selectively bred to produce milk. Which of the following will cause the next generation of cows to receive the trait for producing large quantities of milk?

A. nutrients in the cows' food
B. essential minerals in the cows' water
C. electrical impulses in the cows' brains
D. information in the cows' chromosomes

5. Which of the following materials are direct products of photosynthesis?

A. fats and starches
B. oxygen and sugar
C. proteins and amino acids
D. carbon dioxide and water

6. If a new organism were discovered, which of the following would **most likely** be used to classify it into the appropriate kingdom?

A. the color of the organism
B. the organism's natural habitat
C. the structure of the organism's anatomy
D. the location where the organism was found

7. The complete removal of decomposers from an ecosystem will have the **greatest** effect on which of the following?

A. the spread of disease
B. the availability of water
C. the recycling of nutrients
D. the distribution of organisms

8. Which of the following organisms produces energy from sunlight?

A. worm
B. rabbit
C. hawk
D. grass

9. Which of the following **best** describes the purpose of the chromosomes in the nucleus of a cell?

A. to store the genetic instructions needed to specify traits
B. to release energy by breaking down food molecules
C. to transport nutrients into and out of the cell
D. to protect the cell from microorganisms

10. A forest ecosystem in New Hampshire contains a large area where berry plants grow naturally. The berry plants help some organisms in the forest survive and grow. Other organisms in the forest help the berry plants survive and grow.

a. Describe **two** different ways that the berry plants help some organisms in the forest survive and grow.

b. Describe **two** different ways that other organisms in the forest help the berry plants survive and grow.

11. Substances enter any plant or animal cell by passing through which of the following structures?

A. nucleus
B. cell membrane
C. vacuole
D. chloroplast

12. Some species of bacteria produce a substance that is toxic to insects but harmless to humans. Scientists have isolated the gene that controls production of this substance.

Which of the following is the **best** reason for inserting this gene into corn plants?

A. The corn will grow faster.
B. Less fertilizer will be needed.
C. Fewer pesticides will be needed.
D. The corn will be more nutritious

13. A student prepared the following list of characteristics about a cellular organelle.

- present in animal cells
- present in plant cells
- helps make energy available to the cell

Which of the following cellular structures is the student describing?

A. cell wall
B. chloroplast
C. mitochondrion
D. nucleus

14. Which body system typically recognizes, attacks, and destroys foreign cells or substances that may cause disease?

A. digestive
B. excretory
C. immune
D. respiratory

15. Human activity **most likely** contributes to which of the following changes on Earth?

A. an increase in the length of a day
B. a decrease in the number of volcanic eruptions
C. a decrease in the magnitude of large earthquakes
D. an increase in the amount of atmospheric carbon dioxide

16. Which of the following statements **best** describes photosynthesis?

A. Carbon dioxide and water are turned into sugar and oxygen.
B. Sugar and oxygen are turned into water and carbon dioxide.
C. Oxygen and carbon dioxide are turned into water and sugar.
D. Water and sugar are turned into oxygen and carbon dioxide

17. Which of the following provides the **best** evidence that Earth has evolved over geologic time?

A. coral reefs that slowly changed size
B. desert sand dunes that were shaped by winds
C. deposits of sediment found at the mouth of a river
D. rock containing fossilized seashells found on a mountaintop

18. In which kingdom is the paramecium classified?

A. Animalia
B. Fungi
C. Plantae
D. Protista

19. Scientists found evidence of past glacial activity in Massachusetts. Which of the following conclusions is **best** supported by this evidence?

A. Sea levels were much higher in the past.
B. The climate on Earth has changed over time.
C. Total numbers of organisms on Earth have changed over time.
D. The total amount of radiation from the Sun was much higher in the past

20. Which of the following parts of the human body is **most** complex?

A. heart
B. kidney
C. white blood cell
D. central nervous system

21. Some types of bacteria can only live where oxygen is **not** present. These bacteria were well adapted to life on Earth over 2 billion years ago.

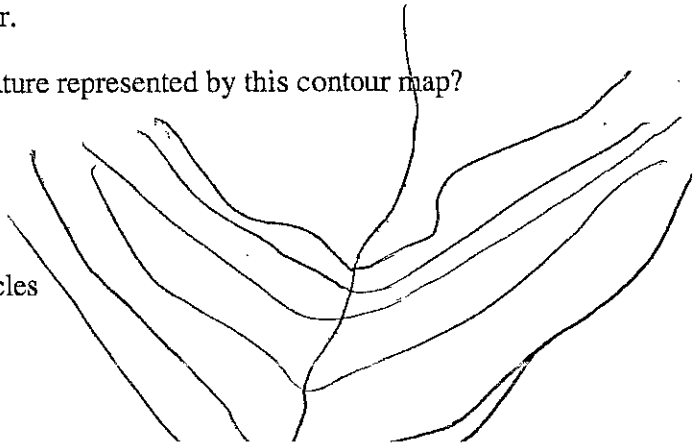
Which of the following changes caused many of these bacteria to become extinct?

A. the slow movement of tectonic plates
B. the varying temperatures of each season
C. an increase in volcanic activity under the oceans
D. an increase in the number of photosynthetic organisms

22. Which of the following observations **best** supports the conclusion that two animal species evolved from a common ancestor in recent geological history?

A. The species are both herbivores.
B. The species have similar bone structure.
C. The species live in the same environment.
D. The species both obtain oxygen from the air.

23. Which of the following **best** describes the physical feature represented by this contour map?



A. a flood plain with creeks and streams
B. a valley with two gently sloping sides
C. a hill with slopes that vary in steepness
D. a series of rivers flowing in concentric circles

24. Which of the following has changed over the last 200 years **primarily** due to human activity?

A. Earth's magnetic field

B. the frequency of earthquakes

C. Earth's tectonic plate activity

D. the composition of the atmosphere

25. Which of the following parts of a plant cell has a function that is **most** similar to the function of an animal skeleton?

A. cell membrane

B. cell wall

C. chloroplast

D. nucleus

26. Muscle cells need to quickly convert energy from food molecules into a usable form. For this reason, which of the following do muscle cells have in **greater** numbers than most other types of cells?

A. chromosomes

B. mitochondria

C. nuclei

D. vacuoles

27. Dead plant and animal matter are broken down by different organisms. This decay process benefits other organisms in the ecosystem.

a. Name **two** different organisms that help break down dead plant and animal matter.

b. Describe how living plants benefit from the breakdown of dead plant and animal matter.

c. Explain what would **most likely** happen to an ecosystem if all the organisms that break down dead plant and animal matter suddenly disappeared

31. Carbon dioxide produced by cells is removed from the body **primarily** by which body system?

A. digestive

B. excretory

C. immune

D. respiratory

32. Which of the following is an example of asexual reproduction?

A. Turtles lay fertilized eggs in a pit in the sand.

B. Seeds form in pine cones after pollen reaches the cones.

C. Fish release egg cells and sperm cells at the surface of the water.

D. Trees send out root like extensions that produce new stems.

33. Which of the following statements **best** describes the process of natural selection in a population?

A. All individuals develop traits to match changes to their environment.

B. All individuals learn to adapt to specific changes that occur slowly in their environment.

C. Some individuals respond to their environment by mutating to make themselves more likely to survive.

D. Some individuals have genetic differences that make them more likely to survive and reproduce in their environment.

34. A rabbit population has increased noticeably in the past ten years. Which of the following is a reasonable hypothesis for this population growth?

A. Competition for food has increased among rabbits.

B. The rabbit's main predator has been eliminated by human development.

C. Abnormal weather conditions have decreased water levels of the local ponds.

D. An organism that relies on similar food sources has migrated into the area.

35. Which of the following correctly lists the organizational hierarchy of organisms from simplest to most complex?

A. cells, organs, tissues, organ systems, organisms

B. cells, tissues, organs, organ systems, organisms

C. tissues, cells, organs, organ systems, organisms

D. tissues, organs, cells, organ systems, organisms

36. Which of the following symbiotic relationships is considered parasitic?

A. ticks feeding on a dog

B. bees transporting pollen from flowers

C. pilotfish swimming under sharks

D. birds eating the insects from the back of a hippopotamus

37. What kingdom contains organisms that are multicellular, have no chlorophyll, and absorb nutrients from decaying tissue?

A. Fungi

B. Plantae

C. Protista

D. Animalia

38. Single-celled organisms can reproduce and create cells exactly like themselves without combining genes from two different parent cells. When they do this, they use a type of

A. asexual reproduction.

B. gamete formation.

C. natural selection.

D. sexual reproduction.

39. Which two body systems work together to transport oxygen to the cells?

A. skeletal and respiratory
B. digestive and respiratory
C. respiratory and circulatory
D. respiratory and reproductive

40. The following structures are found in both plant and animal cells.

- Nucleus
- Chromosomes
- Cell membrane
- Cytoplasm
- Mitochondria

a. Pick **two** of the above structures and describe their functions.

b. Name **two** additional cell parts found in plants but **not** in animals. Describe one function of each of these plant cell structures.

41. 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.

42. Which body system's primary function is the continuation of the species?

A. digestive
B. nervous
C. excretory
D. reproductive

43. In the process of photosynthesis, green plants use energy from sunlight to make which product?

A. carbon dioxide
B. chlorophyll
C. sugar
D. DNA

The starch and water molecules in potato cells are stored in what organelle?

A. mitochondrion
B. nucleus
C. ribosome
D. vacuole

45. The heath hen, an extinct small wild fowl, was a relative of the prairie chicken. Which of the following **most likely** caused extinction of the heath hen?

