

Unit 4 Evaluation

Biology 2

(SCIH 026 061)



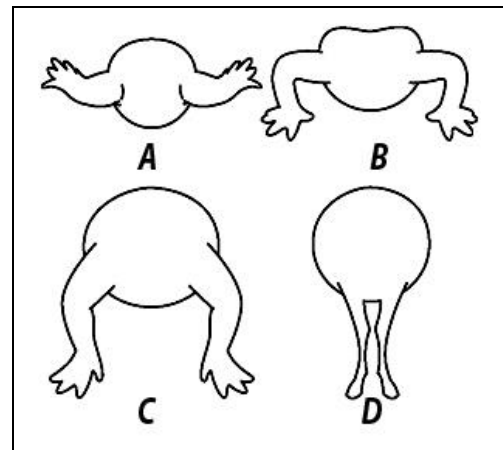
This evaluation will cover the lessons in this unit. It is open book, meaning you can use your textbook, syllabus, and other course materials. You will need to understand, analyze, and apply the information you have learned in order to answer the questions correctly. To submit the evaluation, follow the directions provided.

Multiple Choice

Select the response that **best** completes the statement or answers the question.

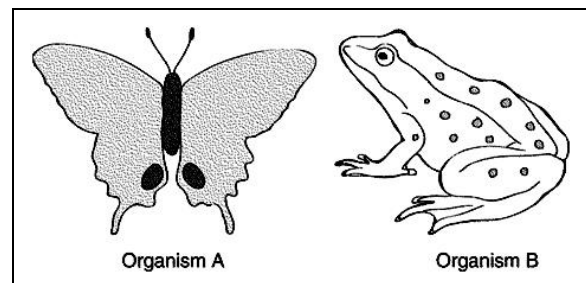
_____ 1. What is the result of the general progression of evolution from A to D in this diagram?

- a. Thinner legs are needed to stand in water.
- b. Legs moved under the body to hold the animal off the ground.
- c. Stronger legs are needed in order to swim.
- d. The legs make it easier to move in a warm, wet climate.

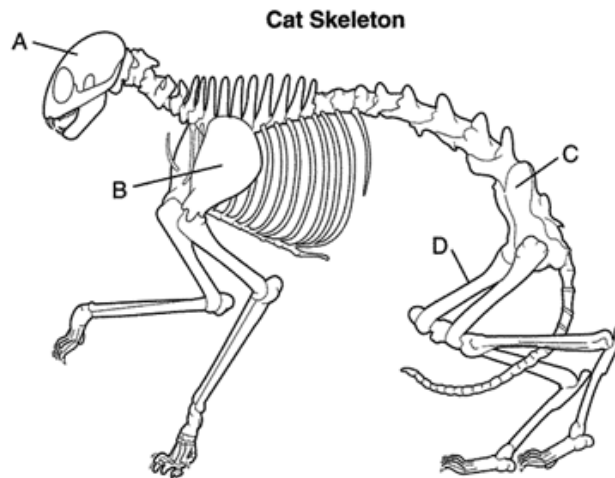


_____ 2. Which of the following is a difference between Organism A and Organism B in this diagram?

- a. Organism A undergoes metamorphosis.
- b. Organism B has a vertebral column.
- c. Organism A respire.
- d. Organism B has blood.



- _____ 3. Which of the following is a characteristic of most amphibians?
- They breathe with gills throughout life.
 - They have poisonous glands.
 - They have dry, scaly skin.
 - They begin life as aquatic organisms.
- _____ 4. How did the vertebral column affect the development of animals?
- It allowed animals to move to land.
 - It allowed animals to develop musculature.
 - It allowed animals to evolve with a greater range of movement.
 - It allowed animals with soft tissues and specialized organs to evolve.
- _____ 5. Which labeled part of the animal skeleton shown here most likely developed from the neural crest?



