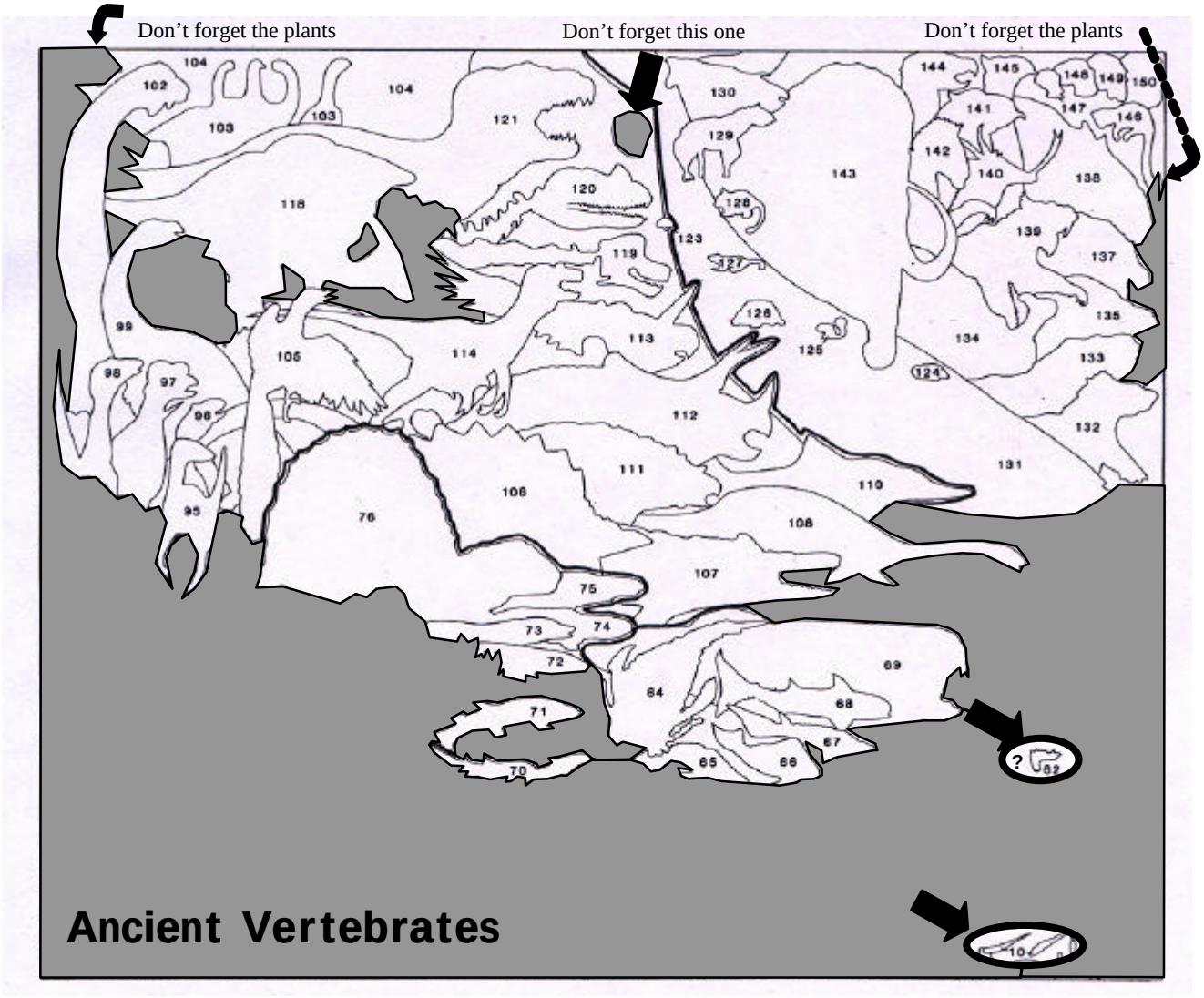
Keys for "Progression of Life" worksheets



Answers left unshaded so you can see their numbers and look up their names on the poster or in the booklet if you wish.The two animals labeled number 10 are lancelets, which look like fish. Actually, they are small eel-like animals that are ancestors of vertebrate animals, but not vertebrates themselves. Number 62 is a fossil conodont. It looks like a small jaw or tooth. These fossils may be part of another possible ancestor of vertebrates, although they are not vertebrates themselves.

Worksheet to be used with the "Progression of Life" poster (1988) or "Guide to 'Progression of Life' " booklet (1989), by Stephen F. Greb, Kentucky Geological Survey, University of Kentucky. For more information about these publications, fossils, ancient life, or other geological information visit the Kentucky Geological Survey Web site, www.uky.edu /KGS.