A. overhunting
B. stable climate
C. plentiful food supply
D. abundant nesting sites

46. Which of the following is an example of an assistive device?

A. contact lens
B. motorcycle
C. raincoat
D. coffee pot

47. Which of the following is **most** responsible for the decay of dead organisms?

A. water
B. mammals
C. microorganisms
D. nitrogen

48. A mushroom is a member of the Kingdom Fungi. Members of Kingdom Fungi are unique because they digest their food outside their bodies and then absorb the nutrients. *You may organize your answer for parts a, b, and c in a chart.*

a. Name **two** other Kingdoms of living organisms.

b. Give **one** example of an organism that is classified into each Kingdom you described in part a.

c. For each Kingdom that you selected, describe **two** characteristics that are used to classify organisms into that Kingdom.

49. While hiking through Granville State Forest, a student finds an unusual plant-like organism that appears to lack chlorophyll. When the student examines a sample using a microscope, he sees many cells with cell walls and no chloroplasts. This organism is **most likely** a member of what Kingdom?

A. Animalia

B. Eubacteria

C. Fungi

D. Protista

50. 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

51. Lightning from a thunderstorm strikes a tree that falls to the forest floor and dies. During the next few years the dead tree undergoes many changes. What organisms are **most likely** responsible for the biological and chemical changes to the tree?

A. consumers

B. decomposers

C. predators

D. producers

52. The population of which of the following organisms would **most likely** decline if small animals like rats, rabbits, and snakes were eliminated from an ecosystem?

A. earthworms

B. grasses

C. hawks

D. mushrooms

53. Which cellular organelle uses oxygen and glucose to provide energy to the cell?

A. mitochondrion *

B. nucleus

C. ribosome

D. vacuole

54. What are the basic structural units of living organisms?

A. cells

B. nuclei

C. organs

D. tissues

55. From year to year, farmers rotate different crops in the fields to improve soil nutrients. Why is crop rotation also an effective pest management method?

A. It allows chemicals to kill more pests.

B. It creates crops that are pest-resistant.

C. It interrupts the life cycles of pests.

D. It allows pests to overpopulate.

56. A researcher found shark fossils on top of a mountain. This evidence suggests which of the following about this region?

A. It was once below a waterfall.

B. It was once part of a riverbed.

C. It was once covered by an ocean.

D. It was once near a freshwater lake

57. Index fossils help scientists estimate the age of a rock because index fossil species only existed for a relatively short time. What happened to the species that are now used as index fossils?

A. They became extinct.

B. They changed their diets.

C. They hid in marine sediments.

D. They migrated to new environments.

58. Students are studying the process of photosynthesis in plants. Which of the following is a product of photosynthesis?

A. carbon dioxide

B. nitrogen

C. sodium chloride

D. sugar

59. *Spirogyra* are green algae that can reproduce sexually. Which of the following features identifi es reproduction in *Spirogyra* as sexual reproduction?

A. The cells of parent algae have nuclei.

B. Each offspring contains chloroplasts.

C. Several offspring may be produced at once.

D. Genetic material is contributed by two parent cells.

60. Which of the following groups of organisms uses sunlight to convert carbon dioxide and water into sugar and oxygen?

A. carnivores

B. decomposers

C. herbivores

D. producers

61. Which of the following is the primary advantage of sexual reproduction when compared to asexual reproduction?

A. There is a greater number of offspring.
B. There is more food available to offspring.
C. There is greater genetic variety in offspring.
D. There is a longer development time for offspring.

62. Which of the following best describes the number of chromosomes in a normal human liver cell?

A. 23 pairs of chromosomes
B. 46 different types of chromosomes
C. 46 male chromosomes and 46 female chromosomes
D. 23 original chromosomes and 23 duplicate chromosomes

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63. Which of the following best describes a role of mushrooms in ecosystems?

A. capturing energy from sunlight
B. consuming living plant material
C. taking energy from animal hosts
D. breaking down dead plant material

64. Lichens are symbiotic organisms made of green algae and fungi. What do the green algae supply to the fungi in this symbiotic relationship?

A. carbon dioxide
B. food
C. protection
D. water

65. Which of the following **best** describes the purpose of the chromosomes in the nucleus of a cell?

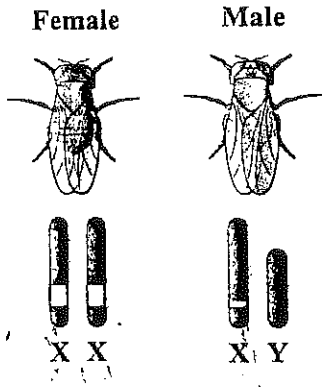
A. to store the genetic instructions needed to specify traits

B. to release energy by breaking down food molecules

C. to transport nutrients into and out of the cell

D. to protect the cell from microorganisms

The diagram below shows the X chromosomes in a female fruit fly and the X and Y chromosomes in a male fruit fly.



66. The two fruit flies are crossed with each other. The female offspring of the fruit flies will receive which pair of chromosomes?

XX

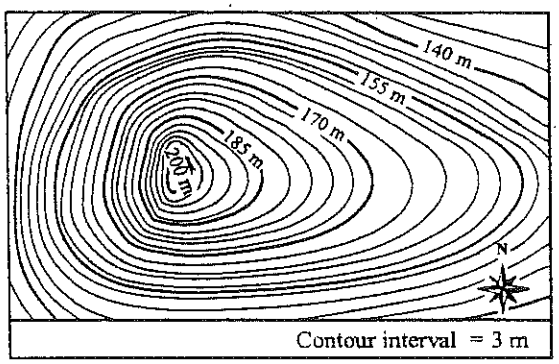
A. 

B. 

C. 

D. 

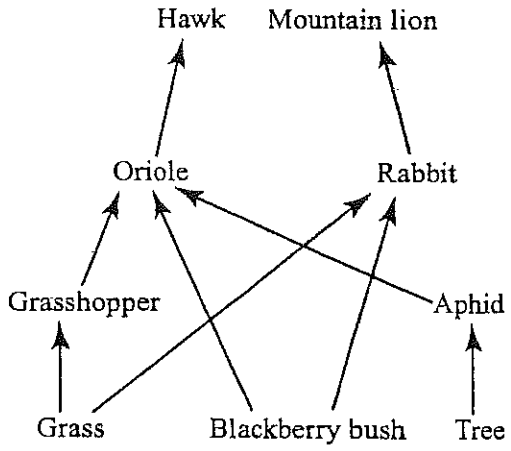
67 The diagram below represents a portion of a contour map.



Which of the following **best** describes the physical feature represented by this contour map?

A. a flood plain with creeks and streams
B. a valley with two gently sloping sides
C. a hill with slopes that vary in steepness
D. a series of rivers flowing in concentric circles

65 The diagram below shows a partial food web for some of the organisms in an area.



If all the trees in the area were cut down, the energy supply of which population would be **most directly** affected?

A. aphid
B. grasshopper
C. oriole
D. rabbit

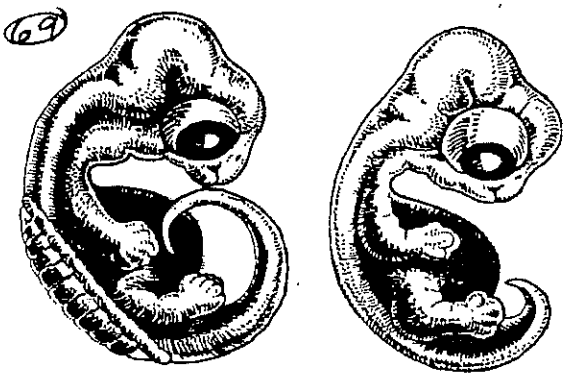
68 Anya is observing an organism in the laboratory. The table below shows her observations.

Question	Yes	No
Do the organism's cells have chlorophyll?	X	
Can the organism move?		X
Is the organism multi-cellular?	X	
Do the organism's cells have a cell wall?	X	

The organism Anya is observing **most likely** belongs to which kingdom?

A. Animalia
B. Eubacteria
C. Fungi
D. Plantae

69 The drawings below show a turtle embryo and a chicken embryo.

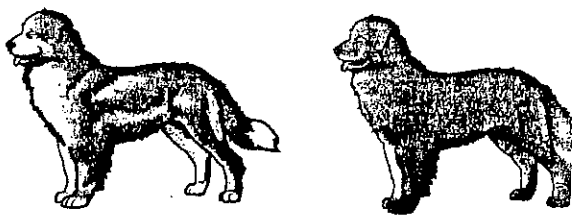


Turtle Chicken

Which of the following statements is supported by the similarities between these embryos?

A. The turtle is more advanced than the chicken.
B. The chicken has more offspring than the turtle.
C. The turtle and the chicken are similar as adults.
D. The chicken and the turtle share a common ancestor.

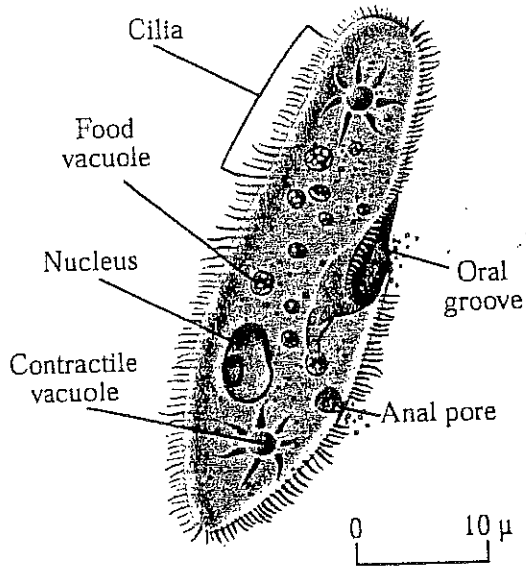
70 The pictures below show two dogs of th same breed that have different coat colc



The instructions that determine coat color are stored in the

A. cytoplasm of skin cells.
B. membrane of every cell.
C. mitochondria of hair cells.
D. chromosomes of every cell.

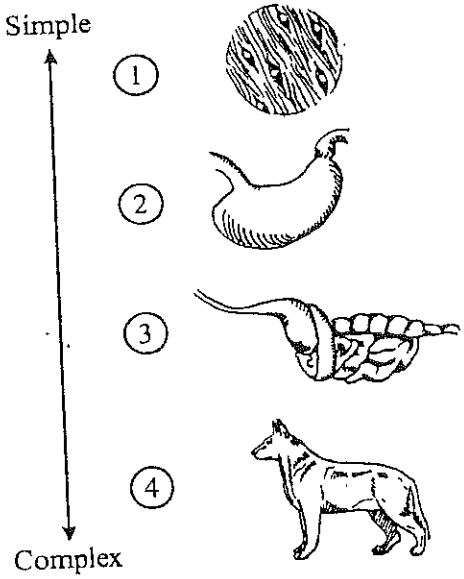
71. The picture below shows a paramecium.



