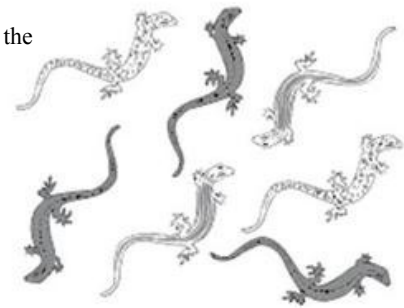


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Biology Term 4 Review

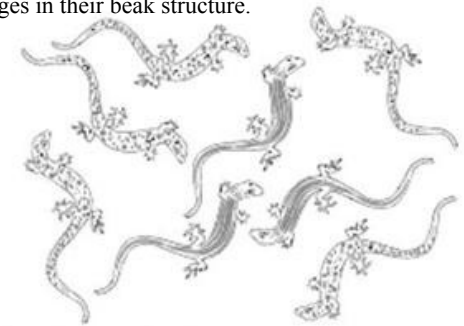
- 3) Which of the following is NOT an example of selective breeding?
- A. in vitro fertilization
 - B. hybrid corn
 - C. Shetland pony
 - D. Siamese cat
 - E. seedless orange
- 5) Cheetahs have come close to extinction due to hunting, drought, and disease. There is now very little genetic variation in cheetah populations. Which of the following is a result of the limited genetic variation in the current cheetah populations compared to earlier cheetah populations with more variation?
- A. Cheetahs in current populations are more resistant to new diseases.
 - B. The survival rate of young cheetahs is increased in current populations.
 - C. Cheetahs in current populations are less able to interbreed with other species.
 - D. The current cheetah populations are less likely to be able to adapt to environmental changes.
- 6) Birds are an important indicator of the health of our environment. In the 1960s Rachel Carson wrote about the use of DDT, a pesticide, which accumulated progressively in the food chain and harmed many unintended organisms such as birds. Her work was used to help save predatory birds such as eagles and osprey by reducing and often changing the chemicals farmers can use to spray their crops. What must she have done to document her work?
- A. Discovered all the chemical characteristics of DDT and pesticides.
 - B. Taken pictures of dead animals and told people that all animal deaths are related to the use of DDT and pesticides.
 - C. Documented the effect of radon and other gases on organisms in the food chain.
 - D. Counted the number of organisms in an area where DDT was use and compared it to numbers in areas where it wasn't used.
- 7) The diagrams show changes in a desert lizard population. Which biological concept is illustrated in the pictures?
- A. polygenic traits
 - B. natural selection
 - C. sex-linked inheritance
 - D. silent mutations
- 9) The marine iguanas of the Galápagos Islands feed on seaweed and algae. Marine iguanas have flattened tails while other species of iguanas that live inland on the Galápagos and on the South American mainland have rounded tails. Which of the following **best** explains this difference in tail shape?
- A. Flattened tails are better for swimming than rounded tails.
 - B. Flattened tails move more easily on land than in the ocean.
 - C. Flattened tails are harder for predators to grasp than rounded tails.
 - D. Flattened tails release heat more rapidly in the ocean than on land.
- 11) Which of the following does NOT show how use of selective breeding affects human life?
- A. The development of the disease-resistant potato.
 - B. The discovery of the plastics and nylon.
 - C. The domestication of animals.
 - D. The creation of new plants like day lilies.
- 13) Mating two dogs of the same breed to get a certain hair color is an example of
- A. crossbreeding
 - B. natural selection
 - C. selective breeding
 - D. selective coloration
- 17) On the Galápagos Islands, finches adapted over time to different food sources through changes in their beak structure. Which of the following **most likely** resulted from the finches' beak structure adaptations?
- A. a decreased predation on finches
 - B. an increased species diversity of finches
 - C. an increased competition among finches
 - D. a decreased reproductive rate in finches
- 18) What is the major reason that biodiversity is important in nature?
- A. It increases the population
 - B. It makes ecosystems more stable
 - C. It gives humans more resources
 - D. It narrows the food web
- 19) Farmers use only tomato plants that will produce the biggest crop. This is an example of:
- A. adaptation
 - B. artificial selection
 - C. mutation
 - D. natural selection



