

Unit 3 Evaluation



Biology 2

(SCIH 026 061)

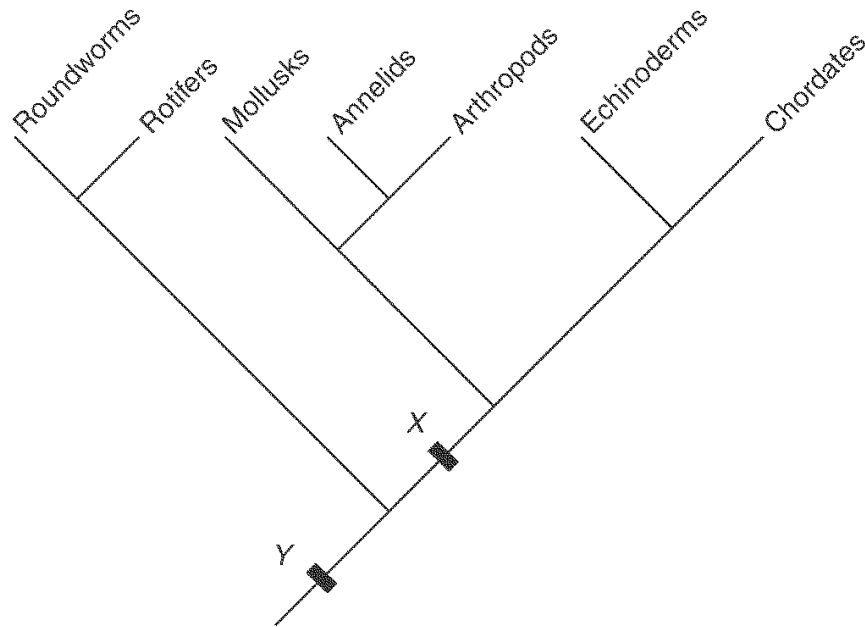
This evaluation will cover the lessons in this unit. It is open book, meaning you can use your textbook, syllabus, and other course materials. You will need to understand, analyze, and apply the information you have learned in order to answer the questions correctly. To submit the evaluation by mail, follow the directions on your Enrollment Information Sheet. To take the evaluation online, access the online version of your course; use the navigation panel to access the prep page for this evaluation and follow the directions provided.

Multiple Choice

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

- _____ 1. What is the name given to an organism with an endoskeleton and a backbone?
- a. invertebrate
 - b. vertebrate
 - c. mammal
 - d. echinoderm
- _____ 2. What is the order of cell layers in the gastrula starting from the inner layer?
- a. mesoderm, endoderm, ectoderm
 - b. endoderm, ectoderm, mesoderm
 - c. endoderm, mesoderm, ectoderm
 - d. mesoderm, ectoderm, endoderm
- _____ 3. If pollution in a pond was causing the ectoderm of frog embryos to grow improperly, what part of the tadpoles will not develop properly?
- a. digestive organs
 - b. nervous tissue
 - c. muscle tissue
 - d. circulatory system

Use the following diagram to answer questions 4 and 5.



- _____ 4. Based on the phylogeny shown in the diagram, what body plan innovation gave rise to the branch labeled X?
- segmentation
 - coelom
 - protostome development
 - bilateral symmetry
- _____ 5. What body plan innovation evolved after the point Y in the tree in the diagram?
- protostome development
 - pseudocoelom
 - coelom
 - segmentation
- _____ 6. What is an organism called that develops a body cavity between its mesoderm and endoderm?
- coelomate
 - deuterostome
 - pseudocoelomate
 - protostome

- _____ 7. Which statement about protostome development is accurate?
- a. Protostomes develop the mouth from the opening in the gastrula.
 - b. Protostomes develop the anus from the opening in the gastrula.
 - c. Protostomes develop the mouth from the opening in the blastula.
 - d. Protostomes develop the anus from the opening in the blastula.

Use the information from the following passage to answer questions 8 and 9.

Jellyfish Lake

There is a landlocked salt lake in the Pacific Republic of Palau. This lake is called Jellyfish Lake because it is filled with jellyfish. These jellyfish are similar in many respects to their marine ancestors in that they are able to sense light, and move and adjust their depth in the water through muscular contractions. Long ago, this lake was cut off from the ocean, and these jellyfish have evolved a symbiotic relationship with algae. Algae living within the jellyfish provide food for them through photosynthesis. The jellyfish provide a home for the algae. People can freely swim with these particular jellyfish without getting stung. Thousands of visitors each year come to swim with these amazing jellyfish.

- _____ 8. The jellyfish in the lake evolved to use a new food source. What structure is probably more developed in these jellyfish?
- a. gonads
 - b. nematocyst
 - c. tentacles
 - d. light-sensing cells
- _____ 9. Even though the jellyfish in the lake changed, in what way are they most likely still like other jellyfish?
- a. They are sessile.
 - b. They have radial symmetry.
 - c. They have no nervous system.
 - d. They are hermaphrodites.
- _____ 10. One season, an area of coral reef experienced several harsh storms. Many sponges in the reef were broken. Why would this not be very harmful to the sponges?
- a. The broken sponges formed into new adults by fragmentation.
 - b. The damaged sponges turned into gemmules that could grow again.
 - c. The damaged sponges could sexually reproduce with other sponges.
 - d. The broken sponges could turn into larvae and swim to a secure location.

