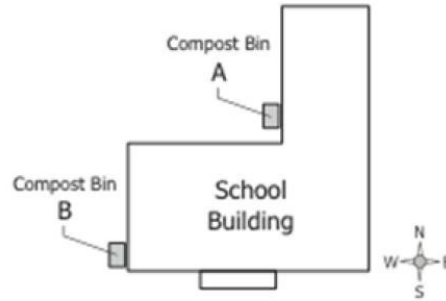


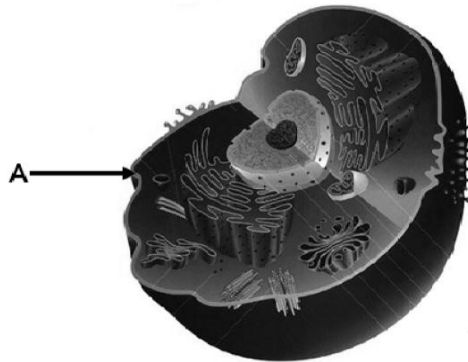
Biology End-Of-Course Practice Exam

1. As part of an experiment to measure decomposition rates of different materials, students put food scraps from the cafeteria in compost bin A and leaves and grass clippings in compost bin B for six weeks. A diagram of the school and the compost piles are shown below.



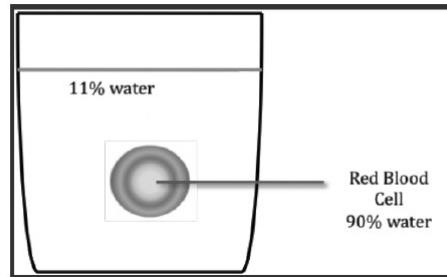
Students in first period measured the temperature in bin A, and students in sixth period measured the temperature in bin B. What is the greatest error in the students' experimental design?

- A. The materials chosen decompose too rapidly.
 - B. The students put equal masses of materials in each bin.
 - C. There are too many uncontrolled variables in the experiment.
 - D. Temperature is the only dependent variable in the experiment.
2. Cell theory is one of the fundamental tenets of biology. Which of the following observations supports the current cell theory?
- A. Muscle fibers contain many nuclei.
 - B. Stem cells can spontaneously generate.
 - C. Mature red blood cells do not contain a nucleus.
 - D. Cells from a multi-cellular organism can be grown in isolation, separate from the organism.
3. A diagram of a cell is shown below. What is the function of the organelle that is labeled A in this diagram?



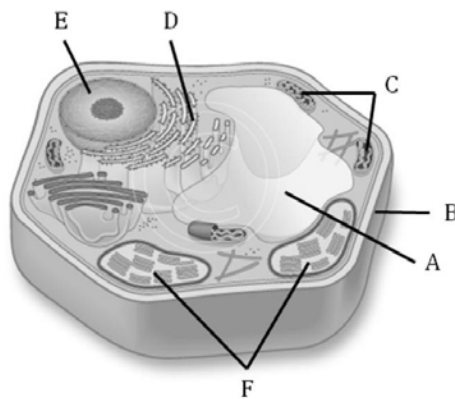
- A. Controls the cell
- B. Supports rigid shape of cell
- C. Stores water and mineral ions
- D. Controls what enters and leaves the cell

4. A red blood cell is 90% water. A red blood cell is suspended in an 11% water solution. A diagram is placed below.



What will most likely happen to the red blood cell?

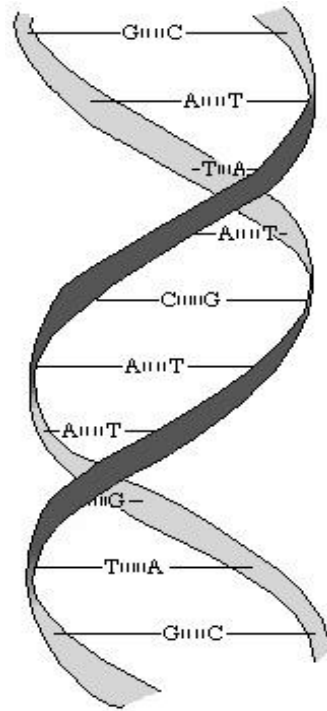
- A. The cell will burst.
 - B. The cell will shrink.
 - C. The cell will not be affected.
 - D. The cell will continually grow then shrink.
5. The structure of a cell is shown in the figure below.



Based on the figure above, which structures are present in both animal and plant cells?

- A. A, C and F
 - B. B, C and E
 - C. C, D and E
 - D. A, B and D
6. Using the DNA strand AGC TTG, which of the following statements best describes DNA replication?
- A. The strand TCG AAC is produced by complimentary base pairing with DNA.
 - B. The strand TCG AAC is produced by complimentary base pairing with RNA.
 - C. The strand UCG AAC is produced by complimentary base pairing with DNA.
 - D. The strand UCG AAC is produced by complimentary base pairing with mRNA.

7. DNA is composed of strands of nucleotides that pair in regular patterns and are held together by forces shown in the diagram below. What are the names of those bonds?



- A. hydrogen bonds
B. carbon-carbon bonds
C. covalent bonds
D. ionic bonds
8. Mutations can occur during mitosis and meiosis. Which of the following statements about mutations is true?
- A. Mutations in the DNA of body cells cannot affect the individual in which they happen.
B. A mutation in the DNA of a body cell can cause the cell to produce a protein that does not function.
C. A mutation in the DNA of a gamete affects the body cells of the individual that produced the gamete.
D. Mutations in the DNA of body cells can cause the offspring to produce a protein that does not function.
9. Cancer is a disease caused by mutations. Yet in most instances, if a parent tragically dies from cancer, this does not put their child at greater risk than a person whose parents do not develop cancer. How can cancer be caused by mutations and yet not be heritable?
- A. Most cancers arise from mutations in germ line cells.
B. Mutations that cause cancer occur in sex cells only.
C. Mutations caused by environmental agents, such as tobacco smoke, occur in somatic cells.
D. Mutations that cause cancer are specific and cannot be passed on regardless of the type of cell they occur in.