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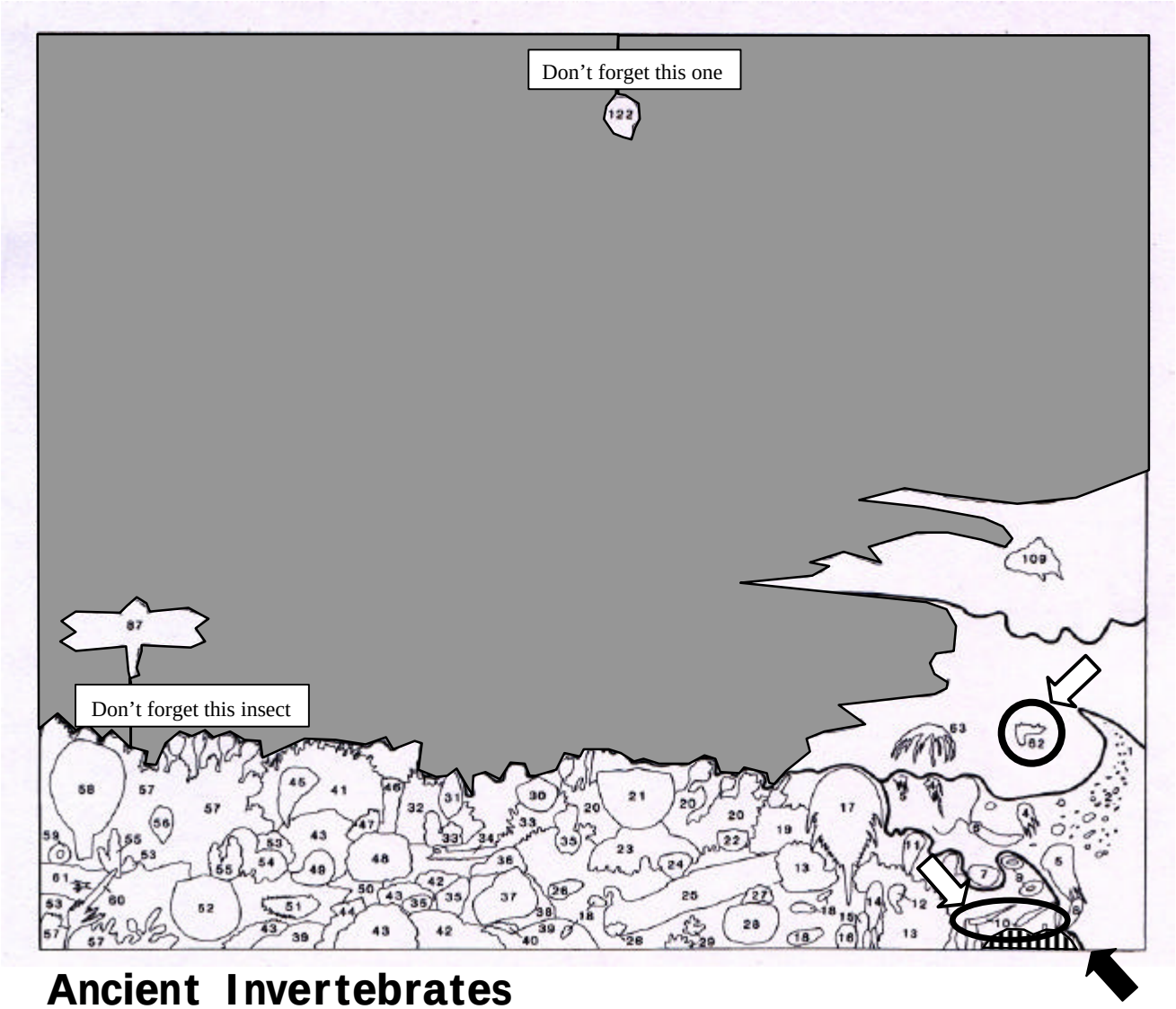

Ancient Invertebrates

Answers left unshaded so you can see their numbers and look up their names on the poster or in the booklet if you wish. Two images near the bottom right corner have white arrows next to them and are invertebrates, although they may look like vertebrates. They may represent the ancestors of vertebrates. Number 3 (vertical stripe shading and black arrow) is stromatolites, which are blue-green algae, a type of cyanobacteria, not an invertebrate animal. Stromatolites were mounds of algal-like bacteria. For younger students it is easiest to call them algae (although they aren't really plants) and explain that algae are plants and not invertebrates. Many other creatures on the lower third of the diagram, such as corals and crinoids, could be confused with plants, but are actually invertebrate animals.

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Keys for "Progression of Life" worksheets

Ancient Mammals

Answers left unshaded so you can see their numbers and look up their names on the poster or in the booklet if you wish. Most of the mammals on the poster are easy to recognize because they have hair and look similar to modern mammals. One that might be confusing is number 135, *Glyptodont*. This mammal had an armored back, but was not a giant turtle (therefore not a reptile). The oldest fossil evidence of mammals is from the early Mesozoic Era (the time of the dinosaurs), but mammals did not become large, diverse, or abundant until the Cenozoic Era.

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Keys for "Progression of Life" worksheets

Answers left unshaded so you can see their numbers and look up their names on the poster or in the booklet if you wish. There are several animals that might confuse you. Number 74 (arrow) is *Seymouria,* a transitional vertebrate between amphibians and reptiles. Although it has several reptilian characteristics, is classified as an amphibian. Number 76 is a mammal-like reptile, but still a reptile. Number 105 is *Archaeopteryx*, the oldest bird (black arrow). It had reptilian characteristics, but because it had feathers and wings it is classified as a bird. Numbers 107, 108, and 109 may look like fish, but they are marine reptiles that lived at the same time as the dinosaurs. All of the dinosaurs are reptiles. Number 135 in the upper right corner is an armored mammal, not a giant turtle.

