

Fossil Lab



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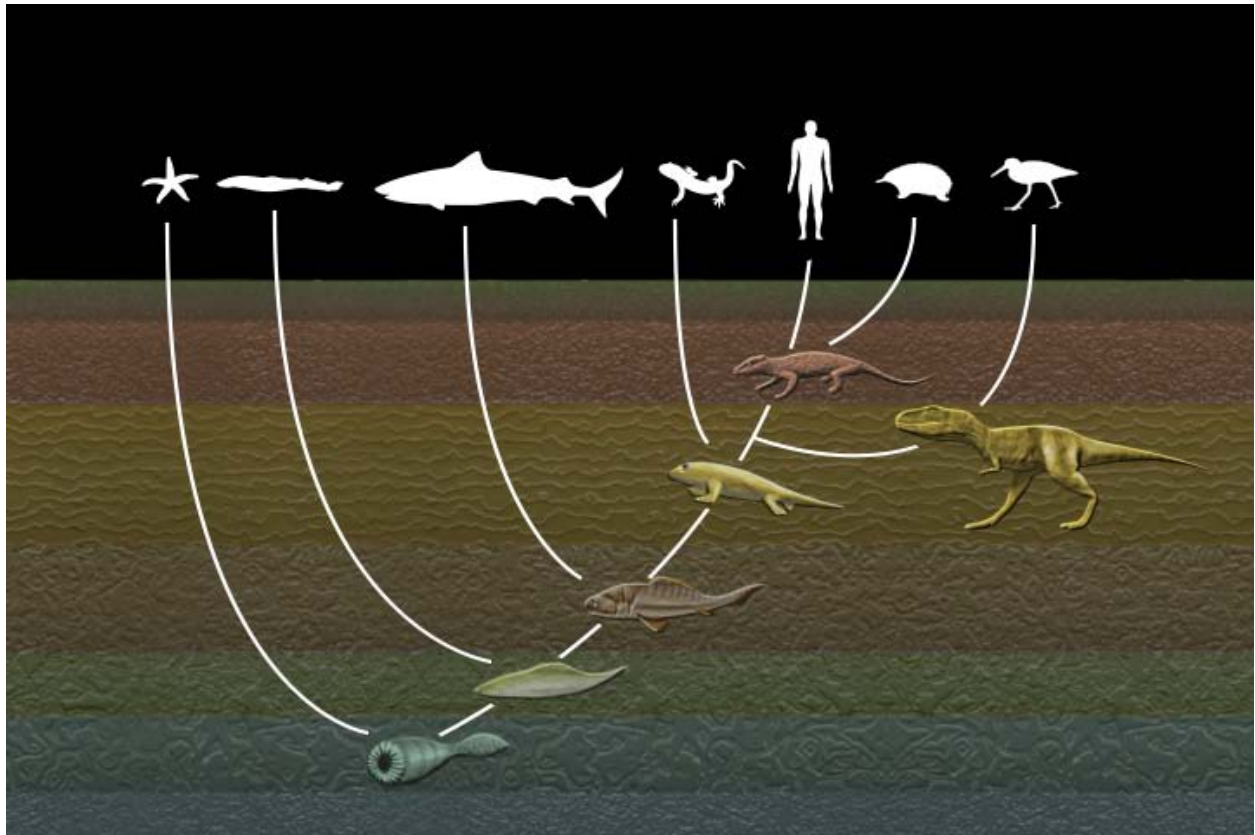
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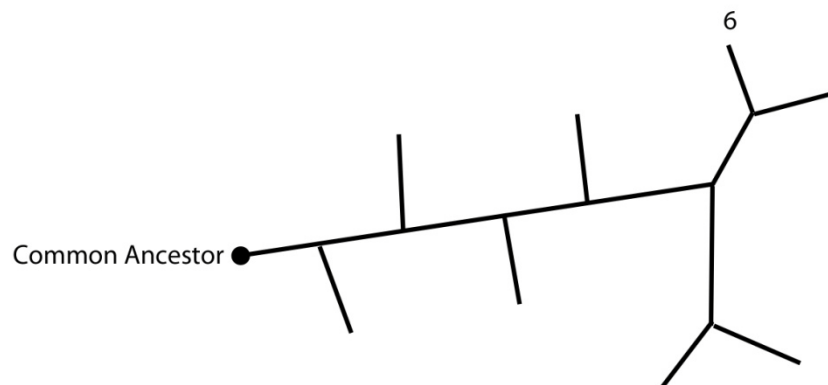
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Hypothetical Tree (take a guess and fill in the blanks with the number labels on the species)



Now observe the fossils and images, and match the description to the correct number of the fossil.

Species descriptions:

Coccoderma barvaricum

This Sarcopterygian (“fleshy-finned”) Coelacanth fish, with both pectoral and pelvic fins, was found in rocks dated 155 million years old. Older Sarcopterygians had similar fleshy fins which evolved into the terrestrial limbs of Tetrapods.

Actinocrinites gibbons

This Deuterostome with radial symmetry was discovered in rocks dated at 340 million years old.

Bothriolepis canadensis

This ancient fish, known as a Placoderm (“armored fish”) had an extensive dermal skeleton, an adaptation that functioned as a protective armor, and well-developed spine-like pectoral fins. Placoderms are some of the earliest known Gnathostomes (jawed vertebrates).