- _____ 11. Cnidarians might have evolved from an ancestral form that does not have a medusa stage. What would be the modern representatives of that primitive form?
- a. anthozoa
 - b. scyphozoa
 - c. cubozoa
 - d. hydrozoa
- _____ 12. What is an example of a cnidarian mutualism?
- a. A cnidarian uses its light spot.
 - b. A cnidarian releases a nematocyst.
 - c. A cnidarian has algae living in its gastrovascular cavity.
 - d. A cnidarian has both the polyp and medusa stage.
- _____ 13. Which is true of both flatworms and roundworms?
- a. They are both acoelomates.
 - b. They are both pseudocoelomates.
 - c. They both have bilateral symmetry.
 - d. They both have radial symmetry.
- _____ 14. Which structures are only found in parasitic flatworms?
- a. ganglia
 - b. eyespot
 - c. pharynx
 - d. hooks and suckers
- _____ 15. Which organ allows flatworms to excrete waste materials from their bodies?
- a. ganglia
 - b. head
 - c. flame cell
 - d. hooks and suckers
- _____ 16. Which characteristic makes rotifers different from roundworms?
- a. They have bilateral symmetry.
 - b. They are pseudocoelomates.
 - c. They have rings of cilia around the mouth.
 - d. They live in freshwater habitats.

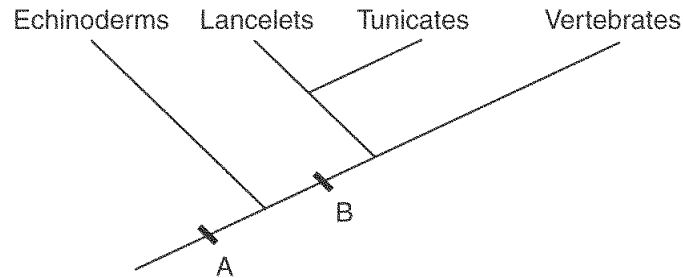
- _____ 17. Why are certain nemotodes useful in controlling animal pests?
- They are predators.
 - They are parasites.
 - They are herbivores.
 - They are competitors.
- _____ 18. How do nudibranchs protect themselves?
- They have a hard shell.
 - They use jellyfish nematocysts.
 - They adhere to rocks with byssal threads.
 - They eject an inky toxic substance.
- _____ 19. Which structure secretes the coating that produces a pearl in an oyster?
- mantle
 - foot
 - nephridium
 - shell
- _____ 20. Clams, oysters, and scallops are members of which class of mollusk?
- gastropods
 - bivalves
 - cephalopods
 - nemotodes
- _____ 21. Which of the following structures is essential to earthworm locomotion?
- setae
 - clitellum
 - crop
 - gizzard
- _____ 22. Which structure would differentiate an aquatic annelid from a terrestrial annelid?
- nephridia
 - setae
 - segmentation
 - gills
- _____ 23. In which group are the pedipalps modified for reproduction?
- male spiders
 - female spiders
 - scorpions
 - crustacea

- _____ 24. Which of the following is the correct order of the life cycle stages exhibited by an insect undergoing complete metamorphosis?
- a. egg → nymph → □ adult
 - b. egg → pupa → □ adult
 - c. egg → arva → □ pupa → □ adult
 - d. egg → larva → □ nymph → □ adult
- _____ 25. Which of the following structures is found in aquatic arthropods but not in terrestrial arthropods?
- a. antennae
 - b. chelicerae
 - c. gills
 - d. pedipalps
- _____ 26. Horseshoe crabs are an ancient group of arthropods. They have a heavy exoskeleton and no antennae. They use their chelicerae, pedipalps, and the next three pairs of legs for walking along the bottom of the sea floor. Their posterior legs are modified to leaflike plates and can be used for digging or swimming. After examining a horseshoe crab, a biology student says that they are probably most closely related to crustaceans. Is the student correct?
- a. Yes, like crustaceans they have a heavy exoskeleton.
 - b. No, they are more similar to insects because they are able to dig.
 - c. Yes, like crustaceans they have limbs modified for swimming and live in the sea.
 - d. No, they are more similar to arachnids because they have chelicerae and pedipalps.
- _____ 27. A scientist finds a new species of arthropod. The arthropod has two sets of wings. To which of the following groups does this arthropod most likely belong?
- a. arachnid
 - b. crustacean
 - c. insect
 - d. It belongs in a new group.
- _____ 28. A tarantula spider is about to attack its prey. Which of the following structures will it most likely use to kill its prey?
- a. book lungs
 - b. chelicerae
 - c. pedipalps
 - d. spinnerets