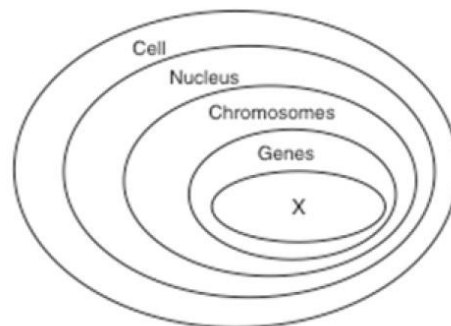
10. The table below gives the codons found in messenger RNA (mRNA).

		Second Base				
		U	C	A	G	
First Base U	U	Phe	Ser	Tyr	Cys	U
	C	Phe	Ser	Tyr	Cys	C
	A	Leu	Ser	Stop	Stop	A
	G	Leu	Ser	Stop	Trp	G
First Base C	U	Leu	Pro	His	Arg	U
	C	Leu	Pro	His	Arg	C
	A	Leu	Pro	Gln	Arg	A
	G	Leu	Pro	Gln	Arg	G
First Base A	U	Ile	Thr	Asn	Ser	U
	C	Ile	Thr	Asn	Ser	C
	A	Ile	Thr	Lys	Arg	A
	G	Met	Thr	Lys	Arg	G
First Base G	U	Val	Ala	Asp	Gly	U
	C	Val	Ala	Asp	Gly	C
	A	Val	Ala	Glu	Gly	A
	G	Val	Ala	Glu	Gly	G

Based on the table above, determine the sequence of amino acids produced by this DNA sequence: 5' GCAGTTTTTC 3'?

- A. Arg - Gln – Lys
- B. Cys - Gln - Lys
- C. Ser – Phe – Phe
- D. Ala - Val – Phe

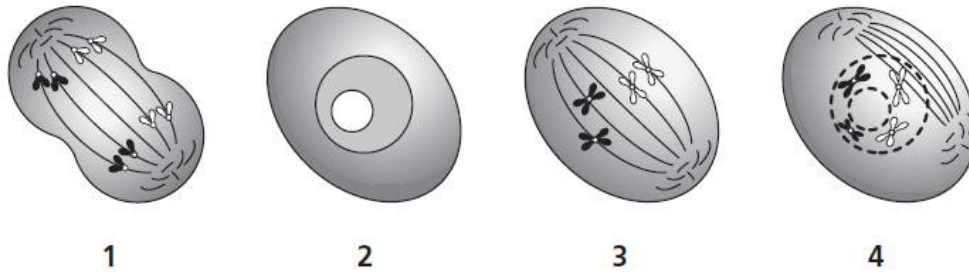
11. The diagram below represents levels of organization within a cell of a multi-cellular organism.



The level represented by X is composed of which of the following?

- A. Four types of base codons
- B. Folded chains of glucose molecules
- C. Twenty different kinds of amino acids
- D. Complex, energy-rich inorganic molecules

12. The following diagrams show an animal cell dividing during four stages of the cell cycle. Place the stages in order.



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

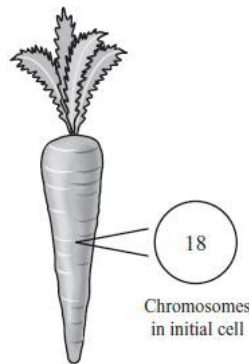
13. Chemotherapy, or the use of chemical agents to destroy cancer cells, is a mainstay in the treatment of malignant tumors. An understanding of the normal cell cycle and the behavior of malignant or cancerous cells can help one better understand how chemotherapy works to destroy cancer cells. A diagram of the cell cycle is shown below.



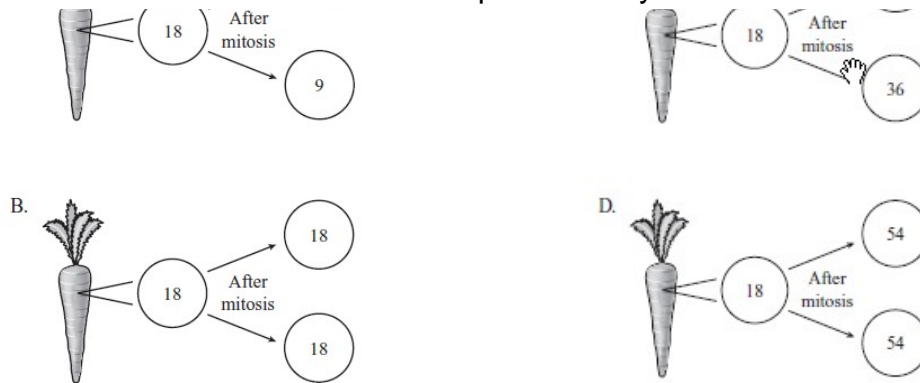
Most chemotherapy agents kill cancer cells by affecting the S-phase of the cell cycle. Based on the diagram above and your knowledge of the cell cycle, which of the following best explains why the S-phase is targeted by chemotherapy agents?

- A. Because the cell grows and is most active during the S-phase
- B. Because the cell divides and creates new cells during the S-phase
- C. Because the cell duplicates its DNA for its daughter cells during the S-phase
- D. Because the S-phase lasts the longest amount of time of all the cell cycle phases

14. The diagram below provided information about a carrot cell.



A carrot cell contains 18 chromosomes. Which of the following diagrams illustrate the correct number of chromosomes in new cells produced by mitosis?



15. Meiosis is important for reproducing specific types of cells. Which of the following is a result of meiosis?

- A. identical diploid cells due to cytokinesis
- B. unique haploid cells due to crossing over
- C. unique diploid cells due to sexual reproduction
- D. identical haploid cells due to independent assortment

16. Which statement explains why approximately half of an individual's DNA sequence comes from each parent?

- A. A cell from one parent undergoes meiosis, producing offspring cells that have both parents' DNA.
- B. A cell from one parent undergoes mitotic cell division, producing offspring cells that have only half of that parent's DNA.
- C. Cells in the parents undergo meiosis, producing haploid gametes that meet up during fertilization to produce a diploid individual.
- D. Cells in the parents undergo mitosis, producing offspring cells that meet up during fertilization to produce an individual with half of each parent's DNA.

