

Evolution of Digestive Systems Concept Questions

1. Use the terms photoautotroph, chemoautotroph, photoheterotroph, and chemoheterotroph to classify each of the following:
 - a) Your friend loves sitting in the sun eating delicious grapes.
 - b) An organism grows in sunlight and converts CO_2 into organic carbon.
 - c) Certain bacteria grow in sunny rice paddies, using organic molecules in the soil to build the molecules they need.
 - d) A bacterium living in a deep-sea vent where there is lots of hydrogen sulfide and uses CO_2 to make organic molecules.
2. It's reasonable to think of the three major groups of protists as being the ancestors of plants, fungi and animals. How does protist nutrition support this idea?
3. Explain why plant-like protists are so important in aquatic food chains.
4. Both humans and fungi are heterotrophs. Contrast the way the two obtain food.
5. How is extracellular digestion advantageous to an animal?
6. A diver releases a small amount of dye into the water next to a sea sponge. After a few seconds, the dye is seen escaping from the top of the animal. Explain this observation.
7. How has the digestive system of planaria been improved over that of the jellyfish?
8. How have the digestive systems of the roundworm and segmented worm been improved compared to that of flatworms?
9. How is a gastrovascular cavity different from an alimentary canal?
10. We learned that cephalopods have a closed circulatory system. Considering their feeding strategy, why is that important?
11. Your friend also took Biology 11 and said that one reason insects have been so successful is their variety of feeding strategies. Would you agree or disagree?
12. Mammals usually eat several times a day while reptiles are often able to go long periods without eating. Provide an explanation for this difference.
13.
 - a) What are the advantages of being an endotherm?
 - b) What is the cost?
14. There is an old expression that says someone with a small appetite "eats like a bird." Why is this expression inaccurate?