

Life Sorting System

Read how scientists group organisms by shared traits and differences.

7.14.A “describe the taxonomic system that categorizes organisms based on similarities and differences shared among groups; and”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Circle each taxonomic rank in the sequence and number it 1 through 8 from broadest to narrowest. Then underline one sentence that explains how classifications show similarities and differences.

A System for Grouping Life

- ① Taxonomy is a system scientists use to organize living things. It places organisms into groups by comparing traits, such as cell type, body structures, how they obtain energy, and DNA evidence. Members of a group share important features, but they also differ from members of other groups. Classification helps scientists communicate about the huge variety of life. It also can show patterns of relatedness, because organisms that share a more recent common ancestor usually have more traits in common.
- ② Taxonomists use ranked levels to move from broad groups to narrow groups. The usual sequence is domain, kingdom, phylum, class, order, family, genus, and species. A red fox is classified as Eukarya, Animalia, Chordata, Mammalia, Carnivora, Canidae, Vulpes, and Vulpes vulpes. At the broad levels, it shares basic traits with many organisms. At the species level, the name identifies one very specific kind of fox. Each step greatly narrows the organisms included in the group.
- ③ Comparing classifications reveals both similarity and difference. The gray wolf and domestic dog belong to the genus Canis, while the red fox belongs to Vulpes. All three are in the family Canidae, so they share traits of canids. The wolf and dog are grouped more closely than either is with the fox because they share the same genus. Scientists may revise classifications when new evidence, especially DNA evidence, changes what they understand about evolutionary relationships among living organisms as research continues.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What kinds of evidence can scientists compare when they classify organisms? Name two kinds.

2 Write the eight taxonomic ranks in order from broadest to narrowest.

3 How does the red fox's classification change from the broad levels to the species level?

4 Why are the gray wolf and domestic dog grouped more closely than either is with the red fox?

3 YOUR TURN _____ Your own words

Invent three organisms and give each at least two traits. Complete the table to show one broad group containing all three, a narrower group containing two organisms that share an extra trait, and one species-level group for each organism.

GROUP LEVEL	ORGANISMS INCLUDED	SHARED TRAIT(S)

PART 1 • READ AND MARK

Circle each taxonomic rank in the sequence and number it 1 through 8 from broadest to narrowest. Then underline one sentence that explains how classifications show similarities and differences. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What kinds of evidence can scientists compare when they classify organisms? Name two kinds.	Scientists can compare cell type, body structures, how organisms obtain energy, and DNA evidence. Any two are correct.
2	Write the eight taxonomic ranks in order from broadest to narrowest.	Domain, kingdom, phylum, class, order, family, genus, species.
3	How does the red fox's classification change from the broad levels to the species level?	At broad levels, the red fox shares traits with many organisms. At the species level, it is identified as one very specific kind of fox.
4	Why are the gray wolf and domestic dog grouped more closely than either is with the red fox?	The gray wolf and domestic dog share the genus <i>Canis</i>. The red fox belongs to the genus <i>Vulpes</i>, although all three are in the family <i>Canidae</i>.

PART 3 • YOUR TURN (SAMPLE ANSWER)

GROUP LEVEL	ORGANISMS INCLUDED	SHARED TRAIT(S)
Broad group: Winged gliders	Silver night glider, Stripe night glider, Blue day glider	All have wings
Narrow group: Night gliders	Silver night glider, Stripe night glider	Have wings and are active at night
Species: Silver night glider	Silver night glider	Has wings, is active at night, and has silver spots
Species: Stripe night glider	Stripe night glider	Has wings, is active at night, and has black stripes
Species: Blue day glider	Blue day glider	Has wings, is active in daylight, and has blue feathers

Accept original organisms and trait-based groups if the broad group includes all three and the narrower group is supported by an additional shared trait. Species-level rows should identify one specific organism and include distinguishing traits.