

Answers to Classification Review for Quiz

1. The taxon “domain” was later added above kingdom.
2. Unicellular prokaryotes with cell walls containing peptidoglycan belong to the domain Bacteria, and the kingdom Eubacteria.
3. Seven taxonomic categories as described by Linnaeus are: species, genus, family, order, class, phylum, and kingdom.
4. Biologists assign each organism a universally accepted name to avoid confusion and to ensure that people in different locations are using the same terminology to refer to the same organism.
5. Bacteria are unicellular prokaryotes with cell walls containing peptidoglycan.
6. Members of the kingdom Animalia are heterotrophs without cell walls, while members of the kingdom Plantae are autotrophs with cell walls containing cellulose.
7. Organism A: Plantae
Organism B: Archaeobacteria
Organism C: Protista
8. It would be placed in the kingdom Protista because it has a nucleus and does not meet the criteria for any of the other three eukaryotic kingdoms (i.e. it is not multicellular, and it does not appear to have cellulose in its cell walls; therefore, it cannot be classified as a member of the Plantae kingdom).
9. The former kingdom Monera was divided into two separate kingdoms, Eubacteria and Archaeobacteria, because of the discovery of major differences in the structure of their cell walls (i.e. containing peptidoglycan or not).
10. Kingdoms containing only heterotrophic organisms include Animalia and Fungi.
11. Kingdoms containing both autotrophs and heterotrophs include Eubacteria, Archaeobacteria, and Protista.
12. The meadow rose (*Rosa blanda*) and the moss rose (*Rosa centifolia*) are expected to be the most similar because they belong to the same genus, *Rosa*.
13. Fungi are classified as heterotrophs, rather than autotrophs, because they must absorb nutrients from other living things and do not make their own food through photosynthesis.
14. To be considered members of the same species, organisms must be physically similar and produce fertile offspring under natural conditions.
15. a) Cats and Bobcats belong to the same family, *Felidae*, while the ferret belongs to the family *Mustelidae*, indicating it is less closely related.
b) Blue whales and ferrets separate at the level “order.”
c) *Felis domesticus* (domestic cat) and *Felis rufus* (bobcat) are the most closely related of the species listed in the table.
d) *Balaenoptora borealis* is a type of whale because it belongs to the same genus as the blue whale, *Balaenoptora physalus*.