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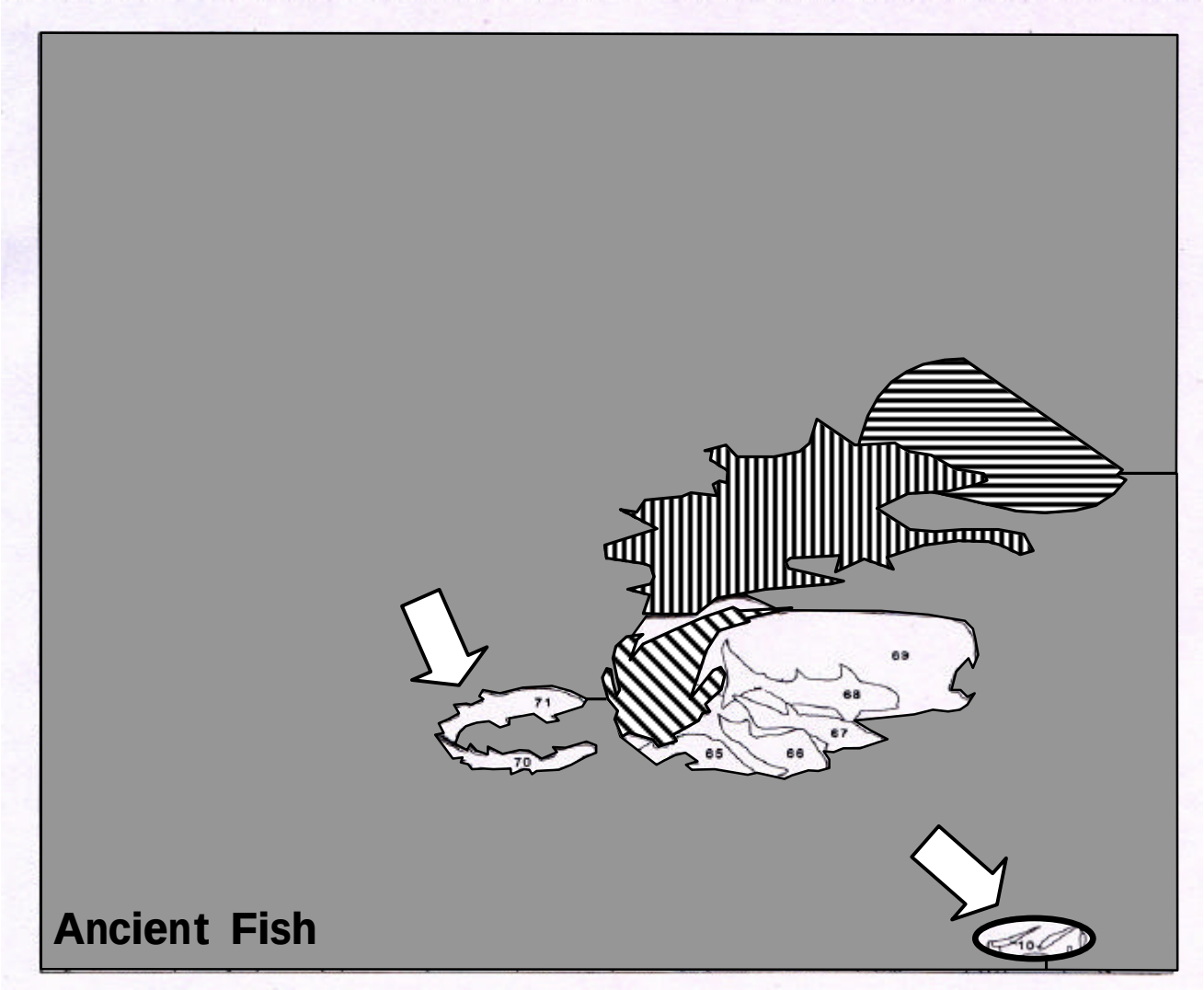

Answers left unshaded so you can see their numbers and look up their names on the poster or in the booklet if you wish. There are several animals on the poster that might confuse you. Number 10 is lancelets. They look like small eels but are not a type of fish. Number 64 (diagonal line shading) lived in the sea, but was a type of aquatic arthropod, not a fish. Number 71 (arrow) is shown walking on land, but is a fish. These types of lobe-finned lungfish still live today and can walk between ponds on their fins. Numbers 107, 108, and 109 (vertical line shading) may look like fish, but they are marine reptiles that lived at the same time as the dinosaurs. Number 131 (horizontal line shading) is a whale, which some children think are fish, although they are actually aquatic mammals.

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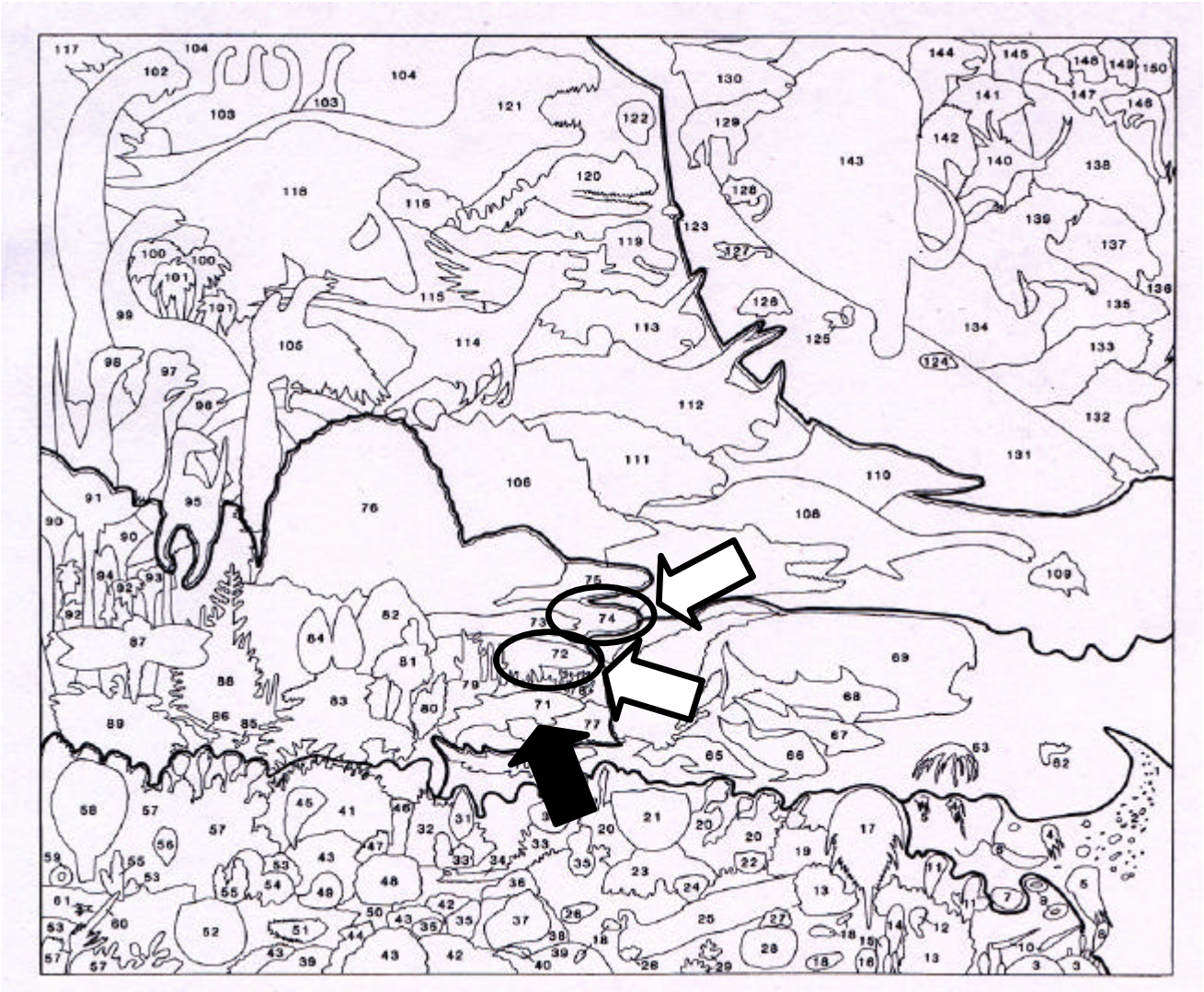

