

Name \_\_\_\_\_

## ROCK DETECTIVES

***For the following questions use the “Copycat Pages” attached the packet and the envelopes with clues.***

1. Which of the following habitats was layer 1 a part of when it was laid down?

- a. forest      b. freshwater marsh      c. desert
- d. seashore    e. saltwater pond

2. The scallop-like fossil in layers 2-5 is found in sediment all over the world. It's abundant everywhere it is found, but it always suddenly “drops out of the picture” after a certain point. What might have happened to the animal this fossil represents?



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3. True or false: The rock layers 6, 8, and 10 formed when sediment that had settle in the mouth of river (or some other body of water) gradually was buried, pressed together, and cemented into rock. Explain your answer.

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4. In which layer would you expect to find the most coal? Explain your answer. \_\_\_\_\_

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5. The igneous rock that makes up layer 8 contains the radioisotope called “fakium.” If 50% of fakium layer has changed to hokium, how old is the layer? \_\_\_\_\_

6. What might be one reason that the sea plant in layers 2-5 gradually evolved spines?

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7. Look at layer 4 and compare the number of clockwise fossil snail shells to the number of counterclockwise fossil snail shells. Based on your observations, what can you say about the climate of the area when layer 4 was laid down? \_\_\_\_\_

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8. True or False: Layers 6, 8, and 10 were probably located near a volcano or some other area where magma was rising. Explain your answer. \_\_\_\_\_

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9. Look at the tracks in layer 9. If you were told that the tracks showed that the larger animal captured and ate the smaller one, would you believe it? Explain your answer. \_\_\_\_\_

10. Based on the fact that the bone in layer 11 belonged to a dinosaur and that gamlonia trees were present at this time, which of the following statements is most accurate?

- a. Layer 11 was laid down just as dinosaurs were getting started.
- b. Layer 11 was laid down about the time dinosaurs were starting to die out.
- c. Layer 11 was laid down during the middle of the dinosaurs' reign as the most dominant animals on Earth.



Explain your answer \_\_\_\_\_

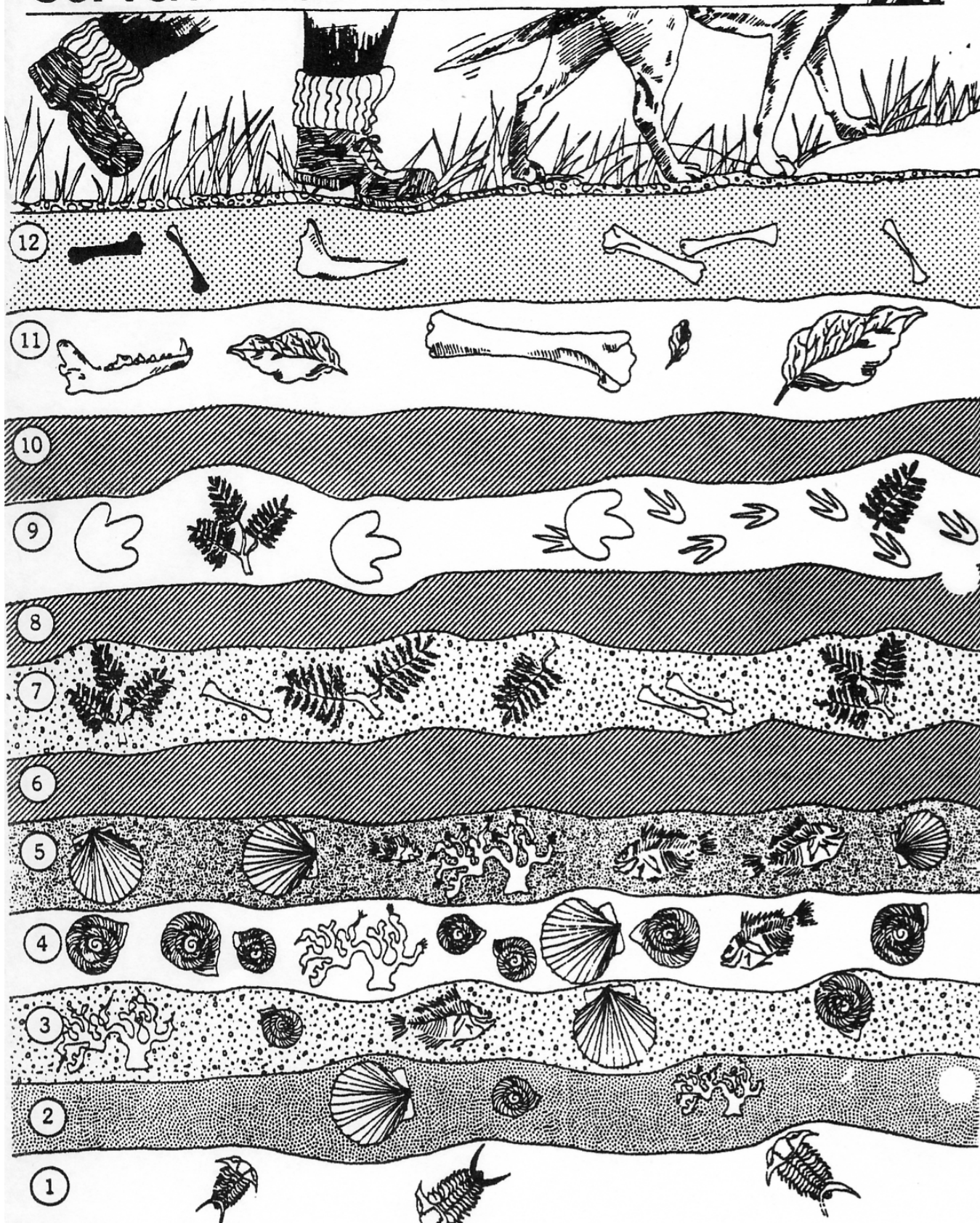
11. The fossil jawbone in layer 12 represents an animal whose remains are known from only one other location. This other location is thousands of miles away, on another continent. How would you explain how the fossils came to be located so far from each other? (HINT: Keep in mind that the world hasn't always looked as it does today.) \_\_\_\_\_