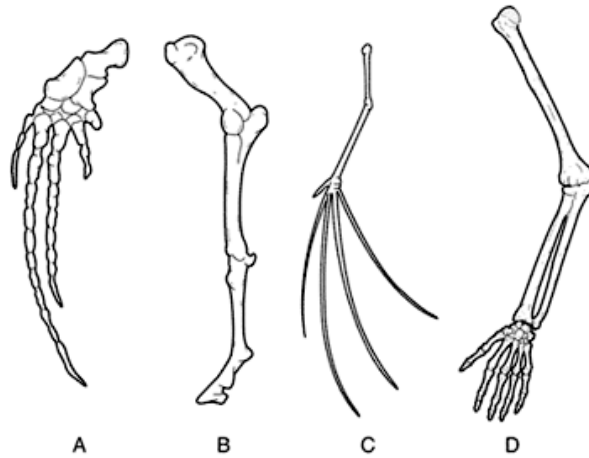
- structure A
 - structure B
 - structure C
 - structure D
- _____ 6. Which of the following is **not** a vertebrate feature?
- closed circulatory system
 - exoskeleton
 - liver
 - neural crest

- _____ 7. Which of the following is a primary function of fish scales?
- a. excretion
 - b. increased mobility
 - c. protection
 - d. temperature regulation
- _____ 8. Which of the following traits characterizes most amphibians?
- a. cartilaginous skeleton
 - b. double-loop circulatory system
 - c. internal fertilization
 - d. moist skin with scales
- _____ 9. Which of the following structures are found only in vertebrates?
- a. eyes and chelicerae
 - b. eyes and muscles
 - c. kidneys and liver
 - d. muscles and nerves
- _____ 10. One order of reptiles has a structure that delivers oxygen to the body more efficiently than structures in the other orders. Which of the following gives the correct order and the structure?
- a. Order Crocodylia; amniotic vein
 - b. Order Sphenodonta; amniotic vein
 - c. Order Crocodylia; four-chambered heart
 - d. Order Squamata; four-chambered heart
- _____ 11. What evidence suggests that the order Crocodylia is closely related to dinosaurs and birds?
- a. Crocodiles have teeth similar to those of dinosaurs and the earliest birds.
 - b. Crocodiles have a “third eye” on top of the head similar to that of dinosaurs.
 - c. Crocodiles have loosely-jointed jaws similar to those of birds.
 - d. Crocodiles have eyes similar to those of dinosaurs and the earliest birds.
- _____ 12. How is a reptile egg protected from drying out on land?
- a. The egg is protected by a carapace.
 - b. The egg is protected by a plastron.
 - c. The egg is protected by a leathery shell.
 - d. The egg is protected by a hard shell.

- _____ 13. For reptiles, what is one benefit of having an amniotic egg?
- Their egg does not require oxygen.
 - They can have external fertilization.
 - Their eggs are protected by Jacobson's organs.
 - They do not have to return to the water to reproduce.
- _____ 14. Birds lay amniotic eggs and their legs are covered with scales similar to those of reptiles. What does this evidence support?
- Birds and reptiles are in the same order.
 - Birds and reptiles have a common ancestor.
 - Birds and reptiles show convergent evolution.
 - Birds and reptiles occupy similar niches.
- _____ 15. How are the bones of birds adapted to give them the ability to fly?
- They are solid and strong.
 - They are solid and flexible.
 - They are filled with air and strong.
 - They are filled with liquid and flexible.
- _____ 16. Which of the following is evidence that birds and crocodiles have a common ancestor?
- They both have a one-chambered heart.
 - They both have a two-chambered heart.
 - They both have a three-chambered heart.
 - They both have a four-chambered heart.
- _____ 17. Which of these is a primary function of hair?
- insulation
 - gestation
 - excretion
 - respiration
- _____ 18. A mammal whose diet primarily consists of grasses would be best classified as which of these?
- insectivore
 - carnivore
 - omnivore
 - ruminant herbivore

- _____ 19. In which group of mammals are the young born live and then they immediately move to the mother's pouch to continue development?
- marsupial
 - monotreme
 - placental
 - primate
- _____ 20. Which group of mammals is most similar to reptiles?
- marsupial
 - monotreme
 - placental
 - primate

Use this diagram to answer questions 21-23.