In which kingdom is the paramecium classified?

A. Animalia
B. Fungi
C. Plantae
D. Protista

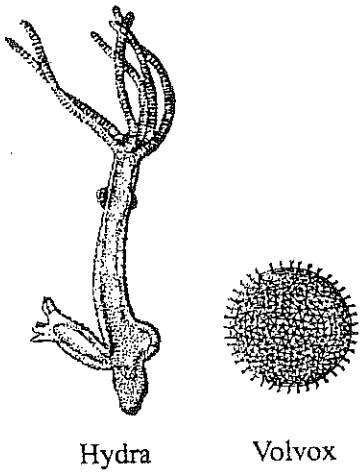
72. The numbered drawings below show the organization within a multicellular organism from simple to complex.



Which of these numbered drawings represents a tissue?

A. 1
B. 2
C. 3
D. 4

73. The organisms shown below are both found in aquatic environments.



Hydra Volvox

Which of the following is common to both of these organisms?

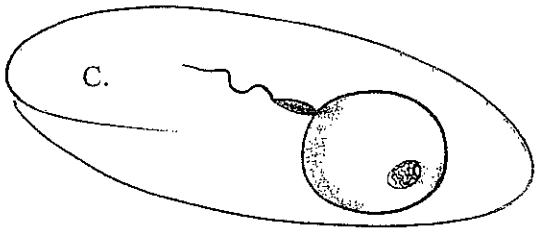
A. They contain blood.
B. They contain nerves.
C. They are both producers of food.
D. They are both composed of cells.

74. The diagrams below represent forms of reproduction. In which form of reproduction will the offspring differ **most** from the parent?

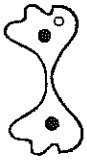
A.

B.

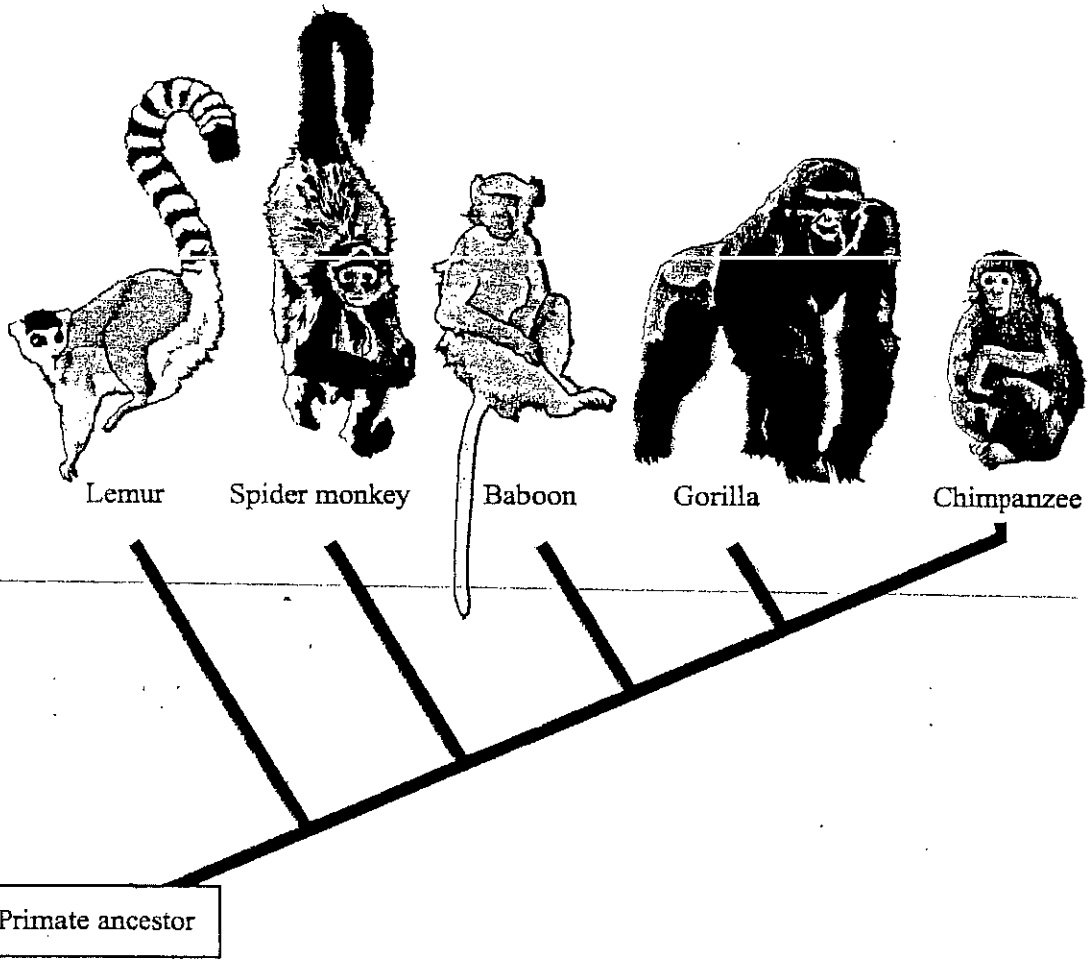
C.



D.



75 The diagram below shows the evolutionary relationship of several primates.



Based on the diagram, which of the following statements is true?

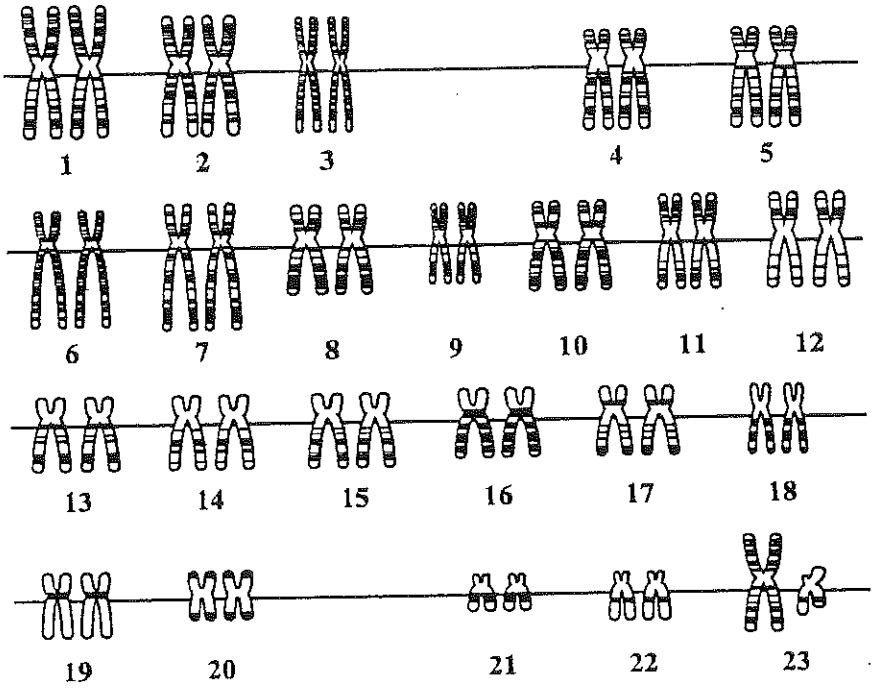
A. Lemurs were the most recent to evolve.

B. Gorillas evolved directly from chimpanzees.

C. Spider monkeys and lemurs evolved at the same time.

D. Gorillas and baboons evolved from a common ancestor.

76. The diagram below represents 23 pairs of structures taken from the nucleus of a human body cell.



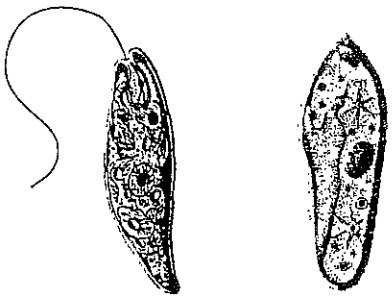
a. Identify the structures shown in the diagram.

b. Identify the information that is contained within these structures.

c. Describe how the structures from this cell would compare to the structures in the nucleus of another body cell from the same person.

d. Explain why the structures are in pairs.

77. The illustration below represents two protists.



Euglena *Paramecium*

What do these two organisms have in common?

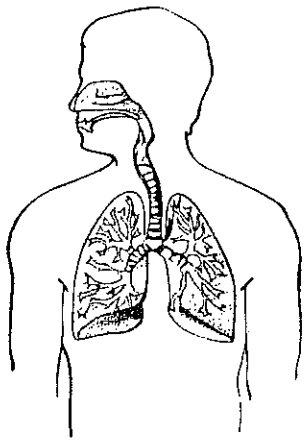
A. They are unicellular.

