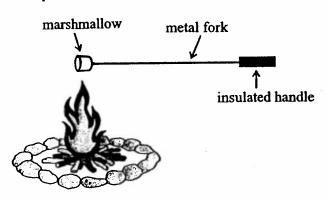
MAA Life Science Keview 1051

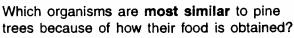
25. Antibodies are part of which system of the body?

- A. nervous
- B. respiratory
- C. immune
- D. circulatory

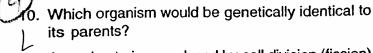
Use the picture below to answer question 26.



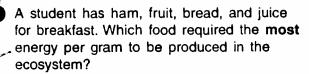
- 11. Fewer species live in a desert than in a forest because
 - A. the sun is too bright.
 - B. forests are cooler.
 - C. there is not enough water for species to drink.
 - D. few species have been able to adapt to the lack of water.



- A. algae
- B. honeybees
- C. mushrooms
- D. sea urchins



- A. a bacterium produced by cell division (fission)
- B. a plant produced by cross-pollination
- C. a human child
- D. a frog



- A. ham
- B. fruit
- C. bread
- D. juice

In a population of spiders there are three different sizes: small, medium, and large. The large spiders are easily seen by predators. Small spiders have a difficult time finding food. What will **most likely** happen to the population after many generations?

- A. Medium spiders will be the most plentiful.
- B. Large spiders will learn to hide from predators.
- C. Small and medium spiders will be the least plentiful.
- D. Small and large spiders will mutate.

The ta	ble below	shows	some	characteristics	of	four	different	human	organ	systems.
--------	-----------	-------	------	-----------------	----	------	-----------	-------	-------	----------

System	System Organ Basic Ur		Function		
Digestive	Small intestine	Epithelial cell	Digestion		
Nervous	Brain	Neuron	Sensing and control		
Muscular	Muscle	Muscle cell	Movement		
Reproductive	Ovary	?	Reproduction		

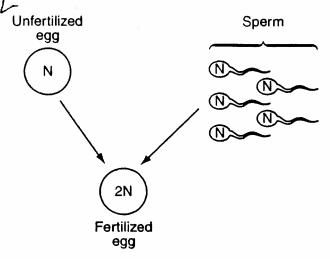
Which term best completes the table?

- A. Egg
- B. Offspring
- C. Testes
-). Uterus





A student makes the drawing below to help understand fertilization.



What does N most likely represent in the student's drawing?

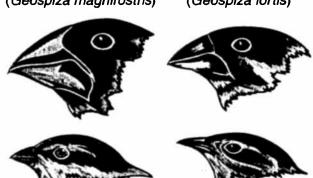
- A. age
- B. weight
- C. amount of cytoplasm
- D. amount of genetic material



The pictures below show four species of birds.

Large ground finch (Geospiza magnirostris)

Medium ground finch (Geospiza fortis)



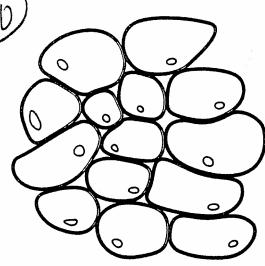
Small tree finch (Camarhynchus parvulus)

Warbler finch (Certhidea olivacea)

How do the differences in bill shape help these birds survive in the same region?

- Each bill attracts a different type of predator.
- B. Each bill is best for eating a different kind of food.
- The bills are passed on randomly to the bird's offspring.
- The bills allow the birds to remove pests from their bodies.

1 The diagram below shows a plant structure.

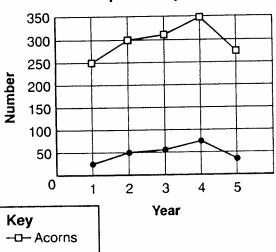


Which levels of organization are included in the diagram?

- A. cell and organ
- B. cell and tissue
- C. organ and organism
- D. organ and organ system

The graph below shows the numbers of acorns and squirrels over five years.

Acorns Per Branch and the Squirrel Population



Which statement do the data in the graph support?

Squirrels

- A. As the squirrel population increases, the number of acorns decreases.
- B. As the squirrel population decreases, the number of acorns increases.
- C. The squirrel population has no relationship to the number of acorns.
- D. The squirrel population is directly related to the number of acorns.