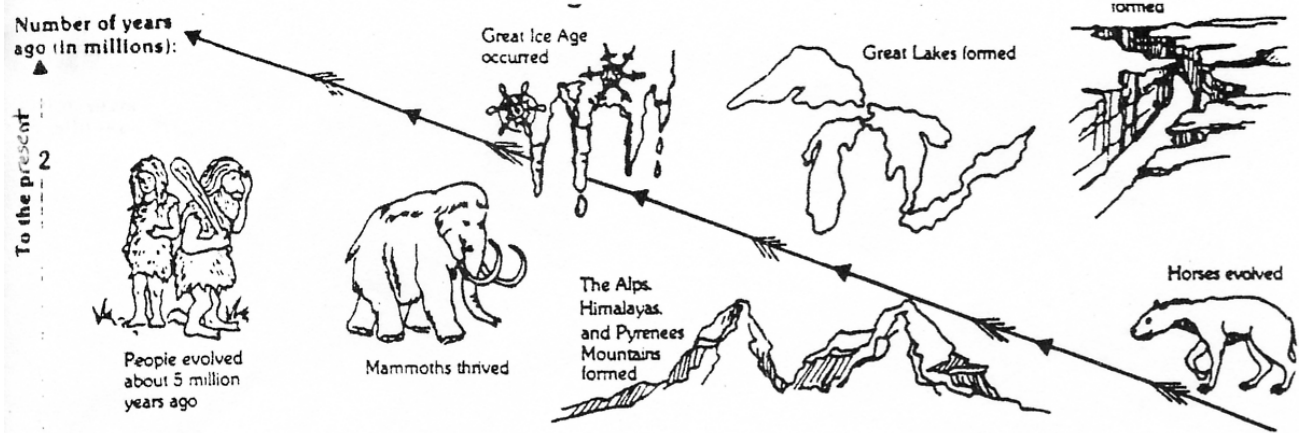
12. Do you think the animal whose fossil jaw is in layer 12 was a plant eater or meat eater? Explain. \_\_\_\_\_

