

Name: _____ Date: _____

Answer Key: Pizza Party Phylogeny: A 6th Grade Classification Challenge

Can you spot the difference between a mushroom topping and a mozzarella producer? Analyze cellular traits to organize Earth's organisms in this advanced formative assessment.

1. Imagine you discover a multicellular organism in a hydrothermal vent that lacks a cell wall and consumes other organisms for energy. In which Kingdom would this most likely be placed?

Answer: B) Animalia

Kingdom Animalia is characterized by multicellular eukaryotes that are heterotrophic (consume others) and lack cell walls, unlike Fungi and Plants which have walls.

2. Organisms classified within the same Order must also belong to the same Class.

Answer: A) True

In the taxonomic hierarchy, Order is nested within Class. Therefore, any organisms sharing an Order must share all levels above it, including Class, Phylum, and Kingdom.

3. A scientist finds a single-celled organism with a nucleus that uses a whip-like tail to move. This organism belongs in Kingdom _____.

Answer: C) Protista

Kingdom Protista acts as a diverse group for eukaryotes (cells with a nucleus) that are often unicellular and do not fit neatly into plants, animals, or fungi.

4. Two organisms are in the same Genus but different Species. Which statement best describes their relationship?

Answer: B) They share very recent common ancestry but cannot interbreed.

A Genus contains closely related species; however, by definition, different species are generally unable to interbreed to produce fertile offspring.

5. Binary fission is a reproductive strategy found only in Kingdom Plantae.

Answer: B) False

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Binary fission is a form of asexual reproduction primarily used by prokaryotes like Bacteria and Archaea, not multicellular plants.

6. The primary chemical difference between the cell walls of Fungi and the cell walls of Plants is that Fungi use _____.

Answer: C) Chitin

Fungi have cell walls made of chitin (the same material in insect exoskeletons), whereas plants use cellulose.

7. Which taxonomic level provides the most specific information about an organism's evolutionary adaptations to its local environment?

Answer: D) Species

Species is the most specific level of classification, identifying a unique group of organisms that can interbreed and share specific traits.

8. Archaea are more closely related to Eukarya than they are to Bacteria at the molecular level.

Answer: A) True

Despite being prokaryotes, Archaea share certain genetic pathways and protein synthesis processes with Eukaryotes that Bacteria do not.

9. Organisms that must consume other organisms for energy are called _____.

Answer: B) Heterotrophs

Heterotrophs obtain energy by consuming organic substances, unlike autotrophs which produce their own food via photosynthesis or chemosynthesis.

10. If you are sorting organisms by their method of nutrient absorption, which Kingdom would consist entirely of decomposers that digest food outside their bodies?

Answer: C) Fungi

Fungi are saprotrophs; they secrete enzymes to break down organic matter externally and then absorb the nutrients.