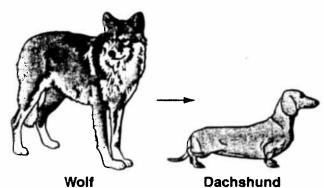
The picture below shows a food web.

Norway rat harvest mouse great blue heron grasshopper mallard duck water plants smelt shrimp

The harvest mouse population is decreasing. A logical reason for this decrease might be that

- the song sparrow population has increased.
- B. the smelt population has decreased.
- C. the marsh hawk population has increased.
- D. the snail population has decreased.

The dachshund is a breed of dog that was used in hunting small burrowing animals. Like other breeds of dogs, the dachshund is a descendant of modern-day wolves.



13. In the system used to classify living things, the two categories that are most specific are

- A. genus and species.
- B. family and order.
- C. kingdom and class.
- D. kingdom and phylum.

How did the differences between wolves and dachshunds arise?

- A. Starving wolves mated and produced small offspring.
- B. A warm winter caused many wolves to lose their thick, long fur.
- C. People bred wolves that carried traits beneficial for hunting small animals.
- An outbreak of disease led to wolves becoming smaller within their lifetime.



Human

Cat

Bat







Dog



Sense of Smell

Echolocation

- Which system is involved with thinking, whiskers, sense of smell, and echolocation?
- A. nervous
 - B. muscular
 - C. endocrine
 - D. circulatory

The color of the fur of rabbits living in the wild changes from brown to white in the winter months. A convincing argument to explain this adaptation might be that white rabbits

- A. find more food in the winter.
- B. are more difficult to trap in the winter.
- C. absorb more solar energy in the winter.
- D. are more difficult for predators to find in the winter.

- 14. Musk oxen circling their young for protection against a predator is an example of
 - A. parasitism.
 - B. behavioral adaptation.
 - C. structural adaptation.
 - D. mutualism.

Jill assembles a closed terrarium that contains moist soil, rocks, green plants, and two grasshoppers. After observing the terrarium for two months, she draws the following conclusion: The terrarium doesn't have enough consumers. Which supporting data most likely gave Jill enough evidence for her conclusion?

- A. The producer population decreased.
- B. The producer population increased.
- C. The consumer population decreased.
- D. The decomposer population increased.

increase? A. A nearby wooded nesting site has been

clear-cut.

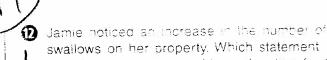
swallows on her property. Which statement would not be a reasonable explanation for this

- 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.

Scientists consider the giant water bug and the lobster to be members of the same group of animals because

- A. they both live in water.
- B. they both have jointed legs.
- C. they both can be seen without a microscope.
- D. they both are nearly the same color.





(21)

The diagrams below show characteristics of monocot and dicot flowering plants.

Monocot

Flower parts in threes

One cotyledon

Scattered vascular bundles

Parallel veins in leaves









Dicot

Flower parts in fours or fives

Two cotyledons

Vascular bundles in rings Netlike veins in leaves









Which picture represents a part of a member of the dicot group?











The picture below shows a maple seed.

L



How will this type of seed **most likely** be spread?

- A. by the Sun
- B. by birds
- C. by insects
- D. by the wind



Which of the following is found in all living organisms?

- A. cell
- B. organ
- C. organ system
- D. tissue



During which process does genetic material come from two parents?

- A. asexual reproduction
- B. photosynthesis
- C. respiration
- D. sexual reproduction



Which process would stop if there were no carbon dioxide in the air?

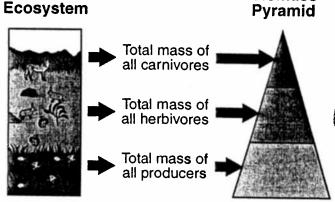
- A. water condensation
- B. evaporation
- C. photosynthesis
- D. cellular respiration

A donkey and a horse can be bred to produce a mule. Which observation is evidence that donkeys and horses are two different species?

- They have different body sizes.
- B. A mule is not able to reproduce.
- C. They are found in different environments.
- D. A mule does not resemble either parent.

Biomass pyramids show the relative masses of producers, herbivores, and carnivores in an ecosystem. The diagram below shows the

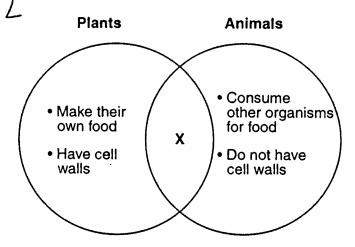
biomass pyramid of a typical ecosystem. **Biomass**



The mass of all herbivores is much less than the mass of all producers, and the mass of all carnivores is much less than the mass of all herbivores. Why is biomass less at higher levels of the pyramid than at lower levels?