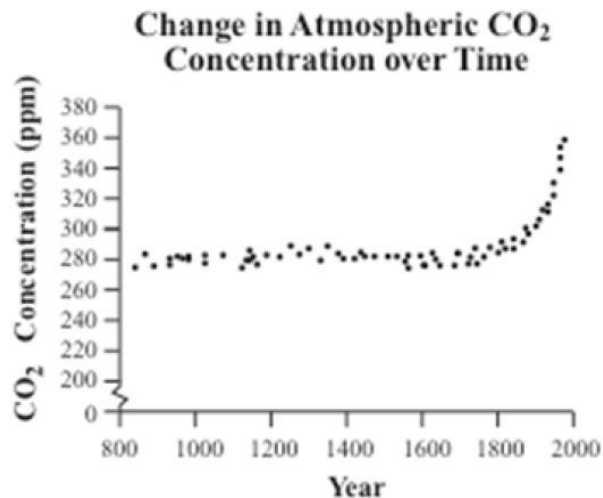
17. A particular species of shark normally reproduces sexually. In captivity, it was found that a female could also reproduce asexually. Which of the following is a negative result from asexual reproduction?

- A. decreased number of eggs used
- B. increased gene recombinations
- C. increased number of males produced
- D. decreased biodiversity within the species

18. Proteins have many different functions in a cell. Which of the following are possible functions of a protein?

- A. catalysts and building blocks of DNA
- B. enzymes and actively transports molecules across the cell membrane
- C. building blocks of DNA and structural components of cell membrane
- D. components of the cell membrane and main source of energy in cellular respiration

19. Scientists have been investigating the change in atmospheric carbon dioxide concentration since about 800 AD. A graph of atmospheric carbon dioxide concentration over time is shown below.



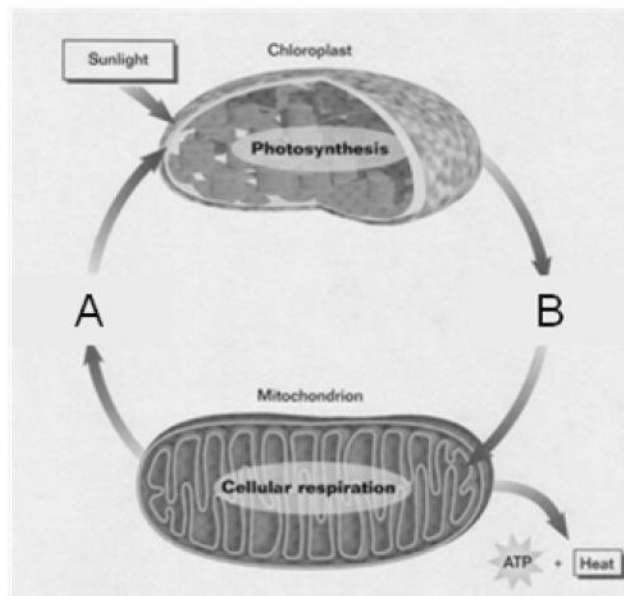
If the trend on the above graph continues, which of the following animals would benefit?

- A. The decrease in atmospheric CO₂ would benefit the anaerobic cellular respiration of humans.
 - B. The increase in atmospheric CO₂ would benefit the aerobic cellular respiration of cows.
 - C. The increase in atmospheric CO₂ would benefit the photosynthesis of phytoplankton.
 - D. The decrease in atmospheric CO₂ would benefit the reproduction of grasshoppers.
20. The Krebs cycle, fermentation, electron transport, and the breakdown of starch are processes of respiration. Which process could take place within an airtight bottle that contained no oxygen?
- A. Krebs cycle
 - B. fermentation
 - C. electron transport
 - D. breakdown of starch

21. Cellular respiration is important to a person's body, especially during periods of exercise. When person exercises, the process of cellular respiration increases the amount of what product in your body?

- A. oxygen
- B. oxygen and water
- C. energy in the form of ATP
- D. energy in the form of glucose

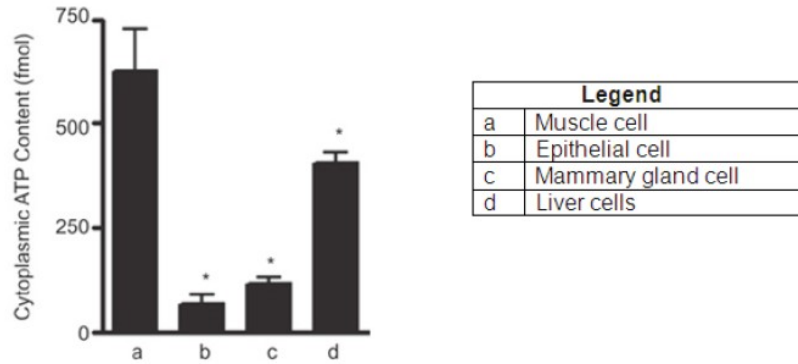
22. The diagram below illustrates the interrelated nature of photosynthesis and cellular respiration.



In the diagram above, A and B represent the reactants and products of photosynthesis and cellular respiration. Which statement is true about A and B?

- A. A includes O_2 , while B includes CO_2
- B. A includes H_2O , while B includes CO_2
- C. A includes glucose, while B includes O_2
- D. A includes CO_2 , while B includes glucose

23. A scientist measured the cytoplasmic ATP content in different types of cells. The results are shown in the graph below.



Based on these results, what conclusion can be made about these cell types?

- A. The muscle cell requires the most cytoplasm of the cell types.
- B. The liver cell requires the most amount of energy of the cell types.
- C. The mammary gland cell was taken from a female that is producing milk.
- D. The epithelial cell requires the least amount of energy of the cell types.