Hesperocyon gregarius

This early Canidae species, found in rocks dated over 30 million years old, was an early ancestor to dogs and it climbed trees. Like modern canid species, it had prominent canine teeth.

Archaeopteryx lithographica

This reptile is regarded as an intermediate species between dinosaurs and modern birds. It was found in rocks dated at 150 million years old.

Mesohippus bairdi

This tiny horse species stood only 60cm, and was found in rocks dated about 30 million years ago. Like the modern horse, it had an interdental region, or space between the front and back teeth.

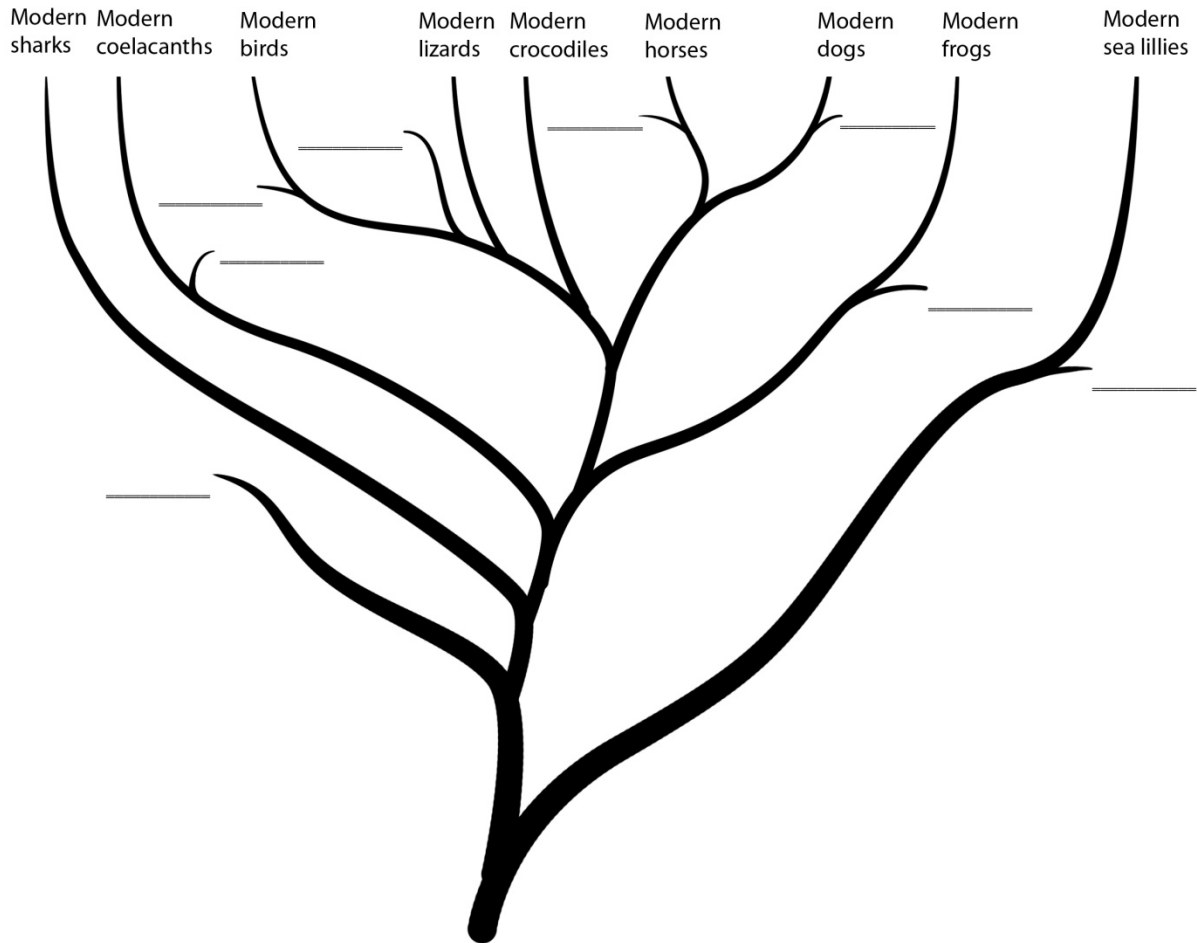
Liaoceratops yanzigouensis

This newly discovered dinosaur species was found in 130 million year old rocks. While being relatively close in relation to the familiar Triceratops, Liaoceratops was in fact a very tiny dinosaur, stood about one foot off the ground, and weighed about 7lbs.

Diplocaulus magnicornis

This amphibian species was found in rocks over 250 million years old. Like other early Tetrapods, it had a flattened skull with eyes on top of its head.

Now fill in the in the blanks with the correct species on the phylogenetic tree.



1) After you place the species on the tree, label it with the following homologies: terrestrial limbs (for walking on land), wings, specialized teeth (hint: look at the skulls!), radial symmetry, hair, jaws. fleshy fins, paired fins

2) Label the most recent common ancestor of frogs and dogs with the name Tetrapods.

3) Label the most recent common ancestor of crocodiles and all jawed fishes with the name Gnathostomes.

4) Label the most recent common ancestor of all mammals and all reptiles with the name Amniotes. Also add the homology of the amniotic egg in the correct spot.

Was your hypothesis correct? Make any necessary corrections.