B. They cause diseases.

C. They live underground.

D. They are photosynthetic.

78. The diagram below shows a major system of the human body.



Which of the following **best** describes the function of this system?

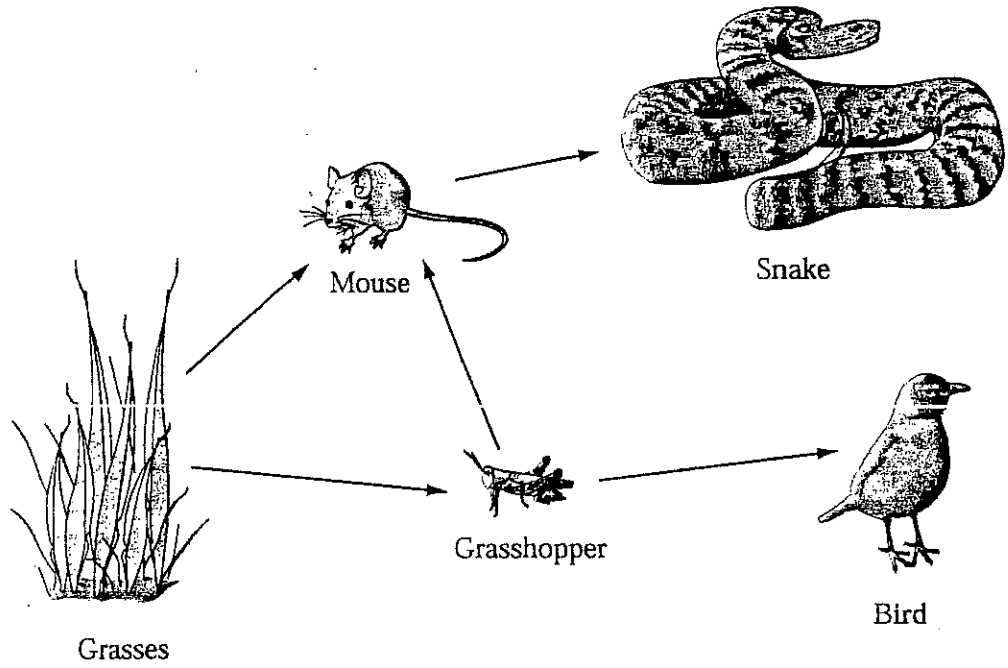
A. absorbing nutrients from food

B. protecting the body from infection

C. exchanging gases with the environment

D. responding to stimuli in the

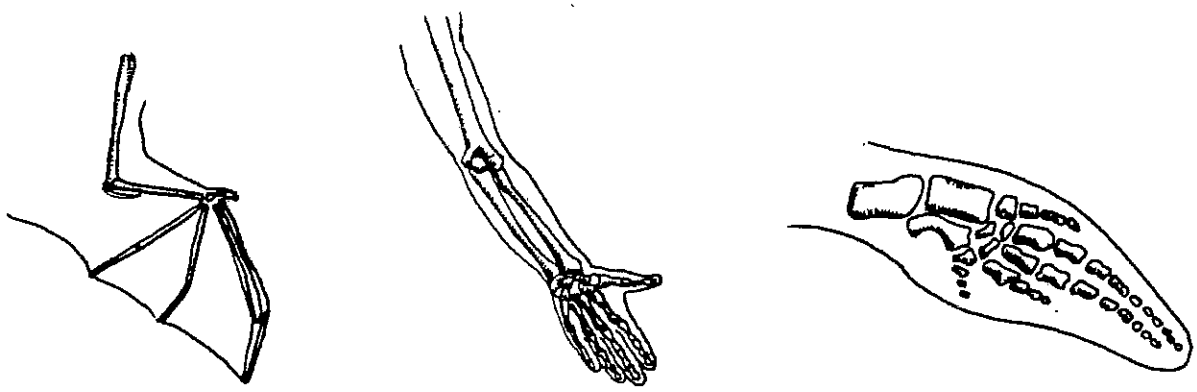
79. The partial food web below shows five different organisms that are found in a prairie ecosystem.



a. Identify **each** organism in this food web as a producer, a primary consumer, or a secondary consumer.

b. Using only the organisms from this food web, describe **one** change in this prairie ecosystem that would result in a decrease in the grasshopper population. Explain the reasoning for your answer.

86. The pictures below show bone structures in three animals.



The similarity in structure of the bones of these animals suggests that

A. the size of these bones is the same.

B. these species share common ancestors.

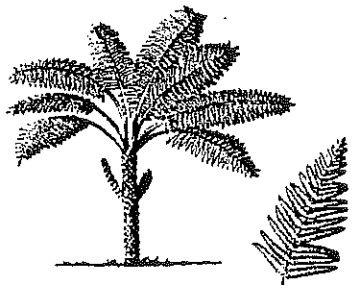
C. these species developed at the same time and location.

D. the chemical make-up of these animals is exactly the same.

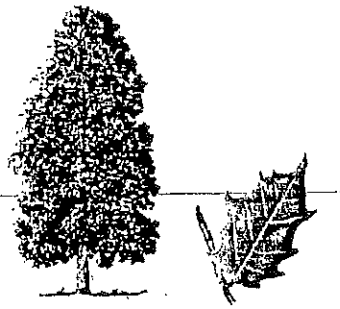
81 One of the most common types of adaptations in plants involves the shape and structure of each plant's leaves. The surface area of leaves is related to the amount of water a plant loses.

Based on this information, which of the following plants is probably **best** adapted for living in a hot, dry climate?

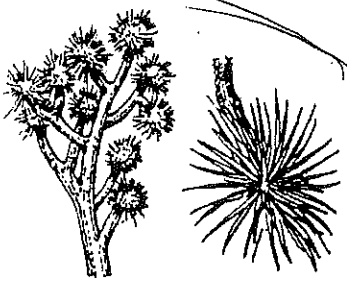
A.



B.

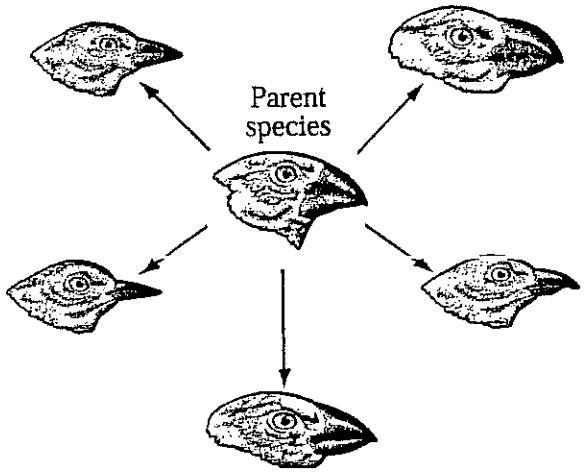


C.



D.

82. The diagram below shows the beaks of five species of birds that developed over time from one parent species. The five species of birds can be found living in the same area.



Which of the following **best** explains why the beak shape of each species of bird developed differently?

A. Each beak shape helps the birds to produce different songs.

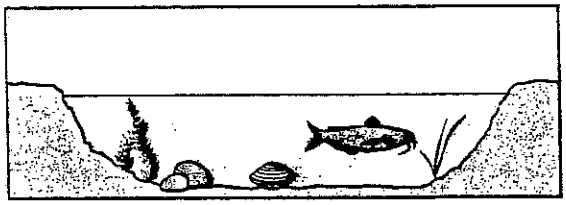
B. Each beak shape is an adaptation to a specific source of food.

C. Each beak shape is designed to construct a different type of nest.

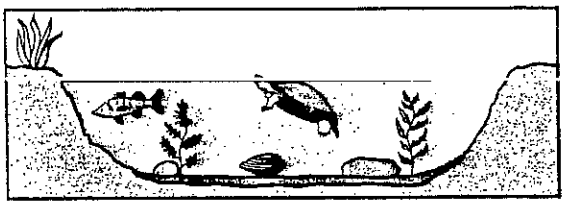
D. Each beak shape helps protect the birds from a different predator.

83. The four pictures below show how a pond environment changed from 1900 to 2000.

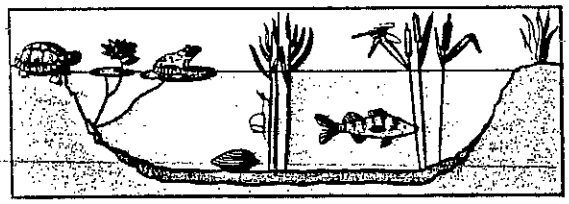
1900



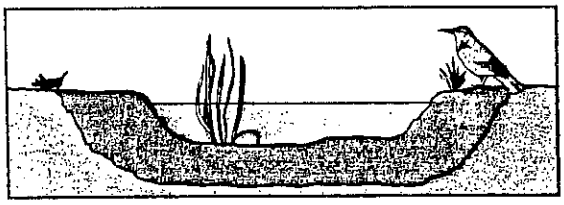
1933



1966



2000



Which of the following processes was **most directly** responsible for the changes that occurred in the pond environment?

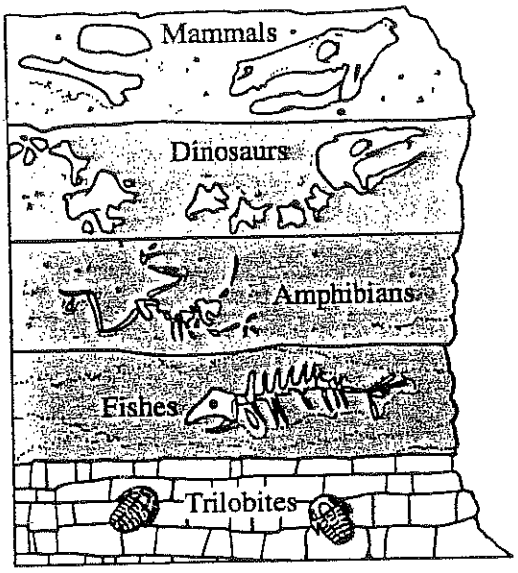
A. freezing

B. evaporation

C. sediment deposition

D. chemical weathering

84. The diagram below represents a cross-section of a cliff. It shows several rock layers containing fossils.



Which of the following layers of rock is **most likely** the youngest?