- A. At higher levels, matter is leaving the ecosystem.
- B. At higher levels, less food is required for larger individual animals.
- C. At higher levels, organisms must perform photosynthesis.
- D. At higher levels, food is inefficiently broken down to provide energy for organisms to use.

The Venn diagram below shows plant and animal characteristics.



Which characteristic shared by plants and animals belongs in the space marked X?

- A. Locomotion
- B. Multicellular
- C. Photosynthetic
- D. Producer

What causes a person to have blue eyes?

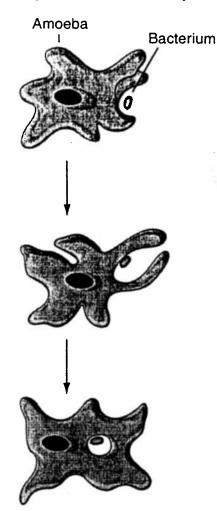
- eating foods high in protein at a young age
- B. having a brother or sister with blue eyes
- C. being overexposed to the Sun at a young age
- D. receiving a gene for blue eyes from each parent

Which statement explains why a mother's unhealthy diet during pregnancy is harmful to L her embryo's development?

- A. The embryo inherits half its chromosomes from its mother.
- B. The embryo receives its food from its mother through the placenta.
- C. The embryo receives oxygen through the placenta.
- D. The embryo receives mutations carried by its mother.



The diagram below shows an amoeba performing a function necessary for life.



Which function is shown in the diagram?

- A. collecting food
- B. excreting wastes
- C. making food
- D. destroying wastes



1.	Some	diseases	are	caused	by
----	------	----------	-----	--------	----

- /_ O A. antibodies.
 - O B. dendrites.
 - O C. capillaries.
 - O D. microorganisms.

-										
4.	The	major	organs	of	the	res	piratory	/ S	ystem	are

- A. liver, stomach, and pancreas.
- O B. uterus, ovaries, and cervix.
- O C. trachea, lungs, and diaphragm.
- O D. heart, blood, and vena cava.

Doctors wash their hands before examining a patient to

- O A. increase the rate of osmosis between their cells and the patient's cells.
- O B. reduce the risk of transferring infectious microorganisms to the patient.
- O C. make the examination more comfortable for the patient.
- O D. increase the sensitivity of their hands.

Native Americans planted corn, beans, and squash together in hills. The broad leaves of the squash kept weeds from growing by blocking the sunlight. The relationship between the squash plants and the weeds is an example of

- O A. predator-prey.
- O B. parasitism.
- O C. competition.
 - D. mutualism.

4. The color of the fur of rabbits living in the wild changes from brown to white in the winter months. A convincing argument to explain this adaptation might be that white rabbits

- O A. find more food in the winter.
- O B. are more difficult to trap in the winter.
- O C. absorb more solar energy in the winter.
- D. are more difficult for predators to find in the winter.

Ise the table below to answer question 6.

Seed Germination

	Water	Temperature	Light	Germination?
Seed Group A	10 mL	30°C	None	Yes
Seed Group B	10 mL	30°C	6 hours/day	Yes
Seed Group C	10 mL	30°C	12 hours/day	Yes

- 6. A student investigated the conditions needed by seeds to germinate. The table shows the - results of the investigation. Which conclusion should be made?
 - O A. The seeds do not need light to germinate.
 - B. Seeds germinate fastest at 30°C.
 - O C. The most important factor germination is water.
 - O D. Light is probably necessary for germination at lower temperatures.

- Plants get the energy they need to live and grow
 - 0 A. air.

from

- 0 В. soil.
- 0 C. water.
- D. sunlight.



20. Based on the motion of Earth's Moon, name two motions a moon of Jupiter should be expected to have.



Use the pictures below to answer question 6.



