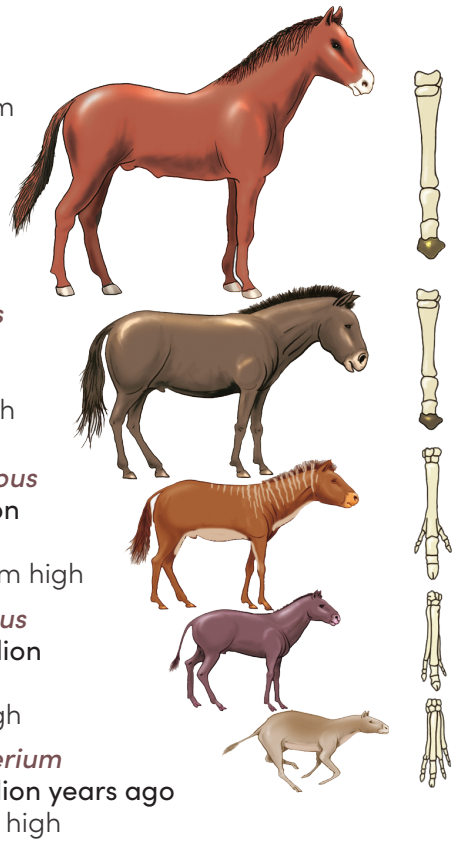
Name Answer Key Date Sample Answers

EVOLUTION AND THE FOSSIL RECORD

Evolution is the gradual change in living things over long periods of time. Scientists use the fossil record to learn about how organisms have evolved throughout Earth's history.

The diagram below provides information about the age, size, and forefoot anatomy of a variety of organisms in the horse family, Equidae.



1. Would the fossilized remains of *Pliohippus* be found in a rock layer above or below the rock layer containing the fossilized remains of *Mesohippus*? Explain.

The fossilized remains of *Pliohippus* would be found in a rock layer above the layer containing the remains of *Mesohippus*. New sediment is deposited on top of old sediment, so the younger fossil would be found in a layer above a layer containing an older fossil.

2. What do you notice about the size of the organisms over time?

Over time, the organisms became larger.

3. What do you notice about the forefoot anatomy of the organisms over time? Over time, the organisms' central toe became larger, while the other toes became smaller until they disappeared.

4. Scientific studies suggest that having one large toe is more supportive than several smaller toes for horses with a large body mass. Does this make sense, based on your observations in questions 2 and 3? Explain.

Yes. As the organisms changed over time to become larger, they also changed to have one large toe instead of several smaller toes. This would be a helpful adaptation because the organisms would have a more supportive anatomy for their larger body mass.