1. Population with variety of inherited traits



2. Predation of individuals with particular traits



3. Reproduction of survivors

- 20) Birds are an important indicator of the health of our environment. In the 1960s Rachel Carson wrote about the use of DDT, a pesticide, which accumulated progressively in the food chain and harmed many unintended organisms such as birds. Her work was used to help save predatory birds such as eagles and osprey by reducing and often changing the chemicals farmers can use to spray their crops. What does this scenario tell us about the scientist who discovered the relationship between chemicals and the environment?
- The experiments conducted on ecology were so disconnected that they did not contribute to the model of DNA.
 - The experiments conducted by the earlier scientists on ecology were not verified, so they were discounted and not used.
 - Important knowledge about ecology was contributed by a woman.
 - The knowledge before the 1950s was not useful in determining any connections between chemicals and the environment.
- 23) When a breeder chooses only the best animals or plants for mating, he makes use of the method of
- crossbreeding
 - sex linkage
 - mutation
 - selection
- 25) During the fall reproductive season, the belly of a male brook trout becomes bright orange. The orange belly provides some camouflage and helps attract females. This trait evolved in brook trout because, compared to males with pale bellies, males with bright orange bellies are more likely to
- live in good habitats.
 - be eaten by predators.
 - mate with other species of fish.
 - fertilize eggs to produce offspring.
- 27) European rabbits were introduced to Australia in 1859. The rabbits reproduced rapidly in their new habitat, displaced other animals, and overgrazed vegetation. In an attempt to reduce the rabbit population, a virus was introduced in 1951. This virus is usually deadly to European rabbits. When the virus was first introduced, the rabbits died in large numbers, but the death rate decreased over time. Which of the following **best** explains the decrease in the rabbit death rate?
- Young rabbits learned to avoid being infected with this virus.
 - Natural selection favored rabbits that are resistant to this virus.
 - The lifespan of this virus is too short to affect rabbits over a long period of time.
 - The rabbits that were originally infected with this virus have been dead for many years.
- 28) The desirable characteristics of two wheat plants of different varieties may be combined in the offspring by
- adaptation
 - grafting
 - cross-pollination
 - self-pollination
- 29) In the mountains of northern Utah, there are fossils of coral. One theory is that the area was once submerged under the ocean. What further evidence would support that theory?
- geothermal activity
 - bleached snail shells
 - volcanic activity
 - fossilized shark teeth
 - metamorphic rocks
- 30) At her school, Joyce wants to create a linear scale model of the geologic time line and she wants to make one million years equal to one meter. What problem will she encounter?
- The time scale will be too long to fit in the classroom
 - The Cenozoic era will be so small that it will be impossible to measure by methods available at school
 - Some of the markers she uses to indicate the various eras will be bunched very close together so it will be difficult, but not impossible to see the various eras
 - Precambrian time takes up about 95% of geologic time
- 34) In comparisons of the evolutionary relationships between four species of birds, which of the following would be **most useful**?
- color of feathers
 - gene sequences
 - nesting behaviors
 - patterns of migration
- 35) During his travels, Darwin made numerous observations and collected evidence that led him to propose a revolutionary hypothesis about the way life changes over time. That hypothesis, now supported by a huge body of evidence, has become the theory of evolution. Which of the following is NOT evidence supporting the theory of evolution?
- Embryo develop in comparable orders and in similar patterns to produce tissues and organs in all vertebrates
 - Traits acquired during a person's lifetime, such as straight teeth because of braces, will be passed on to offspring
 - Mutations in DNA can cause changes that will become part of the gene pool of a population
 - Mendelian genetic principles provide a mechanism for the continuation of traits in offspring
- 36) Which of the following provides the **most conclusive** evidence that organisms of two different species share a common ancestor?
- They live in the same ecosystem.
 - They reproduce at the same time.
 - They have similar DNA sequences.
 - They have similar body movements.

38) Which term best describes the evolution of two species of frogs separated by a mountain range?

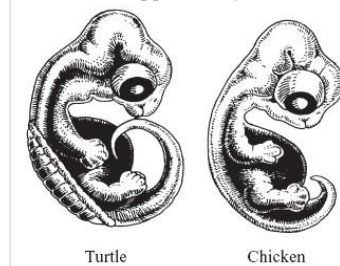
- A. mutation
- B. vestigial structures
- C. geographical isolation
- D. camouflage

40) Which of the following statements presents the best evidence (in this list) that present species developed from earlier forms?

- A. There are no anatomical similarities between species
- B. The fossil record has many gaps
- C. All species contain DNA
- D. AUG codes for methionine in all living things
- E. The fins of fish and flippers of whales perform the same function

41) The drawings below show a turtle embryo and a chicken embryo. 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.



44) Capillaries are part of which body system?

- A. skeletal system
- B. nervous system
- C. digestive system
- D. circulatory system

46) At one time, people believed that life spontaneously arose regularly from non-living things. For example, many people believed that spoiled meat produced living maggots. Why was spontaneous generation considered to be an adequate explanation back then but is no longer accepted as a valid theory today?

- A. In the past the best data available supported the idea, but today the scientific community has collected other data
- B. The current theory of the origin of life has now been proven
- C. In science, theories do not last more than 100 years; they are replaced because they get old
- D. Spontaneous generation was disproved by a famous scientist named Louis Pasteur

48) Due to antibiotic overuse, bacteria are becoming resistant to antibiotics. One way the resistance develops is that the first populations exposed may contain a few bacteria with the ability to survive the antibiotic. These bacteria are able to reproduce large numbers of resistant bacteria. Why is the government trying to put into place strict rules about prescribing antibiotics?