13. When layer 7 was forming, was the area a desert, ocean, swamp, tundra, or prairie? Explain. \_\_\_\_\_

14. If the area in which all of the layers occur is now mountainous, would you say that the fossils in layer 12 probably formed before or after the mountains pushed up? Explain your answer. \_\_\_\_\_

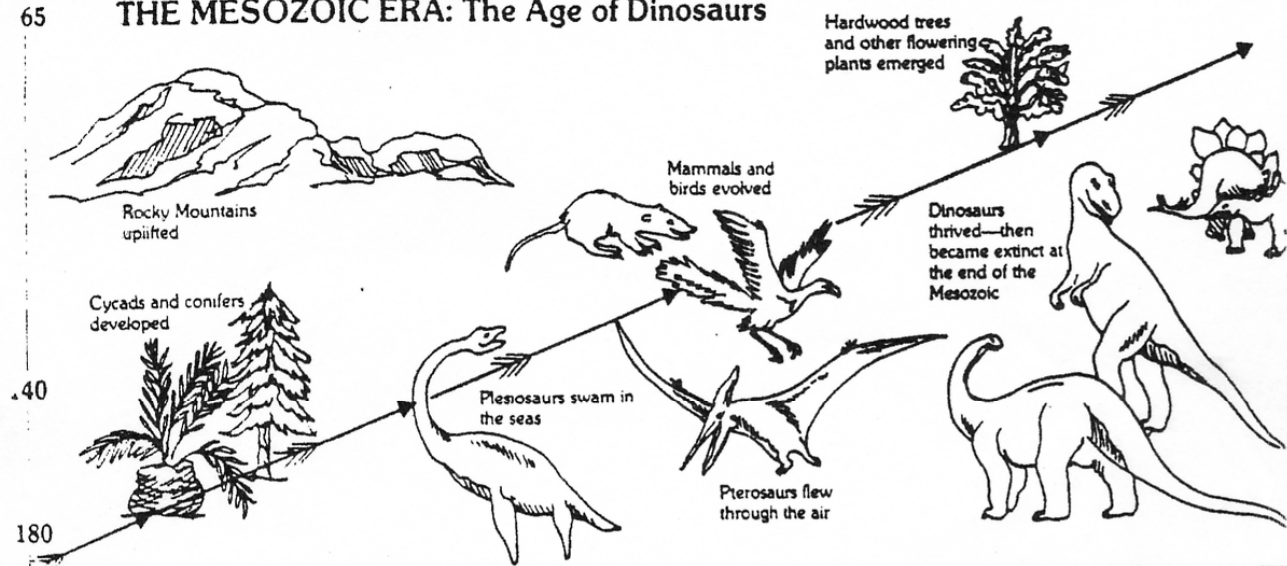




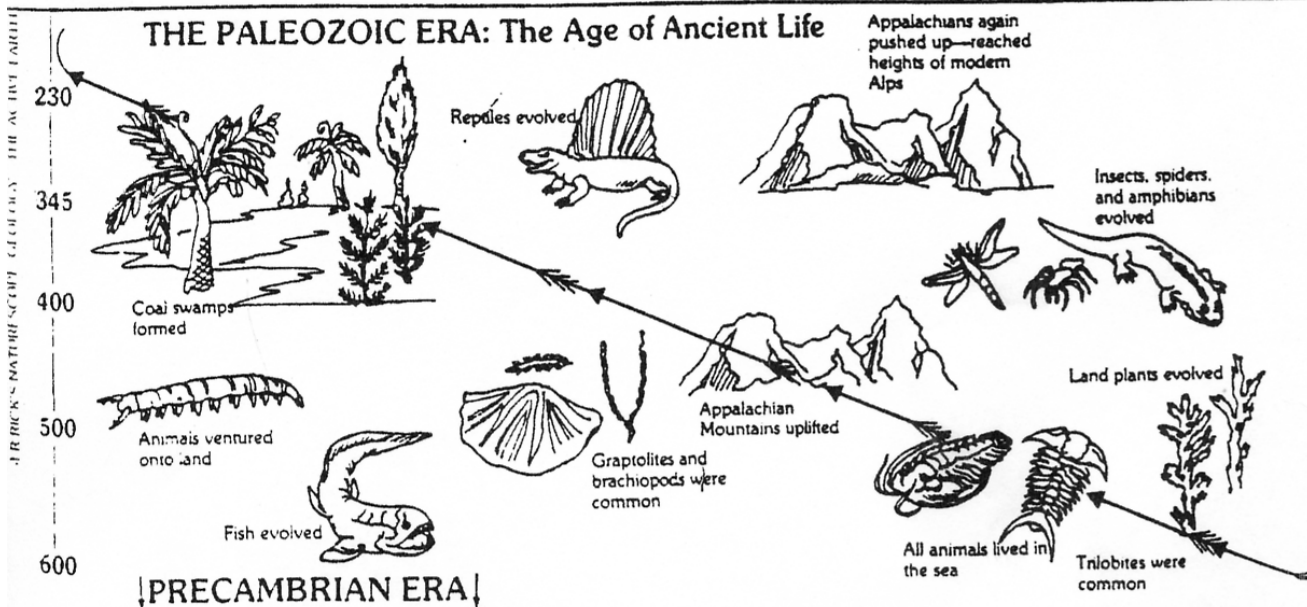


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## THE MESOZOIC ERA: The Age of Dinosaurs



## THE PALEOZOIC ERA: The Age of Ancient Life





**Teacher Directions for CLUES PAGE:** Cut out clues and give a group of clues (notice how they can be separated into 3 groups) to each team member.

# COPYCAT PAGE

## ROCK DETECTIVES—SHEET 3



1. Gamlonia trees, a type of flowering plant, developed near the end of the Mesozoic Era.
2. The largest dinosaurs—some of which may have weighed as much as 80 tons (72 t)—were vegetarians. The largest meat-eating dinosaurs weighed much less—up to 10 tons (9 t).
3. Fossils form best in areas where a lot of fine sediment builds up. For example, many fossils form in shallow ocean areas near the mouths of rivers. That's because a lot of sediment can wash into these areas.
4. "Fakium" is a radioisotope with a half life of 300 million years. It breaks down into "hokium."
5. Layers 6, 8, and 10 are made up of igneous rock.
6. Rock that forms when magma or lava cools and hardens usually doesn't contain fossils. Any animals or plants that are covered by this molten rock usually burn up from the high temperatures.
7. In the mountains, wind, rain, and other factors are constantly at work, eroding the landscape and keeping sediment from accumulating.