Thinking

endocrine

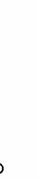


Cat

Whiskers



Sense of Smell





Bat

Echolocation

- 6. Which system is involved with thinking, whiskers, sense of smell, and echolocation?
 - 0 A. nervous

0

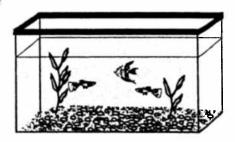
- 0 B. muscular
- 0 circulatory

To find out if radish plants grow better in storebought soil than in her garden, Amy conducted an experiment. She grew twenty potted radish plants in store-bought soil next to a window in her house, and she compared them to twenty radish plants grown in her garden.

In which way could she improve her experiment?

- O A. by growing both groups of plants in the same place
- O B. by using fewer plants to be better able to make comparisons
- O C. by growing radishes in the garden but tomatoes in the store-bought soil
- O D. by adding store-bought soil on top of the garden soil

Use the picture below to answer question 13.



- 13. Which item would be the **best** choice to add to the aquarium to increase the chances of the goldfish's survival?
 - O A. snails
 - O B. more fish
 - O C. green plants
 - O D. more gravel

14. Musk oxen circling their young for protectionagainst a predator is an example of

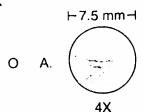
- O A. parasitism.
- O B. behavioral adaptation.
- O C. structural adaptation.
- O D. mutualism.

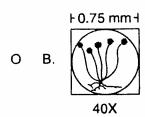
75. In which pair of kingdoms are the organisms mainly single-celled?

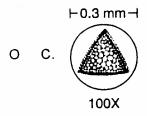
- O A. animal and plant
- O B. bacteria and protists
- O C. protists and fungi
- O D. fungi and bacteria

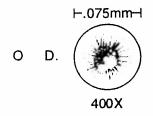
(45)

11. Which organism is the largest when viewed without a microscope?



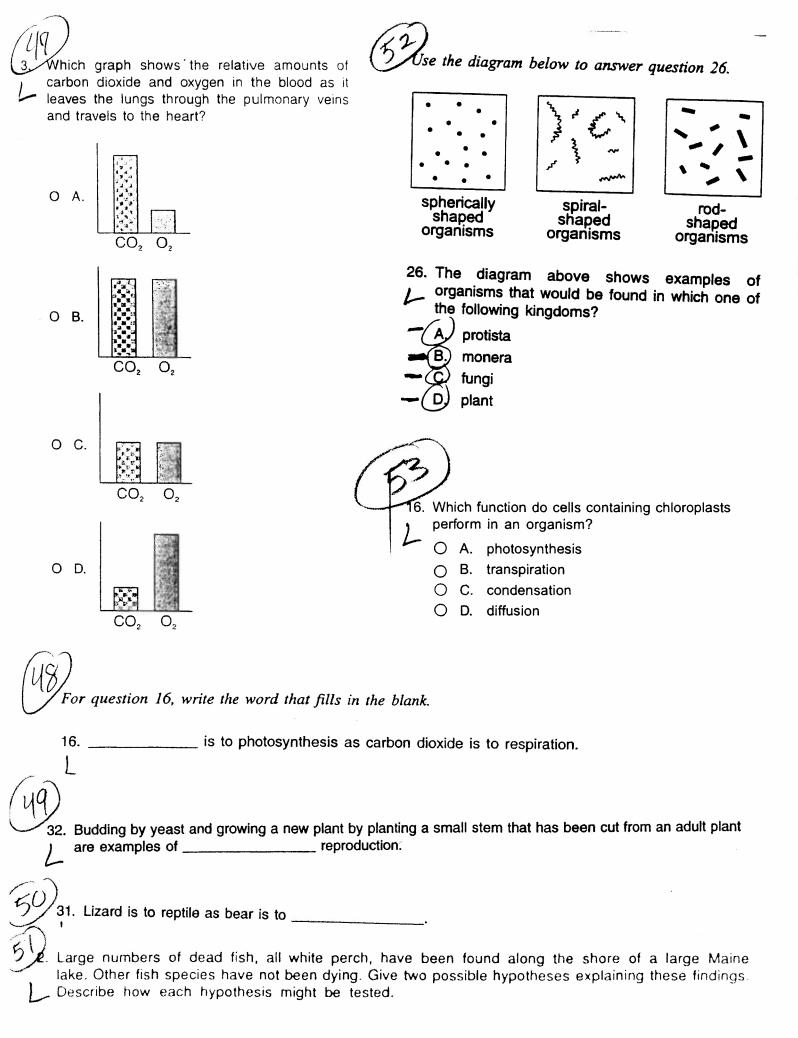




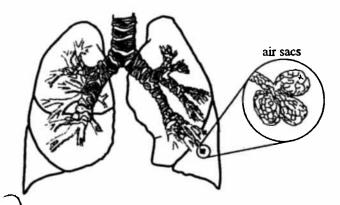


Scientists consider the giant water bug and the lobster to be members of the same group of animals because

- O A, they both live in water.
- O B. they both have jointed legs.
- O C. they both can be seen without a microscope.
- O D. they both are nearly the same color.



