

Quiz: Introduction to Plant Taxonomy

Matching: Match each of the following with the following terms

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|-------------------|-----------------|-------------------|
| a. description | c. systematics | e. taxonomy |
| b. classification | d. nomenclature | f. identification |

1. _____ providing proper name of a plant
2. _____ assigning features to a taxon
3. _____ uses characters and character states to describe a taxon
4. _____ determining that an unknown object is identical to an already know object
5. _____ using a dichotomous key to match an organism to another
6. _____ study of plant classification
7. _____ study of the diversity and history of organisms and their evolutionary relationships

Short Answer:

1. Compare and contrast taxonomy and systematics.
2. Conceptually, a "plant" can be defined in two ways. What are they?
3. List at least four characteristics of a plant.
4. What is a cladogram?
5. Define character and character state
6. Give one example of a character and character state
7. What is the plural of taxon?
8. What is the difference between taxon and rank?

9. What is phylogeny?

10. Name the three major domains. Briefly describe the characters that distinguish them. Give examples of each. Draw a cladogram representing the three domains.

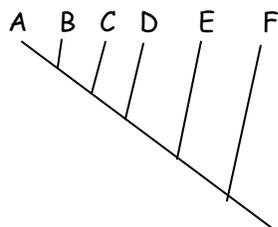
11. What is monophyletic? Why do taxonomists prefer monophyletic groups?

Cladogram:

1. Draw a cladogram below that meets the following criteria/requirements:

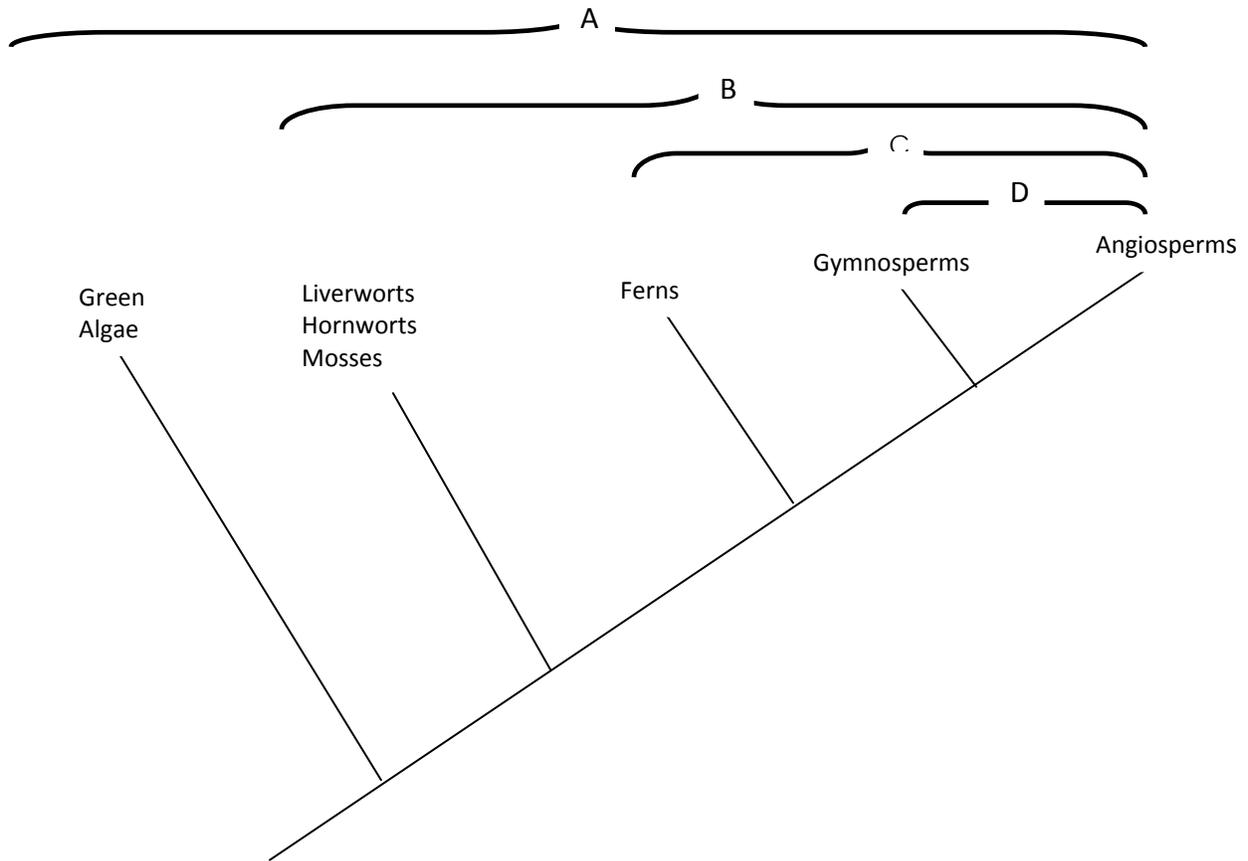
- has five taxa - A, B, C, D, E.
- Taxon A is the sister group to B
- Taxon C is the sister group to D
- Taxon E is the sister group to CD
- Taxon AB is the sister group to CDE
- Taxon AB is the most ancestral (primitive)
- Label the following: root, node, clade, speciation event
- Draw a circle around taxa to create a monophyletic group.
- Draw a circle around taxa to create a polyphyletic group, a paraphyletic group.

2. Given the following cladogram, indicate if the following groups are monophyletic?



1. AB: yes no
2. AC: yes no
3. ABC: yes no
4. DEF: yes no
5. BCD: yes no
6. CDE: yes no
7. ABCD: yes no
8. ACDF: yes no
9. ABCDE: yes no
10. ABCDEF: yes no

Plant Phylogeny Question:



The diagram above represents a simplified cladogram. Use this diagram to answer the following questions:

- Which group represents the Tracheophytes? A, B, C or D
- Which group represents the Embryophytes? A, B, C, or D
- Which group represents the Spermatophytes? A, B, C, or D
- Which group represents the Chlorobionta? A, B, C, or D
- Does this cladogram represent the traditional or phylogenetic definition of plants?
- These organisms would be studied by:
 - a botanist
 - a plant scientist
 - both
 - neither
- On the cladogram, insert the following apomorphies:

<ul style="list-style-type: none"> • cuticle • flower • chlorophyll a & b • chloroplasts • seeds • independent sporophyte 	<ul style="list-style-type: none"> • vessels • xylem/phloem • embryo • archegonia/antheridia • wood-secondary xylem
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