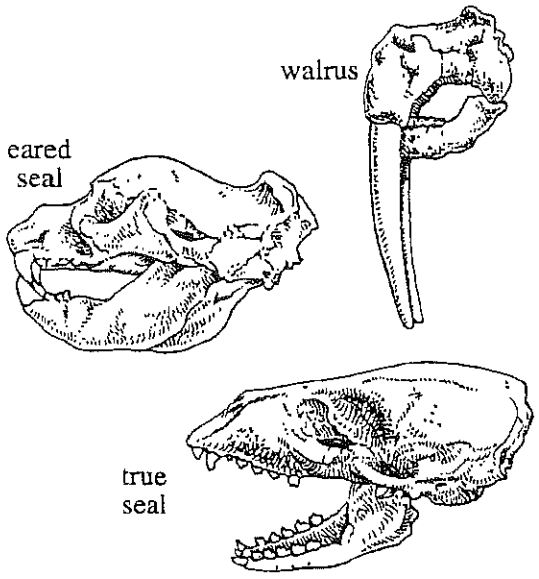
A. the layer containing trilobites

B. the layer containing fishes

C. the layer containing amphibians

D. the layer containing dinosaurs

85. The drawings below show skulls of three modern animals.



The three skulls all share characteristics with a fossil skull of an extinct seal (not shown) that is believed to be 23 million years old. What conclusion can be drawn about the relationship between the three modern animals and the fossil?

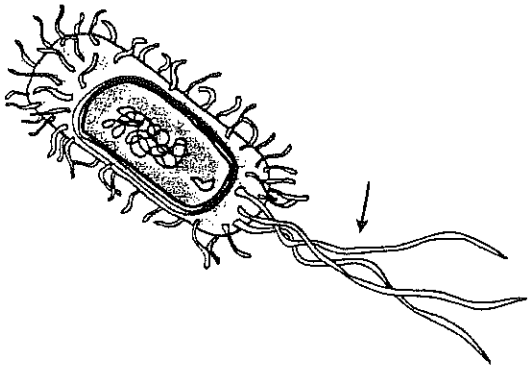
A. They are all the same species.

B. They share a common ancestor.

C. They share the same food supply.

D. They are all 23 million years old.

86. The diagram below shows a bacterium.



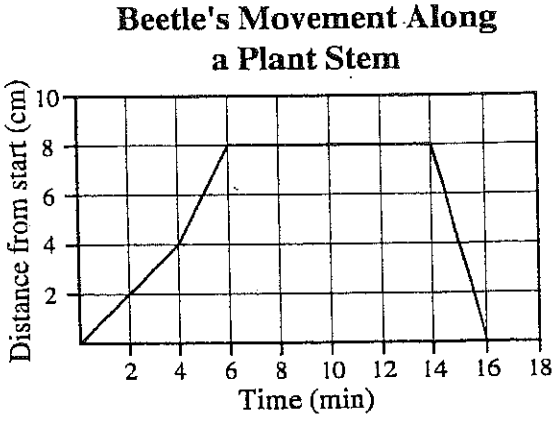
The part of the cell indicated by the arrow is responsible for which of the following functions?

A. absorption

B. breathing

C. locomotion

87. The graph below shows a beetle's movement along a plant stem.



During which span of time was the beetle **not** moving?

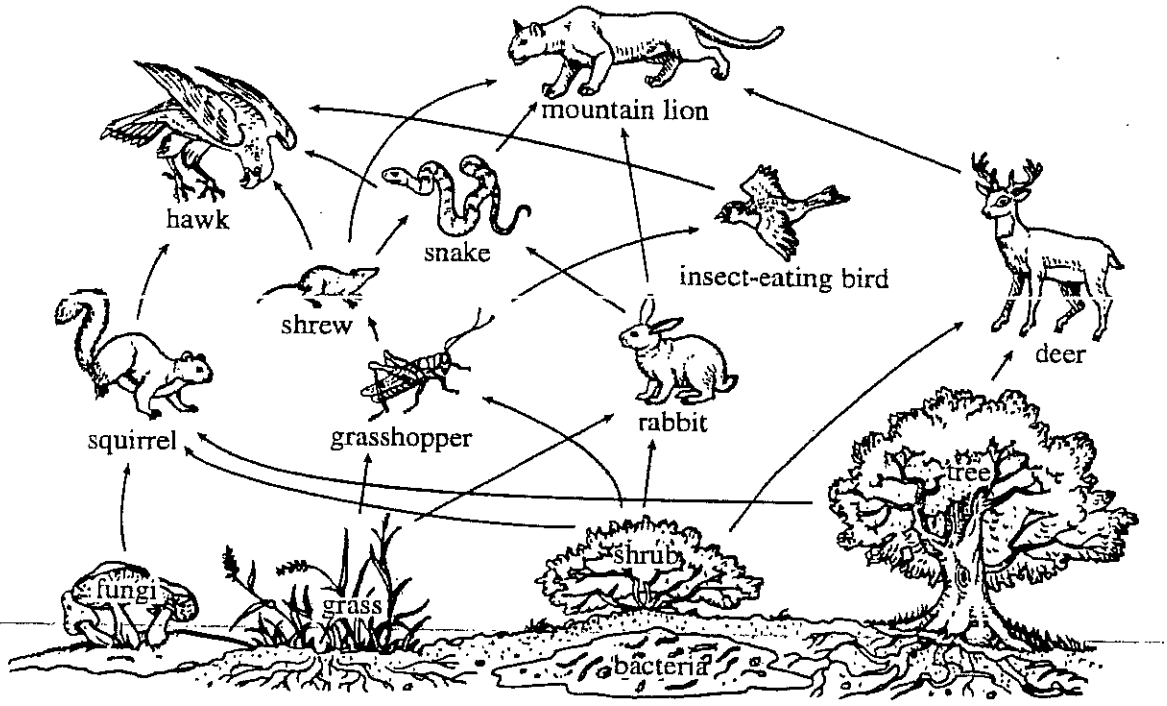
A. from 0 to 4 minutes

B. from 4 to 6 minutes

C. from 6 to 14 minutes

OR 88

The diagram below shows a food web.



Members of this forest community get materials they need to survive from the ecosystem. These materials are constantly being recycled.

a. Explain the role of grass in this food web, and include in your response why it is at the bottom of the web.

The grass is a producer. It captures its energy from the sun. It is eaten by other organisms and supports the entire ecosystem.

b. What is the role of the grasshopper in this food web?

The grasshopper is a primary consumer as well as food for othe consumers.

c. Explain what would happen to the population of snakes if the rabbits were suddenly removed from this ecosystem.

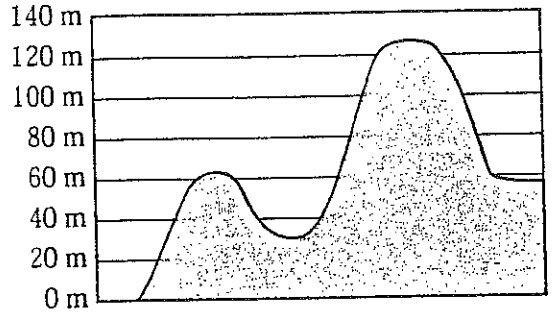
The snake population would also decrease

d. Explain what would happen to the grasshopper population if the insect-eating birds were suddenly removed from this ecosystem.

The grasshopper population would increase.

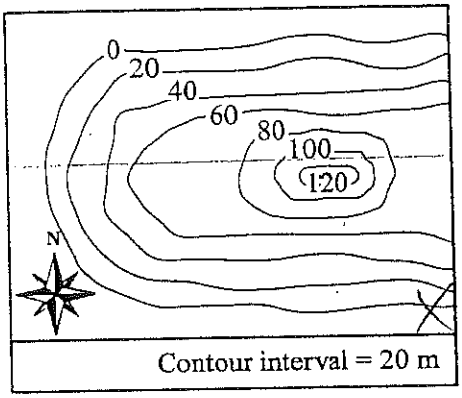
Make sure to explain your answers with evidence.

89. The diagram below shows a side view of a landform with different elevations.

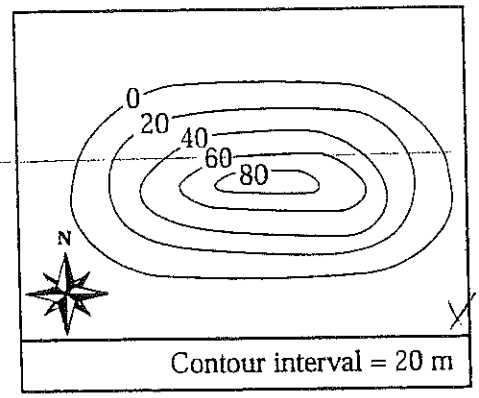


Which of the following maps **best** represents this landform?

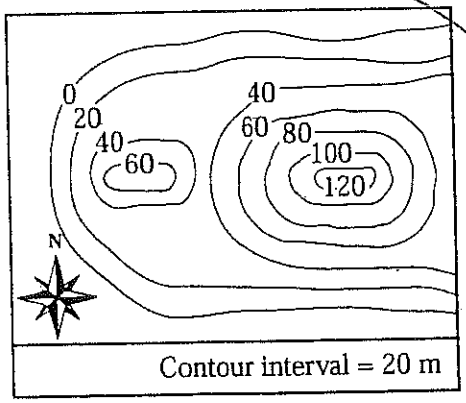
A.