- _____ 21. A mammal that lives in the ocean would most likely have which forelimb from the diagram shown?
- A
 - B
 - C
 - D
- _____ 22. A mammal that flies through the air would most likely have which forelimb from the diagram shown?
- A
 - B
 - C
 - D

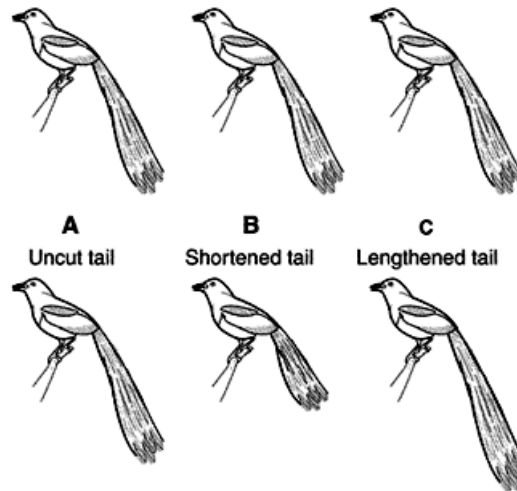
- _____ 23. A mammal that runs very fast on four legs would most likely have which forelimb from the diagram shown?
- a. A
 - b. B
 - c. C
 - d. D
- _____ 24. Mammals in the order Perissodactyla are hooved herbivores that have teeth adapted for which purpose?
- a. crushing seeds and nuts
 - b. digging roots and tubers
 - c. grinding grasses and leaves
 - d. peeling fruit
- _____ 25. The blowhole on top of a whale has a function that is most similar to which structure in the human?
- a. ear
 - b. eye
 - c. mouth
 - d. nose
- _____ 26. Which type of plant began to flourish at approximately the same time that mammals began to fill niches left empty by the extinction of the dinosaurs?
- a. conifers
 - b. cycads
 - c. flowering plants
 - d. grasses
- _____ 27. Which order of mammals developed forelimbs adapted for grasping that served as an adaptation to life in trees?
- a. Cetacea
 - b. Carnivora
 - c. Insectivora
 - d. Primate
- _____ 28. Which of these is a unique feature of all mammals?
- a. They all give birth to live young.
 - b. They all have four limbs.
 - c. They all have hair.
 - d. They all have opposable thumbs.

- _____ 29. Which of these is an example of imprinting?
- a. Young ducklings follow their mother.
 - b. A bird makes a nest of grasses and twigs.
 - c. Your cat rubs against your ankles when you open a can of cat food.
 - d. A chimpanzee searches for a longer pole to reach for a distant fruit.
- _____ 30. For trial-and-error learning to take place, an animal needs to receive
- a. a dose of imprinting.
 - b. a reward for a particular response.
 - c. classical conditioning.
 - d. habituation.
- _____ 31. Which of the following behaviors would be classified as a fixed-action pattern?
- a. Water buffalo converge in a group at the approach of a lion to one of the herd's calves.
 - b. A bird drops a twig while tucking it into a nest, but continues to tuck without the twig.
 - c. Running dogs startle a herd of horses, who gallop away together.
 - d. A newly hatched baby chicken shelters under the hen's wing.
- _____ 32. Which statement is a good generalization about innate behavior?
- a. Animals who learn from others of their own species exhibit innate behavior.
 - b. Innate behavior is learned from experience.
 - c. Innate behavior results from conditioning and habituation.
 - d. Inherited behaviors that do not need to be learned are innate behaviors.
- _____ 33. A single male fox finds a deer carcass near his den, and defends it from some ravens. Is this territorial behavior?
- a. Yes, because the food was near the den, inside the fox's territory.
 - b. No, because territorial behavior is limited to defending resources against members of the same species.
 - c. Yes, because territorial behavior includes defending resources against all competitors.
 - d. No, because the fox was not breeding or feeding pups.