8. Many of the world's landmasses were once joined, but have since drifted apart as crustal plates have shifted. For example, about 200 million years ago, all the world's landmasses were joined into one giant landmass which we now call Pangaea. Since Pangaea split apart, landmasses have continued to move apart, join together, and move apart again.

9. Dinosaurs became extinct about 65 million years ago.



10. This plant grew in swamps near the end of the Paleozoic Era.



11. This footprint was made by an ostrich-sized, carnivorous dinosaur.

12.



By studying fossils of this animal, paleontologists have discovered some of the ways it was adapted to its habitat. For example, they think that the hundreds of tiny claws on the animal's undersides helped it cling to rocks and kept it from washing away in the powerful surf. And the animal's tough shell seemed to be especially thick—an adaptation, paleontologists think, that protected it from marine predators and kept too much salt from entering its body.

13.



This fossil jawbone belonged to a large, carnivorous animal.

14.



TOP VIEW  
(clockwise)



BOTTOM VIEW

These snails lived in most of the world's oceans over a period of hundreds of millions of years. Paleontologists have discovered that in warm, tropical waters, there were more snails with shells which, when viewed from the top, spiraled in a clockwise direction. But in cool or cold waters, there were more snails with shells that spiraled in a counter-clockwise direction when viewed from the top.

15.



Through the years, this sea plant gradually evolved spines. It grew in shallow seas.

16.



This scallop-like fossil is never found in sediment less than 450 million years old.

17.



This fossil jawbone belonged to a large animal.

18.



This footprint was made by a dinosaur that weighed about 80 tons (72 t).

19.



This fish was abundant in shallow seas. It grazed on marine vegetation.