- _____ 29. How can a crustacean be differentiated from an arachnid?
- All crustaceans have antennae, while arachnids have chelicerae.
 - All crustaceans have two body areas, while arachnids have three.
 - All crustaceans have five pairs of appendages, while arachnids have four pairs.
 - All crustaceans have hard exoskeletons, while arachnids have soft exoskeletons.
- _____ 30. Tunicates are sac-like, sessile marine animals that live in shallow water. They are classified as chordates because they
- have a stiff outer covering.
 - have a notochord in their larval stage.
 - don't have tube feet.
 - have radial symmetry in their adult stage.
- _____ 31. Why do scientists think that echinoderms and chordates are closely related, even though they are structurally so different from one another?
- They are both marine animals.
 - They are both coelomates.
 - They are both deuterostomes.
 - They both have nervous systems.
- _____ 32. What are the defining characteristics of echinoderms?
- adult radial symmetry, water-vascular system, and endoskeletons with spines
 - adult bilateral symmetry, water-vascular system, and endoskeletons with spines
 - marine animals, adult bilateral symmetry, and tube feet
 - marine animals, larval radial symmetry, and tube feet
- _____ 33. The thyroid gland of vertebrates had its beginnings in what group of animals?
- echinoderms
 - deuterostomes
 - invertebrate chordates
 - protostomes
- _____ 34. Echinoderms use their tube feet to creep, burrow, grasp, pull and
- digest.
 - fight.
 - sense.
 - exchange gases.

- _____ 35. The way different classes of echinoderms move depends on which factor?
- the structure of their endoskeletons
 - the placement of their tube feet
 - the action of their water-vascular systems
 - the terrain of the ocean floor
- _____ 36. Invertebrate chordates have all the characteristics of chordates except for which important difference?
- They are deuterostomes.
 - They do not have brains.
 - They do not have vertebrae.
 - They do not have thyroid glands.

Use the following diagram to answer questions 37 and 38.



- _____ 37. What new characteristic evolved at the point in the tree indicated by A in the diagram?
- coelom
 - deuterostome development
 - dorsal nerve cord
 - pharyngeal pouches
- _____ 38. What new characteristic evolved at the point in the tree indicated by B in the diagram?
- vertebrae
 - coelom
 - amniotic egg
 - notochord
- _____ 39. Which of the lists describes the function the water-vascular system plays in echinoderms?
- locomotion, reproduction, circulation, respiration
 - digestion, sensing, locomotion, reproduction
 - digestion, locomotion, circulation, excretion
 - locomotion, excretion, circulation, respiration

- _____ 40. Choose the chordate feature that both adult lancelets and adult tunicates share.
- pharyngeal gill slits
 - branching neurons
 - skin one cell layer thick
 - internal fertilization
- _____ 41. How have the body structures of sea lilies and feather stars adapted to a sessile lifestyle?
- They wait until small fish swim by, then grab them with their tube feet.
 - Their arms and tube feet stretch out to catch floating organic material.
 - They have modified arms making them look more like plants.
 - Their arms and tube feet radiate out from a five-sided base.
- _____ 42. While walking along the beach, you see a small, colorless, fish-like animal partly buried in the sand. How can you tell that it is an invertebrate chordate?
- It would have pharyngeal gill slits, a postanal tail, and a hard, five-sided mouth.
 - It would have pharyngeal gill slits, a muscular tail, and tentacles with tube feet.
 - It would have pharyngeal gill slits, no well defined head, and tentacles in the mouth area.
 - It would have pharyngeal gill slits, a well defined head, and tentacles in the mouth area.
- _____ 43. Which characteristic is not associated with the phylum Chordata?
- a coelom
 - segmentation
 - a notochord
 - an exoskeleton
- _____ 44. In some echinoderms, which body structures do the respiratory, circulatory, and excretory systems depend on to maintain homeostasis?
- pharyngeal gill slits
 - tube feet
 - endoskeleton
 - notochord
- _____ 45. Water enters the water-vascular system of an echinoderm through which structure?
- stone canal
 - ampulla
 - madreporite
 - ring canal

- _____ 46. Echinoderms and invertebrate chordates are considered related; what fundamental character has been lost in adult echinoderms?
- deuterostome development
 - vertebrae
 - coelom
 - bilateral symmetry
- _____ 47. The notochord of the invertebrate chordate is a flexible rod running the length of the body. It gives the muscles something to attach to, and its flexibility made possible which new body motion?
- an up-and-down undulating motion
 - a side-to-side fishlike motion
 - a curving snakelike motion
 - a quick, random swimming motion
- _____ 48. All echinoderms have both bilateral and five-part radial symmetry. How is that possible?
- Their symmetry is different if you look at them in different planes.
 - Some larvae become bilaterally symmetrical and some radially symmetrical adults.
 - Different classes of echinoderms exhibit different types of symmetry.
 - They are bilaterally symmetrical as larvae, and radially symmetrical as adults.
- _____ 49. Which of the following echinoderm classes contains predators?
- Asterozoa
 - Holothurozoa
 - Ophiurozoa
 - Crinozoa
- _____ 50. Which of the following adaptations do adult lancelets and tunicates share?
- hermaphroditism to assist reproduction
 - gill slits used for filter feeding
 - a notochord to assist with locomotion
 - a postanal tail for locomotion

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.