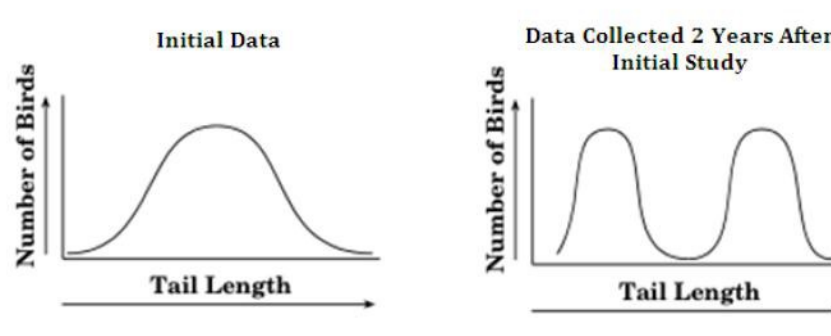
24. Thyroxin enzyme is used to stimulate weight loss in people with an endocrine deficiency. High concentrations of thyroxin enzyme will have what affect on the metabolic reactions in the cell?

- A. No effect on the reactions
- B. Increase the rate of the reactions
- C. Decrease the rate of the reactions
- D. Cause the reactions to stop occurring

25. Water is essential to all living things. One important attribute of water allows it to maintain a constant environment within cells. Which property of water allows it to do this?

- A. moderates temperature
- B. breaking of covalent bonds
- C. surface tension of water surface
- D. expansion of water when it freezes

26. A scientist studied the population of a certain species of birds based on their tail length. Initially, most of the birds had medium-length tails, but tail lengths ranged within the species from short to long. Two years later, the study was performed again on the same species of birds. An illustration of the birds with different tail lengths and graphs of the data are shown below.



Based on the above data, what inference can most likely be made about this species of birds over the 2 year period between studies?

- A. A new predator arrived that preferred birds with medium-length tails.
- B. Birds with long-length tails did not have the genetic variation to survive.
- C. A disease afflicted the birds causing the birds with short-length tails to die out.
- D. An evolutionary change occurred where birds with short-length and medium-length tails grew long-length tails.

27. The chart below shows the abbreviated history of some scientists and their contributions to the evolutionary theory.

Scientist(s)	Contribution
Alexander Oparin	Hypothesized early life may have been formed in high heat environments, such as the sun or lightning strikes.
Miller and Urey	Observed that gasses such as methane, ammonia, and hydrogen gasses react to produce amino acids when exposed to temperature fluctuations and electricity.
Sidney Fox	Found that adding heat to solutions of amino acids produces primitive "protocells"

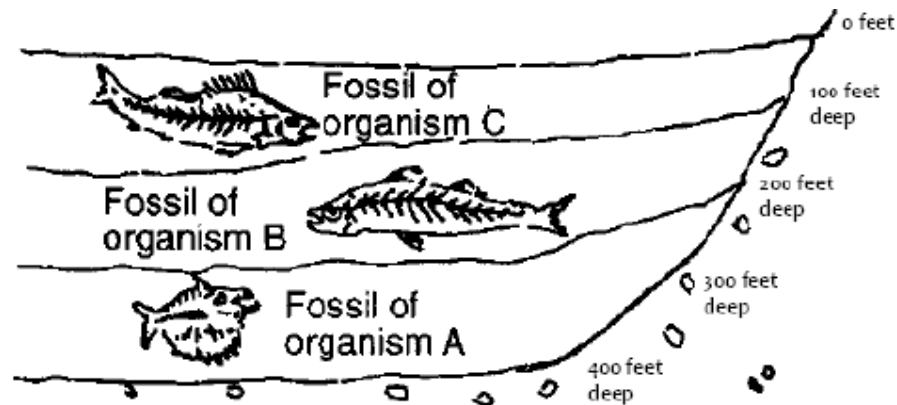
Based on the contributions of the above scientists, which statement is true about evolutionary theory?

- A. The research of these scientists cannot be proven 100% true, therefore evolution is a theory and not a law.
- B. Evolutionary theory is supported by the research of these scientists; once all research supports the theory, it will become a law.
- C. Evolution was a law until the supportive research for these scientists promoted it to a theory.
- D. Evolution is a theory because it is an explanation that is supported by the research of scientists like these.

28. A single species of squirrel evolved over time into two species, each on opposite sides of the Grand Canyon. What can be concluded about the evolution of these two species of squirrels?

- A. The two species diverged due to higher mutation rates on one side of the Grand Canyon.
- B. The two species diverged due to low genetic diversity in the initial population.
- C. The two species diverged due to the geographic isolation of the two groups.
- D. The two species diverged due to differences in reproductive rates.

29. The diagram below represents undisturbed rock strata. A representative fossil of an organism is illustrated in each layer.



Which statement best describes the relationship between these organisms?

- A. All of these organisms existed at the same time.
- B. Organism C could be a common ancestor to organisms B and A.
- C. Organism A could be a common ancestor to organisms B and C.
- D. Organism A was probably more structurally advanced than organism B and organism C.

30. The current classification system is extremely dynamic. In 1753, Linnaeus classified all organisms into two kingdoms. Nearly a century later it was expanded to a three-kingdom system. Currently, we use a six-kingdom system for classification. Which statement best explains why the classification system keep changing?

- A. The classification system changes because evolution continually produces new, unique organisms.
- B. Scientists re-classify organisms each year based on the opinions of the current preeminent scientists in the taxonomic field.
- C. Advances in scientific technology used in science research reveal new evolutionary relationships between organisms, which lead to modifications in the classification system.
- D. The creation of the mobile technology such as the iPhone have lead to better communication with scientists which have lead to new classification systems.

31. A scientist collected a sample of microorganisms from an extremely hot, thermal deep-sea vent. With a microscope, the scientist observed that the microorganisms were single-celled prokaryotes. Under which domain would you classify these microorganisms?

- A. Archea
- B. Bacteria
- C. Eukarya
- D. Fungi

32. The characteristics of four organisms are shown in the chart below.

Organism	Native Range	Number of Toes	Number of Bony Horns	Most Active Day or Night?
Mountain Goat	North America	2	2	Day
Grevy's Zebra	Africa	1	0	Day
Reticulated Giraffe	Africa	2	2	Day
Asian Elephant	Asia	3 to 5	0	Day

Scientists have classified the reticulated giraffe and the mountain goat as the most closely related animals listed on the table. What two properties best support the classification of the reticulated giraffe and the mountain goat?