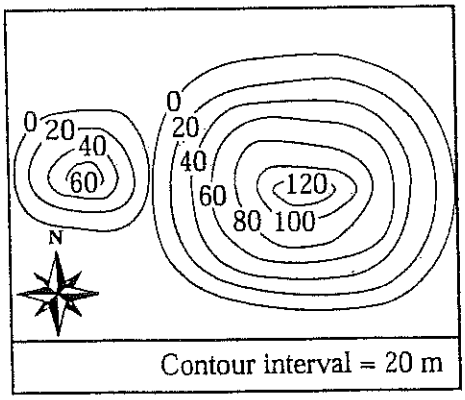
C.



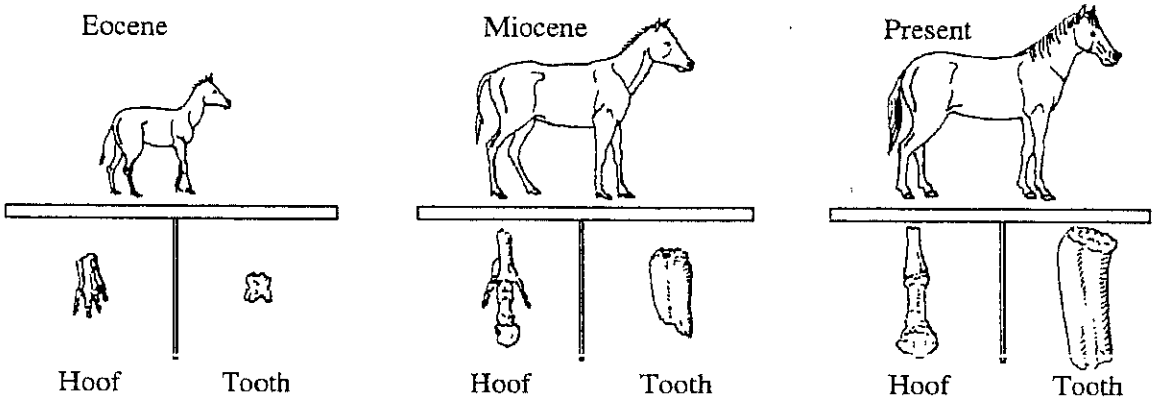
B.



D.



90. The diagram below represents part of the horse fossil record from three time periods. It includes illustrations of the hooves and teeth of horses from each time period.



Which of the following statements is **best** supported by the horse fossil record?

A. The horse has been a carnivore.

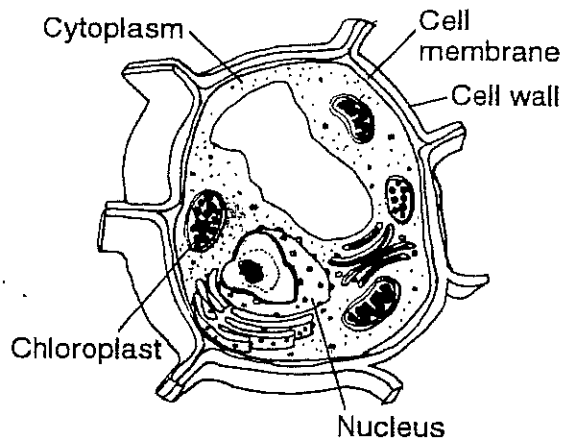
B. The horse has changed over time.

C. The horse has many common ancestors.

D. The horse has lived in the same ecosystem.

---

91. The diagram below shows a cell.



Where would this cell **most likely** be found?

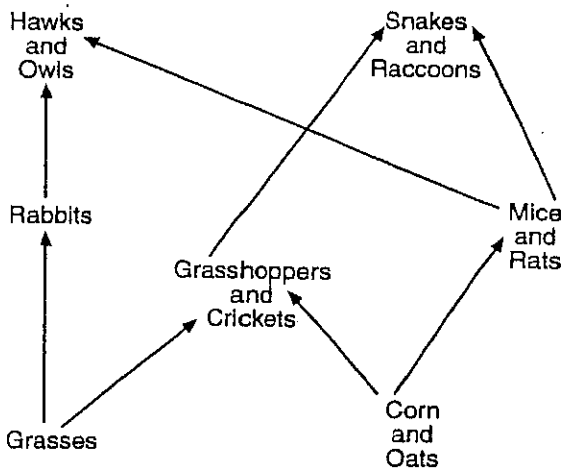
B. frog

C. leaf

D. mushroom

92. The diagram below shows a food web.

Food Web



If the corn and oats were completely removed from the above food web, which of the following would be the **most** affected?

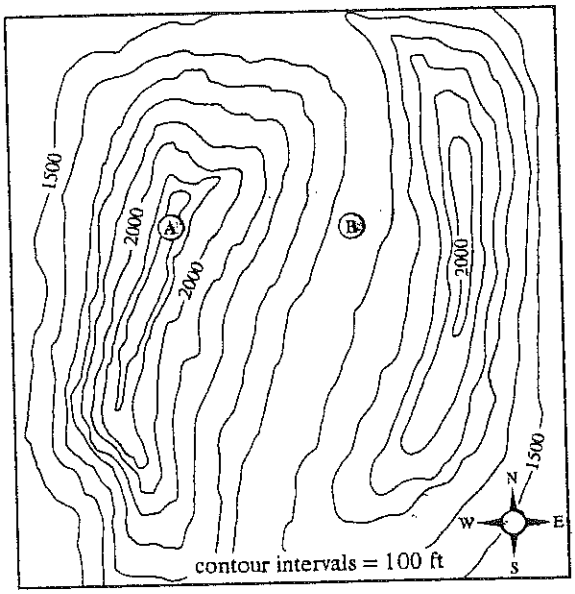
A. mice and rats

B. hawks and owls

C. snakes and raccoons

D. grasshoppers and crickets

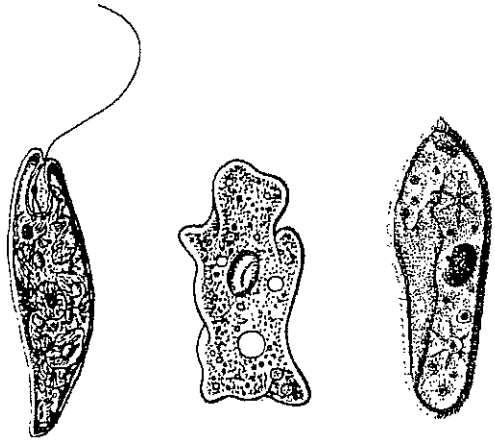
93. The illustration below is a topographic map with two landforms labeled A and B.



a. Identify the landform shown at point A. Describe how the contour lines and elevations are used to represent the features of this landform.
A = The peak of a hill. The contour lines show the elevation at all points that are the same elevation. Showing how the land is shaped.

b. Identify the landform shown at point B. Describe how the contour lines and elevations are used to represent the features of this landform.
Point B is a long flat valley between two hills. Since the distance between the lines = 100 ft then The area is wide and flat.

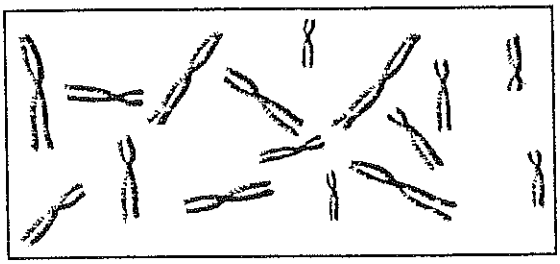
94. The illustration below shows three types of unicellular organisms commonly found in pond water.



Based on the illustration, which of the following can be used to separate these organisms into three different groups?

A. length of lifespan
B. number of offspring
C. presence of a nucleus
D. method of movement

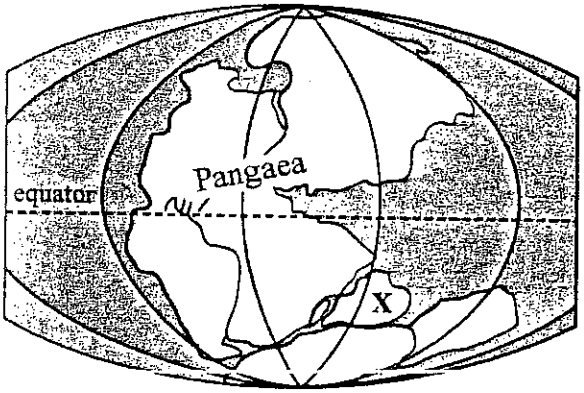
95. The diagram below shows the chromosomes from a cell after they were photographed under a microscope.



Which of the following questions may **best** be answered by studying an organism's chromosomes?

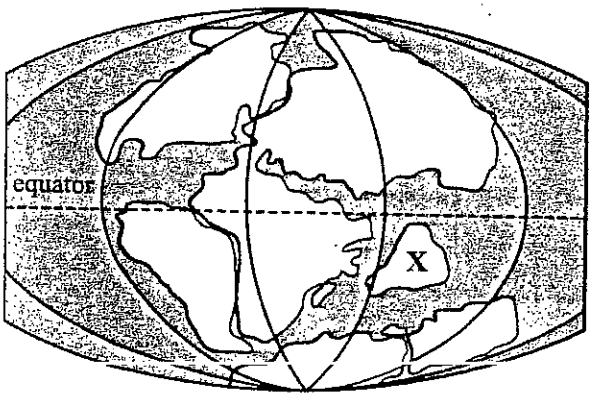
A. What sex is the organism?
B. Is the organism endangered?
C. Where is the organism's ecosystem?
D. How does the organism obtain its food?