- A. Bacteria are helpful to humans and should not be destroyed.
- B. Antibiotics should be used to kill viruses such as those that cause influenza or colds.
- C. Natural selection occurs in bacteria making it necessary for humans to control the use of antibiotics.
- D. Bacteria are of little use to humans since they always cause infections or illnesses to occur.

54) Which statement best describes why a biologist wouldn't be concerned about a single mutation in a population of mallard ducks?

- A. Mallards are not threatened; their survival is not likely to depend on this mutation
- B. An animal can choose to adapt to an environmental condition
- C. Mutations are always beneficial
- D. A population in genetic equilibrium is not evolving
- E. Populations evolve, individuals don't

57) Scientists examined fossil records and skeletons long before they knew the ages of fossils and the relationships of one organism to another, such as birds and reptiles. What additional knowledge is needed to improve the modern view that birds evolved from reptiles?

- A. Better technology for determining the exact age of rocks where the fossils are found.
- B. A model which definitively describes the formation of the earth and all of its inhabitants.
- C. A rock collection detailing the chemical differences in the rock structure which helped to make the fossils.
- D. A dichotomous key to precisely classify the ancient organisms found in the rock.

58) What does the similarity in structure of the bones of these animals suggest?

- 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.

61) Which of the following would be an example of a frameshift mutation?

- A. The base guanine is changed to adenine
- B. A single base is deleted from DNA causing mRNA to be out of position by one base
- C. Homologous chromosomes fail to separate properly
- D. Part of a chromosome breaks out and is reinserted backwards
- E. Part of a chromatid breaks off and attaches to a sister chromatid

66) Which of the following **best** explains how the fossil record provides evidence that evolution has occurred?

- A. It indicates that forms of life existed on Earth at least 3.5 billion years ago.
- B. It indicates the exact cause of structural and behavioral adaptations of organisms.
- C. It shows how the embryos of many different vertebrate species are very similar.
- D. It shows that the form and structure of groups of organisms have changed over time.

67) Which two of these organisms are most closely related?

1. *Canis familiaris* 2. *Mephitis mephitis* 3. *Canis lupus* 4. *Panthera pardus*
 A. 1 and 2
 B. 1 and 3
 C. 2 and 3
 D. 2 and 4

68) Which classification grouping contains organisms with the most similarities?

- A. Family
 B. Genus
 C. Order
 D. Phylum

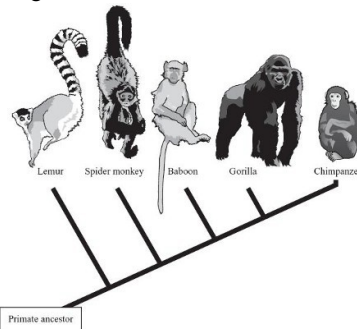
69) For most of the late 20th century, many biology students learned that organisms were classified into one of five kingdoms. Biology students now learn organisms may be classified into one of six kingdoms. Why was the five kingdom theory accepted and used for so long, but is not accepted now?

- A. Scientific ideas do not last more than 50 years and are replaced when they get too old.
 B. Current classification systems have been proven and finalized by scientists so there will be no more changes.
 C. Kingdoms are created using the best data available at the time, but technology has improved our knowledge.
 D. Organisms continue to increase in number which requires many more kingdoms for classification to be accurate.

71) 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.



72) Which contains species that are most dissimilar from each other?

- A. Kingdom
 B. Genus
 C. Class
 D. Order
 E. Phylum

75) Use the following chart to answer the question below.

The two animals showing the greatest structural similarities are

- A. animals I and II
 B. animals II and III
 C. animals III and IV
 D. animals III and V

	Animal I	Animal II	Animal III	Animal IV	Animal V
Phylum	Chordata	Chordata	Chordata	Chordata	Chordata
Class	Mammalia	Mammalia	Mammalia	Mammalia	Amphibia
Order	Carnivora	Carnivora	Carnivora	Primates	Salieta
Family	Felidae	Felidae	Canidae	Hominidae	Ranidae
Genus	Felis	Felis	Canis	Homo	Rana
Species	leo	domesticus	familiaris	sapiens	clamitans

89) In the scientific name of a dog, *Canis familiaris*, the name *Canis* designates the dog's

- A. family
 B. genus
 C. kingdom
 D. species

84) While hiking through Grantville 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

90) Members of the same phylum would also belong to the same

- A. class
 B. family
 C. kingdom
 D. species

99) Redwood trees belong to a kingdom with what characteristics?

- A. cells have a nucleus, cell wall, and is highly mobile
 B. cannot make own food, cells with a nucleus, unicellular
 C. photosynthetic, multicellular, cell walls
 D. makes own food, cell walls, cells have no nucleus

104) Which scientific name is written correctly?

- A. *Lynx Rufus*
 B. *lynx rufus*
 C. *lynx Rufus*
 D. *Lynx rufus*