Ancient Amphibians

Because there are only two amphibians on the poster, the answers are circled here. The circled animals with white arrows are amphibians. Both are colored reddish on the poster. Number 72 is *Ichthyostega*, one of the oldest amphibians. Number74 is *Seymouria,* a transitional vertebrate between amphibians and reptiles. Although it had several reptilian characteristics, it is classified as an amphibian. Number 71 (black arrow), is a lobe-finned fish, not an amphibian. Lobe-finned fish were probably the ancestors of amphibians.

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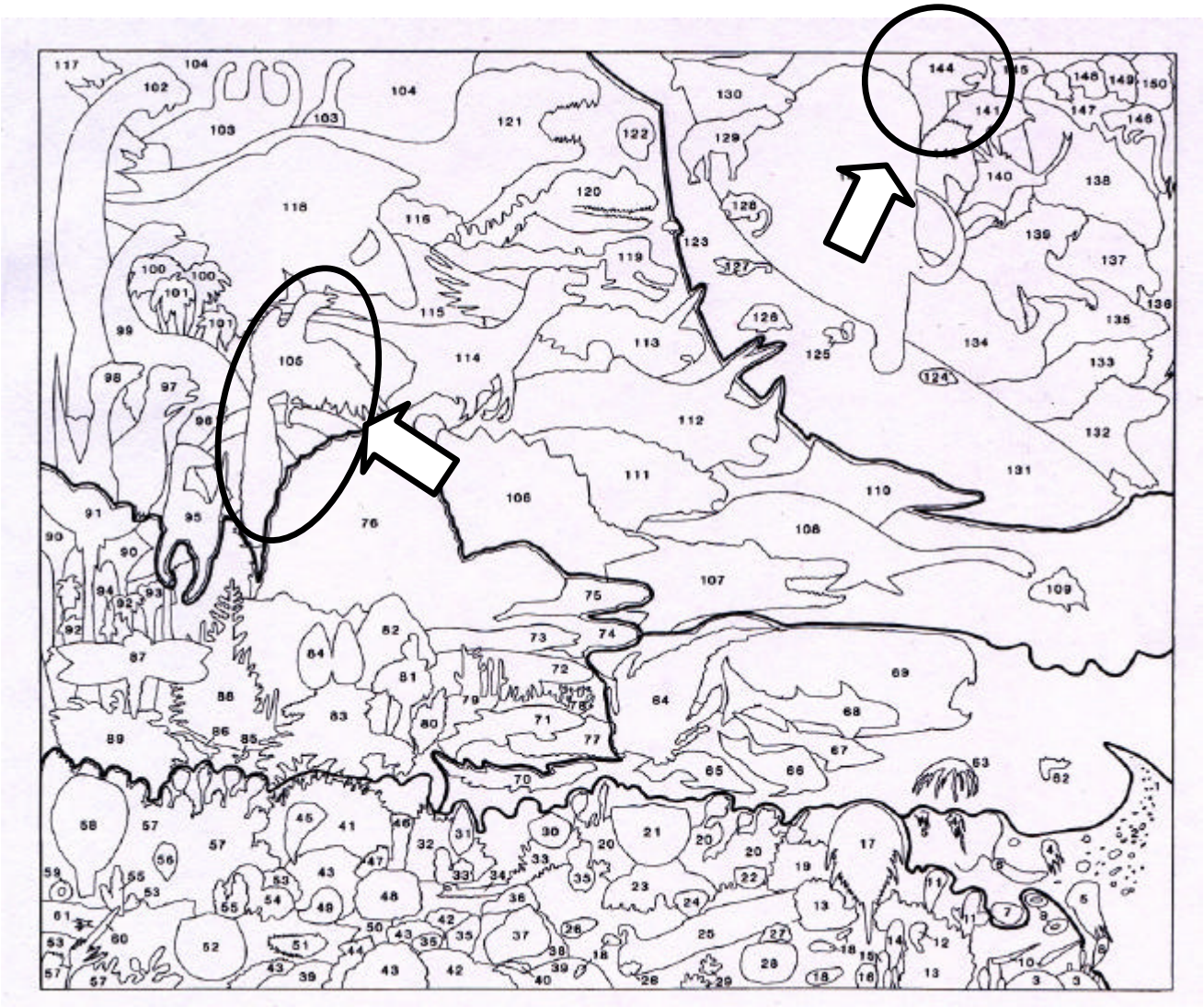