96. About 300 million years ago, the land of Earth was in a single mass known as Pangaea, as shown in Figure A. About 150 million years ago, Pangaea broke up into the land masses shown in Figure B.



300 million years ago

Figure A



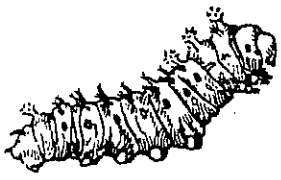
150 million years ago

Figure B

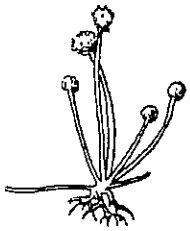
Based on the diagrams, which of the following were **more likely** to survive on continent X after the breakup of Pangaea than before it broke apart?

A. organisms that lived in fresh water
B. organisms that required warm conditions
C. organisms that hibernated for long periods
D. organisms that traveled great distances during migrations

97. The following diagram shows a caterpillar, mold, and a fern.



Caterpillar



Mold

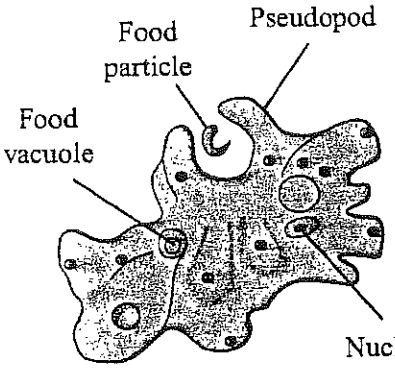
Fern

What do these organisms have in common?

A. They are made of cells.
B. They produce their own food.
C. They decompose other organisms.
D. They are disease-causing organisms.

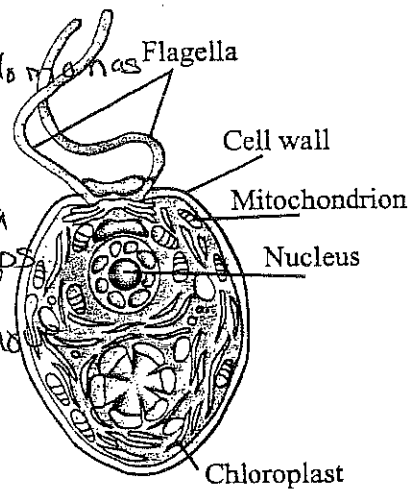
OK 98. The diagrams below show an *Amoeba* and a *Chlamydomonas*.

Diagram A



Amoeba 100 µm

Diagram B



Chlamydomonas 0 5 µm

The Clamydomonas moves by means of the flagella which whips back and forth to move it.

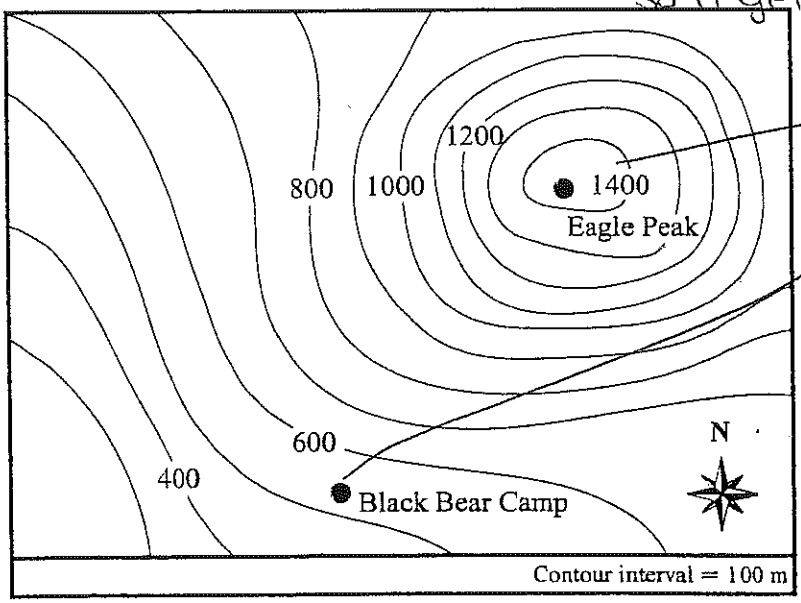
The amoeba moves by means of pseudopods. "False Feet" The flow in the direction that the organism need to go.

Both organisms can be seen only with a microscope. Since these are one-celled organisms, each cell must be able to carry out all important life functions, such as moving from place to place and getting food.

a. Compare the ways these two organisms move. Be sure to include information from the diagrams in your answer.

b. Compare the ways these two organisms obtain nutrients. Be sure to include information from the diagrams in your answer. Amoeba surrounds and engulfs its food using its pseudopods to surround i

99. A map with contour lines is shown below. The Clamydomonas has chloroplasts so it gets its food th photosyn thesis



1400
- 500
900

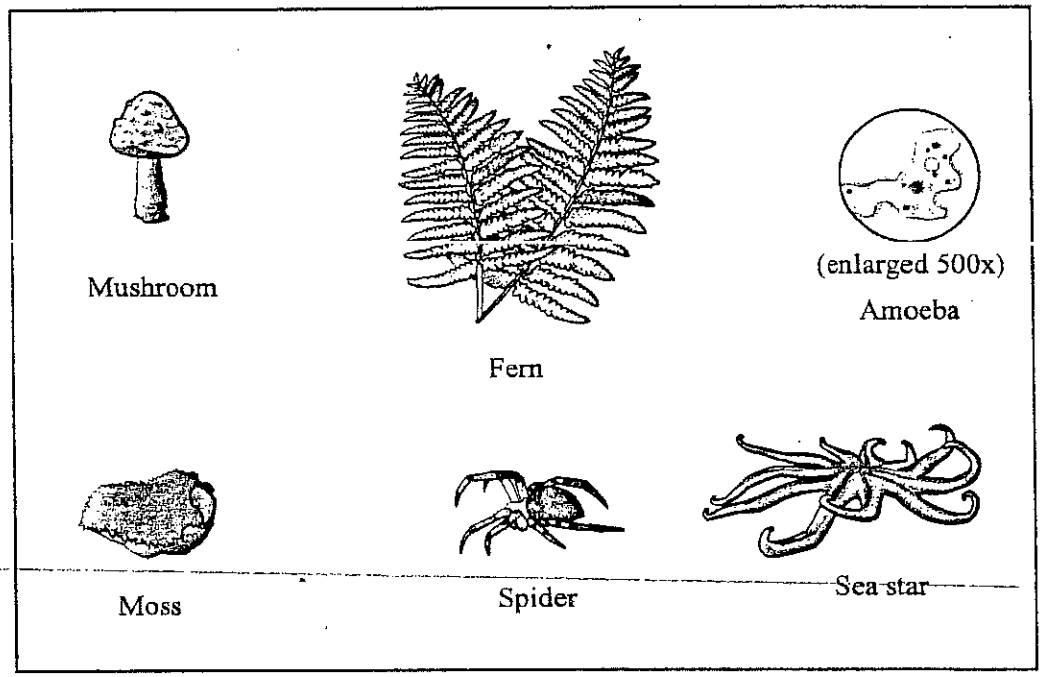
Which of the following is the **best** estimate of the difference in elevation between Black Bear Camp and Eagle Peak?

A. 400 m

B. 900 m

C. 1200 m

Individual organisms can be sorted into different kingdoms based on their characteristics. Pictures of six organisms and a table listing four kingdoms are shown below.



Four Kingdoms of Living Organisms

Animalia	Plantae	Fungi	Protista

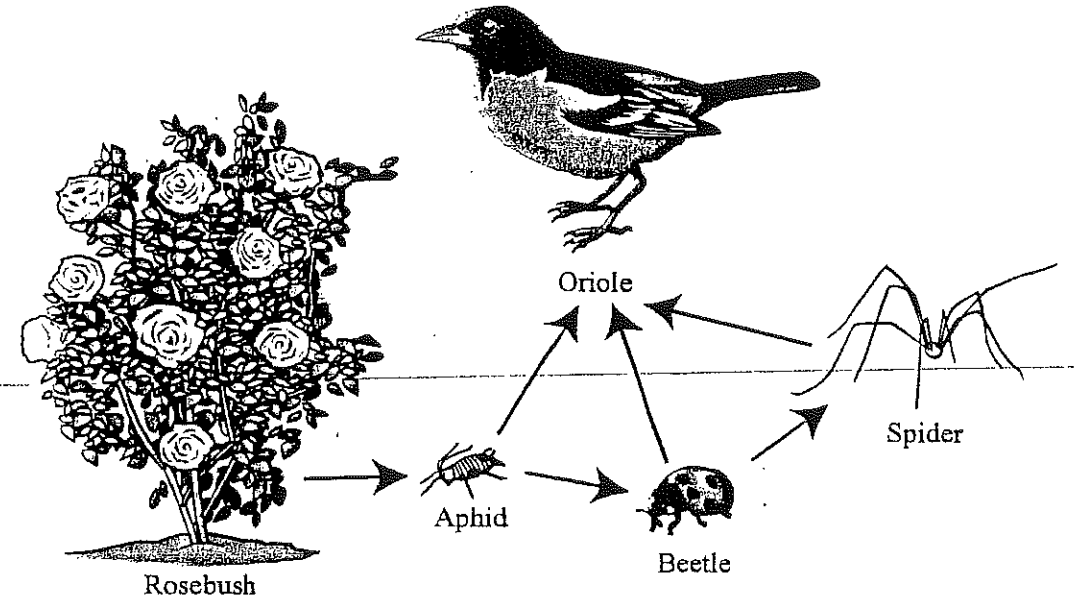
a. Copy the table above into your Student Answer Booklet.

b. Write the name of each pictured organism under the correct kingdom in your copy of the table.

c. For each kingdom listed in the table, describe one characteristic that all organisms in that kingdom have in common.

