Answer Guide
Evolution: Life Through Time

Grades 6-8

1. Lobe-finned fishes have the same basic organization as the limb bones of *tetrapods*—animals with four legs. Just like you, it had a ***humerus, radius,*** **and** ***ulna*** in each front limb and a ***femur, tibia,*** **and** ***fibula*** in each back limb.

2. **Burning coal releases carbon dioxide, reintroducing that stashed carbon back into the atmosphere. Scientists have linked increased levels of carbon dioxide to increased global temperatures and climate change.**

3. The distinguishing skeletal feature of synapsids is **a single opening at the back of the skull**—other groups have two or none. Jaw muscles pass through this opening to attach to the top of the skull. Your cheekbone is the part of your skull that you can feel just in front of your ear. When you clench your teeth, you can feel your jaw muscle above the cheekbone. The muscle passes behind your cheekbone through the single opening in your skull that makes you a synapsid.

4. While birds use feathers to fly, other theropods like ***Majungasaurus*** **probably used them for insulation and display.**

5. **Index fossils.** Ammonites were so **abundant and varied** during the Mesozoic that **they tell scientists how a layer of rock fits in the geologic timeline.**

6. **The Western Interior Seaway.** This shallow sea covered **much of North America** 80 million years ago.

7. Gingerich found many **fossils of prehistoric whales, including some with back legs.** These fossils show the link between whales and their land-living ancestors. Modern whales still grow small bones where their hips would be and have the same bones in their flippers as you have in your arms. They have hair, breathe air, and nurse their young. These features identify whales as mammals—hairy, four-limbed animals that evolved on land.

8. **Opposable thumbs, eyes pointed forward, nails, tailless, can do the monkey bars.**

9. **Answers will vary.**