Ancient Birds

Because there are only two birds on the poster, the answers are circled here. Number 105 is *Archaeopteryx*, the oldest bird. It had reptilian characteristics but because it had feathers and wings it is classified as a bird. It lived at the same time as the dinosaurs, during the Jurassic Period (middle Mesozoic Era). Number 144 is *Diatryma,* a flightless, 6-foot-tall predatory bird of the Cenozoic Era.

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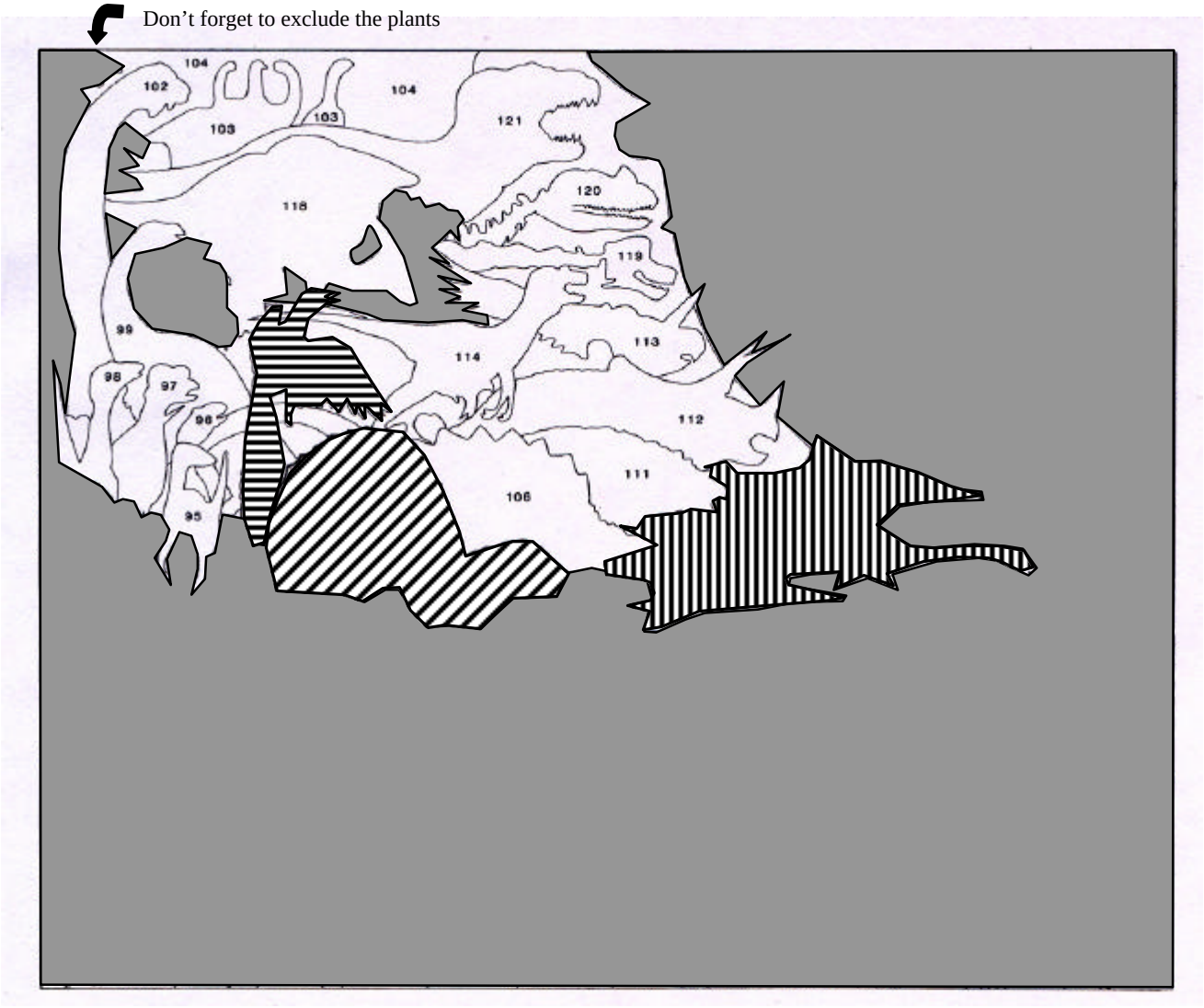

Ancient Dinosaurs

Answers left unshaded so you can see their numbers and look up their names on the poster or in the booklet if you wish. There are several tricky animals on the poster. Number 76 (diagonal line shading) is a mammal-like reptile, that lived in the Paleozoic Era, before the dinosaurs. Number 105 (horizontal line shading) is *Archaeopteryx*, the oldest bird. It had many dinosaur-like characteristics but because it had feathers and wings it is classified as a bird. Numbers 107, 108, and 109 (vertical line shading) lived at the same time as dinosaurs, but they are marine reptiles, not dinosaurs. Many of these "tricky" animals occur in picture books with dinosaurs, so they are often confused with dinosaurs.