Use the digram below to answer question 20.



Which of the following best describes the function of the air sacs in the above diagram?

- A. digestion
- O B. exchanging gases
- O C. filtering waste
- O D. excretion

21. Mammals, fish, and reptiles all have circulatory systems. Which best describes the role of the circulatory system?

- A. It transports materials to and from cells.
- O B. It converts food into a form suitable for absorption by individual cells.
- O C. It removes metabolic wastes from cells.
- O D. It combines oxygen with digested food in order to release chemical energy in cells.

se the pictures below to answer question 25.









tapeworm

louse

hookworm

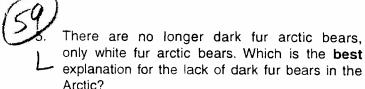
flea

25. The above living things are examples of

- / O A. insects.
 - O B parasites.
 - O C. decomposers.
 - O D, arthropods.



- 8. A giraffe's long neck is an example of
 - O A. selective breeding.
 - O B. behavioral adaptation.
 - D C. artificial selection.
 - O D. structural adaptation.



- O A. The white fur bears killed off all the dark fur bears in the Arctic.
- O B. Dark fur reflected the Sun's rays. This caused the dark fur bears to die of the cold.
- O C. Dark fur bears eat fish that are not available in the Arctic environment. They, therefore, eventually died of hunger.
- O D. Dark fur bears could easily be seen in the mostly white-colored Arctic environment. They were, therefore, less successful at catching prey than white fur bears.



19. In which example are offspring produced that are identical to the parent through asexual reproduction?

- O A. A female frog lays eggs in the water. The male later fertilizes the eggs.
- O B. A pollen cell and an egg cell from the same flower join to become a seed.
- O C. A bud breaks off a yeast cell and becomes a new yeast cell.
- O D. A sea star breaks off a leg and a new leg grows back.

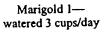


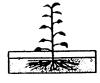
Which of the following is a function of the digestive system?

- O A. providing support
- O B. producing blood cells
- O.C. providing protection
- O D. getting rid of wastes

Use the pictures below to answer question 4.







Marigold 2 watered 2 cups/day



Marigold 3-

- 4. In what way should this experiment be improved to make it more scientifically valid for determining the best amount of water for marigolds?
 - A. A different species of plant should be used.
 - B. All plants should receive more direct sunlight.
 - C. All plants should be given the same amount of water.
 - D. More plants receiving differing amounts of water should be added.
- When preparing a wet mount slide, placing the cover slip on the slide from a 45° angle prevents
 - A. spilling.
 - B. air bubbles.
 - C. damage to the cover slip.
 - D. damage to the slide.
 - 15. The color of a person's eyes is determined before birth. Which statement is true?
 - A. Eye color genes are transferred to offspring from male parents only.
 - O B. Eye color is determined through the asexual reproduction of bacteria.
 - O C. Eye color is determined by a mutation in the genetic code during fertilization.
 - D. Eye color is transferred to offspring from parents on chromosomes that contain genes for that trait.

 You observe a frog eating a dragonfly in a nearby pond. The frog is a

- O A. producer.
- O B. prey.
- O C. decomposer.
- O D. predator.

66)

26. Disease caused by microorganisms cannot be spread by

- O A. exposure through air or water.
- O B. mutation of genes.
- O C. direct contact with animals.
- D. direct contact with an infected person.

6. The function of a water filter is most closely related to the function of which organ of the body?

- O A. lung
- O B. brain
- O C. liver
- O D. stomach

(68)

25. Bacteria undergo asexual reproduction. Which statement about this process is true?

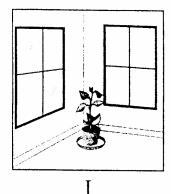
- O A. Male parent bacteria fertilize female bacteria eggs.
- O B. Traits of bacteria offspring come from two bacteria parents.
- O C. Bacteria cells split, transferring genes equally into the two offspring bacteria.
- O D. Two bacteria unite to transfer genes to their offspring at the same time.