- _____ 34. A 2004 study sought to explain how night-flying migratory birds navigate, since they cannot use the Sun, and clouds often obscure stars. In the experiment, migratory songbirds were captured, placed in an artificial magnetic field, and then released to continue their overnight flights. Radio transmitters attached to the birds' backs relayed their location. Birds that had been in the artificial magnetic field initially flew off in the wrong direction. In the morning, they were observed correcting their course as the Sun rose. The next night they flew off in the right direction. What conclusion do you draw about the method these birds were using to navigate?
- The birds used the stars when they were visible.
 - The birds used landmarks visible during the day and by moonlight.
 - The birds used inherited knowledge such as flying towards warmer temperatures.
 - The birds used magnetic fields. Their internal compass was recalibrated daily by the Sun.
- _____ 35. Which of the following theories best predicts the forms of communication likely used between nocturnal jaguars in a dense jungle?
- A mixture of visual and auditory signals will be the most important means of communication.
 - Only auditory signals will be effective in this environment.
 - Pheromone and auditory signals will be most important.
 - Visual signals and pheromones will be the main forms of communication.
- _____ 36. Which of the following ideas best explains the relative evolutionary success of the two reproductive strategies below?
- producing many small young without nurturing
 - producing a few larger young that require care
- Both strategies are equally successful at producing at least one offspring to carry the parents' genes into the next generation.
 - Producing a few larger young is a poor strategy because they require a large parental investment that is lost if the offspring dies.
 - Producing many eggs or many small young without nurturing is better because the parent does not expend energy caring for them.
 - Producing a few larger young is a better strategy because abandoning offspring is morally wrong.
- _____ 37. In a colony of naked mole rats, what behavior is exhibited by the nonreproducing individuals who support the queen and her offspring?
- altruistic behavior
 - nurturing behavior
 - foraging behavior
 - agnostic behavior

Use the following information to answer questions 38-40.

Male African widowbirds have tails up to 50 centimeters long, which they use in displays to attract females. Females are more likely to mate with birds that have longer tails. The measure of the relative success of a male is the number of nests in his territory. In a well-known experiment, tail feathers were cut off some birds and glued to the tails of other birds to create shorter or longer tails than normal, as shown in the diagram.



- _____ 38. Predict what would happen to the number of nests in the territory of male widowbird B a few weeks after the alterations in the tail length.
- a. The number of nests would be unchanged because tail length is unimportant to reproductive success.
 - b. The number of nests will be increased now that bird B is unencumbered by the long tail.
 - c. The number of nests will be decreased because fewer females will find bird B attractive.
 - d. The number of nests will be decreased because fewer males now find bird B intimidating.
- _____ 39. Which of the following behaviors will be the primary result of the advantage of longer tails?
- a. female choice
 - b. male competition
 - c. female competition
 - d. male aggression

- _____ 40. Given the narrative on widowbirds, predict what will happen to the mating success of male widowbird C after his alteration of tail length?
- a. increased
 - b. decreased
 - c. stayed the same
 - d. declined to zero

Matching

Match the terms given with their definitions.

- | |
|--|
| <ul style="list-style-type: none">a. featherb. cartilagec. cerebral cortexd. carapacee. neural crest |
|--|

- _____ 41. a group of cells that develops from the nerve cord in vertebrates
- _____ 42. the highly folded outer layer of the brain in mammals
- _____ 43. a specialized outgrowth of the skin in birds
- _____ 44. a tough, flexible material making up the skeletons or parts of skeletons of vertebrates
- _____ 45. the dorsal (top) part of a turtle's shell

Match the terms given with their definitions.

- | |
|--------------|
| a. ectotherm |
| b. endotherm |
| c. tetrapod |
| d. monotreme |
| e. therapsid |

- _____ 46. a four-footed animal with legs that have feet and toes that have joints
- _____ 47. an organism that generates its body heat internal by its own metabolism
- _____ 48. an animal that obtains its body heat from the external environment
- _____ 49. an extinct vertebrate with both mammalian and reptilian features
- _____ 50. a mammal that reproduces by laying eggs

Carefully check your answers on this evaluation and make any corrections you feel are necessary. When you are satisfied that you have answered the questions to the best of your ability, transfer your answers to an answer sheet. Please refer to the information sheet that came with your course materials.