10.

The organisms in an ecosystem interact in many ways to survive. For example, a rosebush, aphids, beetles, spiders, and orioles all interact in a rosebush ecosystem. The diagram below shows how these organisms interact in a partial food web.

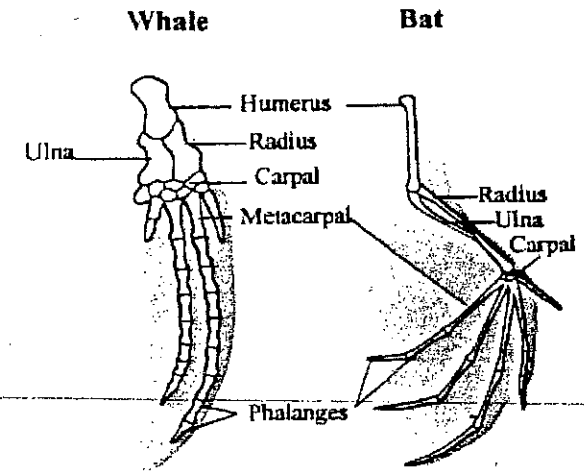


a. Identify the producer organism in this food web. Explain the reasoning for your answer.

b. Identify the primary consumer organism in this food web. Explain the reasoning for your answer.

c. Describe what would **most likely** happen to each of the other organisms in the food web if the beetle population were suddenly destroyed. Explain the reasoning for your answer for each organism.

102. The bones of a whale flipper are similar to the bones of a bat wing as shown in the illustration below.



What does this similarity in bone structure suggest about the whale and the bat?

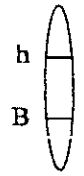
A. They use the same methods to travel.

B. They evolved from a common ancestor.

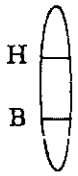
C. They can migrate to the same locations.

D. They can manipulate objects in the same way.

103. The figures below represent two chromosomes from an animal.



Chromosome #6 from father



Chromosome #6 from mother

Using the table below that describes the traits carried on Chromosome #6, which trait can the animal inherit **only** from its mother?

Genes on Chromosome #6	Trait
H	long hair
h	short hair
B	black hair
b	white hair

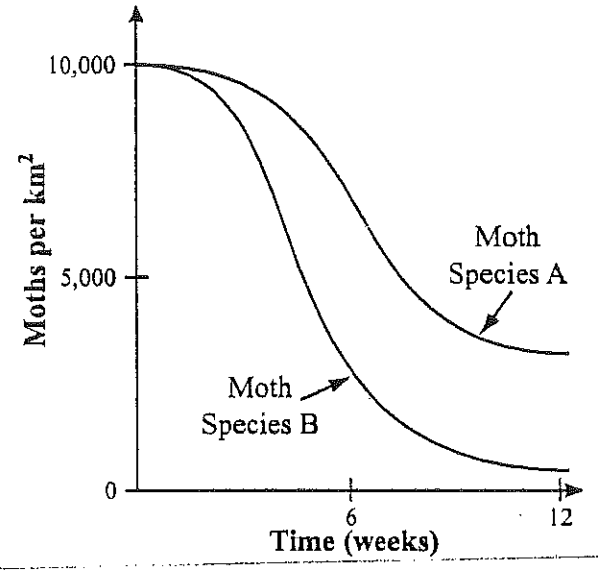
A. long hair

B. black hair

C. white hair

D. short hair

The praying mantis is a predatory insect that often eats moths. The graph below shows the relative numbers of two species of moths over 12 weeks after the introduction of the predatory praying mantis.



What characteristic of this ecosystem is **best** indicated from this graph?

A. Species B was preferred as food over species A.

B. Species B may replace species A in this environment.

C. Species B will reproduce more rapidly than species A.

D. Species B was more abundant at the beginning of this time period than species A.

Jerome crossed two purple-flowered plants. The offspring produced from this cross had either white flowers or purple flowers, as shown in the table below.

Number of Offspring	Flower Color
10	Purple
3	White

Which of the following statements **best** explains why some of the offspring have white flowers?

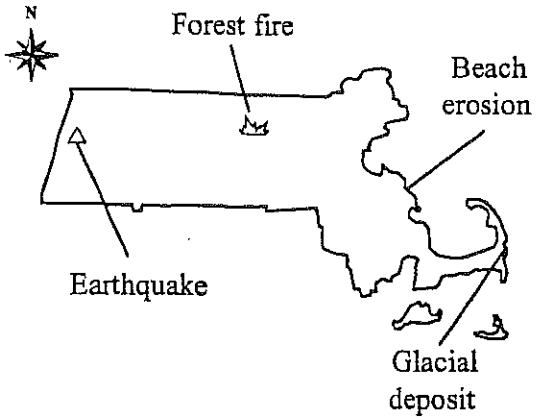
A. These offspring were created by asexual reproduction.

B. These offspring were produced in a dark environment.

C. These offspring inherited a DNA sequence coding for white flowers from each parent plant.

D. These offspring inherited a DNA sequence coding for white flowers from only one parent plant.

The map of Massachusetts below shows where physical evidence of changes can be found.



Which of these is the **best** indication that Massachusetts' climate has changed over time?

A. earthquake

B. forest fire

C. beach erosion

#10

(A) Provide shelter
provide food

(B) Eat berries then ~~go~~ spread the seads in their droppings.
Die under it and return nutrients needed by the berry plant.

~~#48~~

#27

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2014 MCAS
Grade 8 Science and Technology/Engineering
~~Question 9~~ Score Point 4

A. Bacteria and Fungi are two decomposers.

B. the break down of dead plant and animal matter releases nutrients into the soil, which the living plants root systems can take in and use to benefit the plant.

C. If decomposers (worms, bacteria, Fungi) suddenly disappeared, producers (plants) wouldn't get all the nutrients they need, causing them to be un healthy. Some unhealthy plants would die leaving less food for level one consumers (mice, rabbits → herbavairs). Some herbavairs would die, leaving less food for the level two consumers (wolves, lions, → omnivairs or carnivairs) Who would die. after a while the food web would fall apart and the eco system would be destroyed

[4 Points | 4 Points | 3 Points | 2 Points | 1 Point | 0 Points]

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#40 Need 2

(A) Nucleus - control center contain chromosomes that control all of the cell activities

Chromosomes: Contain DNA - the instructions that code for all traits in the organism

Cell Membrane: The membrane that contains the contents of the cell. It is semi permeable which allows needed material to enter and waste to leave

Cytoplasm: the clear gel like material that contains all the cell's organelles

Mitochondria: "The powerhouse of the cell. It takes in Oxygen and sugar and releases the energy for the cell to use.

(B) Cell Wall - gives it support
Chloroplast - captures energy and stores it as sugar.

#48

Need only 2

A	Protist	Plant	Animal
B	Amoeba	Fern	Lion
	Paramecium	Tree	Whale
C	have a nucleus	have a cell wall	made of many cells
	Single celled	make their own food	Cannot make their own food;

16

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Elementary & Secondary Education

2012 MCAS
Grade 8 Science and Technology/Engineering
~~Question 21~~ - Score Point 4

A. These structures are chromasones.

B. The chromasones each contain a strand of DNA (deoxyribonucleicacid).

C. The structures would be compleatly identical. The chromasones would be like a clone of these ones shown, and the DNA would be the same as well.

D. The structures are in pairs because this human got half of their chromasones from their father and half from their mother. When these two halves were combines, it created this person's own uniqe DNA.

[4 Points | 4 Points | 3 Points | 2 Points | 1 Point | 0 Points]

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#19

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2010 MCAS
Grade 8 Science and Technology/Engineering
Question 20 - Score Point 4

A. The grass is a producer. The grasshopper and mouse are primary consumers. The mouse is also secondary, because it eats the grasshopper. The bird and snake are secondary consumers.

B One way the grass hopper population could decrease is by the bird population increasing. This is because if there were more birds they would need more food - the grasshoppers. This like supply and demand, if the demand increses the supply decreases.

[4 Points | 4 Points | 3 Points | 2 Points | 1 Point | 0 Points]

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80

Massachusetts Department of
Elementary & Secondary Education

2007 MCAS
Grade 8 Science and Technology/Engineering
Question 19 - Score Point 4

Animalia	Plantae	Fungi	Protista
Spider Sea star	Fern Moss	Mushroom	Amoeba
They get their food from somewhere else	They make their own food from CO_2, water, and light.	They absorb energy from other, dead organisms.	Made out of one cell

[4 Points | 4 Points | 3 Points | 2 Points | 1 Point | 0 Points]

2007 MCAS
Grade 8 Science and Technology/Engineering
Question 37 - Score Point 4

a) The producer organism in this food web is the rosebush. It is the base of the food web because, as a plant, it produces it's own food, and then serves as the primary source of energy for the other organisms.

b) The primary consumer in this food web is the Aphid. It is the consumer that feeds off the producer, the rosebush. Since it's the only herbivore, everything else would die if it wasn't there, because the other organisms are primarily carnivores, who wouldn't be able to obtain energy from the rosebush.

c) If the beetle population was destroyed, the spider population would soon follow, because in this food web, the only source of food for the spider is the beetle. The oriole would have lost two of it's three food sources, and would have to live off only the Aphids, which would decrease the population of orioles. The Aphids having lost the beetle as one of their two predators, would have an increase in population until the spider dies off, and the Orioles come looking for them as food. The rosebush would be devoured by the sudden increase of the Aphid population, then begin to grow back as the Aphid population becomes the primary food source of the orioles.

[4 Points | 4 Points | 3 Points | 2 Points | 1 Point | 0 Points]