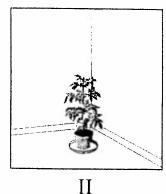
$6\widehat{q}$	negetiermini nee en		
20. In classifying organisms, scientists must first consider the organisms'	19)	
A. age.	13. WI	nich	statement is correct about bacteria?
B. size.			. Bacteria cause infections.
C. color. D. structure.	- 0		. Bacteria cause the common cold.
D. Structure.	0		
(60)	O	C	. Bacteria are only spread by food and water.
19 Lands and the	0	D	. Bacteria cannot be spread from person
22. When a person exercises, muscle cells produce energy by oxidizing food. Select the best			to person.
response that explains why the pulse rate and	(a)		
the breathing rate both increase as the person exercises.	()		
A. The heart beats faster to deliver more food	4. Wr	ich _I	process best describes natural selection?
and oxygen to the cells. The person breathes	L 0	A.	Organisms best suited to their
faster to supply more oxygen. B. The heart beats faster and the lungs breathe			environment survive and pass their traits on to offspring.
B. The heart beats faster and the lungs breathe faster because as the person exercises all	0	В.	Biologists select organisms bred in
muscles work faster.			captivity to be released into their native
C. The heart beats faster and the lungs breathe faster to supply more oxygen and water to	0	_	ecosystems.
the person exercising.	O	U.	Genes or sections of DNA mutate naturally.
D. The heart beats faster and the lungs breathe	0	D.	Species produce many more offspring
faster because all body systems speed up as the person exercises.			than can survive.
['] 7()			
10. Which disease is caused by a microorganism?	5.	1	
L O A. lung cancer	$\nabla \mathcal{D}_{\mathbf{z}}$		
O B. diabetes			lepends on rabbits and mice for its food
O C. strep throat			system. Which of the following is most happen if disease kills many of the
O D. osteoporosis			the area?
•	0	A.	The population of mice will increase in order to feed the fox population.
	0	B.	The fox population will increase because they will have more babies in
	_	_	order to ensure survival.
25. An organism that reproduces through asexual reproduction has how many parents?	O	C.	The mouse population will decrease because the fox population prefers to eat rabbits.
A. one	0	D.	The mouse population will decrease
— B.) two			because the fox population will eat more mice.
three			
(0.) four			

(Mb) Use the graphic to the right to answer question 18.

Joe is testing the effect of acid rain on garden plants. He watered a bean plant and a tomato plant with acidic water. The plants were placed in rooms as shown.

Describe **three** ways Joe can improve his experiment.

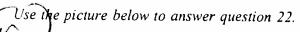


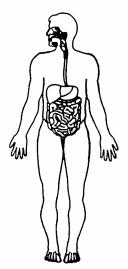


(17)

Fossils of an animal that only survives in a tropical swamp are found in an arid (dry) section of northern Canada.

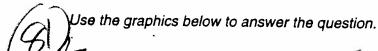
Describe three changes that have occurred since the fossils were living organisms. Be sure to consider possible changes in life-forms, climate, environment, and geologic features.





- 22. One of the human organ systems is the digestive system.
- L a. Name three organs of this system.
 - Describe the structure of each organ you have named and how it contributes to the function of the digestive system.
- 9. Rabbits were not natural inhabitants on Little Goose Island. After being introduced by humans, the rabbit population increased rapidly. Later, coyotes were introduced to control the rabbit population.
 - a. Describe **two** possible environmental consequences of introducing a new herbivore (plant eater) to this environment.
 - b. Describe two possible environmental consequences of introducing a predator to this environment.
- 18. Susie says that the life cycle and structure of a butterfly are more like a chicken's than a human being's.

 List two pieces of evidence that support this argument.









WORM

SNAKE

EEL

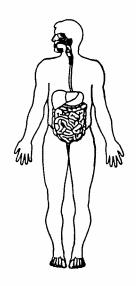


List two ways these organisms are alike.

List two ways they are different.

Which two of these organisms would scientists consider to be **most** closely related? Explain your reasoning.





22. One of the human organ systems is the digestive system.



a. Name three organs of this system.

b). Describe the structure of each organ you have named and how it contributes to the function of the digestive system.

