

What is Taxonomy?

Worksheet

Taxonomy is the science of naming, describing and classifying organisms into a hierarchy of ranks - domain, kingdom, phylum, class, order, family, genus and species - based on shared characteristics and evolutionary relationships.

Questions

1. Which taxonomic rank is the broadest?

- A) Species
- B) Kingdom
- C) Domain
- D) Genus

2. What is the correct order of ranks from broadest to narrowest?

- A) Species, Genus, Family, Order, Class, Phylum, Kingdom, Domain
- B) Domain, Kingdom, Phylum, Class, Order, Family, Genus, Species
- C) Kingdom, Domain, Class, Phylum, Order, Genus, Family, Species
- D) Domain, Phylum, Kingdom, Order, Class, Genus, Family, Species

3. How is a species scientifically named?

- A) By a single common name
- B) With binomial nomenclature: Genus species
- C) With just the family name
- D) By its habitat

4. Two organisms share the same Family but different Genus. What does this mean?

- A) They are the same species
- B) They are unrelated
- C) They are related but diverged earlier than organisms sharing a Genus
- D) They cannot be classified

5. Classify a human (*Homo sapiens*) through all 8 taxonomic ranks.

6. Classify a domestic dog (*Canis lupus familiaris*) and compare it to a gray wolf (*Canis lupus*).

7. A lion (*Panthera leo*) and a house cat (*Felis catus*) share the same Family. Which rank do they diverge at, and what does that tell us?

8. Define: What is taxonomy?

9. Define: What are the 8 major taxonomic ranks (broadest to narrowest)?

10. Define: How is a scientific name written?

Answer Key

1. C) Domain - Domain is the highest, broadest rank, above Kingdom.
2. B) Domain, Kingdom, Phylum, Class, Order, Family, Genus, Species - The classic mnemonic order is Domain, Kingdom, Phylum, Class, Order, Family, Genus, Species.
3. B) With binomial nomenclature: Genus species - Carl Linnaeus's binomial system uses italicized Genus + species, e.g., *Panthera leo*.
4. C) They are related but diverged earlier than organisms sharing a Genus - Sharing a higher rank like Family but differing at Genus means a more distant evolutionary relationship than species sharing the same Genus.
5. Domain: Eukarya Kingdom: Animalia Phylum: Chordata Class: Mammalia Order: Primates Family: Hominidae Genus: *Homo* Species: *sapiens*
6. Both share Domain Eukarya, Kingdom Animalia, Phylum Chordata, Class Mammalia, Order Carnivora, Family Canidae, and Genus *Canis* They share the same species, *Canis lupus*, differing only at the subspecies level (*familiaris* vs *lupus*) This shows how closely related they are
7. Both share Family Felidae (cats) They diverge at Genus: lion is *Panthera*, house cat is *Felis* Sharing a family but different genus means they're related but not closely enough to interbreed
8. The science of naming, describing, and classifying organisms based on shared characteristics and evolutionary relationships.
9. Domain, Kingdom, Phylum, Class, Order, Family, Genus, Species.
10. Using binomial nomenclature: Genus species, italicized, e.g., *Homo sapiens*.

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