AP Biology Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Evolution I Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per: \_\_\_\_\_\_\_

**Analyzing Phylogenetic Trees**



1. True or False: Pterosaurs are dinosaurs. \_\_\_\_\_\_\_\_
2. True or False: Birds are dinosaurs. \_\_\_\_\_\_\_
3. Who is the most closely related group to Hadrosaurs? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What are some traits that birds and dromaeosaurids (e.g. velociraptors) share? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Would the tree change if the the position of Stegosaurs and Ankylosaurs were switched? Why or why not?
6. Would the tree change if the positions of Stegosaurs and Pachycephalosaurs were switched? Why or why not?
7. To which group are the modern elephants more closely related (share a more recent common ancestor): the mastodon or the mammoth?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Estimate when the most recent common ancestor of the two modern elephants lived (or, estimate when the two modern elephants diverged).

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. According to this tree, to whom is the Asian elephant more closely related: the African elephant or mammoth?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Propose an explanation for why groups like Anancus, the mammoth, and the mastodon might have gone extinct.

**Reading this tree of plants, pick the groups that have the following traits:**

1. Shoot branching: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Fronds as lateral organs:
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Leaves as lateral organs:
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Reproduce via seeds:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Flowers: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Trilobite Species**

**For trilobites…**

1. Which two species are most closely related?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Which name on the tree would likely be considered the outgroup? Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**For animals**…

1. Name the ancestral trait. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Which pair is more closely related?:
	1. Roundworms and earthworms (annelids)
	2. Mollusks and earthworms (annelids)
3. According to this tree, have legs evolved multiple times? \_\_\_\_\_\_\_\_\_ When? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Explain why echinoderms and chordates are more closely related than echinoderms and mollusks.

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*Created by Ms. Maerna Kauffman*