- A. The number of toes and the native range
- B. The number of toes and the number of bony horns
- C. The time they are most active and the native range
- D. The time they are most active and the number of bony horns

33. Approximately 5 billion years ago the composition of the Earth was different than it is today. What conditions were present for the origin of life on Earth 5 billion years ago?

- A. It was hot with condensed water vapor and an excess of oxygen gas.
- B. It was cold with condensed water vapor, and an excess of methane gas.
- C. It was hot with condensed water vapor and an excess of organic molecules.
- D. It was cold with condensed water vapor and an excess of organic molecules.

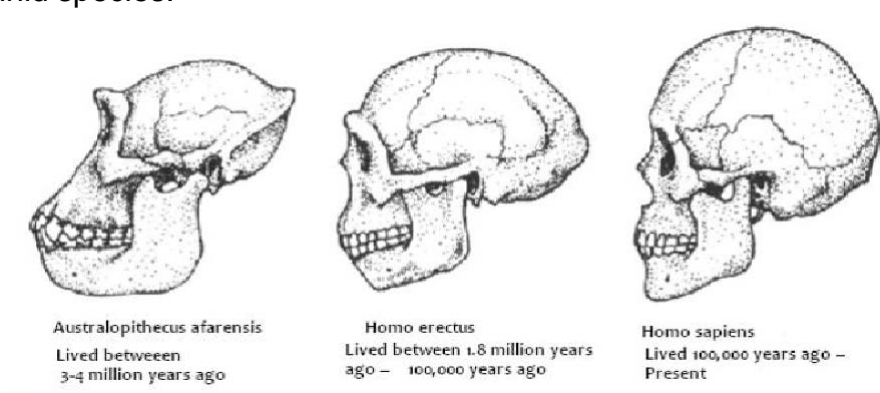
34. The table below summarizes the ideas and findings of scientists.

Scientist(s)	Contribution
Alexander Oparin	Hypothesized early life may have been formed in high heat environments, such as the sun or lightning strikes.
Miller and Urey	Observed that gasses such as methane, ammonia, and hydrogen gasses react to produce amino acids when exposed to temperature fluctuations and electricity.
Sidney Fox	Found that adding heat to solutions of amino acids produces primitive "protocells"

How does the work of these scientists contribute to the study of Biology?

- A. Provides an alternative to the cell theory of life
- B. Disproves the theory of spontaneous generation
- C. Explains the means by which natural selection occurs
- D. Supports scientific explanations about the origin of life

35. Scientists have found evidence that about 2.4 million years ago a gene regulating jaw muscles mutated and may have led to the more graceful human jaw we see today. The diagram below shows the skulls of 3 hominid species.



Which statement below most closely explains the link between jaw size and hominid evolution?

- A. The jaws of hominids evolved to be smaller and less protruding over time.
- B. The jaws of hominids evolved to be larger and more protruding over time.
- C. There appears to be no change in the jaws of hominids over time.
- D. The jaws of hominids changed over time due to a change in brain size.

36. Larvae of the diamondback moth feed on cauliflower plants. The larvae of the diamondback moth are now resistant to various types of pesticides. Which statement describes how the larvae became resistant?

- A. The pesticide is only effective against the larvae at certain times of the year.
- B. Natural variations in plants neutralize the pesticide before it reaches the larvae.
- C. Natural variations in diamondback moth genes allowed some individuals to survive.
- D. The pesticide is not effective against adult diamondback moths while they hibernate in the adult plant.

37. A small population of chimpanzees lives in a habitat that undergoes no changes for a long period of time. How might genetic drift affect this population?

- A. It will reduce genetic diversity.
- B. It will accelerate the appearance of new traits.
- C. It will increase the number of alleles for specific traits.
- D. It will promote the survival of chimpanzees with beneficial traits.

38. One of the parents of a child has phenylketonuria (PKU), which is caused by recessive alleles. The other parent is a carrier, but does not show symptoms of PKU. What is the probability that the couple will have a child with PKU?

- A. 0%
- B. 50%
- C. 75%
- D. 100%

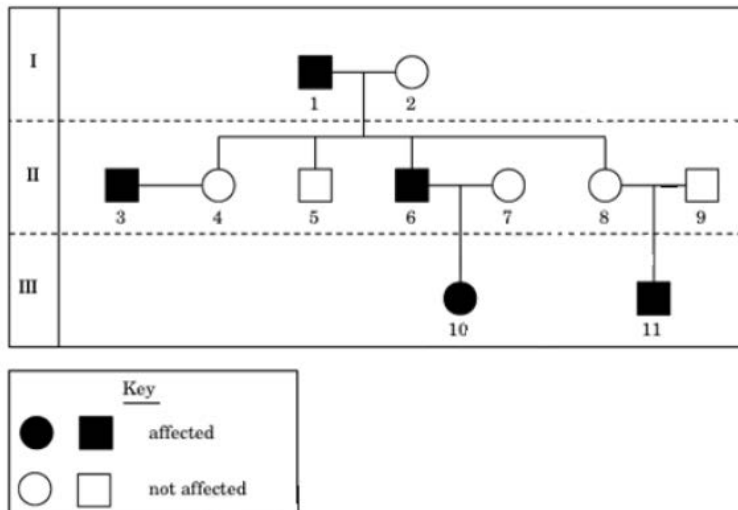
39. This chart shows the results of several crosses with white-feathered chickens and dark-feathered chickens.

Cross	Parental Feather Colors	Offspring Feather Colors
1	White × White	100% White
2	White × White	75% White, 25% Dark
3	White × Dark	50% White, 50% Dark
4	Dark × Dark	100% Dark

What can be concluded about these chickens?

- A. White and dark feathers show incomplete dominance.
- B. White and dark feathers are codominant.
- C. White feathers are dominant.
- D. Dark feathers are dominant.

40. This diagram shows a pedigree for a genetic disorder.



What can be concluded about how this genetic disorder is inherited?

- A. The allele is on the X chromosome.
- B. The allele is on the Y chromosome.
- C. The genetic disorder is inherited via a sex-linked dominant trait.
- D. The genetic disorder is inherited via an incomplete dominance trait.