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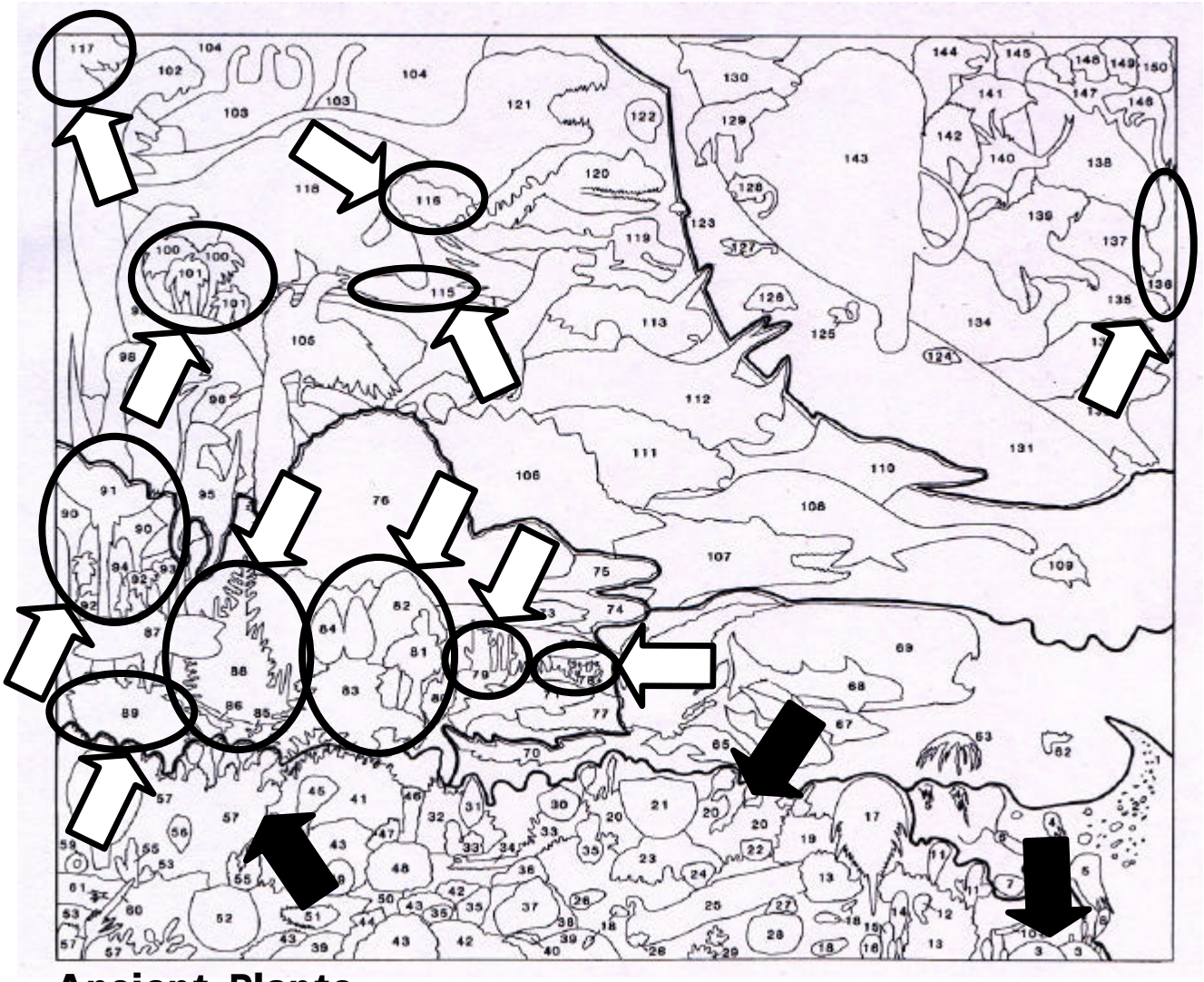

Ancient Plants

Answers circled (and white arrows) so you can see their numbers and look up their names on the poster or in the booklet if you wish. There are several images (black arrows) on the diagram that might be confused with plants. Number 3 is a stromatolite, called blue-green algae. Although algae are plants, blue-green algae are actually a type of cyanobacteria. This may be confusing for younger students. If so, just call numnber 3 algal mounds and accept plants as an answer. Number 20 is crinoids, informally called “sea lilies,” although they were invertebrates, not plants. Many other marine invertebrates such as corals and bryozoa are pictured in the lower third of the poster; they may look like plants but are actually marine animals.

