Invertebrates

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Biology 2201

Unit 2 Review (invertebrates and vertebrates)

Instructions: Complete the following questions for review

1. Why is it not sufficient to classify animals simply as multicellular heterotrophs?
   - They are highly evolved, needing classification based on symmetry, body cavity.

2. A student submits a diagram of an embryo with three germ layers labeled. The title reads "Diagram of a Sponge Embryo." Do you mark it right or wrong? Explain.
   - Wrong. Sponge embryos have two germ layers.

3. As animals become more complex, why was the development of a coelom important?
   - An internal cavity helps protect organs and expand. Digestive organs can exchange gases, and cephalization helps with sensory perception.

4. Why is bilateral symmetry an important development in the evolution of animals?
   - It helps with movement and protection.

5. How has the digestive system of a planarian been improved over the jellyfish? (chart)
   - Planarians have a complete, two-way opening, while jellyfish have a simple mouth.

6. It might seem weird at first, but why are sponges classified as part of the animal kingdom?
   - They lack true tissues and cells, making them unique among animals.

7. Why is it helpful for an organism to be able to reproduce both asexually and sexually?
   - It provides genetic diversity, allowing species to adapt to changing environments.

8. What are the advantages and disadvantages of an exoskeleton? (chart)

9. Why are bilateral symmetry, muscle segmentation, and the presence of a coelom NOT sufficient to classify an organism as a chordate?
   - These traits do not define chordates.

10. Why are amphibians considered to be transitional between fishes and terrestrial vertebrates?
    - They have both aquatic and terrestrial periods in their life cycle, allowing them to adapt to different environments.

11. What features of a frog restrict them to living near the water? (chart)
    - For reproductive purposes; skin has to stay moist for gas exchange.

12. How is circulation through two loops (as in amphibians, birds and mammals) superior to circulation through just one loop (in fishes)?
    - Two loops means no mixing of oxygenated and deoxygenated blood, allowing for more efficient gas exchange.

13. What are the advantages of being an endotherm?
    - Warm-blooded, can maintain body temperature independently of their environment, homeostasis allows living in changing environments, have a wider range of habitats.