

Life's Sorting System

Read how shared characteristics organize organisms into Domains and ranks.

SC.6.L.15.1 "Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of Domains."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the eight rank names in the gray wolf classification, then number them 1 through 8 from broadest to narrowest to show how classification becomes more specific.

From Domains to Species

- ① Scientists classify organisms so that the huge variety of life can be organized and compared. A classification group, called a taxon, includes organisms that share characteristics. At broad levels, members may share only a few basic traits. At narrower levels, they share more traits and are more closely related. Classification helps scientists identify organisms, communicate clearly, and predict some features of an organism from the groups it belongs to. New evidence, including DNA evidence, can lead scientists to revise classifications.
- ② All organisms are first placed in one of three Domains: Bacteria, Archaea, or Eukarya. Bacteria and Archaea are made of cells without nuclei, but they differ in cell chemistry and genes. Eukarya includes organisms whose cells have nuclei, such as animals, plants, fungi, and protists. Within a Domain, the Linnaean system commonly uses seven ranks: Kingdom, Phylum, Class, Order, Family, Genus, and Species. Domain is broader than Kingdom, and Species is the narrowest rank in this system.
- ③ Consider the gray wolf. Its classification is Domain Eukarya, Kingdom Animalia, Phylum Chordata, Class Mammalia, Order Carnivora, Family Canidae, Genus *Canis*, and Species *Canis lupus*. A wolf shares a nucleus with all eukaryotes, a backbone with chordates, hair and milk production with mammals, and several traits with other canids, including dogs. The genus and species name identifies the wolf most specifically. This pattern shows why ranks move from broad shared characteristics to increasingly detailed similarities.

PART 1 • READ AND MARK

Underline the eight rank names in the gray wolf classification, then number them 1 through 8 from broadest to narrowest to show how classification becomes more specific. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	How do shared characteristics change as classification groups become narrower?	Organisms in narrower groups share more traits and are more closely related.
2	Give two reasons scientists classify organisms.	Classification helps scientists organize and identify organisms, communicate clearly, and predict some features from an organism's groups. Any two.
3	What evidence in the passage places the gray wolf in Domain Eukarya and Class Mammalia?	A wolf has a nucleus, which places it in Eukarya. It has hair and produces milk, which are mammal traits.
4	Why are Bacteria and Archaea placed in separate Domains even though both lack nuclei?	They differ in cell chemistry and genes.

PART 3 • YOUR TURN (SAMPLE ANSWER)

According to the Integrated Taxonomic Information System, the domestic cat is Domain Eukarya, Kingdom Animalia, Phylum Chordata, Class Mammalia, Order Carnivora, Family Felidae, Genus *Felis*, and Species *Felis catus*. A cat shares a backbone with chordates and hair and milk production with mammals. It shares retractable claws with many other felids.

Accept accurate classifications from a reliable reference, including a correctly ordered Domain plus the seven Linnaean ranks. For the Your Turn task, accept two accurate shared traits that clearly connect the chosen organism to two named groups.