

Name: _____ Date: _____

Answer Key: Taxonomy Trek 8th Grade Species Survival Quiz

How do biological clues link a tardigrade to a tiger? Synthesize cladistic data and biochemical evidence to map evolutionary lineages.

1. Which of the following biochemical characteristics would most likely distinguish a member of the Kingdom Fungi from a member of the Kingdom Plantae in a laboratory analysis?

Answer: B) The detection of chitin rather than cellulose in the cell wall

While both are eukaryotes, Fungi possess cell walls made of chitin, whereas plants use cellulose. This is a primary chemical differentiator used in modern classification.

2. In the system of binomial nomenclature, the first word of an organism's scientific name (such as *Ursus* in *Ursus maritimus*) represents the ____.

Answer: D) Genus

Scientific names consist of the Genus (capitalized) followed by the specific epithet (species), allowing scientists worldwide to communicate about the same organism.

3. Organisms classified within the Domain Archaea are considered more closely related to Eukarya than to Bacteria based on their ribosomal RNA sequences.

Answer: A) True

Despite being prokaryotic like bacteria, Archaea share more complex molecular similarities with eukaryotes, particularly in how they process genetic information.

4. When constructing a cladogram, which evidence provides the most accurate assessment of the evolutionary distance between two morphologically similar species?

Answer: C) DNA sequencing and mitochondrial protein analysis

Molecular evidence (DNA/RNA) is the gold standard for modern taxonomy because physical traits can result from convergent evolution rather than shared ancestry.

5. The Kingdom Protista is currently viewed by many taxonomists as a 'trash can' taxon because its members often share more similarities with plants, animals, or fungi than with each other.

Answer: A) True

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Protista is considered polyphyletic, meaning it lacks a single common ancestor for all its members, leading modern scientists to reclassify them into new supergroups.

6. The specialized cells of sponges (Kingdom Animalia) perform different functions, yet sponges lack true ____, which distinguishes them from more complex animals like Cnidarians.

Answer: B) Tissues

Sponges (Porifera) are at the cellular level of organization; they do not have true tissues or organs, which is a key criterion in animal classification.

7. A newly discovered organism is multicellular, autotrophic, and has cells containing membrane-bound organelles. To which Kingdom does it most likely belong?

Answer: C) Plantae

Multicellular eukaryotes that produce their own food (autotrophic) via photosynthesis are categorized under Kingdom Plantae.

8. In the taxonomic hierarchy, which level contains the largest number of different species, representing the broadest group listed below?

Answer: C) Phylum

The hierarchy moves from broad to specific: Domain > Kingdom > Phylum. Therefore, Phylum is the broadest and most inclusive level among the choices.

9. Lichen is classified as a single organism within the Kingdom Plantae because it is green and performs photosynthesis.

Answer: B) False

Lichen is not a single organism; it is a symbiotic relationship between a fungus and an alga (Protista) or cyanobacteria (Bacteria), showing the complexity of classification.

10. If two organisms belong to the same 'Order,' which other taxonomic levels must they also share?

Answer: B) Kingdom and Class

Organisms that share a specific level in the hierarchy must also share all the broader levels above it (Domain, Kingdom, Phylum, Class).