41. In flowers such as pansies assume the alleles for petal colors are as follows: ww = white and rr = red and they are showing incomplete dominance. Which phenotypic ratio would be expected in the offspring of two pink pansies?

- A. 1 red : 2 pink : 1 white
- B. 0 red : 4 pink : 0 white
- C. 3 red : 0 pink : 1 white
- D. 4 red : 0 pink : 0 white

42. Materials move through the vascular tissue of plants using a combination of factors, including transpiration and gravity. If non-vascular plants do not have xylem and phloem, which processes below will move materials throughout the plant?

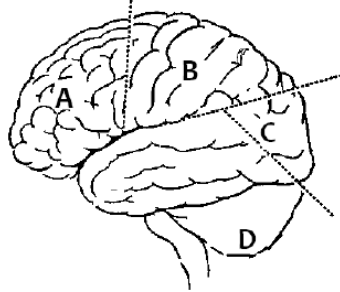
- A. evaporation and transpiration
- B. pollination and fertilization
- C. transpiration and condensation
- D. osmosis and diffusion

43. If the guard cells on the leaf of a plant are destroyed, which process is first affected?

- A. Water cannot be transported throughout the plant.
- B. The stomata will no longer function to allow for the exchange of gases.
- C. Sugar, minerals, and proteins cannot be transported throughout the plant.
- D. Chloroplasts will no longer function and photosynthesis will not occur.

44. The following diagram shows the major parts of the human brain.

Cross-Section of Human Brain



Using the diagram above, identify the letter that corresponds to the occipital lobe.

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

45. Some disorders result in a drastic drop-off in the number of platelets in the blood. What effect would a low “platelet count” have on the body?

- A. A person with this disorder would become anemic.
- B. The risk of bleeding from a wound would increase.
- C. The body would not be able to fight off infectious diseases.
- D. The risk of stroke or heart attack would increase due to blood clots.

46. In the immune system’s specific response, white blood cells can target specific types of disease-causing microbes. How do white blood cells recognize invading microbes?

- A. Receptor proteins on their surfaces bind to specific antigens.
- B. Helper T cells release antibodies that bind with the antigens.
- C. Natural killer cells puncture and destroy the infected body cells.
- D. Plasma cells bind to the viral antigens and mark them for destruction.

47. In the 1800’s, many people living in cities in the United States died of infectious diseases such as cholera, which is caused by a bacterium that pollutes water. Cholera is no longer a major problem in the United States. What is the **most likely** reason for the elimination of cholera as a major disease?

- A. Regulations have prevented factories from dumping pollution into lakes and rivers.
- B. Sewage treatment plants have eliminated such pathogens from drinking water.
- C. People have learned the importance of washing their hands.
- D. Advances in medicine have led to cures for cholera.

48. Artificial selection has been employed for thousands of years by animal breeders and plant cultivators. In what way is the genetic engineering of crops similar to the more traditional practice of artificial selection?

- A. Both techniques produce plants with greater resistance to plants.
- B. Both methods result in a crop that has some desirable characteristics.
- C. In both cases, two different crop plants are crossed to develop a new one.
- D. In both procedures, genes from unrelated organisms can be added to the plant.

49. The sex cells in males and females are referred to as sperm and ova, respectively. Ultimately, they have the same function but there are some differences between the two cells. Which of the following statements accurately describes the similarities in mature human sperm and ova?

- A. They both contain DNA.
- B. They are approximately the same size.
- C. They are produced from puberty until death.
- D. They both have flagellum that provides motility.

50. During fetal development, which of the following occurs during the third trimester?

- A. lungs are in final development
- B. blastula forms and embryo implants
- C. heart beat can be heard on ultrasound
- D. fetus starts to move and eyes are fully developed

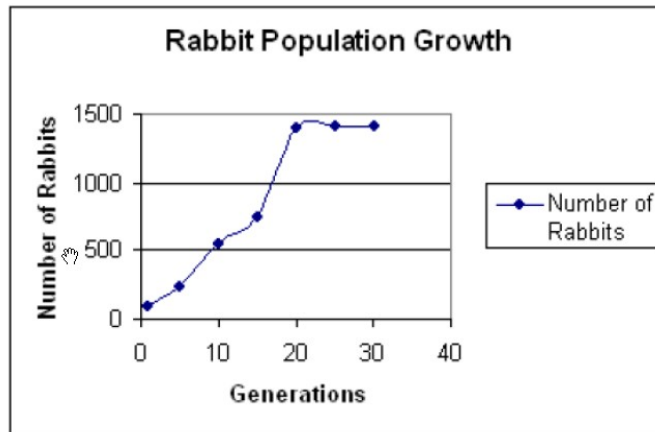
51. A student wanted to study a pond for her science fair project. Which question could the student investigate to determine the effects of an abiotic factor on a pond community?

- A. How does the number of predators affect the fish population?
- B. How do the varying salinity levels affect the respiration rate of frogs?
- C. How does the number of frog larvae affect the hatching of mosquito eggs?
- D. How do the varying bacterial levels affect the amount of algae in the pond?

52. Scientists found that, over a period of 200 years, a mountain pond was transformed into a meadow. During that time, several communities of organisms were replaced by different communities. Which of these best explains why new communities were able to replace older communities?

- A. The biotic components became extinct.
- B. Species in the older community died from old age.
- C. The abiotic characteristics of the habitat changed.
- D. Diseases that killed the older organisms disappeared.