55. Your class has been studying about the ways that organisms depend on one another and on their environment for survival. Your class designed a closed terrarium ecosystem with the following items:

- grass
- mushrooms
- · moist soil
- · grasshoppers

Justify why each item was put in the closed terrarium.







Summer

Winter

- 36. a. Give two examples of organisms that live in this ecosystem.
 - b. For each one, describe two behavioral **and** two structural adaptations that allow it to survive in the changing environment.
 - c. Explain how each adaptation is an advantage.

The honey badger is a mammal that eats a variety of foods, including honey. However, the badger cannot easily find beehives on its own. A bird called a honeyguide bird is good at finding beehives. When the bird finds a beehive, it sings loudly, attracting the badger. The badger comes and pulls apart the beehive, leaving some beeswax, larvae, and honey for the bird.

- a. Identify the type of relationship that exists between the badger and the bird.
- b. Describe the type of relationship identified in part a. Include how these two animals interact.
- c. Describe **one** positive consequence and **one** negative consequence that result from the interaction between the badger and the bird.

Corn can be genetically modified to contain a chemical that is poisonous to many insects. All parts of the genetically modified corn plant can make this chemical throughout the life of the corn. When an insect eats any part of the corn plant, the insect eats the chemical and dies. This chemical is harmless to humans and other mammals.

a. Describe two benefits to farmers who use the genetically modified corn.

b. Describe two negative environmental impacts of using the genetically modified corn.

Several body systems must work together so that your body can use food for energy and building material. Choose **three** body systems from the list below and describe how those three body systems work together when you bite into a cracker to change the cracker into a form that can be used by your body's cells.

- digestive
- circulatory
- endocrine
- excretory
- muscular
- nervous
- respiratory

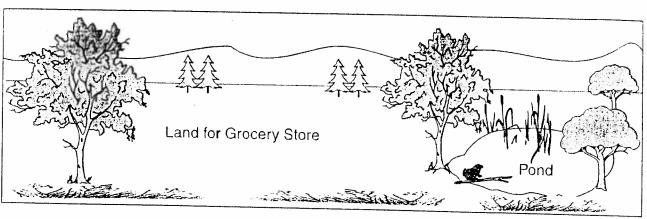












40. Favorite Food Grocery plans to build a new store on land beside a pond. Explain three ways this development could impact the life cycle of frogs in the pond.



24. Discuss, in detail, **two** changes that were made in cities after the discovery that microorganisms caused disease.



40. Imagine that at one time there were only blue flowers and blue butterflies. Over many years, several new colors of flowers developed.

- a. Describe the changes that may have occurred in the butterflies over time.
- Explain in detail how those changes occurred, keeping in mind the processes of natural and artificial selection.

Write your answers to constructed-response questions 21 and 22 in the boxes provide 2 and 3 of your practice test answer booklet. Be sure to answer and label all parts (a the questions.

- 21 Carbon dioxide (CO₂) is a colorless, odorless gas. It is used by plants to make sugars, to make the bubbles in soda. However, scientists and other people are concerned about effects that increasing carbon dioxide emissions may have on the environment.
 - Describe two human activities that release carbon dioxide into the atmosphere.
 - Describe one direct result of increased carbon dioxide levels in the atmosphere.
 - Describe one indirect result of increased carbon dioxide levels in the atmosphere.

The table below shows similarities and differences among four animals.

	Marsh Hawk	Ladybug	Garter Snake	Snapping Turtle
Internal skeleton	×		×	×
Warm-blooded	×			
Walks on legs	×	×		×
Flies	×	×		
Scales			×	×
Number of legs	2	6	0	
Cares for offspring	×	-		

Based on the information about the animals shown in the table, make a conclusion animals that scientists would consider closely related and provide evidence from the tal your conclusion.

Describe the types of information scientists use for classifying organisms and explai ideas connect to your answer in part a.

A student made this hypothesis.

If most plants did not carry out photosynthesis, then many organisms would die.

Which statement best supports this hypothesis?

- A. The environment has a limited water supply.
- B. The environment has a limited mineral supply.
- C. The environment has a limited oxygen supply.
- D. The environment has a limited carbon dioxide supply.

4 Lou Gehrig's disease disrupts th of motor neurons (nerve cells) th L the movement of limbs and othe Which body system is most like directly affected by this disease?

- A. the endocrine system
- B. the digestive system
- C. the circulatory system
- D. the muscular system