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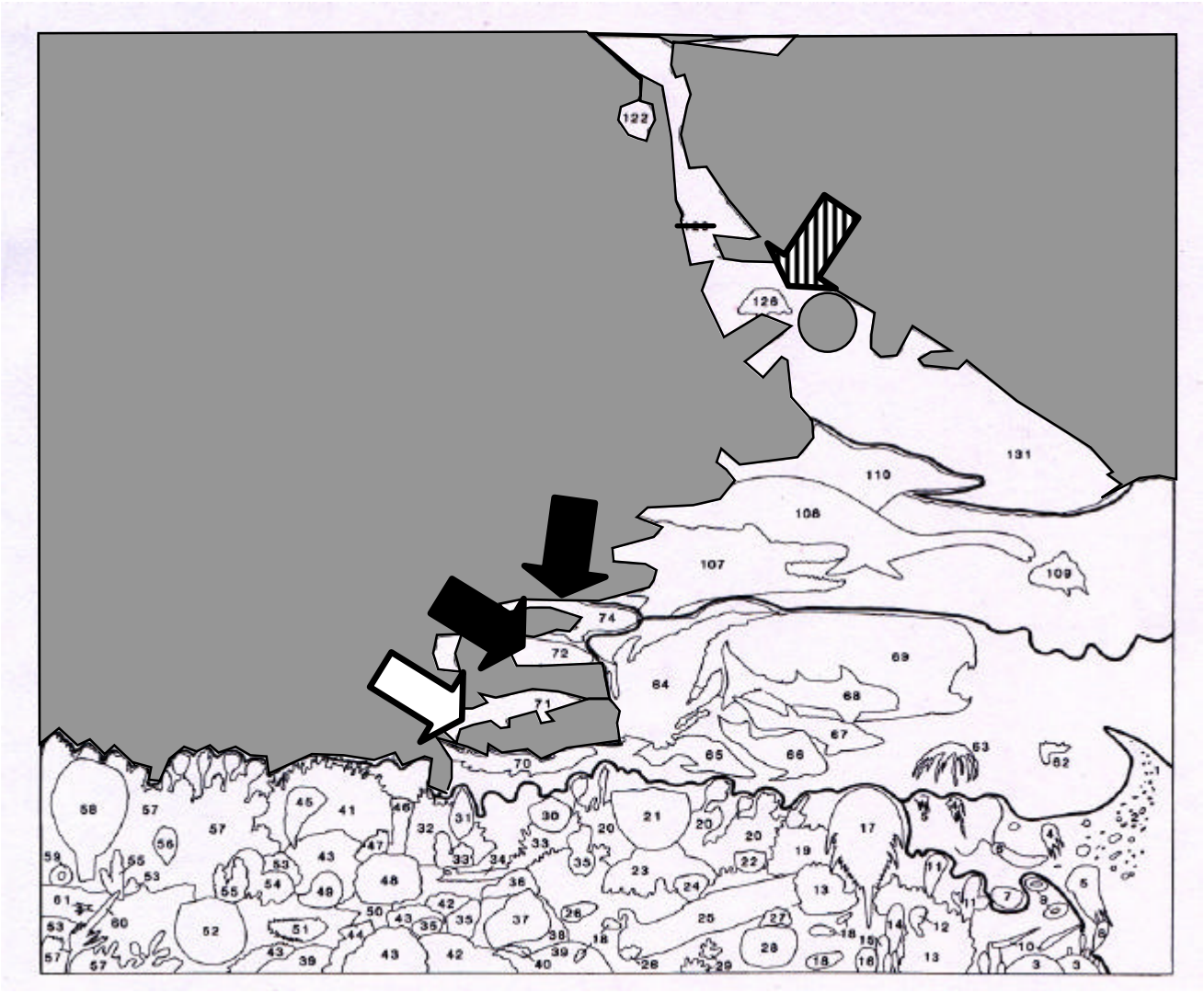

Ancient Aquatic Creatures

Answers left unshaded so you can see their numbers and look up their names on the poster or in the booklet if you wish.The animals with black arrows are amphibians, which lived much of their lives in water, so should be considered aquatic. Number 71 (white arrow), is a lobe-finned fish, which was a fish that could walk on land, but still spent most of its time in the water. Number 126 is a turtle.Turtles are aquatic reptiles.

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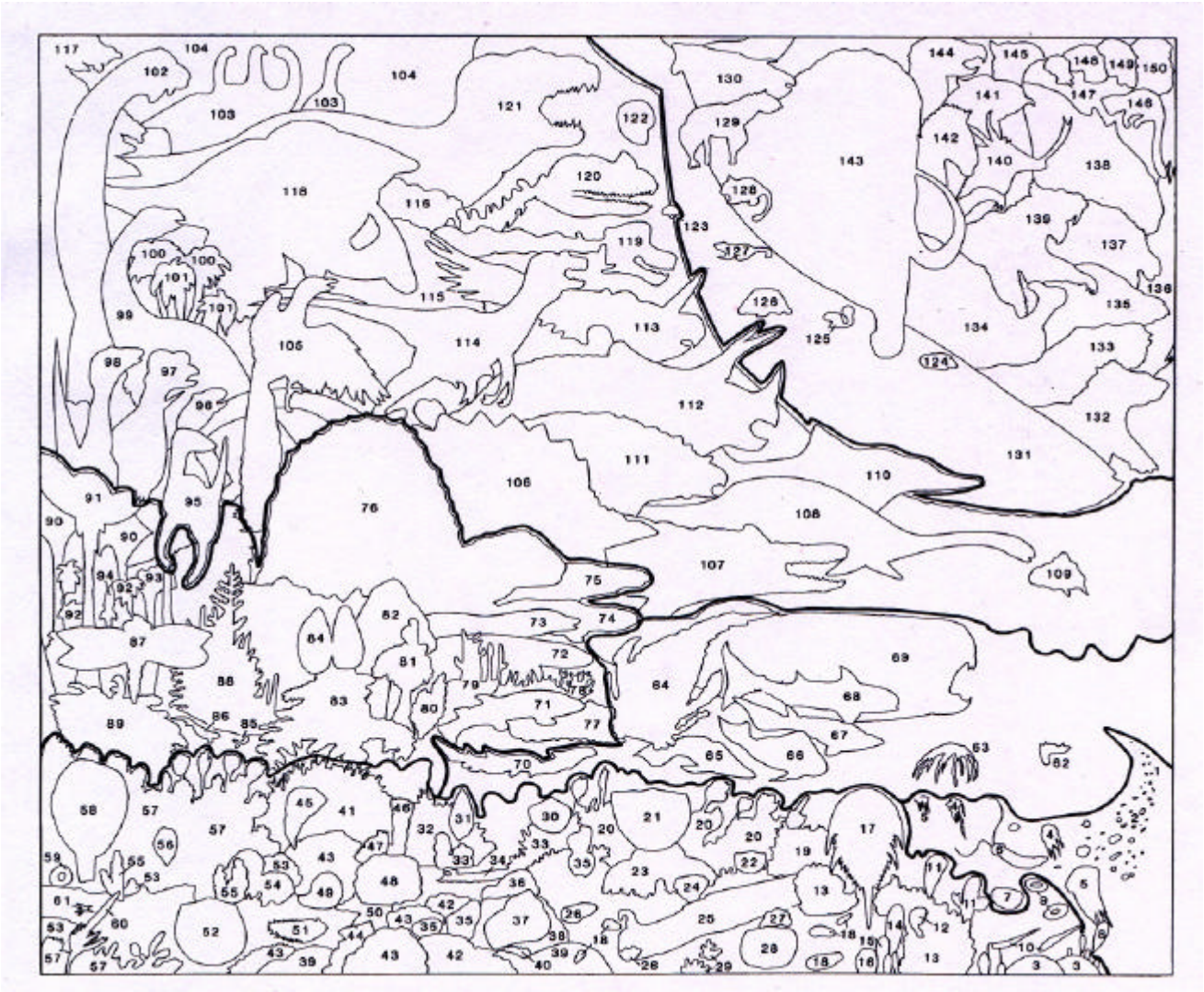
"Progression of Life" activity