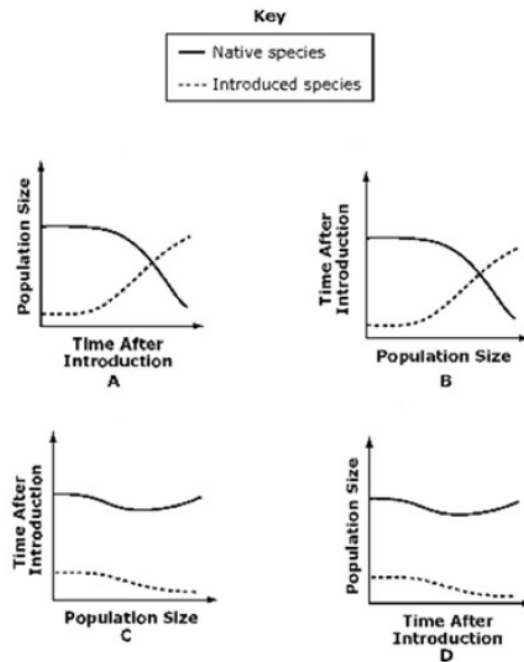
53. A population of rabbits in an area of Northern Florida was monitored to learn more about the biotic and abiotic factors that affect the population size. The graph below shows data collected about the rabbit population size for 30 generations.



Based on the data above, what can be correctly stated about the rabbit population?

- A. More rabbits have immigrated than have emigrated.
- B. The number of deaths is greater than the number of births.
- C. The rabbits appear to have met carrying capacity.
- D. At the twentieth generation a lethal virus kills a majority of the rabbits.

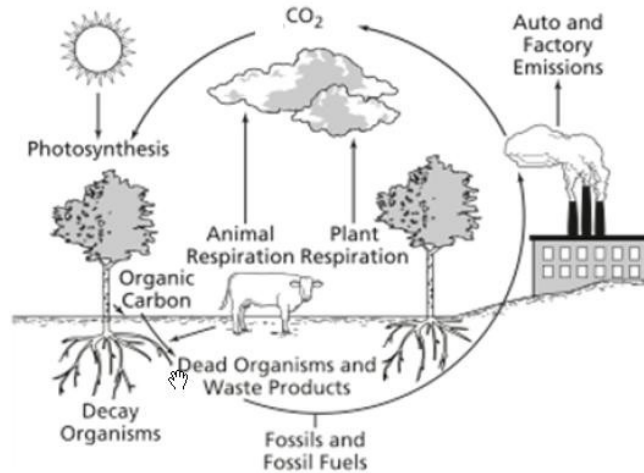
54. Fishermen introduced a species of fish into a lake that already contained a native fish species. The two species competed for the same resources, but the native species was more successful.



Which of the graphs above illustrates what happened to the two species of fish?

- A. Graph A
- B. Graph B
- C. Graph C
- D. Graph D

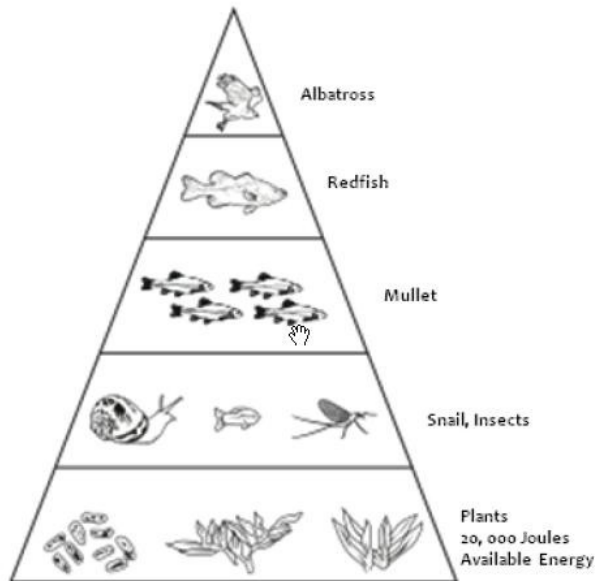
55. A diagram of the carbon cycle is shown below.



Which of these could cause the amount of carbon dioxide in the atmosphere to decrease?

- A. Increased burning of fossil fuels
- B. Increased respiration in animals
- C. Increased numbers of producers
- D. Increased numbers of decomposers

56. The amount of energy in an ecosystem can be represented in a model called an energy pyramid.



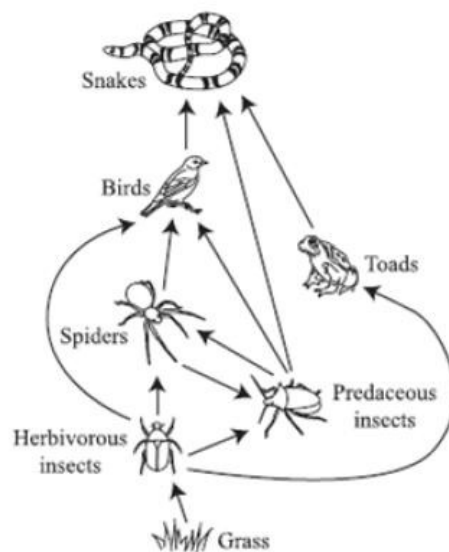
The producers at the bottom of the energy pyramid have 20,000 Joules of available energy. How much will be available for the mullet?

- A. 20,000 Joules
- B. 2,000 Joules
- C. 200 Joules
- D. 20 Joules

57. A forest fire destroys the majority of the trees in a state park. What affect will this most likely have on secondary consumers in that ecosystem?

- A. The amount of available energy will remain constant because secondary consumers are not reliant on primary consumers.
- B. The amount of available energy will decrease because fewer primary consumers will survive the lack of vegetation.
- C. The amount of available energy will increase because there will be less competition from producers.
- D. The amount of available energy will increase because there will be fewer predators in the forest.

58. A food web is shown below.



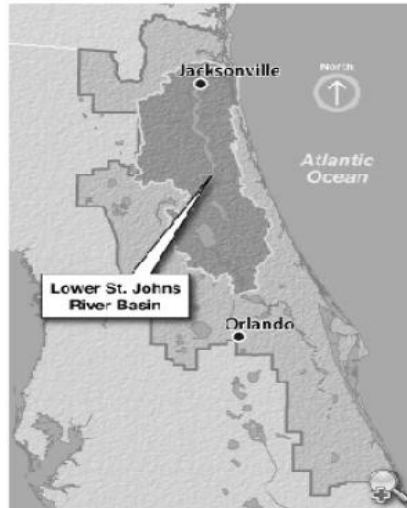
What would be the impact on this ecosystem if a disease afflicted the birds, reducing the number of birds to almost zero?

- A. The snake population would decline.
- B. The spider population would increase.
- C. The predaceous insect population would decline.
- D. The herbivorous insect population would increase.

59. Members of an environmental protection group have noticed that fish populations have decreased in a local wetland area. They think that pollution in runoff from nearby farms is to blame. What is the first step they should take to solve the problem and restore the wetland fish population.

- A. Enact laws that prohibit farming near wetland areas and near creeks that drain into them.
- B. Educate other communities whose wetlands are at risk of the dangers of having farms nearby.
- C. Collect and analyze data to assess which factors are causing the fish populations to decrease.
- D. Bring in fish from other wetlands to restore the original fish populations size of the local wetland area.

60. The St. John's River is a unique river because it flows northward. Its begins in Brevard County, Florida. It is supplied with water by the Atlantic Ocean and flows 310 miles north until it reaches Jacksonville, Florida. In Jacksonville, the St. John's River empties into the Atlantic Ocean. The map below highlights St. John's River.



Due to the rapid increase in housing and recreation in Orlando, Florida, there is an urgent need for a larger fresh water supply. To accommodate this need, one plan involves pumping 150 million gallons of fresh water per day from St. John's River. This fresh water would be transported to Orlando through a water pipeline and used by Central Floridians. How would the pumping of water to Orlando from St. John's River most likely affect the river?

- A. The pumping of the river water will give the river energy, creating faster currents.
- B. The pumping of the river water will absorb energy from the river, creating slower currents.
- C. Due to the removal of river water, the ocean salt water will replace the fresh water at the mouth of the river, but this will cause no change to the ecosystem in that region of the river.
- D. Due to the removal of river water, the ocean salt water will replace the fresh water at the mouth of the river, which will result in a major change of the ecosystem in that region of the river.

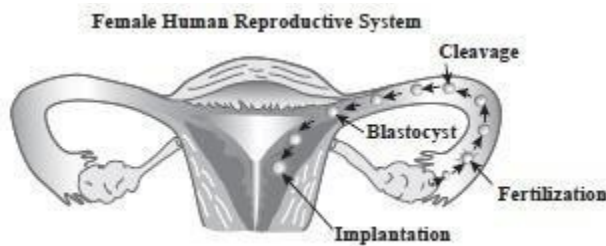
61. The cell cycle is a repeating sequence of cellular growth and division during the life of an organism. Which of the following is not a true statement concerning cell division of body cells?

- A. Cells divide in a process called meiosis.
- B. Cells divide in order to maintain homeostasis.
- C. Cells divide when the parent cell gets too big.
- D. Cells divide in order to repair themselves when damaged.

62. While genetic engineering has positive benefits, there are also concerns associated with widespread use of genetic engineering in agriculture. If many farmers begin to plant more genetically modified crops that have an increased tolerance to insects, which of the following may result?

- A. an increase in the use of pesticides
- B. a decrease in genetic diversity of the crops
- C. an increase in the contamination of the water supply
- D. a decrease in productivity on genetically modified crops

63. A fertilized egg undergoes several stages before it is successfully implanted. The diagram below shows these stages as the fertilized egg travels through the female human reproductive system.



In which of the following structures of the female human reproductive system is the blastocyst implanted during normal human development?

- A. ovary
- B. uterus
- C. vagina
- D. amniotic sac

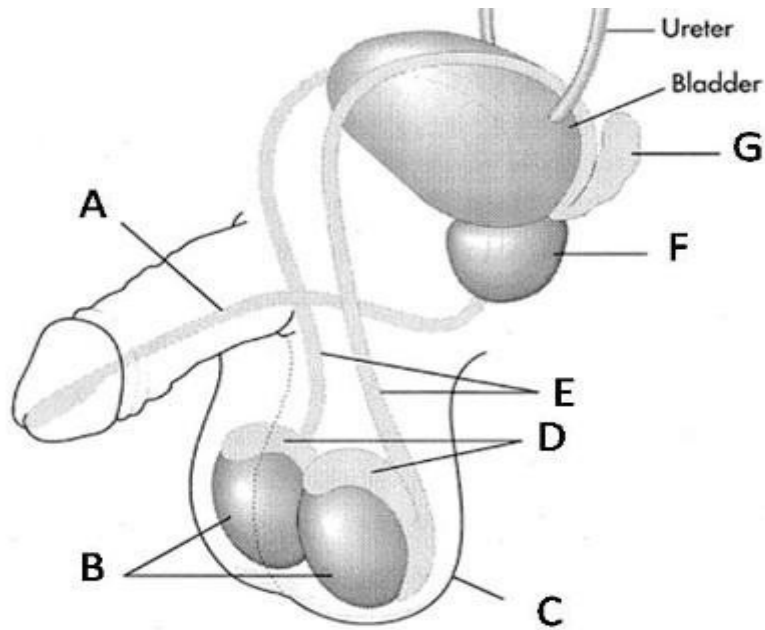
64. The number of pythons throughout the Everglades National Park has increased in recent years. These huge snakes are not native to Florida and are believed to have been released into the wild by pet owners. Wildlife biologists have initiated attempts to capture and remove these pythons. Which statement best explains the biologists' reason for removing these pythons from the Everglades?

- A. The pythons could upset the territorial boundaries of native organisms.
- B. The pythons could adapt to overcome diseases common to native snakes.
- C. The pythons could prey on native organisms and cause native populations to decline.
- D. The pythons could begin to interbreed with native snakes and produce a more successful species.

65. Terrestrial plants have stomata on the surface of their leaves. A single stomata is surrounded by two guard cells that change shape in response to environmental factors and open or close the stoma. Which of the following best explains how the structure of the leaf is used in processes that occur in plants?

- A. Water enters the plant through the surface of the leaf for transpiration
- B. Gases for photosynthesis are exchanged through the surface of the leaf.
- C. Energy for cellular reproduction is absorbed through the surface of the leaf.
- D. Carbon dioxide enters the plant through the surface of the leaf for cellular reproduction.

66. Use the diagram below.



Which structure on the diagram above is responsible for storing sperm after it is made until it is released?

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