Can You Find...?

Young students often enjoy searching games. Use the poster to search and find different types, shapes, lifestyles, or age of ancient animals. You can be as specific or general as is applicable for your class. The booklet may help with descriptions or interesting facts about the many organisms illustrated. Stress that scientists know these ancient creatures once lived on our planet from their fossils. Fossils are any evidence of ancient life in stone.

Examples:
(1) Can you find the dinosaur with three horns?
(2) How many dinosaurs can you find?
(3) Can you find a turtle, one of the few types of animals that survived the dinosaur extinction?
(4) Can you find an ancient animal that looked like a squid in a long, straight shell?
(5) Can you find an ancient animal that looked like a squid in a coiled shell?
(6) Can you find three examples of Paleozoic shell fossils called brachiopods?

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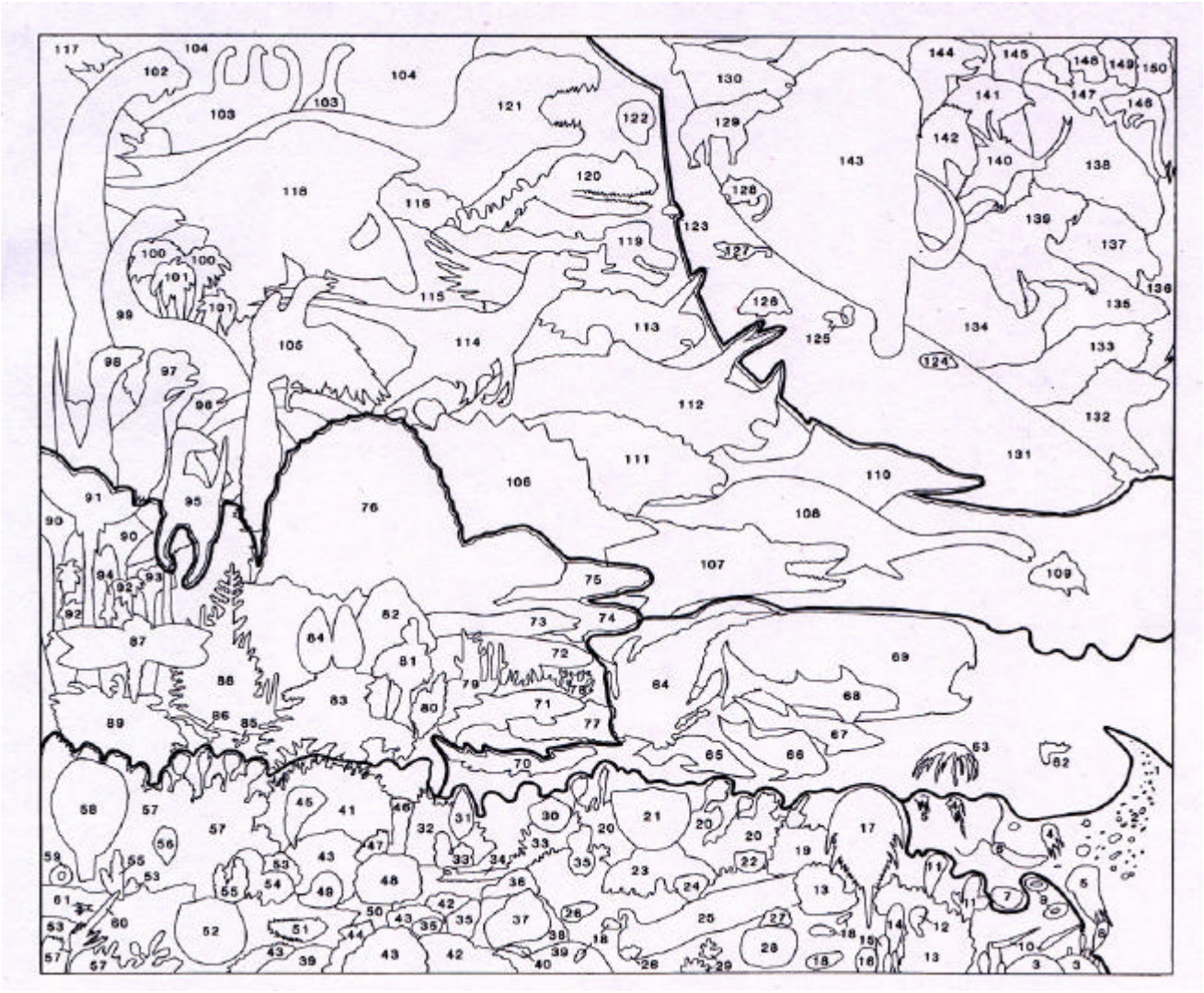

Can You Find...?

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